

JOURNAL OF
THE
MUSICAL BOX
SOCIETY OF
GREAT BRITAIN

THE MUSIC BOX

a magazine of mechanical music



Vol. 4 No. 8

GREAT BRITAIN'S PREMIER
MECHANICAL MUSIC SPECIALIST

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THE MUSIC BOX

THE JOURNAL OF THE MUSICAL BOX SOCIETY OF GREAT BRITAIN

Vol. 4 Number 8 CHRISTMAS 1970

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14, Elmwood Road, Chiswick,
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The Editor writes:

SHOULD ANYONE DOUBT the merits of belonging to a society such as ours, and if by chance their interest in mechanical music neither extends to or is expanded by the type of material published in THE MUSIC BOX or contained in the programmes of our twice-yearly meetings, then he might pause a while and read this.

A few weeks ago, a member of the society had the misfortune to be the victim of a burglary. To the chagrin of that member, two cherished musical boxes were among the property stolen – a Regina and a 3-cylinder interchangeable Paillard. The member, resigned to never seeing either box again,

advised his insurance company who in turn wrote to our Secretary in order to gain an approximate valuation and to ask him to advise other collectors. Secretary Reg Waylett promptly went out of his way to visit the member concerned, who lives in the Home Counties, in order to discuss the matter. It occurred to Reg that, whoever the thief was, musical boxes had not been stolen for the simple love of them, but of the cash which they might realise. And who better to dispose of such pieces of valued bric-a-brac to than an antique dealer. Reg pondered that there was just a chance that the thief might approach somebody in the trade and accordingly went to Member Graham Webb's shop in the Portobello Road to tell him that a 'hot' Regina and a Paillard were floating around.

By a coincidence, Graham had just purchased two such items from a reputable antique dealer whose premises had been visited by a young man desirous of selling – a Regina and a 3-cylinder interchangeable Paillard. The police were informed, the two musical boxes were returned to their rightful and thankful owner – and, by a coincidence the culprits – a gang of three, were apprehended whilst engaged in a subsequent illegal enterprise. They subsequently admitted 40 other burglaries in the county.

The Musical Box Society of Great Britain does not exactly exist to fulfil such a facility, but it goes to show that there is a certain intangible strength in numbers which can, once in a while, prove beneficial to us all.

This issue of MUSIC BOX, the last one in our fourth volume, contains a facsimile reprint of part of a very rare privately-printed book referring to a most unusual instrument which could be played by barrel or by hand – Clagget's Aiuton. No example of this has ever been seen and only one copy of the book, published in 1793, is known to exist. Formerly in the library of Canon Galpin, it is now in the British Museum by whose permission we now reproduce it.

ARTHUR W.J.G. ORD-HUME

UNDER THE PATRONAGE OF HIS MAJESTY.



CHARLES CLAGGET.

*Harmonizer of Musical Instruments,
Inventor of the Newton, or over tuned Organ,
and of the over tuned Piano Forte, without Strings,
of the Royal Teleorchordon Sep. for Harpsichords & Grand Piano Forte.*

ALSO

*of the Chromatic Trumpet, & French Horn!
Constructed to be performed upon in all the keys in use Major & Minor
Without Crooks, or undergoing any Change whatever.*

No. I. of MUSICAL PHÆNOMENA.

A N O R G A N,

Made without Pipes, Strings, Bells, or Glasses,

THE ONLY INSTRUMENT IN THE WORLD THAT WILL NEVER REQUIRE
TO BE RETUNED, UNITING SUPERIOUR SWEETNESS,
POWER, AND EXPRESSION ;

A CROMATIC TRUMPET,

CAPABLE OF PRODUCING JUST INTERVALS AND REGULAR MELODIES
IN ALL KEYS, MINOR AS WELL AS MAJOR, WITHOUT
UNDERGOING ANY CHANGE WHATEVER ;

A FRENCH HORN,

ANSWERING THE ABOVE DESCRIPTION OF THE TRUMPET.

Price Two Shillings.

The above Instruments, with the Patentee's TELIOCHORDONIZED PIANO-FORTES,
HARPSICORDS, &c. &c. may be seen and heard at the
MUSICAL MUSEUM, GREEK STREET, SOHO.

Admittance to the Museum, ONE SHILLING.

L O N D O N :

PRINTED FOR THE AUTHOR ;

AND SOLD AT THE MUSICAL MUSEUM, GREEK STREET, SOHO ; AND BY
ALL BOOKSELLERS.

MDCXCIII.

Entered at Stationers Hall.

MUSICAL PHÆNOMENA,

FOUNDED ON

UNANSWERABLE FACTS;

AND A PROOF THAT

MUSICAL INSTRUMENTS

HAVE BEEN HITHERTO FABRICATED ON THE MOST UNCERTAIN, THEREFORE THE MOST
IMPROPER MATERIALS.

That the perverance of Man, and the strong efforts of Genius, have wrought miracles on these feeble materials, cannot be disputed; the many incomparable performances daily heard put it past doubt. Yet we must regret, Genius should be exerted on such inadequate machines, whose tension and effects cannot be depended on for an hour, when those of a stable nature are to be purchased, possessed of sounds, both sweet, powerful, and ever in tune. The Lovers of Musick are surely to be congratulated on the mastery they will now acquire over those instruments that have hitherto kept them in subjection.

This Work will extend to several Numbers.

NO. I. CONTAINS AN ACCOUNT OF
THE AIUTON, AND
THE CROMATIC TRUMPETS AND THE
FRENCH HORNS,

CAPABLE OF FINE TUNE AND REGULAR HARMONY IN ALL THE KEYS IN USE,
MINOR AS WELL AS MAJOR.

L O N D O N :

PRINTED FOR THE AUTHOR;

AND SOLD AT THE MUSICAL MUSEUM, GREEK STREET, SOHO; AND BY
ALL BOOKSELLERS.

MDCCXCIII.

BY A LADY,

ON HEARING

CLAGGET's AIUTON; or, Ever-tuned ORGAN.

WHEN first th' attentive Muses heard
The sweet AIUTON's soul delighting sound,
The melancholy maids resign'd,
In tears, their once lov'd lyre,
And swept no more th' impassion'd wire,
That, strung to love, oft charm'd the mind :
Amaz'd, they cry'd, " Shall human pow'r
Breathe through our consecrated bow'r
A song than our's more heavenly sweet?
With such soft cadence still to greet
Alike the ear of Nature and of Taste ;
That swelling, ling'ring, melting sound,
Which once thy harp, divine ÆOLUS, grac'd,
Subject to mortal skill, is found ;
And still its pitch of charming melody,
Nor winter's cold untunes, nor summer's scorching sky."
Genius has made the British mind her own ;
Then may the land, by lib'ral Science known,
Long show'r on Industry her smile,
And let rewarded Merit bless this isle ;
For he, whose talents grace his country's name,
Should light his torch of glory at her fame.

HARRIET FALCONER.

ON

ON THE
INVENTION
OF THE
AIUTON; or, Ever-tuned ORGAN.

SUCH sounds as hov'ring angels oft are said
To breathe around the good man's dying bed ;
Such sounds as lift the rising soul to heav'n,
The sweet AIUTON's simple tones have giv'n ;
For ever full, no broken, jarring sound,
To wound th' attentive ear of Taste, is found.
In holy fanes, where pray'r and musick dwell,
Its notes would charm the faint in ev'ry swell,
Would raise his spirit to its pure abode,
And waft the sighs of piety to God.
Melodious Organ ! oft upon thy sound
My senses hang, in fond attention drown'd ;
I feel entranc'd ! My melting bosom warms
With musick's pow'rful and persuasive charms :
Oh ! could I paint thy beauties in this strain !
But language here would spend its force in vain.
May ev'ry heart, like mine, thy pathos own,
And make it by admiring thousands known ;
For well thy charms deserve that candid praise,
Which Friendship to distinguish'd Merit pays.

DESCRIPTION

OF

CLAGGET'S AIUTON;

OR,

EVER-TUNED ORGAN:

*Which, without Pipes, Glasses, Bells, or Strings, produces Tones sweeter
than any other ORGAN yet invented.*

THESE Instruments may be constructed for private houses, so as to occupy but half the space of a square Piano-Forte, and yet be sufficiently loud for the largest rooms. As no variation can ever take place in the pitch or tune of these Organs, they not only serve as a standard of both, for tuning other instruments, but will not require additional expence, after the first cost, for a century at least. The above Organs, and also his Cromatic Trumpets and French Horns, which may perform in all keys, Major and MINOR, and in perfect tune in each, without additional crooks, or undergoing any change.

Clagget's Aiuton; or, Ever-tuned Organ, now offered to the world, is the third musical instrument invented during the last four hundred years, and is totally independent in principle of every instrument that has preceded it. The performer, indeed, uses finger keys, as on other
Organs,

Organs, but the tones are produced without pipes, glasses, bells, or strings, and are prolonged or swelled at pleasure. Nay, this is effected in a far more delicate and expressive manner than on any other keyed instruments, and differs also from the swell in other Organs, in being perfectly under command of the performer, both in time and degree. The swell may rise rapidly or instantaneously, or it may steal upon the ear so slowly and gradually, as to appear like a distant approaching sound; and this effect may be produced on any particular notes the performer chooses, while the others remain Piano, and all performed on the same range of keys.

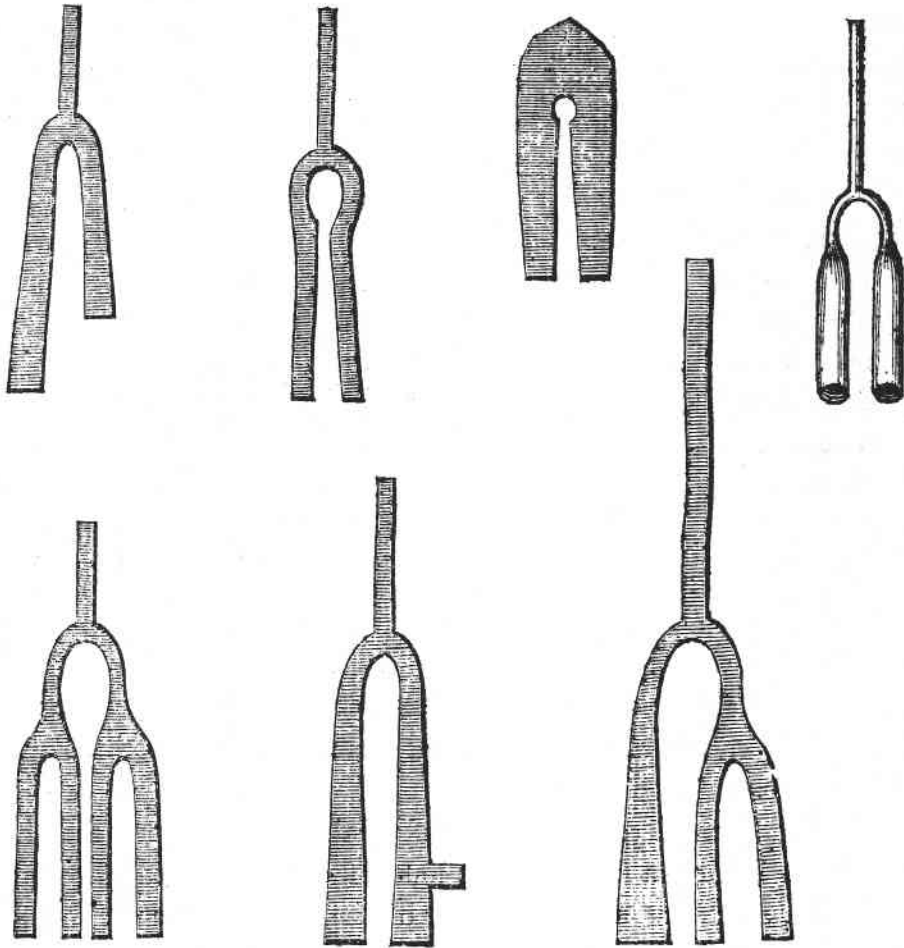
The tones of these Organs possess inimitable sweetness, and are finely adapted to pathetic subjects. Yet the strength and fullness may be rendered adequate to filling the largest buildings, and supporting the fullest bands. Yet we think the most extraordinary property of these tones is the trivial effect of distance on them; for it is found, that all persons in the same room, whatever be its size, hear them with equal distinctness: nay, the doors being left open, it fills the adjacent rooms around also, above and below, and any person entering the house, while it is performed upon, cannot determine in what part it is situated.

What we have above advanced respecting the quality of the tone, and the impossibility of the instrument's EVER GETTING OUT OF TUNE, or repair, will be easily credited, when we mention the materials of which they are constructed. The sounding bodies are large steel bars, as on next page; and the frame, for returning the sounds, oak planks, from two to five inches in thickness, according to the size of the instruments.

The durability of these materials is too obvious to be insisted on; and, though it may be objected, that all metals are powerfully acted on by heat, damps, &c. in answer, it may be observed, these notes expand or contract in the same proportions; and, after every trial, the finest ears have not been able to trace any alteration whatever in the tune.

Form

Form of the Sounding Bars.



Having given this general idea of the Aiuton, we will take the liberty of enumerating some of the practical advantages which it possesses over other instruments.

B

1. The

1. The form and external appearance of the Aiuton is here represented, and may be ornamented according to the wish of the purchaser, and the place or niche for which it is designed.

2. The size and loudness can be adapted to the church, chapel, or cabin, for which it is intended.

3. Those constructed for private houses, may be sent to any part of the world, without being taken to pieces, and can be ready for use in one hour after they arrive, even if they should have been under water for a considerable time on their journey. These instruments are well adapted to cabins of ships, as they will ALWAYS REMAIN IN TUNE, and occupy a very small space.

4. Those who bespeak Aiutons, may, at an advanced price, have them prepared to be performed upon by the fingers, and also to play various pieces and airs, as other Barrel Organs do.

5. The Patentee can, at the request of the purchaser, put these instruments in such a state, that the sound shall be conveyed away into any other apartment, above, below, or on the same floor; and although the performer hears not the musick he produces, yet, in the room appointed, every note shall be heard perfectly sweet, distinct, and clear.

6. Aiutons may be constructed to contain from three to six octaves.

7. The Aiuton may, as a distinct and expressive stop, be added to other Organs; and at the same time that it will be an inconceivable improvement, from its sweetness and solemnity, it will be the ready and certain



From 1 Foot high & 2 Feet 6 Inches in front to a Size & Power sufficient for the largest Churches &c. &c.

certain means of correcting the tune of the Organ stops; for, as we have before mentioned, they are at all times to be considered as a standard for the tune of Organs, Harpsicords, Piano-Fortes, Harps, and all fixed instruments, being in themselves invariable.

8. Those constructed for churches, are formed of four separate parts, which may be screwed together, and ready for use in a few hours after they arrive.

9. The ease of learning to perform upon these instruments, where there is a real taste for musick, or love of expression, and where sublime and pathetick strokes are felt, is, like the reward that attends it, inconceivable!

10. Another grand and unequalled effect may be produced by this instrument, in the magnificent performances in Westminster Abbey, where the happy influence of royal munificence and taste is extended to celebrate the powers of the immortal HANDEL; it is well known, that the Basses are never sufficiently powerful to give the dignity and support necessary to so grand an orchestra. The Patentee pledges himself, if called upon, to construct an instrument of the Aiuton kind, on which two performers may produce a body of sound fully adequate to the purpose, and yet shall be so perfectly under command, as to blend as happily with the Piano as the Forte.

11. From the instability of all sounding bodies, prior to the Aiuton, it was impossible to construct an instrument which might be relied on as a standard for tune, or that would continue long enough in a fixed state to compare various temperaments, or to examine any succession of chords whatever*.

Perhaps,

* Almost every person who is in possession of any Keyed Instrument, Harp or Lute, may have felt the force of this observation, through which cause most of those instruments in the country are useless; on account of the very great labour, time, and patience required to tune an Organ of the common construction, they are suffered to remain as long as possible without tuning. This circumstance has given rise to an opinion, that Organs remain

Perhaps, therefore, having discovered an ever-tuned, keyed instrument, at the same time capable of being extended to twenty-five intonations in each octave, if so many are required, and of combining any number of these intonations together with ease, at the will of the performer; we may expect to produce, from refined harmony and the sweetest of tones, effects hitherto unknown, which the heart will feel more powerfully than the pen can describe; for it is true, however incredible, that the highest notes of a Flagelet can be drawn forth upon this principle, from solid bars of metal, of six ounces weight, with much greater strength of tone, and infinitely less force, than from the smallest string of a Violin; and that the vibration and tone of such bodies will continue, at least, thirty times longer than any strings, &c. The Patentee, presuming on the highly flattering, and, perhaps, unequalled patronage he has been honoured with, and not doubting that

longer in tune than other keyed instruments, which have a more delicate constitution, or, invalid like, are more easily disordered by every change of the weather, &c. Dr. Smith was too much attached to that instrument to find unnecessary faults in it, or needlessly to expose its imperfections; and, yet he, when speaking on the subject of tuning Organs, says:

“ For the properest times for tuning the Diapason of an Organ seem to be from the latter end of August to the middle of October, when the air being dry, temperate, and quiet, will keep nearer to the same degree of elasticity, for a given time; because a very small alteration in the warmth or moist air will suddenly and sensibly alter its elastic force, and thereby the pitch of the pipes, before the whole stop can be accurately tuned. For that reason, constant care must be taken not to heat the pipes, by touching them oftener than is needful, or to stay too long at a time in the Organ case, or to tune early in the morning, but rather towards the evening, when the air is drier, and its declining warmth is kept at a stay by the warmth of the persons about the Organ.”

Vide Dr. SMITH on Harmonics, page 209.

If one single stop will not continue in tune or pitch, even while all the notes of it are put into tune, unless when the air is dry, temperate, and quiet, how can we expect that all the stops will continue in tune even twenty-four hours in this climate, which is so variable in those respects? If we are not to warm the pipes, by touching them oftener than is needful, or staying too long at a time near the Organ, how improper must such instruments be for crowded concerts, or cold damp churches?

his

his instruments will publickly receive the same applause, which so many exquisite judges of musick have privately bestowed on them, of which the letters here produced are indisputable and decisive evidence. And he may assert, without one exception, that all who have heard these instruments, since he perfected his plan, have declared their surprise and delight at the success of his discoveries.

Considering, therefore, on such authorities, the instability of the tones produced from pipes and strings*; can any acquisition be so valuable to a scientific mind, as the invention of bodies, from which sounds of stability and harmony can be drawn with infinite ease and the most perfect sweetness?

It is a discovery which reverses the lamentable fact (till now insurmountable), that we were governed by the variableness of sounding bodies: and has brought under human regulation the many, and till now, unconquerable, defects of every instrument yet known. If Organs and Harpsicords, &c. are so very tender, in point of constitution, who can set bounds to the value of the discovery of ever-tuned instruments?

* Part of a Letter to the Patentee, from a Gentleman who had long resided at Bengal.

“ Sir—There can be no doubt but your ever-tuned instruments are of the first consequence in a warm climate, at a distance from Europe, where not only the strings, but the very essence of the instruments are exposed to, and do always yield to, the excessive heats and damps; and where it often happens, that people are not to be found to put them in tune. I should suppose such an instrument an absolute treasure in the East Indies.”





*Sir Henry Wood, directing the Orchestra
Queen's Hall, London, at Duo-Art Concert*

REPAIRING MUSICAL BOX DISCS

By Arthur W.J.G. Ord-Hume

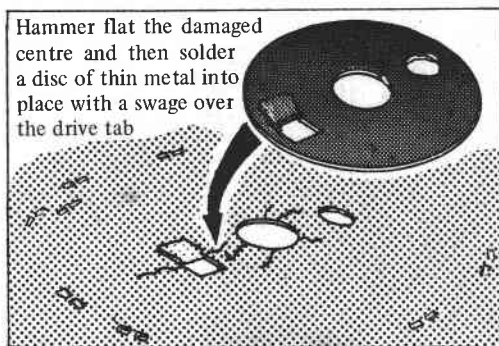
MUSICAL BOX discs are driven by one of two methods: the rotating centre spindle carrying a small 'turntable' which has an offset drive pin to engage in the drive hole of the musical box disc; and the peripheral system where the centre spindle is fixed and the disc is rotated about it by a toothed wheel engaging in holes or indentations around the edge of the disc.

The suitability of the former system, used on almost all of the smaller disc movements up to about 12 inches in diameter (with the exception of the smaller Britannia and the larger 13 $\frac{3}{4}$ inch Symphonion early models), is governed by the fact that on a disc where there are teeth at a great radius from the centre spindle, the force required to turn the disc by the turntable must be sufficient to prevent the disc momentarily hesitating before the starwheels, which its outermost projections are turning, pluck their respective teeth. The disc is liable to suffer not just from hesitating due to the inordinate force required to pluck the tooth, but from a surge at the moment immediately following plucking which could result in closely-following notes at a less radius being played far too quickly. The turntable drive method is the simplest and the cheapest and it makes use of cheaper discs since the tooling costs were appreciably lower. However, the force of the clockwork motor is quite sufficient to continue in motion should the disc suddenly jam and stop. Dirt in a starwheel, perhaps even a broken disc projection jammed between starwheel point and block can easily cause the disc to meet an immovable starwheel. This is the point when weakened or rusted projections give way but, more often, the drive pin on the turntable will slowly tear the metal of the disc and fold it back. Alternatively, if the turntable has been replaced at some time so that it is too low and the drive pin is only just high enough, the pin can bend up the disc and then ride beneath the disc, raising a mole-tunnel-like ridge in the top of the disc.

Repairs to these discs are extremely easy. A word of warning, though. Do not attack a dented disc with a hammer without first being warned that to hit a metal disc with a metal hammer on a metal block will spread the disc material and irrevocably cockle it.

Sometimes the disc will still play in this state, but quite likely it will clank as the spare metal 'oil-cans' from one side to the other whilst playing. So if you need to hammer a disc, use a metal hammer on a hardwood block, or use a wood or plastic-faced mallet on a steel block. Always tap lightly and remember that twenty well-placed, carefully-watched taps are better than one helluva great wallop which can do damage.

If the centre drive hole of the disc is distorted (often the action of the excessive force applied to the drive pin results in an opposing force which distorts the centre hole), this can usually be corrected by hammering back the folded-up edge of the hole. The drive hole itself, if folded back, can be straightened out. Straightening the metal, particularly where it has also been torn, is only the first part of the job – failure to proceed further with a suitable repair scheme will usually result in the rip folding back again under the normal action of playing.



A small strip of steel shim-stock .015 inch thick (obtainable from any good engineer's stores) and measuring about $\frac{3}{4}$ inch by $\frac{1}{2}$ inch should be soldered on the top of the disc to reinforce the drive slot. The sketch shows this more clearly. Before soldering, make sure the disc is clean and, if the disc is a varnished one such as those made by Symphonion, Monopol or Cecelia, scrape this away over the area to be soldered so as to expose bright metal.

If the centre hole has been so badly distorted that its edges are cracked, then make a small reinforcing disc – it need only be $\frac{3}{4}$ inch in diameter – and solder this on in the same way.

Repairs to peripheral-drive discs

The second type of drive is the peripheral type, used on all large disc movements. The peripheral type has the advantage that, by driving the disc from the edge, the forces needed to keep the disc in motion are appreciably less and the risk of the disc jumping over a chord or any particular note is eliminated, unless there is wear in the drive so creating backlash.

Damage to the drive holes on peripherally-driven discs comes in an entirely different way from that which plagues the centre-drive disc. Distortion of the disc edge is normally caused by the misalignment of the disc when it is put on the instrument. This form of damage is usually easily put right by hand bending or, at the most, gentle tapping with a mallet on a wood block. Incidentally, any dressing which is necessary to do on a disc should be carried out with the disc resting on a flat surface, projections uppermost – they are readily seen and appreciated in this position whereas if you work on the top side you may easily and unintentionally crush a few projections. Again, by working on the underside of the disc, you will avoid creating any marks or blemishes on the upper surface.

Much more serious damage comes with rust. Now even the most extensively-rusted disc may still be in fine playing order, although, of course, the wise musical box owner will take pains to remove all

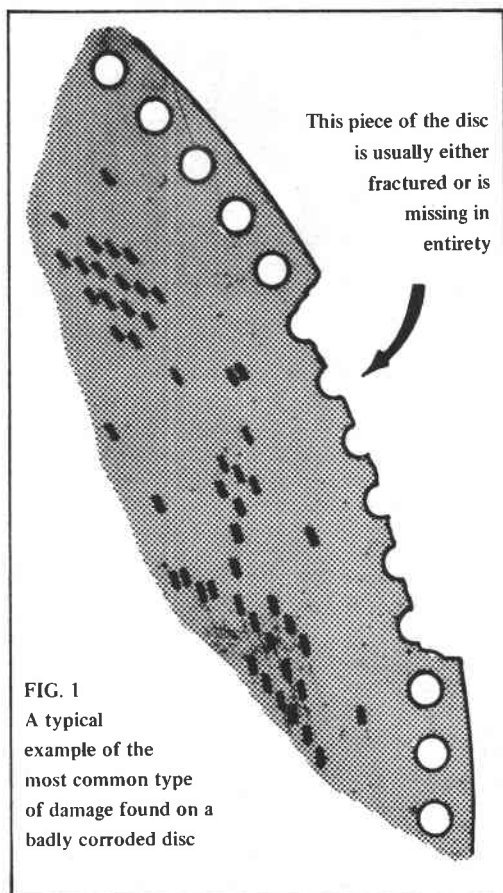
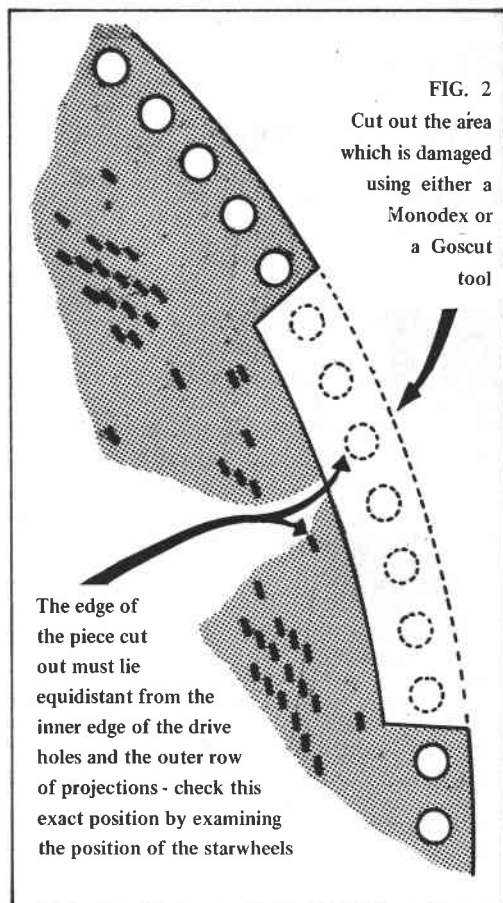
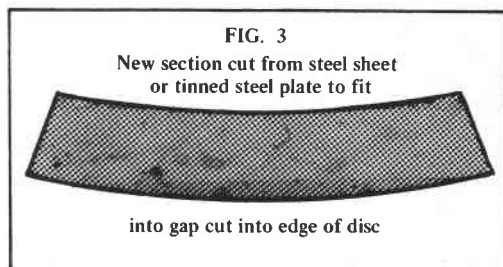


FIG. 1
A typical example of the most common type of damage found on a badly corroded disc



loose rust from it before applying it to his box. A disc which is well-pitted with rust will become so frail that the periphery may actually break off in sections, tearing at the perforations which are the drive holes.

It is only under exceptional circumstances that this type of damage will be found on anything other than a rusted disc and so the first move will be to give the disc an overall de-rusting treatment. There are



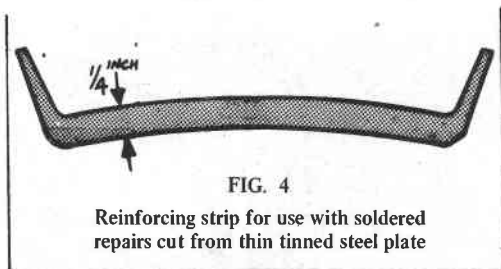


FIG. 4

Reinforcing strip for use with soldered repairs cut from thin tinned steel plate

several suitable treatments, and some are detailed in *THE MUSIC BOX*, Volume 3, page 551. A good plan at this stage is to have the disc nickel-plated by a local plating works. If you chose to have this done, then the platers will also de-rust it for you as a prelude to the plating.

Any repair to a broken edge calls for adding prime metal. The disc must be cut back clear of the remains of the drive holes and this is best done with a very neat

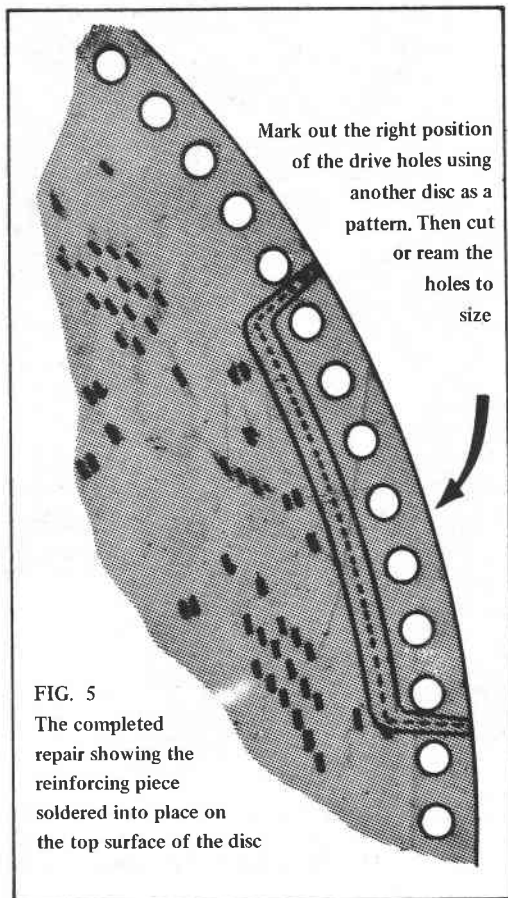


FIG. 5

The completed repair showing the reinforcing piece soldered into place on the top surface of the disc

little tool called a Monodex cutter. Generally speaking, the disc material is too thin to saw or file in any way and, in the absence of the tool mentioned here, an adequate cut back can be made with an ordinary pair of *angled* tin-snips. The piece cut out does not have to conform to very accurate contours since the precision part concerns cutting a new piece to fit into the gap created – and this is an easy job.

Before going further, let's make one thing clear. Repairing a disc in this sort of state comes under the classification of 'drastic'. The repair can be neat, but it cannot be invisible, so don't expect an immaculate end-product.

Cut out a blank piece of metal to fit exactly into the gap which you have cropped out of the disc. There are three choices of repair, and each depends only on the facilities available to the repairer. One easy way, which can be done without extensive de-rusting and nickel-plating, is to use plain steel sheet for the insert (the same thickness as the disc, of course) and butt-weld it into place using oxy-acetylene equipment. This makes for a nice job and the weld can be ground down almost to the point of becoming invisible.

The second method, which needs careful de-rusting but again dispenses with pre-plating, is to cut the insert from shim-stock, cut a doubler piece out of the same gauge material, and braze it into place on the surface of the disc (see sketch).

The third method, and the one most likely to be favoured by the average collector, is to have the disc plated as previously mentioned, cut out the insert from good-quality tin-plate, cut a doubler either from the same material or from a piece of brass and then solder it into place.

Now take another, perfect disc from the same musical box and place it topside to topside with the disc you are repairing. Mark off the correct position of the drive holes in the new piece. These holes are usually too large to attempt to drill in so thin a material, but if you have a set of hand reamers available, drill a small pilot hole in the centre of each drive hole you have marked out and then progressively open it up with the reamers. If you are not fortunate enough to have reamers on hand, try using a rat-tail file **NOT** be filing in the traditional manner, but by turning the file in the hole. You must now blend in the outer edge of your repair to suit the edge of the disc.

If your repair was welded, now is the time to have the disc plated. If your repair was brazed, scrub off the surplus flux, clean it up with emery and then coat it with polyurethane varnish. If your repair was soldered, wash off the flux with hot water and soap, and again coat the repair with polyurethane varnish.

In a future article, we will take a preservative look at some of the more taxing disc repairs, including the restoration of those cardboard organette discs which wear themselves to an unplayable condition.



On September 25th, 1970, the Welte Philharmonic organ was opened at the British Piano Museum. Joseph Seal is seen here pulling the switch to set this fine instrument working at the completion of its extensive rebuild under the guidance of museum founder, Frank Holland. The address of the museum is 368, High Street, Brentford.

PATENTS FOR INVENTIONS

ABRIDGMENTS OF SPECIFICATIONS

CLASS 88 (i)

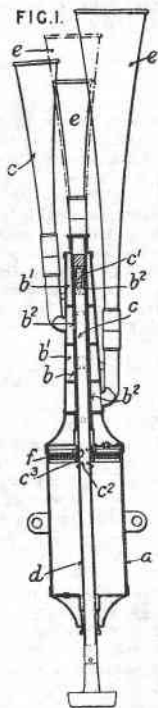
MUSICAL INSTRUMENTS, AUTOMATIC

PERIOD—A.D. 1909-15

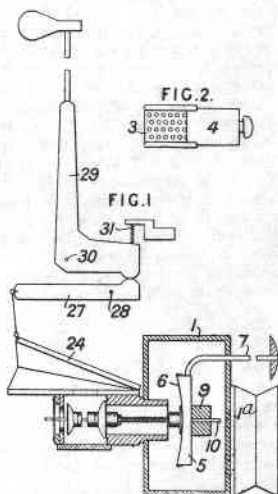
A.D. 1910.

189. Swan, E., and Stuart, E. E. Jan. 4.

Wind instruments.—Multi-note horns for motor-cars and the like are operated by a double-acting air-pump, the piston-rod or a continuation thereof acting as a valve for successively distributing the compressed air to the reeds. The air-pump cylinder *a* terminates in a pipe *b*, in which works the hollow extension *c* of the piston-rod *d*. A series of air-chambers *b'* surround the pipe *b*, and communicate therewith and with a series of trumpets and reeds *e*. The end of the extension *c* is closed and side ports *c'* are formed therein, which distribute the air successively to the different reeds as the piston *f* is reciprocated. To render the pump double-acting, the piston is capable of a limited movement on the piston-rod by which it closes one or other of the ports *c'*, *c'*, and thus puts the part of the cylinder *a* on the opposite side in communication with the extension *c*.



hammer-lever 29 is pivoted at 30 and actuated by a lever 27 pivoted at 28 and connected at the other end to a striking-pneumatic 24. The hammer-lever receives a short and powerful blow



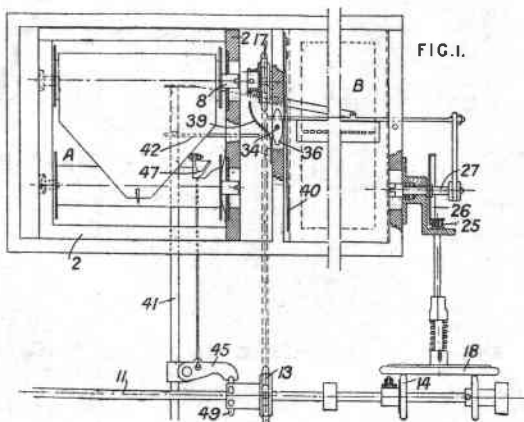
when the pneumatic 24 is collapsed by suction from a chest 1, and is returned by a spring 31. Each tracker duct 7 leads to a pneumatic consisting of a metal drum 5 mounted by a pin 10 on a bar 9 in the interior of the exhaust chest. A diaphragm 6 acts on the spindle of a double-seated valve, which controls the admission of suction to the striking-pneumatic 24. The exhaust chest communicates with a collapsible bellows 1^a, in the wall of which there is a perforated groove 3, Fig. 2, controlled by a slide 4. This device permits a variable leak to atmosphere and regulates the strength of tone. The exhaust bellows and music spools of the instrument are operated by an external crank-handle.

218. Hartley, H., and Canova, V. Jan. 4.

Pianofortes without keyboards; actions; expression, controlling.—Relates to a street piano operated pneumatically by a tune sheet. The

220. Hartley, H., and Canova, V. Jan. 4.

Winding-mechanism for the tune sheets of piano-organs. The frame 2, Fig. 1, carrying the spools of a finished tune-sheet can be removed bodily from the tracker compartment B of a double holder and placed in a second compartment A in which the sheet is rewound while a fresh sheet is being played from, a device being provided for disengaging the frame from its driving-gear when the sheet is entirely rewound. In playing, the take-up spool is driven from the main shaft 11 through an adjustable friction-disk drive 14, 18, pin-wheel 25, and crown-wheel 26, splined to the socket spindle 27. To enable a particular section of the tune-sheet to be played over again, the take-up roller may be provided with a free-wheeling clutch, and gear is then provided which can be put in action for partly re-winding the sheet on the upper roller. When the sheet is finished winding, a shaft 34 is turned, which, by cams 36, takes off the pressure of holding-springs 39, 40, and, by a crank and connecting-rod arrangement, retracts the spindle 27. The frame 2 is now transferred from the compartment B to compartment A, another frame with a fresh sheet is placed in compartment B, and the shaft 34 is rocked back. The frame in the compartment A is pushed to the right against the spring 39 until the spindle 8 engages the socket of the re-winding-pinion 17, and is held in that position by a catch-arm 42



on a shaft 41. Then, on turning the driving-shaft 11 by a crank handle, clock-work, or electric motor, the one sheet will be re-wound through pinion 13 &c., at the same time that the other is being played from. When re-winding is completed, a catch 47 previously held up by the sheet falls into a notch in the take-up spool and drops an arm 45 of the shaft 41 into engagement with a pin-wheel 49, attached to the re-winding-pinion 13. The shaft 41 is thus rocked and releases the frame 2 from the catch-arm 42, enabling the spring 39 to thrust it out of engagement with the re-winding-gear. The arrangement is applicable to coin-freed instruments.

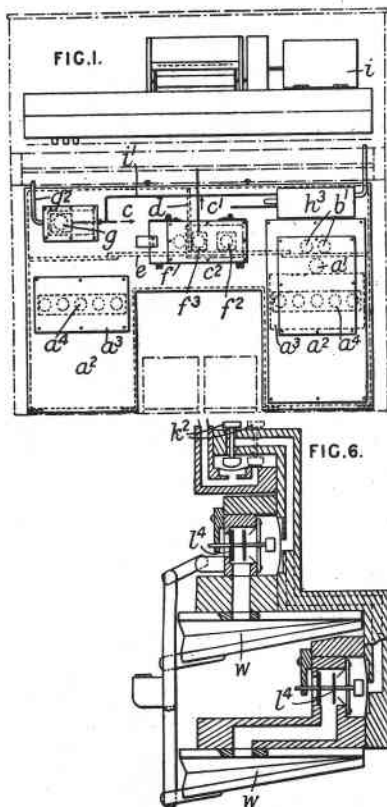
357. Gamble, H. E. Jan. 6.

Player-pianos; piano-players; actions; blowing and exhausting air; expression, controlling; winding-mechanism.—In a player-piano or piano-player of the kind in which the exhaust bellows, the regulating-bellows, and other devices are removably mounted on a hinged or detachable wind-chest, the wind-chest is divided up into compartments which are connected with each other. A pneumatic action is described. The exhaust bellows are mounted behind the wind-chest a^2 , which is exhausted through ports a^1 provided with non-return valves. These valves are accessible if the cover-plates a^2 or the front parts of the exhaust chest are removed. The wind-chest a^2 is divided by partitions d, e into three chambers c, c^1, c^2 . The chamber c^2 is connected to the exhaust-bellows and also to the chamber c^1 through the port a^1 , an equalizing-bellows, and the port b^1 . The chamber c^1 is connected through a governor f to the chamber c , which is connected by the pipe g^2 to the pneumatic action, and also through a governor h^3 to the motor i , which is mounted on hinges.

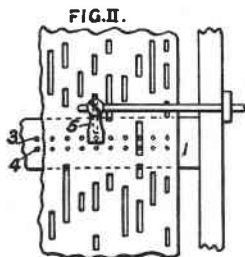
The valve of the governor f controls the port f^2 , but to increase the tension in the chamber c and therefore the loudness of the notes sounded, a valve, which normally closes the port f^3 , may be opened manually, so that an ungoverned connexion is provided between the chambers c, c^1 . According to the Provisional Specification, independent controlling-devices are provided for the treble and bass. The chamber c^1 is connected to the motor i through a governor h^3 , a manually-operated valve being provided for regulating the tempo. During the rewinding-operation, a valve controlling an ungoverned connexion between the motor i and the chamber c^1 may be operated by a rod i^1 and at the same time another valve closes the port g , so cutting off the connexion between the chamber c and the action. The action is shown in Fig. 6, and comprises primary valves k^2 controlling secondary valves l^4 , which are arranged in two tiers. Each secondary valve is adapted to connect a note-operating pneumatic w either to exhaust or to atmosphere in the usual manner.

(For Figures see next page.)

357.



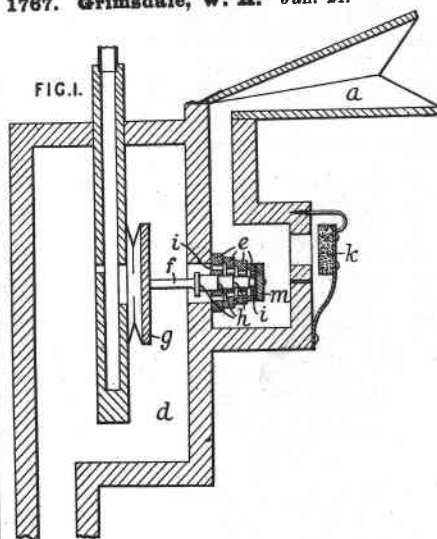
763. Kastner, M. M. Jan. 11.



Expression, controlling; tracker-bars.—An accentuation duct is provided in the tracker-bar for each note, and manually-controlled means are provided to stop or unstop the duct

of a note it is desired to accentuate. Alternatively, electric contacts and a manually-controlled switch may be provided. The tracker-bar 1 is provided with a series of accentuation ducts 3 and also with the usual note-controlling ducts 4. A valve 5 is adapted to close one of the ducts 3 and is connected to a tilting operating-device by links and bell-crank levers. In operation the valve 5 closes a duct 3, corresponding to a note it is desired to accentuate, until the note duct 4 is opened by the tune-sheet. Several independent valves such as 5 may be provided, or the performer may use his fingers to stop the ducts 3. Alternatively the notes may be sounded more loudly if the corresponding ducts 3 are only momentarily stopped or are unstopped.

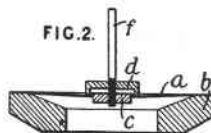
1767. Grimsdale, W. H. Jan. 24.



Actions; expression, controlling; tracker-bars.—In a pneumatic action which is used with tune-sheets having apertures varying in width according to the loudness of the note to be produced, the pneumatic or pneumatics corresponding to each note is or are controlled by several valves, which open larger or smaller connexions to the wind-chest according to the width of the tune-sheet apertures. As shown in Fig. 1, each note-operating pneumatic *a* is controlled by a number of valves *e* having ports *i* of different areas, and mounted on a spindle *f* having shoulders *h*. The valves *e* are of different areas and so require different thrusts to operate them, and according to the quantity of air admitted to the pneumatic *g* from the tracker-bar, one or more of the valves are operated and a smaller or larger aperture is opened to the wind-chest *d*. A spring-pressed valve *k* is provided to cut off automatically the

connexion to atmosphere when the valves *e* are operated, and a valve *m*, mounted on the spindle *f*, normally closes the port in the smallest valve *c*. In a modification, the spindle *f* is hollow, and a valve such as *m* is mounted on a rod which passes through the spindle *f* and is operated by a separate pneumatic to cut off the atmospheric connexion. Alternatively all the valves such as *e*, which control ports of different areas, may be operated by separate pneumatics connected to the same tracker duct, and control either a single note-operating pneumatic or several pneumatics for operating the same note. The valves may be all of the same area and operated by motors of different areas, or they may be arranged to open to varying extents instead of controlling ports of different areas. Alternatively the valves may be of the same size and acted upon by springs of different tensions. The tracker-bar is so formed that there is a sudden increase in the area of the ducts from the apertures inwards.

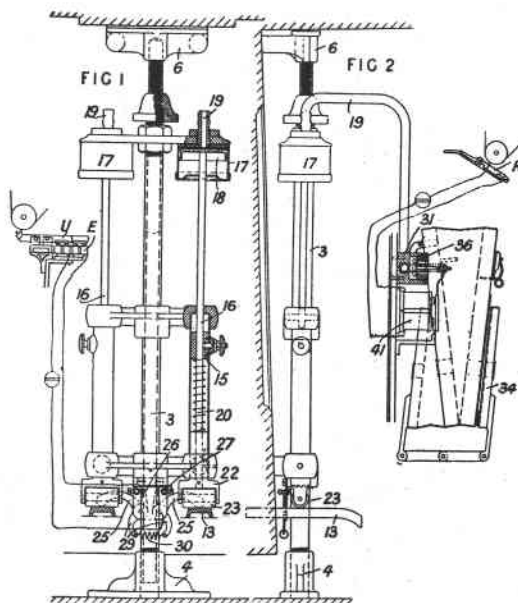
2024. Carrier, D., and Broadwood & Sons, J. Jan. 26.



Actions.—Relates to means for adjusting the tension of diaphragms used for operating valves. The diaphragm *a*, secured round its periphery to a casing *b*, has a disk *c* rigidly fixed to its underside, and a recessed disk *d* screwing on to the operating-spindle *f* on its upper side. By screwing the disk *d* upwards or downwards, the tension of the diaphragm is diminished or increased.

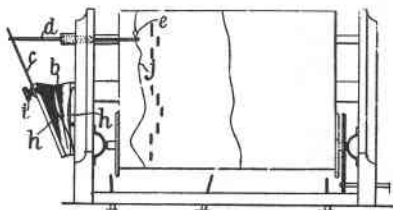
2418. Nystrom, C. W. Jan. 31.

Player-pianos; expression, controlling; tune-sheets.—A device for attachment to a recording player-piano comprises electro-magnetic means for recording and electro-pneumatic means for reproducing the movements of the pedals. When a pedal such as 13 is depressed, a lever 25, 29 is rotated by the action of a spring 30 until a contact-piece 26 completes the circuit of an electro-magnet *E* at the contact 27. The electro-magnet attracts its armature *U*, causing a stylus to cut a groove in a wax tune-sheet or disk. To reproduce the pedal movements thus recorded, a pipe 19 is provided for connecting the cylinder 17 to the apparatus shown in Fig. 2. The valve-chamber 31 is normally exhausted by the action of the bellows 34, but when the stylus of the contact device *R* enters a groove in the tune-sheet, the electro-magnet 41 attracts its armature, opening the valve 36 and connecting the upper part of the cylinder 17 to atmosphere. The pressures on each side of the piston 18 are equalized, and the spring 20, which bears against the adjustable stop 15, depresses a rod 16 and plunger 22 carrying a roller 23, which bears against the pedal 13. The apparatus is retained in position by adjusting the distance between the blocks 6, 4, which bear against the key-bed and the floor,



and the spring 20 is normally adjusted to balance the spring of the pedal 13. A bellows or diaphragm may be substituted for the cylinder 17 and piston 18, and the apparatus may be arranged to work by pressure instead of by suction.

2647. Saldana, F. Feb. 2, 1909, [Convention date].

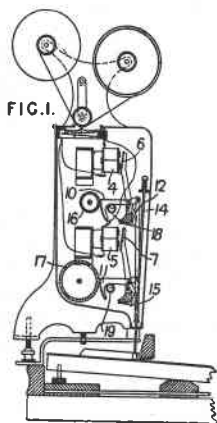


Expression, controlling; tune - sheets. — A bellows *b*, in connexion with the wind-chest, is connected by a rod *c* to a sliding rod *d* carrying a pen or pointer *e*. The bellows *b* is normally expanded by a spring *h*, against which an adjustable screw *i* bears. A curve *j*, which indicates the variations of pressure in the wind-chest and therefore the variations in the loudness of the notes produced, is recorded by the pen on the tune-sheet while the instrument is being played in the ordinary manner. In subsequently reproducing the tune played, the treadles are so operated that the pointer *e* follows the curve *j* as nearly as possible. The pointer *e* may be actuated by one of the bellows usually provided. In a modification, the pointer *e* moves over a scale, suitable indications being marked on the tune-sheet.

2910. Nyström, C. W. Feb. 5.

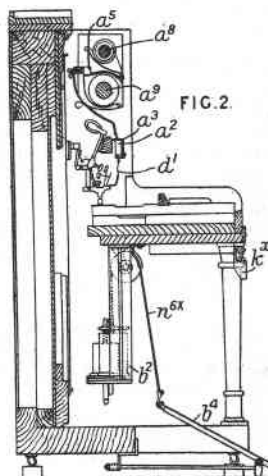
Actions; expression, controlling.

—In a shoe and roller action of the kind described in Specification 7949/09, wherein the two or more shoes for each note are brought into successive contact with rollers by electromagnetic means, two or more rollers are provided which rotate at different peripheral velocities. When the circuit of an electro-magnet 4 is completed, its armature 6 is attracted, so that a shoe 10 contacts with a small rotating roller 16, causing the link 12 to operate a spring-pressed striker-rod 14. Subsequently, and at a time-interval determined by the relative positions of the tune-sheet depressions, the electro-magnet 5 is energized, causing it to attract its armature 7 to bring the shoe 11 into contact with a large rotating roller 17, so that the shoe 11 operates the striker 14.



with greater force through the link 15. Eccentrically pivoted rods 18, 19 are provided for adjusting the shoes 10, 11. The axes of the rollers 16, 17 may be arranged in the same horizontal line, or a single grooved roller may be employed.

5011. Goldman, H. C., and Webb, C. F. Feb. 28.



Player-pianos; actions; blowing and exhausting air; expression, controlling; treadle devices; winding-mechanism. — In a player-piano or other mechanical musical instrument of the kind in which piston- and cylinder note-operating pneumatics are used, the pistons are formed of carbon, graphite, or other self-lubricating material or metal, and are of sufficient length to prevent leakage occurring. The cylinders *a*², which are preferably formed of brass, are closed at one end and provided with flanges at the other end. The cylinders may be formed separately or in groups or sections. As shown in Fig. 2, the cylinders are mounted in a bar *a*¹ of L-section and are held in position by a plate which is attached to the bar by screws. The cylinders may be equally spaced on the bar and of greater number than is required for actual use, so that the attachment may be fitted to any piano. The bar *a*¹ extends across the piano immediately behind the upper panel of the casing. The valves *a*³ controlling the pneumatics *a*², may be arranged between the winding-rolls *a*⁴, *a*⁵, as shown, or they may be mounted on the bar *a*¹. The pistons are connected to the wipers of the piano actions by flexible tapes *d*¹. The expression-controlling device *k*^x may be arranged under the key-bed and mounted in guides or on a frame having a parallel motion so that it may be pushed out of sight. The tempo-control device is similarly mounted. The motor for driving the

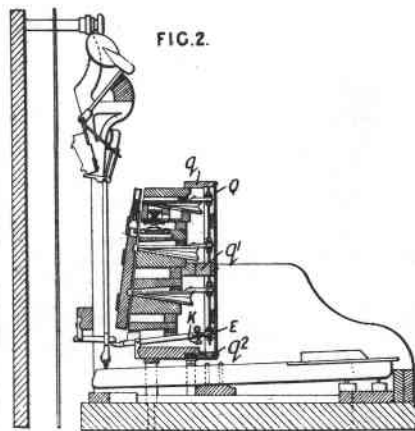
winding-rolls comprises a number of piston-and-cylinder pneumatics. The exhaust pumps b^2 comprise pistons, made of carbon or other self-lubricating material, which are reciprocated in cylinders by folding or detachable treadles b^4 operating through flexible connexions n^{*x} .

5073. Marks, E. C. B., [Chase & Baker Co.]. May 4, 1909.

Player-pianos; cases.—A plate is arranged in front of the action to muffle the sounds produced by it when the instrument is playing. The wind-chest, which may be mounted above and to the rear of the keys, as described in Specification 10,577/09, is provided with projecting parts q, q^1, q^2 extending beyond the moving parts of the action, which may be of the kind described in Specification 17,849/06. Adjustable stops K are provided on the levers E . The plate Q , for muffling the sounds, is secured to the projecting parts q, q^1, q^2 .

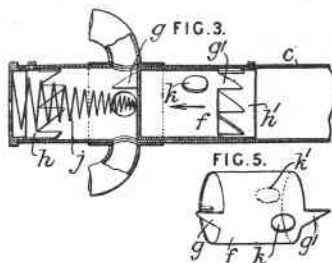
(For Figure see next column.)

5073.

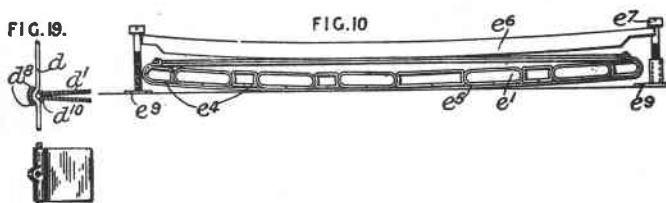


5940. Teste, E. July 10, 1909, [Convention date]. [Addition to 24,255/08.]

Wind instruments.—In horns of the type described in the parent Specification, in which a series of notes are sounded by successive operations of the bulb, the distribution of air is effected by an apertured sleeve or hollow piston f , formed with projections g, g^1 adapted to engage toothed rings h, h^1 fixed in a tube c . The sleeve is driven by air-pressure against a spring j , which afterwards returns it to its normal position in engagement with the ring h^1 . This reciprocation causes a step-by-step rotation of the sleeve, thus bringing the peripheral openings k, k^1 successively opposite the mouth of the horns.



6503. Atkinson, C. W. March 15. [Addition to 1439/09.]

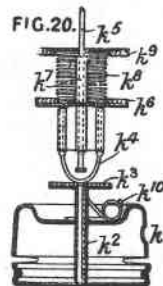
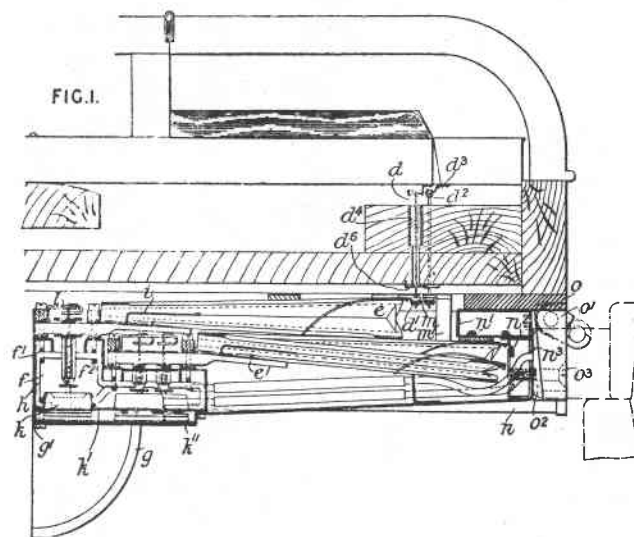


Player-pianos; actions; blowing and exhausting air.—Relates to various detail constructional improvements in player-pianos of the kind described in the parent Specification. As shown in Fig. 1, the vacuum chest f , which is pivoted at g^1 , is supported on slotted quadrants g attached to the piano, and is formed of two sheet-

metal parts f^1, f^2 , secured together by struts h . A strip of metal o , attached beneath the keyboard, carries depending lugs o^1 , between each of which and the front of the player a wedge o^2 is inserted and held in place by a screw o^3 . Spring-pressed hooks, mounted in slots formed in the lugs o^1 , serve as a means of attachment

for the playing-table. The vacuum chest *f* is connected at each end with side wind-trunks *n*, which are connected by a wind-trunk *n*¹ provided with central stop-pieces to divide it into base and treble sections. Short wind-trunks *n*²,

which are riveted to the wind-trunk *n*¹, connect the wind-trunks *n* with the exhaust bellows. The wind-trunks *n* are provided with projecting shoulders over which the wind-trunks *n*¹, *n*² fit, bolts and nuts being used to secure them



in position. The note-operating pneumatics *e*, which are connected to the wind-chest by metal tubes *e*¹, are provided with metal brackets *m*¹, the bases of which engage with grooves in the moving plates of the pneumatics *e* and are secured in position by wedges. The brackets *m*¹ are provided with pins *m* which engage arms *d*¹, mounted on rods *d* fitting into grooves in clips *d*², which engage projections *d*³ on the keys. The rods *d* are attached to arms *d*¹ by threading them through holes *d*³ therein, forming a kink in the rod, and passing a pin *d*¹⁰ through it, as shown in Fig. 19. The rods *d* are guided by felt bushes *d*⁴ and leather disks *d*⁵. The tubes *e*, which are of flat section, are provided with short projecting bosses by riveting over the edges of which the pneumatics *e* are secured in position. The pneumatics *e* are assembled in groups of five or seven, the tubes *e*¹ resting on the vacuum chest with distance-pieces *e*⁴ arranged between them. As shown in Fig. 10, a metal band *e*³ is placed about the tubes and above them is a bar *e*⁶ which may be drawn

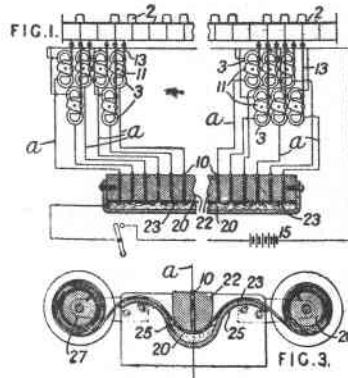
down by screws *e*⁷ fitting into holes in the struts *h*. Cover-plates *e*⁸ are fitted between the groups of pneumatics. The power pneumatics *e* are provided with springs *i* which tend to force their flexible parts inwards, and felt pads are arranged inside the pneumatics, near to their hinges. The construction of the valves and their operating-pneumatics, which fit into conical seatings *k*¹ in the wind-chest, is shown in Fig. 20. The valve-stem *k*² is provided with a platform *k*³ supporting a part *k*⁴, which slides freely on a guide *k*⁵ and is adapted to operate the valve *k*⁶, which operates the valve *k*⁹ through the distance-piece *k*⁷ and spring *k*⁸. A spring *k*¹⁰ normally supports the moving parts. A felt pad *k*¹¹ is arranged beneath the moving parts of the pneumatics, as shown in Fig. 1. The guides *k*⁵ are supported by arms *l*, and the holes in the pneumatics *k* through which the stems *k*² pass function as bleed-holes. The tracker pipes are held in position by expanding them into dished holes in the perforated plate *n*³.

7276. Newton, P. A., [Kelly, J. F.]. March 23.

Tune-sheets; tracker-bars; actions.—In electric switches designed for automatically playing pianos and other keyboard instruments, but

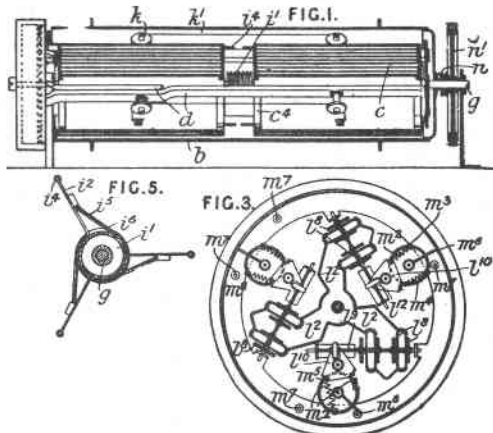
adapted to be employed as the transmitting-agent in an automatic telegraph, and for other purposes, a number of contacts 10 are mounted

in a curved guiding-member 22, which projects below the surface of mercury or other conducting-liquid 20 and guides a perforated sheet of non-conducting material 23 to control the access of the mercury to the contacts. The keys 2 of the musical instrument are connected by rods 13 with the armatures 11 of electro-magnets 3, which are connected by wires *a* to the contacts 10. When one of the perforations in the music sheet 23 comes opposite a contact 10, the circuit is completed through the mercury 20, battery 15 and corresponding electro-magnet 3, which thereupon attracts its armature and draws down the corresponding key of the piano. The music sheet is drawn from a reel 26 over the curved side 25 of the mercury holder and under the guide-bar 22 to another reel 27, means being provided for rotating the reels. The music sheet is preferably made of paper treated with a soft or semi-solid paraffin, which makes the paper less hygroscopic and increases its dielectric power.



9355. Atkinson, O. W. April 6. [Addition to 9622/09.]

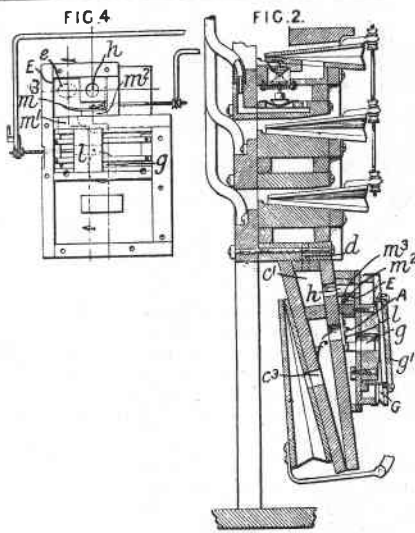
Winding-mechanism.—Relates to improvements in the construction of a motor for piano-playing mechanism of the kind described in the parent Specification, in which the motor is arranged inside a winding-roller. Six bellows *c* are mounted on pipes *d* and are arranged in two sets within the roller *b*. The moving board of each bellows carries a pin *c'* having pivoted upon it an arm *i'*, to which are connected the ends of a flexible chain or cord encircling a grooved pulley *i'* carried by a shaft *g*. A finger *i''* keeps each cord within its groove. When a bellows *c* is connected to the exhaust chest, it collapses, causing the pin *i'* to move so that a cord *i''* is tightened and drives the pulley *i'*. A bellows of one set is connected to a bellows of the other set by a cord *k'*, passing over pulleys *k*, so that collapse of one bellows causes another to expand. The moving boards of the bellows are connected by arms *c'* to a ring which is loosely mounted on the shaft *g*. Perforated stiffening plates are arranged within the folds of the bellows. The valves *l'*, which intermittently connect the bellows to the exhaust chest *l'* and to atmosphere, are operated by a plate *m'* which is oscillated by one of the bellows. The plate *m'* carries pins *m'* which are adapted to engage arms *m''* on pivoted drums *m'* each provided with two notches *m''* and a notch *m''*. Each drum is connected by two helical springs *m''* to a pivoted rocker *l''*, which engages with a disk *l''* on a valve spindle *l'* and is provided



with projections which are adapted to pass intermittently through the notches *m''*, *m''* in the drum. In order that the valve spindles *l'* may be operated in succession, one arm *m''* is operated by two pins *m'*, both of which move past it for one oscillation of the plate *m'*, another is operated by a single pin *m'*, and the other is operated by two pins *m'* between which the corresponding arm *m''* is always situated. A device *n* is provided for clutching the shaft *g* either to the roller *b* or to the wheel *n'* for re-winding.

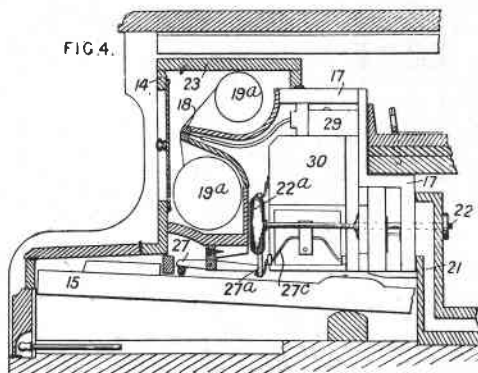
8714. Marks, E. C. R., [Chase & Baker Co.]. April 11.

Expression, controlling; blowing and exhausting air; winding-mechanism.—In an expression-controlling device of the kind in which a direct passage, controlled by an accent-valve, and an indirect governed passage, are provided between the wind-chest and the exhaust bellows, the governor G is connected to the action by a conduit h, passing through the chamber E into which the accent-valve m^2 opens. This arrangement prevents fluttering of the governor when the accent valve is opened. Normally air is exhausted through the port d, chamber c^1 , passage h, governing bellows G, and ports g, f, and c^2 , the moving-board g^1 of the bellows G regulating the flow of air through the port g. To produce a forte effect, a valve m^1 , which is held on its seating by a spring m^3 , is opened, so providing a direct passage between the action and the exhaust-bellows, through ports d, e, m^1 , f and c^2 . A valve l is provided to close the port f while the tune sheet is rewound.



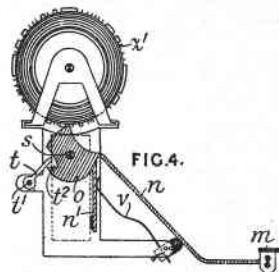
9593. Fairweather, W., [Wilcox & White Co.]. April 20.

Player-pianos of the "grand" type are fitted with a tracker 18, music spools 19^a, pneumatic actions 29, 30 behind the tracker, and a motor at one end of the tracker, and these parts are supported in the space behind the front panel 14 and above the keys 15 by a frame 17 which can be removed bodily from the front. The strikers 27 are arranged beneath the tracker to act on the forward ends of the keys and are actuated through cranks 27^c and links 27^a. The frame 17 is secured at each end by a bolt 22 with an easily accessible handle 22^a. A duct 21 leads to the exhaust bellows, which is arranged beneath the sound-board and can be removed from below. The cover 23 of the tracker box is hinged to the frame 17. The treadles fold back into a box in the lyre.



9839. Korán, V. April 22.

Stringed instruments; actions; expression, controlling.—In an automatic stringed instrument of the kind in which projections on a tune sheet or barrel control hammers which are operated by spring-action, the springs v, which operate the hammers m, are arranged underneath the hammer-stems n, and bear upon extensions n^1 thereof. The hammer stems n are attached to disks o which are rotated on their spindle s by the tune barrel projections z^1 . The disks o are provided with notches t^2 , which can be engaged by an arm t mounted on a spindle t^1 . By rotating the spindle, a hammer

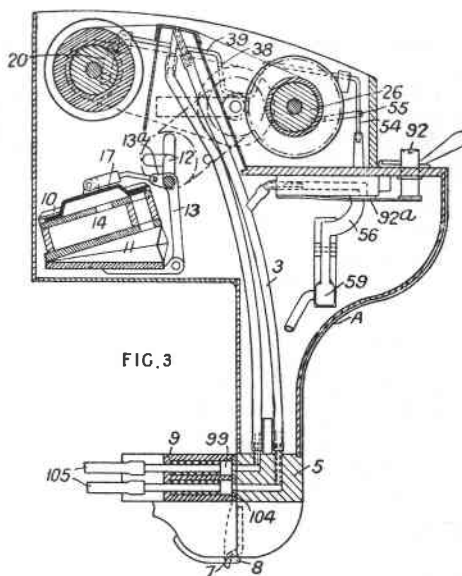
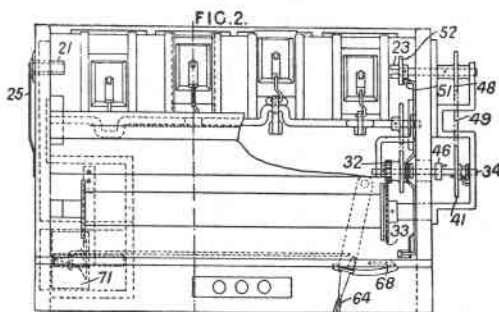


may be operated for tuning purposes. Distance-pins are arranged between the disks *o*, any one of which may be readily removed by withdrawing the spindle *s*. A bar may be operated by

hand to damp all the strings simultaneously. In a modification, a circular tune sheet is substituted for the tune barrel.

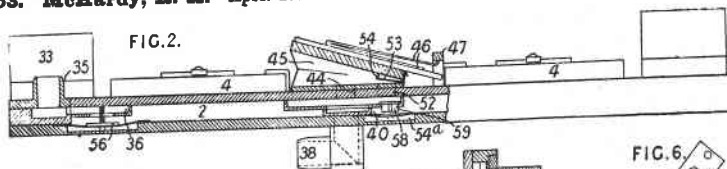
10,352. McHardy, R. H. April 27.

Player-pianos; actions; cases; expression, controlling; tempo - regulating means; winding-mechanism; wind-trunks.—In a player piano, the motor 10, music spool 20 and take-up roll 26, together with the gearing for winding and rewinding the tune sheet and the tempo and rewind valve 71, are arranged within a detachable casing A, which is hooked to the piano near the keyboard. Special means are provided for joining the tracker tubes 3 and the wind-trunks to the slider 9, which is connected by flexible tubes 105 to the action and the exhaust-chest. The pneumatic action and exhaust bellows are arranged within the piano. The slider 9 is mounted on guides beneath the key-bed and carries a number of spring-pressed pipes 99, which bear against a layer of soft material 104 on a perforated bar 5 to which the tracker-tubes 3 and wind trunks are connected. The case A is hooked to the piano lock-rail, and is attached to the slider 9 by hooks 7 which engage eyes in the extensions 8 of the slider. The tempo is controlled by means of a valve 71, which moves over a tapering port and is operated by a lever 64. The taper of the port increases rapidly towards the right-hand side. When the lever 64 is pushed right over for rewinding, it operates a lever 56 to open a valve 59 controlling valves which connect the motor to high-tension exhaust and cut off the pneumatic action from the wind-chest. At the same time, the lever 56 engages an extension 54 of the spindle 39 and causes it to rotate against the action of a spring 25. The crank 38 of the spindle 39 causes the shaft 34 to slide until the pinion 32 disengages the spur-wheel 33 and the disk 46 is clutched to the sprocket-wheel 41. The music spool is then driven by the sprocket-wheels 41, 48, and chain 49, to rewind the tune sheet. Simultaneously, a brake 51 is removed from the disk 52, which is provided with pins 23 engaging the music spool. A spring 68 holds the tempo lever 64 in the position for rewinding. The bearing 21 of the music spool may be pushed outwards

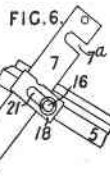
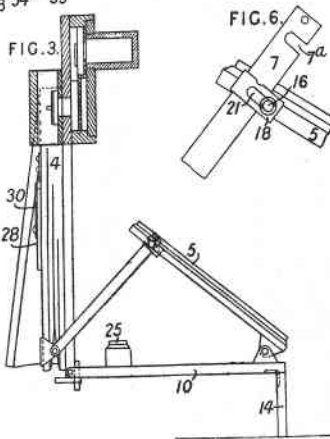


against the action of a spring 25. Three pushes 92, which operate spring-pressed valves 92^a, may be used for operating the treble and bass dampers and for putting the usual damping action out of operation. Shutters sliding in guides under the key-bed are provided for concealing the slider 9 when the case A has been removed.

10,353. McHardy, R. H. April 27.



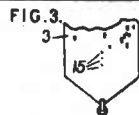
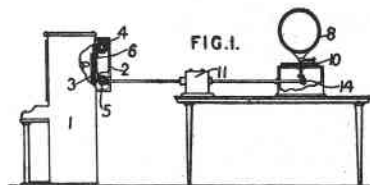
Player-pianos; blowing and exhausting air; treadles; winding-mechanism.—The bottom door of a player-piano is removable and carries the exhaust bellows 4, the equalizing-bellows 33, the governor 45 for the motor, and a wind-chest 2 in which are arranged valves 56, 58 for cutting-off the action and connecting the motor directly to the wind-chest respectively, during the re-winding of the tune-sheet. The treadles 5 are mounted on a hinged platform 10, which can be folded up flush with the bottom-door. The exhaust bellows 4 are connected to the wind-chest by ports covered by flap-valves, and to the atmosphere by valves 28 mounted on springs 30. The pneumatic action is connected through a pipe 35 and chamber 36 to the wind-chest 2. The motor is connected to the wind-chest 2 through a pipe 38, chamber 40, port 44, and a port 52 which is controlled by a valve 53 connected to the moving-board of the governor bellows 45. The bellows 45 are controlled by a spring 46 which bears against the stop-piece 47 mounted on the wind-chest. Before re-winding the tune-sheet, air is admitted to the chambers 54, 54^a, so closing the valve 56 and opening the valve 58. The pneumatic action is thus cut off from the wind-chest and the motor is directly connected to the wind-chest through the port 59. The treadles 5 carry pins 16 passing through slots 21 in hoops 18. The connecting rods 7, which are pivoted to the moving boards of the bellows and



pass through the hoops 18, are provided with notches 7^a which normally engage the pins 16. To fold up the treadles, the pins 16 are disengaged from the notches 7^a, permitting the hoops 18 to slide on the rods 7 until the treadles 5 contact with the stops 25. The platform 10 may then be folded up into a recess in the bottom door, the support 14 folding down against the platform 10.

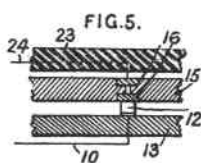
10,760. Davis, W. M. May 2.

Piano-players combined with gramophones.—An automatic piano-player having a tune-sheet recording-device is coupled with a gramophone so that as a song or solo is being recorded in the phonograph the accompaniment is being recorded on the piano-player tune-sheet, whereby when reproducing the records together, the accompaniment is played upon the piano-player. The piano 1 is provided with any ordinary recording-means 2 for perforating the music roll 3, which is passed from a roller 4 to a roller 5 over a tracker board 6. The gramophone turn-table 10, while the song is sung into the horn 8, is rotated by a bevel-wheel 14 from a motor 11, which simultaneously drives the music roll 3. For starting both reproductions together, while recording, three notes 15, Fig. 3, are softly struck on the piano so that,



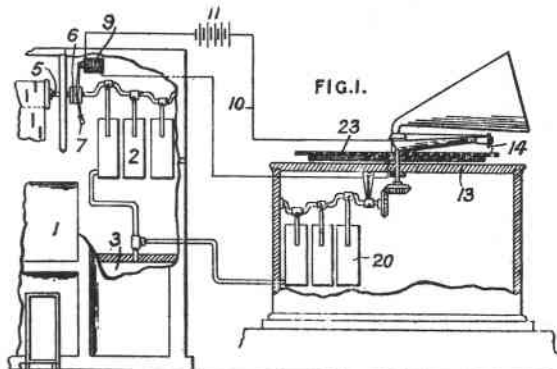
when the pianist hears these notes given out by the gramophone, he starts the piano player.

10,761. Davis, W. M. May 2.



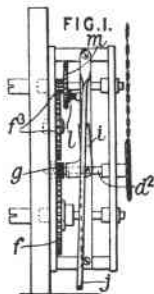
Piano-players combined with gramophones.—Relates to an automatic piano - player coupled with a gramophone and consists in using an electro - magnet for starting the piano-player when the gramophone style reaches the beginning of the sound line.

A piano player 1 and a gramophone 13 are driven by wind motors 2, 20 respectively, both being supplied from the same bellows 3. On the music-sheet roller 5 is a clutch 6 adapted to be operated by a handle 7 or by a lever forming the armature of an electro-magnet 9. A metal contact is embedded in the record 23 at the commencement of the sound line, and a connecting-wire 24 is carried through or under the record to rest upon a metal annulus 16 secured to the turntable 15. A metal contact 12 fixed to the gramophone casing 13 slides on the ring 16 and by one wire 10 completes the circuit back through a battery 11 to the electro-magnet 9, another wire 10 being connected with the tone arm. Thus when the gramophone is started, the music roll being previously placed in the piano player, the record disk turns until the stylus 14 touches the metal contact in the record disk, thus completing the circuit and energizing the magnet 9 which then attracts the armature, engages the clutch 6 and starts the music roll.



11,236. Harvey, H., and Coppleston, J. B. May 6.

Winding-mechanism.
—To effect re-winding of the music sheet, the main driving-spindle d^2 is rocked by a lever j and bell-crank i to shift the pinion g from the pinion f to the pinion f^2 . In the forward winding position, the lever j holds a spring brake-stud l against a disk m on the spindle of the music spool.

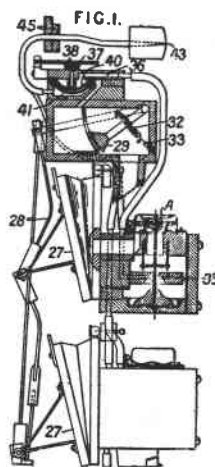


11,377. Streich, B. Oct. 6, 1909.

Actions; expression, controlling.

—Expression-controlling means comprise two throttle valves, for the treble and base notes respectively, which are preferably operated by pneumatic actions of the kind described in Specification 22,835/09, under normal control. In order to accentuate a note or notes, one of the throttle - valves may be momentarily opened by means controlled from the tune-sheet. Each range of note-operating

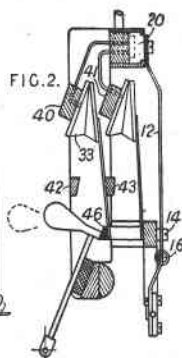
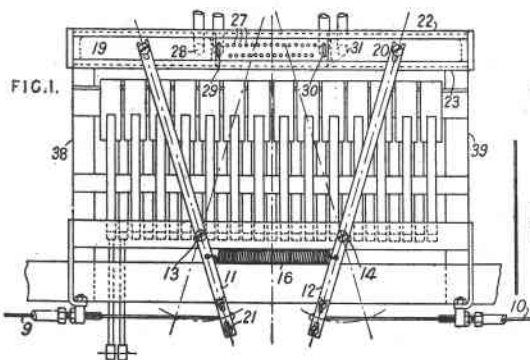
pneumatics is controlled by a throttle-valve 29, which is mounted on a pivoted arm and is connected by a link 28 to a pneumatic 27. A spring 32, the tension of which can be adjusted by a nut 33, tends to keep the throttle valve normally open, but, when a lever 37 is operated, air is admitted through the ducts 38, 36, 35 to a primary valve, thereby operating the secondary valve A and connecting the pneumatic 27 to exhaust. The pneumatic 27 collapses, partly closing the port controlled by the throttle-valve 29, and causing all the notes in one range to be sounded softly. To accentuate a note or notes, additional apertures 43 are provided in the tracker bar, and, when one of them is opened, the atmospheric pressure forces up the diaphragms 40, 41, so closing the duct 38. Air is thus cut off from the primary valve and



admitted to the corresponding secondary valve, causing the pneumatic 27 to expand and open the throttle valve 29. Slides 45 are provided to

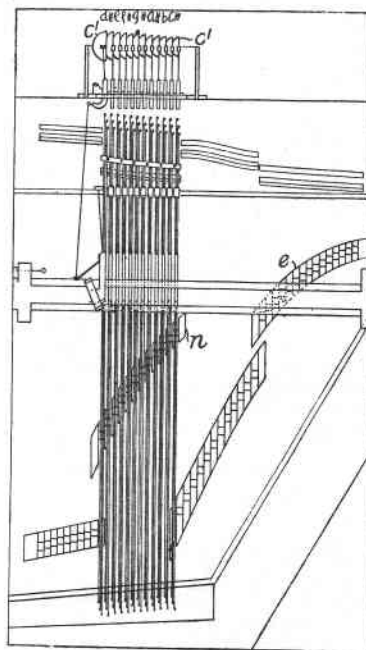
cut off the additional apertures in the tracker-bar. According to the Provisional Specification, a valve is mounted on the diaphragm 41.

11,401. Hanna, C. T. July 7.



Expression, controlling.—A piano player or player piano is provided with sectional rest-rails for individual notes. The rest-rails are controlled by slide-valves operated by spring-pressed levers, which are connected by Bowden cables to levers having pointers adapted to be moved by hand to follow a line on the tune-sheet. As applied to a piano player, two levers provided with pointers arranged in proximity to the tracker-bar, are connected by Bowden wires 9, 10 to levers 11, 12, which are pivoted at 13, 14, and are provided with adjustable ends 21. The levers 11, 12 are connected by a spring 16 and operate slide valves 19, 20 which move in guides 22, 23. The slide valves are connected to exhaust by ports 28, 31 and control ducts 27 in connexion with bellows 33 operating rest-rails 46 for single notes. The slide-valves also control ducts 29, 30 for two bellows operating rest-rails for groups of notes at the top and bottom of the scale respectively. The bellows 33 for individual notes, together with the levers 11, 12 are mounted on a frame comprising uprights 38, 39 and cross-pieces 40, 41, 42, 43, two of which act as stops to limit the movements of the rest-rails 46.

11,571.



11,571. Pozzuoli, V. May 10.

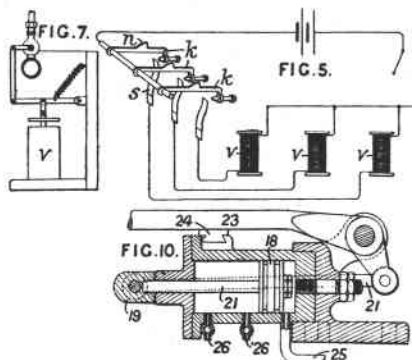
Pianofortes without keyboards.—A bell accompaniment C^1 is added to the barrel-operated street piano described in Specification 28,611/06. The bell hammers are coupled to the barrel levers corresponding to the third bridge n . The hammers of the first and third bridges e , n are of hard wood to give a mandoline tone.

(For Figure see next column.)

12,047. Harris, H. E. - May 14.

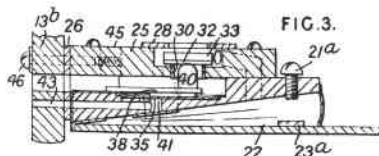
Percussive instruments; winding-mechanism; actions.—Pneumatic devices for chiming bells

and other purposes are controlled electro-magnetically by a tune sheet which is perforated or embossed to co-operate with a row of contact levers. Flat tune-sheets of card of metal, with



stamped depressions, are drawn successively by motor-driven pin-wheels from the bottom of a store chamber, and fed under a guide-roller and over a row of spring-lifted levers *k*, Fig. 5. Each stamped depression, in passing, engages a cam *n* on a lever *k*, and closes at *s* the circuit of a magnet *v*, which, as shown in Fig. 7, rocks a spring-controlled three-way valve to admit compressed air to pneumatic striking-mechanism, which may be of the sort shown in Fig. 10. The compressed air entering by the pipe 25 operates the bell-striking arm 23 through the piston 18, cross-head 19, and connecting-arms 21. Valves 26 regulate the cushioning-effect, and a rest 24 of leather, vulcanite, &c. receives the striking-arm on its return. When the magnet *v* is de-energized, the pipe 25 is connected to exhaust. The tune-sheet may have special perforations or lugs for tone-modulating or for stopping and starting the machine. The magnets *v* are preferably of iron-clad formation with the armature supported by a rod which slides in a hole in the core. The valves may be of mushroom, cone, or other type. The bell-striking devices may be of the kind described in Specification 24,448/08, [Class 83 (iv), Metals, Working &c.].

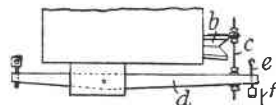
12,155. Gulbransen, A. G. May 17.



Piano-players; actions.—In a pneumatic action for automatic pianos, the valves 33 are attached by flexible material 32 to rounded

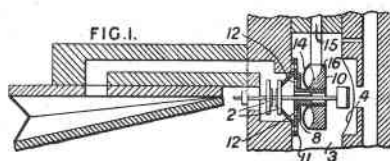
stems 40, which are mounted on hinged levers 38. The levers are operated by means of diaphragms 35 arranged above chambers 41, which are connected by tubes 43 to the tracker-bar. The upper and lower valve seatings are formed by a leather washer 28 and a brass tube 30 respectively. The collapse of the pneumatics 22 is limited by screws 21^a and pads 23^a. The actions are secured to the wall 13^b of the wind-chest by means of bolts 46, which screw into nuts 45 fitting into holes in the parts 25. A leather strip 26 is interposed between the actions and the wind-chest wall. The actions are arranged in staggered rows above and towards the rear of the piano keyboard. Several of the note-operating pneumatics 22 may be coupled together by lever mechanism.

12,389. Coppleston, J. B. May 21.



Player-pianos.—In a player piano of the kind in which the note-operating pneumatics *b* operate the piano action through links *c* and levers *d*, adjustable buttons *e* are arranged at the extreme ends of the levers *d* and in front of the links *c*. The buttons co-operate with a rail *f* to limit the movements of the levers *d*, and are readily accessible for adjustment.

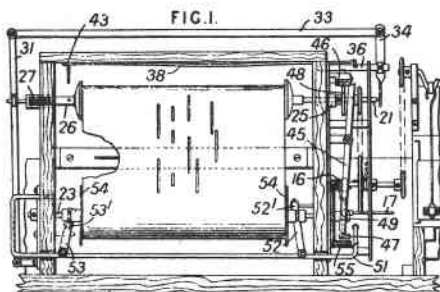
12,761. Kastner, M. M., and Katz, C. May 25.



Actions; expression, controlling; tracker-bars; tune-sheets.—In piano-players of the kind in which throttle valves are provided for the striking-pneumatics, the throttle valves 8 are arranged concentrically with the action valves 2, and are operated by annular diaphragms 14 or electro-magnets controlled either manually by devices of the kind described in Specification 763/10 or by special tune-sheet apertures. As shown in Fig. 1, each throttle valve 8 normally closes the ports 12. When air is admitted by the tune-sheet to the diaphragm 4 to operate the action valve 2, the striking-pneumatic is only connected to the exhaust chest 3 through a small port in the plate 11. Assuming the control is manual, when it is desired to accentuate a note, the aperture of the duct 15 is

closed, so that it becomes exhausted through the bleed-hole 16. The diaphragm 14 collapses, and the valve 8 opens the ports 12, causing a louder note to be sounded when the action valve 2 is operated. Parallel rows of additional ducts may be provided in the tracker-bar to control the valves 8 through intermediate valves controlling the admission of air to the ducts 15. Several of these ducts are in alignment in the direction of the tune-sheet travel, and each controls either one or several throttle-valves. In order to prevent notes from being accentuated when it is not desired to accentuate them, the distance between the first and last ducts is less than the length of the shortest tune-sheet aperture, or is greater than the length of the shortest aperture, but less than twice the length of the shortest aperture. The control perforations in the tune-sheet are somewhat in advance of the corresponding playing-perforations. When the control is effected manually, a red dot is marked in front of each tune-sheet aperture corresponding to a note which is to be accentuated.

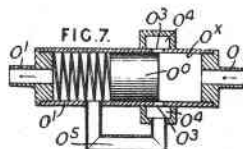
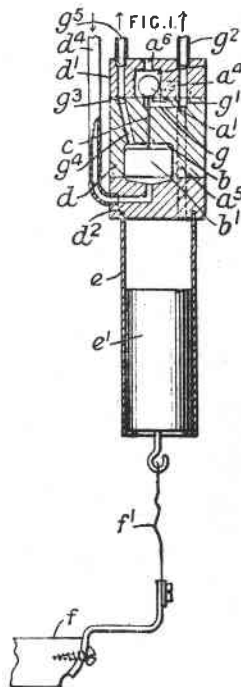
13,894. Brown, T. P. April 25, [Convention date].



Winding - mechanism. — In an automatic musical instrument, means are provided for moving the supports of the music-roll either in the same or opposite directions. The flanges of the take-up roll are moved apart during rewinding, and brakes are provided for the music-roll and take-up roll spindles. The music-roll is held by supports 21, 26, which are urged in the same direction by springs 25, 27. A sliding rod 36 carries a pivoted arm 34, which bears against the support 21, and is connected by a link 33 to a lever 26, secured to the support 26. A lever 38 is provided at one end with an arm engaging a slot in the rod 36, and at its other end bears frictionally against a plate 43. By operating the lever 38, the supports 21, 26 are simultaneously moved in the same direction in order to adjust the tune-sheet laterally. The rewind device 17 controls a clutch 16 in the usual manner and also a lever 45, which operates brakes 46, 47 adapted to press against disks 48, 49 respectively on the shafts 21, 23.

In the position shown, the brake 46 bears on the disk 48, but, when the rewind device 17 is operated, the lever 45 removes the brake 46 from its disk and applies the brake 47 to the disk 49. The lever 45 also shifts a sliding rod 51 against the action of a spring 55. The rod 51 is connected by levers 52, 53, pivoted at 52', 53' to sliding flanges 54 on the take-up roll, so that its movement causes the flanges 54 to move outwards and reduce the friction on the tune-sheet during rewinding. During the winding movement, the tune-sheet is yieldingly held between the flanges 54.

14,030. Goldman, H. C., and Webb, C. F. June 9.

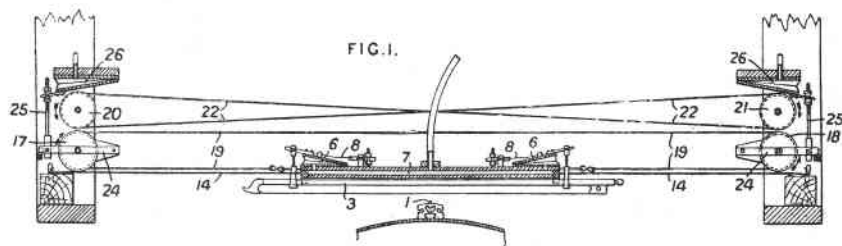


Player-pianos; actions; blowing and exhausting air; treadles; winding-mechanism.—In an automatic musical instrument, the valves controlling the connexion of the note-operating pneumatics to high pressure or suction are

arranged to operate under low pressure or suction in order to reduce the drag on the tune-sheet. To reduce the pressure or suction, a pressure-regulating device of special construction is introduced between the pressure or exhaust pumps and the chambers containing the valve-operating plungers. Flexible connexions are provided between the note-operating pneumatics, which may be of the piston and cylinder type, and the wippens of a piano action. The pumps comprise pistons working in cylinders, and may be adapted to supply both pressure and suction. The apparatus shown in Fig. 1 operates entirely by suction, and comprises a valve chest formed of three blocks d^1 , d , d^2 , which are made of brass or other material. Paper may be placed between the blocks to form air-tight joints. Chambers b are formed in the block d and contain loosely-fitting plungers b^1 for operating ball-valves a^1 through loose rods c . The chambers b are connected by pipes d^4 to the tracker-bar, and by ducts g^4 to a chamber g^3 , which is connected through a pipe g^2 and pressure-regulating valve to exhaust. This pressure-regulating valve may also control the winding-motor. The valves a^1 control passages g leading to a chamber g^1 , which is directly connected to the exhaust by a pipe g^2 . When air is admitted from the tracker-bar to a pipe d^4 , a plunger b^1 is operated, causing a valve a^1 to close a port a^2 and open a port g , so connecting a cylinder e to exhaust through the ducts a^3 , a^2 . A piston e^1 is forced up, and operates a wippen f through a flexible connexion f^1 . Owing to the loose fit of the plungers b^1 in

their cylinders, it is unnecessary to provide bleed-holes for exhausting the chamber beneath the plungers. A valve may admit air to a chamber b , if the suction becomes excessive. The valves a^1 may be arranged between the winding-roller and immediately behind the tracker-bar. Valves operated by suction may be arranged to control a supply of wind under pressure or vice versa. Alternatively, valves operated by pressure may control a supply of wind under pressure. Three constructions of pressure-regulating valves are described, one of which is shown in Fig. 7. The pipe o is connected to the tube g^2 , and the pipe o^1 is connected to exhaust, and also by a pipe o^2 to an annular chamber o^4 surrounding a cylinder o^x and connected thereto by ports o^3 . A spring-pressed carbon piston o^5 slides in the cylinder o^x and controls the ports o^3 . Alternatively, one end of the piston may be exposed to atmospheric pressure, the chamber o^4 being connected to exhaust and the pipe o^2 dispensed with. In a modification for use with air under pressure, a diaphragm-operated ball valve is employed. An exhausting-apparatus for supplying both pressure and suction comprises pistons which are reciprocated in cylinders by the operation of treadles. The air in the cylinders is thus compressed on one side of the pistons and rarefied on the other. The opposite ends of the cylinders are connected to different reservoirs, comprising spring-pressed pistons sliding in cylinders. Flexible connexions, which pass over pulleys, are provided between the piston-rods and the treadles.

14,256. Bajdo, L. June 13.



Stringed instruments; tremolo actions.—The bow 3 of a pneumatically-operated stringed instrument is adapted to be pressed against the string 1 by means of pneumatics 6 mounted on a wind-chest 7, which may be moved transversely to the instrument. The wind-chest 7 is provided with felt or leather-covered cross-pieces which slide along guide-wires 14, and is connected at each end to a band 19 passing over pulleys 17, 18. The pulleys 17, 18 are mounted on pivoted arms 24, which are connected by rods 25 to pneumatics 26. Above the pulleys 17, 18 are arranged friction-wheels 20, 21, which are constantly rotated in opposite directions. When a pneumatic 26 is deflated, one of the pulleys bears against its friction-wheel, causing the bow

3 to be moved in one or the other direction along its guide-lines 14. If, at the same time, the pneumatics 6 are deflated against the action of the springs 8, a note is sounded. The bellows 6, 26 are controlled by a tune sheet in the usual manner. Two modifications are described in which the friction-wheels are dispensed with, and the bow is directly reciprocated by the deflation of bellows. An instrument having several strings may be rocked on its longitudinal axis by pneumatic devices controlled by the tune-sheet. The bow-stick may be formed of an iron tube. To produce a tremolo effect, the string is connected to a lever instead of to a tail-piece, and this lever is oscillated by the collapse and expansion of a bellows.

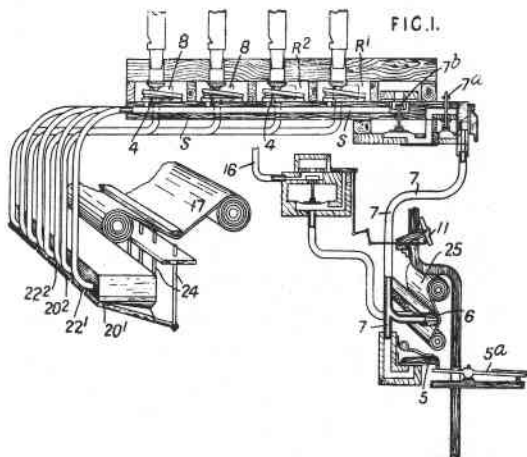
14,290. Young, D. J. June 13. *Drawings to Specification.*

Wind instruments combined with motor-vehicles.—A series of horns provided with automatic playing-mechanism, is attached to a

motor-vehicle. The horns are located between the backs of two of the seats of the motor-vehicle, and air under pressure is supplied by means of a pump connected with the driving-mechanism. The automatic playing-mechanism is arranged beneath one of the seats.

16,069. Popper, H. July 5.

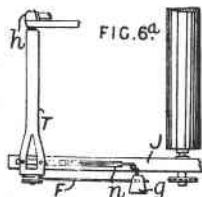
Wind instruments combined with music-recorders; tune-sheets; tracker-bars; actions.—An organ is provided with pneumatic means for recording the music played and for automatically reproducing the music thus recorded. When playing manually, the keys 5^a operate valves 5, for admitting air to primary valves 7^a controlling secondary valves 7^b . The valves 7^b cut off the connexion of the ducts S to the wind-chest, causing the pneumatics 4 to collapse and operate the pellet-valves. The stops 11 control pneumatics carrying valves for connecting the register-chambers R^1 , R^2 &c. to wind through ports 8. The key movements are recorded on a moving sheet 17 by pneumatics 20^1 , 20^2 , &c., which are connected to the ducts S and operate styles 24. The stop movements are recorded by pneumatics 22^1 , 22^2 , &c., which are connected to the pneumatics controlling the stop valves or to the



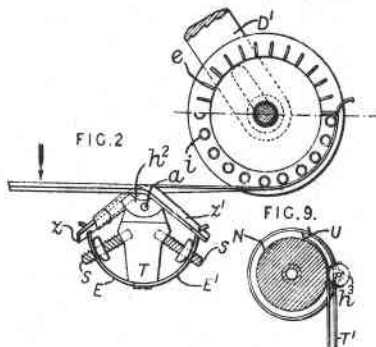
pipe 16. A tune-sheet 25 is prepared from the record thus obtained, and is caused to traverse the tracker-bar 6 for operating the stop and pallet valves automatically.

16,557. Hennig, E. A. P. July 12, 1909, [Convention date].

Stringed instruments.—The ends of a hand-bow for an automatic stringed musical instrument extend past each other on a support, which revolves round the string carrier or carriers, so that the strings are not always bowed at the same points. Several similar hand-bows may be arranged around the same string-carrier or carriers. In Fig. 5, the string-carrier D^2 is in the form of a violin, arranged inside the silk or horse-hair band bow U, which is rotated by a girder J driven by a chain C and sprocket B. The bow is mounted on pulleys D and the ends of the bow extend past each other on supports h, which are hinged at V to the girder J. The violin D^2 is pivotally carried by a bracket 1 and is moved towards the

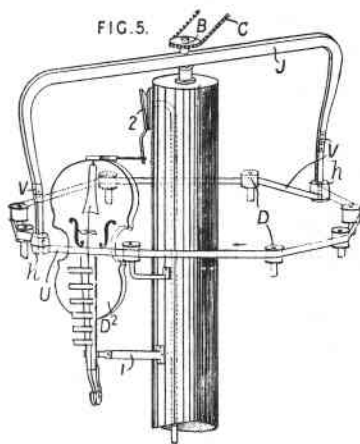


bow by the collapse of a bellows 2. In the modification shown in Fig. 6a, a pillar T carrying the bow support h, is mounted on rollers in the girder J. The pillar T carries a pulley which is



kept in engagement with a guide F by means of a weight g connected to the pillar by a cord n.

The guide F may be of an irregular shape. Various forms of the supporting-device *h*, in which provision is made for adjusting the bow-tension, are described. In Fig. 2, two angle-irons *z*, *z*¹ are carried by a lever *h*² which is pivoted at *a* to the pillar T. Springs *E*, *E*¹, the tensions of which may be adjusted by nuts on screws *S*, pass through holes in the angle-irons. The ends of the bow are attached to the protruding ends of the springs *E*, *E*¹. The upper part of the pillar T may be pivotally mounted on the lower part. The driving or guide-rollers for the bow-band may be provided with pins *e* or rollers *i* upon which the bow runs. The roller can be adjusted along the arm *D*¹. The angle-irons *z*, *z*¹ may carry hooks to which the ends of the bow are attached and which are adjusted by screws and nuts. Springs on the angle-irons *z*, *z*¹ may bear against the part T. Alternatively the ends of the bow-band may be provided with a number of holes which are adapted to engage pins on the supporting body. The supporting body may be provided with a recess containing yielding material where the active portions of the bow engage it. In a further modification, the bow-support comprises a flanged roller having slides on its periphery to which the ends of the bow are attached. The roller tapers towards each end so that the full width of the bow does not contact with the string where the ends pass one another. The slides can be rotated in opposite directions by

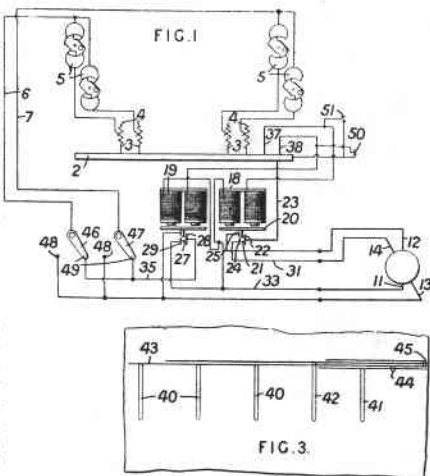


levers which are held by ratchet devices. In Fig. 9 the ends of the bow *U* are attached to a part *h*² of roller or other form, which is mounted on a band *T*¹ of leather or woven wire, adapted to be driven and guided by a roller *N*. The roller *N* has two grooves on its periphery, for the bow *U* and band *T*¹ respectively.

16,620. Clark, D'A. M., [Telegraphic Co.] July 12.

Actions; expression, controlling; tune-sheets.

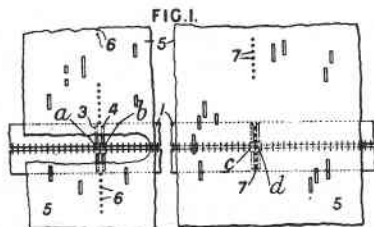
An electro-magnetic player for pianos &c. of the kind described in Specification 17,617/01, is provided with manually or automatically controlled means for accenting or softening a note or notes. A tune-sheet having accentuating-apertures and note-apertures arranged in a special manner, is used for effecting the automatic control. Hand-operated switches are provided for softening either the treble or the bass notes, or both. A motor-generator having brushes 11, 12, 13, and 14 at different potentials, is preferably employed as a source of current, the generator being provided with a shunt and two series windings. The note-operating electro-magnets 5 are connected in parallel in two groups which are controlled by switches 46, 47. By shifting one of these switches from the contact 49 to a contact 48 the corresponding group can be connected to the brush 13 of the generator, so reducing the voltage and softening all the notes in the bass or treble. An adjustable resistance 4 is provided in the circuit of each electro-magnet, and the perforated tune-sheet passes between the contact fingers 3 and the tracker-bar 2. Additional contact-fingers 37, 38 control electro-magnetic switches 18, 19 for accentuating or softening a note or notes. The current normally passes from the brush 14 by the wire 31, contacts 24, 21, 22, and wire 23 to the tracker-bar 2, and thence through the electro-magnets 5 and wires 6, 7, switches 46, 47, wire 35, contacts 28, 27,



29, and wire 33 to the brush 11. When, however, the switch 18 is energized, the armature 20 is attracted, so disconnecting the contacts 24, 22 and connecting the contacts 25, 22. The brush 12 of the generator is thus put in circuit, so that the electro-magnets 5 are operated by current at a higher voltage. Similarly, when

the contact-finger 38 completes the circuit of the switch 19, the brush 13 is put in circuit and the voltage of the current is reduced. Manually-controlled switches 51, 50 may be used to control the switches 18, 19. As shown in Fig. 3, a perforation 41 for an accentuated note is slightly behind the perforations 40 for notes of normal loudness, and the perforation 44 for controlling the switch 18. A perforation 42 for a softened or subdued note is slightly in advance of the perforations 40 and behind the perforation 45 for controlling the switch 19. If the contact fingers 37, 38 are not in line with the contact fingers 3, or it is desired to strike an accentuated or softened note before or after normal notes, the relative positions of the perforations may be varied.

16,903. Walker, J. J. July 15.

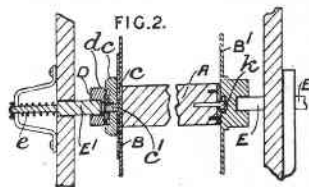


Tune-sheets; tracker-bars; winding-mechanism.—For automatically maintaining the tune-sheet apertures in alignment with the tracker-ducts, the tune-sheet 5 is provided with rows of groups of perforations 6, 7, which co-operate with special ducts 3, 4 in the tracker-bar 1. The ducts 3, 4 control motors which shift the tune-sheet or tracker-bar, or slightly incline the axes of the winding-rollers and tracker-bar as described in Specification 27,043/05, when the tune-sheet apertures 6, 7 register with the ducts. The ducts 3, 4 are in line with ducts *a*, *b*, *c*, *d*, which control devices for effecting (a) the stoppage of the tune-sheet without rewinding, (b) the stoppage of the tune-sheet after rewinding, (c) the stoppage of the tune-sheet and rewinding, and (d) the re-starting of the tune-sheet after rewinding. The tune-sheet apertures 6, 7 are so small that if one only coincides with a tracker-duct no effect is produced, and they are spaced apart so that only one of them can register with a duct *a*, *b*, *c*, or *d* at a time, whereas all the apertures in a group can simultaneously register with a duct 3 or 4.

17,757. Dow, A., and Bennett, J. July 26.

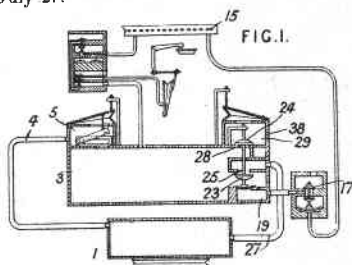
Music spools and rollers; winding-mechanism.—The music roller *A* is provided with a loose flange *B'*, and is hinged to the spindle *E'*, so that it can be disengaged from its loose flange and turned outwards to enable a fresh music spool to be fitted on to it. The flange *B'* is fast

on the driving-shaft *E* and is normally engaged by a projection *k* on the roller *A*. The flange *B* is attached to the roller *A*, which has an extension *c'* on which a disk *C* fits. The disk *C*



is held in position by a nut and is hinged to a boss *D*, which is fast on the spring-pressed holder *E'*. By pushing the roller *A* sideways against the action of the spring *e*, the roller may be disengaged from the flange *B'* and turned outwards for a new music spool to be fitted. A projection on the music spool engages a groove in the roller *A*. Two modifications are described in which the roller *A* is dispensed with, the spool being held between projections provided on the two flanges.

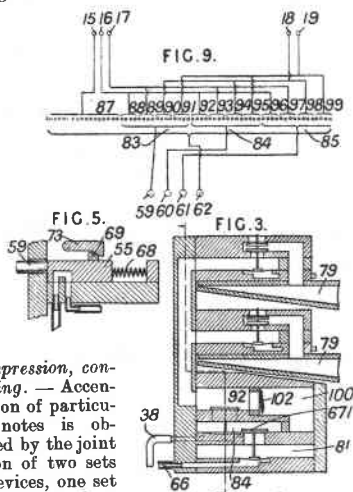
17,884. Lake, W. E., [Aeolian Co.] July 27.



Expression, controlling; tune-sheets.—In a device for accentuating notes in a piano-player, the wind-chest 3 is normally directly connected to the exhaust chest 1, but the direct connexion may be cut-off by a valve 23 controlled from the tracker-bar, leaving an indirect or governed connexion only. At the same time the wind-chest is connected to a chamber 29, at approximately atmospheric pressure, in order to reduce the vacuum. The tune-sheet apertures for the melody notes are slightly in advance of the ordinary apertures. An additional row of apertures is provided in the tune-sheet, and when one of these registers with a tracker duct 15, a valve 17 is operated, so admitting air to a chamber 19 and operating valves 23, 24 to close a port 25 and open a port 28. The direct connexion through the pipe 27 between the wind-chest 3 and exhaust chest 1 is thus cut off, and the wind-chest 3 is connected to a chamber 29 in connexion with the atmosphere by a bleed-hole 38. The vacuum is reduced in the wind-chest 3, which is only connected to the exhaust chest 1 through a governor 5 and pipe 4. As the

tune-sheet apertures for the melody notes are cut slightly in advance of the accompaniment and additional apertures, which are in the same transverse line, a melody note is sounded before the valves 23, 24 are operated, and is therefore accentuated.

18,476. Lake, W. E., [Aeolian Co.]
Aug. 4.



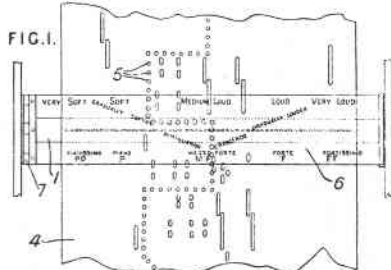
Expression, controlling. — Accentuation of particular notes is obtained by the joint action of two sets of devices, one set being under manual control and serving to select a range of notes in which the accent is to fall, while the other set is controlled from the tune sheet, and serves to restrict the accentuation to a sub-division of the selected range. Thus, by the joint action of one of the hand-stops 59, 60, 61, Fig. 9, and one of the accentuation ducts 16, 17, 18, 19, accentuation is restricted to four continuous notes in the range 88 . . . 99. The duct 15 controls the bass notes 87 independently of the stops, and the stop 62 puts all the actions in a condition for loud playing without co-operation of an accentuation duct. The music sheet is provided with lateral apertures to co-operate with the ducts 15 . . . 19, and with numerals and indicator lines to show when the stops are to be operated. The striking-pneumatics 79, Fig. 3, are normally operated from the low-tension exhaust chamber 100. Supposing the stop 59 to be pressed in, a pipe 66, normally connected to suction, is opened to the atmosphere by a valve block attached to the stop, and a valve in the action chest opens a passage 671 between a high-tension exhaust chamber 81 and a compartment 84, which corresponds to the range of notes indicated at 84 in Fig. 9. If an accentuation aperture passes over the duct 16, for example, a bellows is collapsed and moves a sliding valve-block so as to admit atmospheric pressure to a normally-exhausted pipe 38, opening a valve between compartments 84 and 92, the latter of

which controls four contiguous note-actions as indicated in Fig. 9. These actions are now in a condition for loud playing, as they are in communication through the chamber 84 with the high-tension chamber 81, the low-tension chamber 100 being cut off by a flap valve 102. The duct 16 also connects the compartments 88, 96, Fig. 9, to the compartments 83, 85, but these are not connected to the high-tension chamber 81, so that the corresponding notes are not accentuated. The stop 62, Fig. 9, for producing a general forte effect, opens a direct passage between the chambers 81, 100. The duct 15, Fig. 9, operates to connect a chamber 87 direct to the high-tension chamber. The valve-block 55, Fig. 5, when operated by the stop 59, is held in position against a spring 68 by a block 69 engaging the edge of a pivoted retaining-board 73. The forward motion of the block 69 lifts the board 73 and releases the previously-operated stop. The valve-blocks controlled pneumatically by the ducts 15 &c. are provided with similar means for retaining them in the operated position, and with an additional trip-device acting on the retaining-board to ensure that when one is operated the previous one shall be released.

18,540. Lake, W. E., [Aeolian Co.]
Aug. 5. *Drawings to Specification.*

Tune-sheets. — A tune-sheet for automatic pianos is provided with lines or dots, for indicating when the forte pedal is to be operated, which are situated adjacent to, and follow the course of, the tempo or expression line.

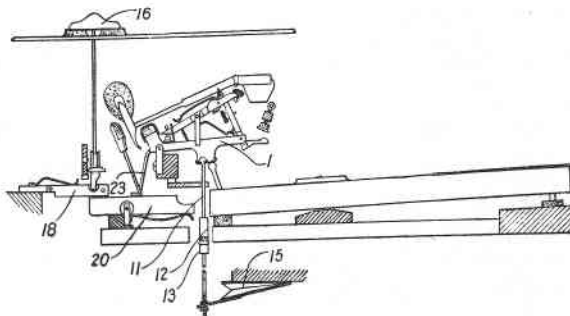
18,615. Lake, W. E., [Aeolian Co.]
Aug. 6.



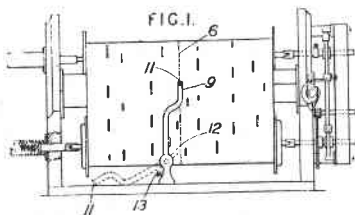
Expression, controlling. — Relates to expression-indicators of the kind comprising a hinged plate extending over the tracker-bar, and bearing marks of expression which co-operate with the usual expression-line on the tune sheet. The transparent scale 6 is hinged at 7, and extends over the tracker bar 1. The expression line 5 on the tune sheet 4 indicates the expression to the performer on the scale 6. The scale 6 is provided with marks of expression, some of which are inclined to the tracker-bar. In a modification, a hinged opaque plate is provided, which is slotted above the tracker-ducts.

18,699. Lake, W. E., [Aeolian Co.]. Aug. 8.

Player-pianos.—In an automatically operable grand - piano, the striking-pneumatic 15 acts through a loose connexion 12, 13 on a rod 11 which hangs by a universal or ball joint from the support 1 for the repeating-lever. An arm 23 extending downwards from the end of the support 1 controls the damper 16 through spring-levers 20, 18.

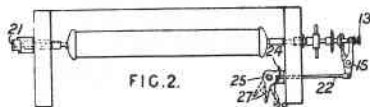


18,774. Lake, W. E., [Aeolian Co.]. Aug. 9.



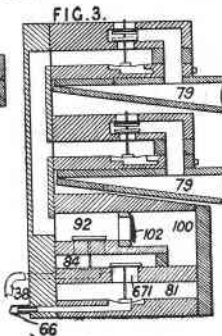
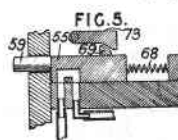
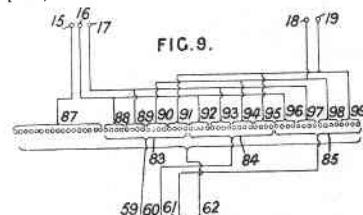
Winding - mechanism.—A pointer 9 with a notched end 11 is pivoted near the base of the music-spool box, and can be turned up parallel to the front thereof until a lug 12 abuts against an adjustable screw stop 13. As long as the sheet is travelling correctly, a line 6 on the music sheet remains in alinement with the notch 11.

19,179. Lake, W. E., [Aeolian Co.]. Aug. 15.



Winding-mechanism.—The tune-sheet spools are longitudinally adjusted by a device situated inside the tracker box, and comprising a lever 25 with a cam-portion 24 bearing on a rod 22 which rocks a shaft 15 carrying stepped bearings 13 for the ends of the spool spindles. The lever handle 27 operates the spools in the direction of its own motion and against the action of a leaf-spring 21. A mark 23 on the cam portion is opposite the end of the rod 22 when the spools are in normal position.

19,320. Alexander, A. E., [Aeolian Co.]. Aug. 17. No Patent granted (Sealing fee not paid).

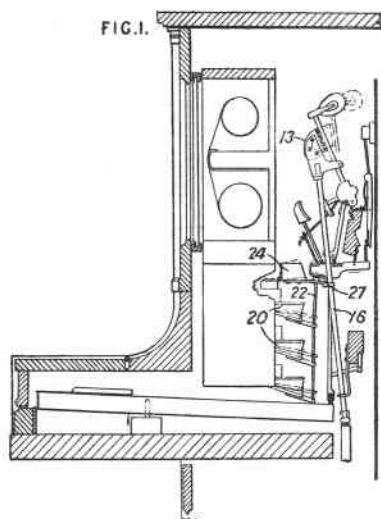


Expression, controlling.—The accentuation of particular notes is obtained by the joint action of two sets of devices, one set being under manual control and serving to select a range of notes in which the accent is to fall, while the other set is controlled from the tune sheet and serves to restrict the accentuation to a sub-division of the selected range. Thus, by the joint action of one of the hand-stops 59, 60, 61, Fig. 9, and one of the accentuation ducts 16, 17, 18, 19, accentuation is restricted to four contiguous notes in the range 88-99. The duct 15 controls the bass notes 87 independently of the stops, and the stop 62 puts all the actions in a condition for loud playing, without co-operation of an accentuation duct. The music sheet is provided with lateral apertures to co-operate with the ducts

15-19, and with numerals and indicator lines to show when the stops are to be operated. The striking-pneumatics 79, Fig. 3, are normally operated from the low-tension exhaust chamber 100. Supposing the stop 59 to be pressed in, a pipe 66, normally connected to suction, is opened to the atmosphere by a valve block attached to the stop, and a valve in the action chest opens a passage 671 between a high-tension exhaust chamber 81 and a compartment 84, which corresponds to the range of notes indicated at 84 in Fig. 9. If an accentuation aperture passes over the duct 16, for example, a bellows is collapsed and moves a sliding valve-block so as to admit atmospheric pressure to a normally-exhausted pipe 38, opening a valve between compartments 84 and 92, the latter of which controls four contiguous note-actions as indicated in Fig. 9. These four actions are now in a condition for loud playing, as they are in communication through the chamber 84 with the high-tension chamber 81, the low-tension cham-

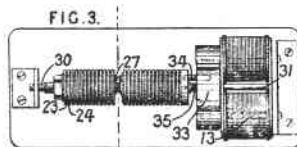
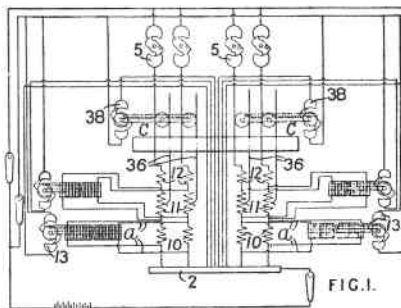
ber 100 being cut off by a flap valve 102. The duct 16 also connects the compartments 88, 96, Fig. 9, to the compartments 83, 85, but the latter are not connected to the high-tension chamber 81, so that the corresponding notes are not accentuated. The stop 62, Fig. 9, for producing a general forte effect, opens a direct passage between the chambers 81, 100. The duct 15, Fig. 9, operates to connect a chamber 87 direct to the high-tension chamber. The valve-block 55, Fig. 5, when operated by the stop 59 is held in position against a spring 68 by a block 69 engaging the edge of a pivoted retaining-board 73. The forward motion of the block 69 lifts the board 73 and releases the previously-operated stop. The valve-blocks controlled pneumatically by the ducts 15 &c. are provided with similar means for retaining them in the operated position, and with an additional trip-device acting on the retaining-board to ensure that when one is operated the previous one shall be released.

19,696. Lake, W. E., [Aeolian Co.].
Aug. 23.



Expression, controlling; actions.—The mechanism that adjusts a piano for soft playing engages means for partly collapsing the striking-pneumatics so as to prevent lost motion. The pedal-rod 16, which operates the rest-rail 13, has a projection 27 for lifting a hinged board 24, which carries a flange engaging under the heads of the abstracts 22. When the soft pedal is depressed, the rest-rail is moved forward, and the movable boards of the striking pneumatics 20 are moved upwards.

20,095. Clark, D'A. M., [Teleelectric Co.].
Aug. 29.

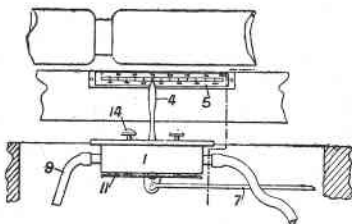


Expression, controlling; actions.—In an automatic musical instrument, the expression is controlled by switch devices which short-circuit resistances in series with the note-operating electro-magnets. More or less of the resistance in each electro-magnet circuit may be short-circuited by a sliding contact of the kind described in Specification 12,555/07, and to accentuate a note or notes, tune sheets of the kind described in Specification 16,620/10 are employed. The note-operating electro-magnets 5 are connected in parallel circuits, each con-

taining resistances 10, 11, and 12. Each circuit includes a contact finger, which bears upon the tracker-bar 2. A short-circuit *a*, terminating in spring arms, is provided for each of the resistances 10. The spring arms bear upon a roller comprising a series of copper disks 23 threaded on an insulating-sleeve and separated by insulating-disks 24, as shown in Fig. 3. A rod of insulating-material 27 is threaded through a hole bored parallel to the axis of the roller, and the spring arms of one series normally bear upon it, while those of the other series bear upon the copper disks 23. The roller is mounted on pivots 31, 30, and is connected by a pin 34 to the armature 33 of an electro-magnet 13. When the electro-magnet 13 is energized by a special aperture in the tune-sheet, the roller is rotated against the action of a spring 35 until both sets of spring arms bear upon the conducting-disks 23, so short-circuiting the resistances 10 and causing all the bass notes to be sounded more loudly. Similar devices are provided for short-circuiting the resistances 11 of the bass notes, and also the resistances 10, 11 of the treble notes. In a modified construction of switch device, a number of spring contacts bear upon an insulating-bar carried by the armatures of electro-magnets, and normally supported by a spring. When the armatures are attracted the bar is drawn down, permitting each of the spring contacts to complete a circuit. Sliding contacts 36, which may be operated as described in Specification 12,555/07, are provided for varying the resistances in the circuits. These contacts normally bear on the conducting-parts of rollers C which are similar to that shown in Fig. 3, but when an electro-magnet 38 is energized, a roller is rotated until all the contacts of one set bear upon an insulating-rod such as 27, so putting more resistance in the circuits and subduing the notes sounded. Specification 17,617/01 is also referred to.

20,246. Lake, W. E., [Aeolian Co.].
Aug. 30.

FIG. 1.

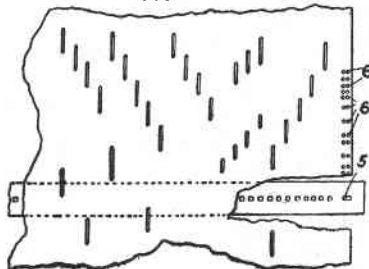


Expression, controlling; tempo-regulating means.—In an automatic musical instrument, the tempo is varied by sliding a block carrying pushes for controlling the expression, so that the performer can control both tempo and expression with the same hand. The block 1 is connected by a link 7 with a device for varying

the speed of the motor. The pushes 14 operate spring-pressed valves 11 for admitting air to tubes 9 to control the loudness of the notes played in the treble and bass respectively. The block 1 is provided with a pointer 4, which moves over a scale 5.

20,352. Lake, W. E., [Aeolian Co.].
Aug. 31.

FIG. 1.



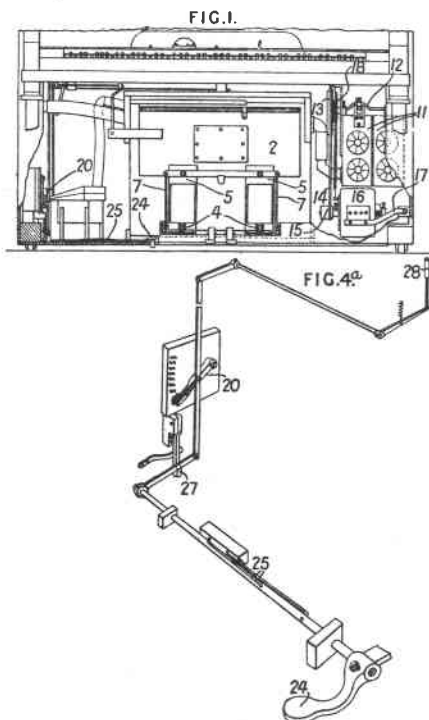
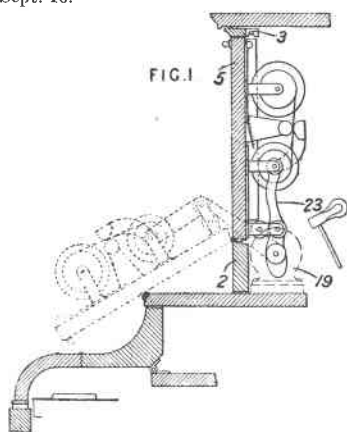
Tune-sheets; tracker-bars.—To avoid weakening the edges of the tune sheet of a pneumatic instrument, the marginal expression-controlling apertures 6 are made of less width than the note slots, and are arranged to co-operate, two or more in multiple, with a supplementary tracker duct 5, having a wide flared mouth. This arrangement may be repeated at the other edge of the sheet if separate expression-controlling means are provided for treble and bass.

20,958. Lake, W. E., [Aeolian Co.].
Sept. 8.

Player-pianos; blowing and exhausting air; expression, controlling; treadle devices.—In an automatic piano, two sets of pumping bellows are provided, which can be operated by treadles and an electric motor respectively. The performer uses either set of bellows separately, or both sets together for producing loud playing effects. The treadles 5 are hinged to a bar, mounted on pivoted links 7, and are connected by rods 4 to bellows behind the reservoir-board 2. The electric motor 16 is mounted on hinged arms 17, and drives a shaft 12, which operates the bellows 11, through a belt 14 and pulleys 13, 15. A spring 18 assists in supporting the motor and in damping out vibrations. The speed of the motor is controlled by a rheostat, the contact-arm 20 of which is operated against the action of springs 25 by means of a pedal 24. A spring-pressed catch 27 is provided for holding the contact-arm in the position shown until the pressure on the pedal 24 is entirely released. Alternatively, the contact-arm may be controlled by a push-button 28.

(For Figures see next page.)

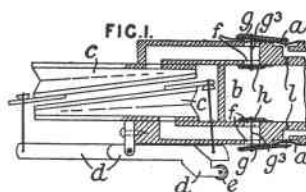
20,958.

21,562. Lake, W. E., [Aeolian Co.]
Sept. 16.

Winding-mechanism; cases.—The front panel 2 of an automatic instrument comprises a

562

hinged section 5, on which the winding-mechanism and controlling-levers are mounted, and which can be turned down over the keyboard as indicated in broken lines so as to expose the winding-mechanism when the instrument is to be played automatically. A slide is provided to close the opening thus produced. In the form illustrated, the pianoforte is electrically operated, and the spools are driven by a motor 19 through pulleys and a band 23. The entire front panel 2, including the hinged portion 5, can be swung forward about a hinge 3 to serve as a music rack.

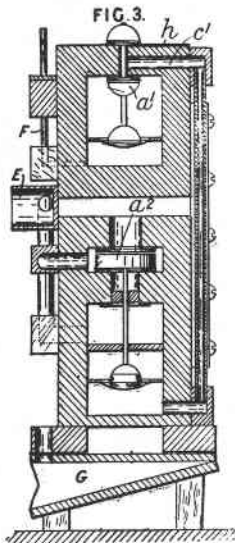
21,670. Staley, D. O., and Sawyer,
T. S. Dec. 10.

Piano-players; actions.—In a piano-player, the primary pneumatic or purse *a*, and the valves *g*, *h* and their ports *f*, for each pneumatic action, are arranged upon or formed in the same rail or wall of the exhaust-chest *b*. The striking pneumatics *c* are arranged one above the other in reversed positions and with their sloping sides adjacent to one another. The purses *a* which operate rocking valves *g*, *h*, are arranged on the outer walls of the exhaust-chest *b*, to which they are connected by bleed-holes *l*. The valves *g*, *h*, which are connected by members *g'*, control ports *f* and connect the pneumatics *c* either to atmosphere or to the exhaust-chest *b*. The pneumatics *c* operate strikers *d* carrying covered rollers *e*, which bear upon the keys of the piano. When the player mechanism is not required, it may be swung under the key-bed of the piano or it may be detached.

21,690. Bryan, J. H. Sept. 19.

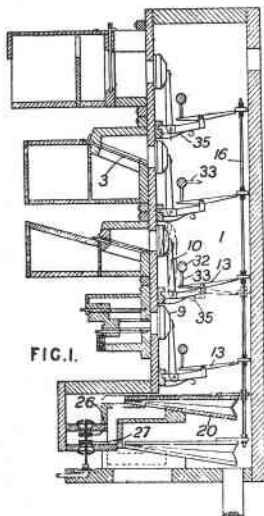
Models for instructing repairers; actions.—For instructing repairers of piano-players and the like, a model of a pneumatic action is so constructed that each operative part is visible. The primary valve *a*¹ is connected by a tube to the secondary valve *a*², which controls the note-operating pneumatic *G*. Most of the air-conduits are arranged outside the casing, but the course of the conduit *c*¹ is indicated by a metal strip *h*. The valves *a*¹, *a*² can be seen through glazed windows. The operator applies his mouth to the nozzle *E* for the purpose of producing the necessary suction within the apparatus. The tube *F* is normally covered by a finger of the operator, which is removed when it

is desired to cause the valves to work. The various parts may be indicated by letters or



numerals, their functions being explained on a sheet of instructions.

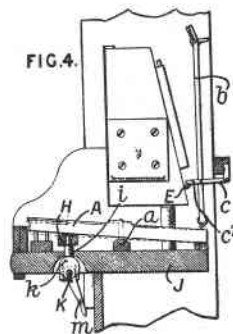
21,739. Lake, W. E., [Aeolian Co.].
Sept. 19.



Wind instruments.—In an automatically operated wind instrument, the stickers 16 are

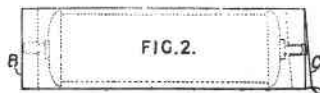
connected to pneumatics 20 and operate levers 13, pivoted on bell-cranks 10 which carry valves 9. Each valve 9 controls one note of a stop. A shaft 32, provided with a wing 33, is arranged transversely to each set of levers 13 and can be rotated by a stop arranged on the front of the instrument. If the wing 33 of a stop is in the horizontal position, the levers 13 rotate idly when the pneumatics 20 collapse, but, when the wing 32 is moved to the vertical position, it acts as a fulcrum for the levers 13, and the corresponding valves 9 are opened, admitting wind from the chest 1 to the reeds 3. The valves 9 may be closed again by the action of springs 35. The pneumatics 20 are controlled by valves 26, 27 in the usual manner.

24,029. Marks, E. C. R., [Chase & Baker Co.]. Oct. 17.



Player-pianos.—A key-locking device for automatic pianos comprises a bar *H* arranged transversely to and underneath the keys *A*, and provided with pins *i* passing through holes in the key-bed *J*. The pins *i* rest upon eccentrics *k* carried by a shaft *K*, which is mounted in bearings underneath the key-bed and is adapted to be rotated by a handle *m*. By rotating the shaft *K*, the locking-bar *H* may be raised to lock the keys, or lowered to release them. When the keys are locked, they are lifted from the balance-rail *a*. The piano abstracts *b* are pivoted to links *c*, extensions *c2* of which are operated by levers *E*.

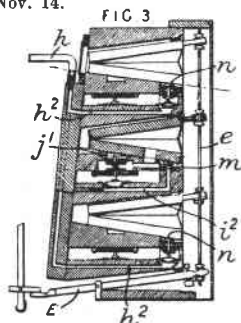
24,370. Maxfield, J. Oct. 20.



Tune-sheets, receptacles for. A box for a perforated music-roll, such as is used in piano-players &c., is of square section and has one end *C* hinged and the other end *B* fixed. Each end is provided either with a hole, as shown,

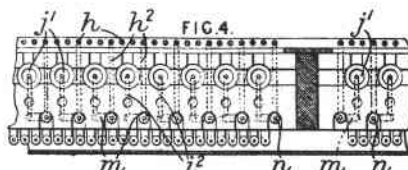
for receiving the ends of the metal peg in the spool, or with a projection for entering the end of the spool, if no peg is provided. If the box is held vertically with the end C downwards, the peg prevents the box from being opened owing to its engagement with the hole in the end C.

26,428. Marks, E. C. R., [Chase & Baker Co.]. Nov. 14.



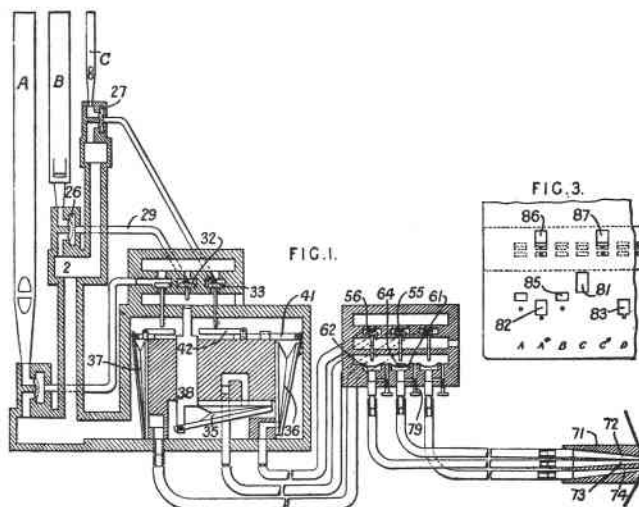
Player-pianos; actions. — In a pneumatic

action for piano-players and player-pianos, the primary valves n are arranged opposite the spaces between the secondary valves j^1 , and the channels h^2 leading to the primary valves are



arranged between the secondary valves. The wind-chest is supported at each end by standards to which it is attached by screws and lugs. As shown in Fig. 3, the striking-pneumatics are connected by downwardly-extending rods e to levers E , which operate the piano action. The tracker-tubes h are connected to ducts h^2 leading to the primary valves n , and the primary-valve chambers are connected by longitudinal channels m and transverse channels i^2 to the secondary valves. The primary and secondary valves are operated by pulses in the usual manner.

26,532. Mills, C. K., [Gibbs, W. E.]. Nov. 15.

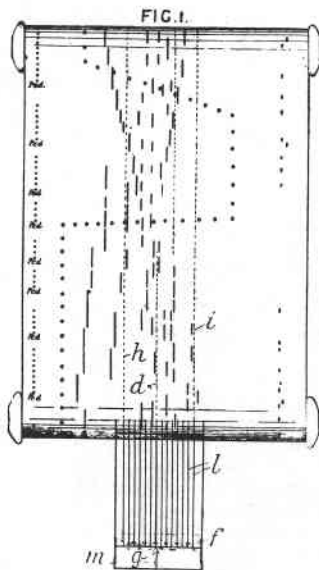


Wind instruments; actions; tune-sheets.—In an automatic organ having two or more divisions, means are provided for controlling all the divisions by one tune-sheet having only a single row of apertures for each note. The tracker-bar 71 has three ducts 72, 73, 74 for each note, and, as shown in Fig. 3, some of the tune-sheet apertures are preceded at varying

distances by small holes. To sound a note on the great organ B, a tune-sheet aperture such as 81 admits air to the duct 72, so operating a diaphragm 61 which carries a weight 64. A valve 55 is opened, connecting a bellows 35 to atmosphere, so that it collapses and operates a slider 38 to open a valve 32. The chest 26 thereupon exhausts through a pipe 29, and wind

passes from the chest 2 to sound a note. To sound a note on the swell organ C, a tune-sheet aperture is immediately preceded by a small hole, as at 82 or 83, Fig. 3, so that a port 73 is opened at the same time as a port 72. Air is thus admitted to the diaphragm chamber 62 to open the valve 56 and permit the bellows 36 to collapse, thus operating a slide 41 carrying a lever 42, which engages a shoulder on the slide 38. The movement of the slide 38 raises the lever 42, thereby opening the valve 33 and permitting a chamber 27 to exhaust in order to sound a note. The lever 42 limits the travel of the slide 38, so that a valve 32 is not opened. The pedal organ A is controlled in a similar manner by holes some distance in front of the corresponding note-apertures, as shown at 85, Fig. 3. These holes co-operate with ports 74 controlling pneumatics 37. To sound all three organ divisions together, two holes precede the corresponding note-apertures as shown at 86, 87, Fig. 3. The bleed-hole screws 79 are so adjusted that the holes preceding the note-apertures do not affect the diaphragms 61.

26,553. **Kastner, M. M.** Nov. 15.

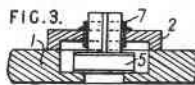


Tempo-regulating means; tune-sheets. — A tune-sheet for automatic musical instruments is marked with two parallel lines *h*, *i*, which extend for the full length of the sheet, and coincide in position with the ends of the tempo-scale *f*. A broken or discontinuous tempo-line *d* is marked on the tune-sheet between the lines *h*, *i*. A frame, comprising a number of parallel wires *l*, is pivotally mounted at *m* in proximity to the tune-sheet. The wires *l* may

extend up to the tracker-bar, and terminate at their lower ends on the usual tempo-scale *f* to facilitate the moving of the tempo-regulating lever *g* to follow the line *d*. In a modification, the tempo is shown by a series of arrows marked on the tune-sheet. The arrows or lines may be of different colours.

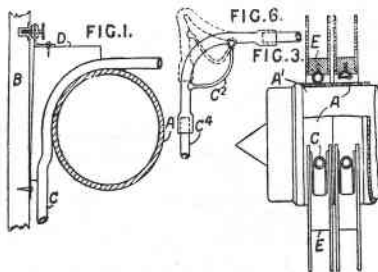
27,554. **Jäger, J.** July 19, [Convention date].

Actions. — Relates to a method of constructing and assembling pneumatic actions so as to ensure



that all the valves have a uniform lift. As shown, the casing of each valve 5 is made in two parts 1, 2, and a tubular seating 7 for the valve is provided in the part 2. In assembling the action, the valve 5 is placed upon a washer resting upon the lower seating and the part 2 is placed in position. The tube 7 is pushed down until it contacts with the upper surface of the valve, and is then secured in position by fish glue. The washer may then be removed and the parts 1, 2 secured together with the valve 5 between them. As the same washer is employed in assembling all the actions, all the valves have a uniform lift.

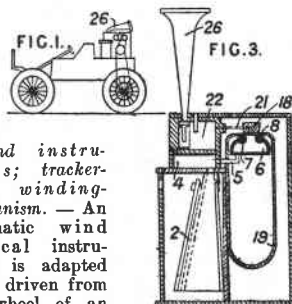
27,824. **Asbury, T. H.** Nov. 30.



Actions. — In an action of the shoe-and-roller type, the friction members are normally held out of engagement with the rotating roller by suction. When the suction acting upon one of these members is destroyed, it engages with the rotating roller and causes a note to be sounded. As shown in Fig. 1, the tube C is provided with a web fitting into a slot in the shoe D and secured thereto. The tube C is connected at one end to a port in the tracker-bar and at the other end to an exhaust-chamber. The shoe D is secured to the sticker B of the piano action. The tube C is normally exhausted and therefore in a collapsed condition, but when air is admitted to it from the tracker-bar, it expands and engages a rotating roller A, so causing the sticker B to rise and strike a note.

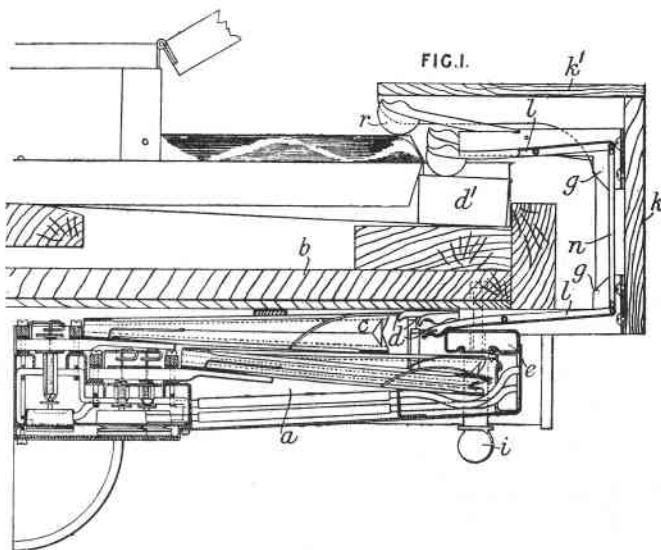
To restrict the exhaustion after the admission of air to the tube C, an extension C', Fig. 6, of the tube is connected to the sticker B so that the tube is constricted, as shown in dotted lines, as the sticker rises. A small by-pass C² across the constriction may be provided, or a by-pass may be arranged inside the tube, or a solid strip of flexible material may prevent the tube from being entirely closed. The portions of the tubes that engage the drum may be smooth, roughened, serrated, or corrugated, and the trailing end may be provided with a plate or shield. The surface of the drum may be roughened or covered with rubber. In modifications, the tubes are fitted between the stickers and the shoes, the shoes moving in guides attached to the stickers. As shown in Fig. 3, the tubes C are mounted in rotatable rings E. The roller A' is provided with a series of rings A which are driven by frictional contact and with which the tubes C are adapted to engage. Flexible chambers or pads having a normal tendency to expand, or cylinders fitted with pistons having a normal tendency to move outwards, may be substituted for the tubes. According to the Provisional Specification, each tube may be fitted within a ring furnished with a brake-shoe set in a segmental slot, and mounted so as to stand normally out of engagement with the drum. A valve may be substituted for the by-pass arrangement shown in Fig. 6. The roller may comprise an assemblage of cylindrical parts, the speed of each of which may be varied as required.

28,319. England, J. R., and Gano, W. B. Dec. 6. No Patent granted (Sealing fee not paid).



Wind instruments; tracker-bars; winding-mechanism.—An automatic wind musical instrument is adapted to be driven from the wheel of an automobile or by a wind-mill. An endless tune-sheet 19 is driven by rubber-covered rollers 7, 8, which are rotated by belts and pulleys. The tracker-bar 18, which is mounted on flexible tubes 21, rests on the tune-sheet between the rollers. The tubes 21 connect the tracker-ducts to the reed-chambers 22, which are connected to horns 26. The bellows 2 supply air under pressure to the wind-chest 4, which is connected by a tube 5 to a chamber 6 beneath the tracker-bar 18. When the instrument is mounted on an automobile, the horns 26 are bent backwards, as shown in Fig. 1.

28,971. Atkinson, C. W. Dec. 13.

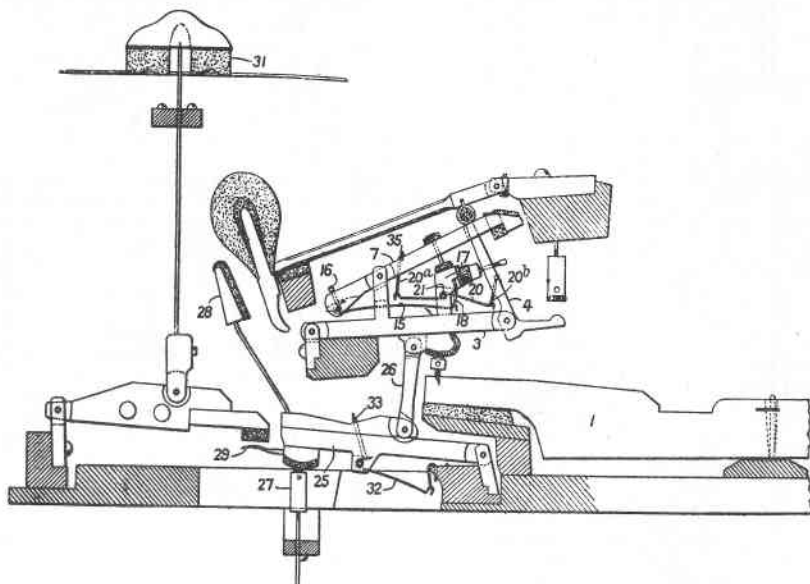


Piano-players.—Action mechanism *a* of the sort described in Specification 1439/09 is fixed under the keyed *b* of a piano, and controls levers *l*, *n*, *l* for striking the keys *d* from above.

these levers being mounted on a frame *k*, *k*¹ which can be removed when the instrument is to be played manually. The upper and lower levers *l* are formed of metal pressed to a channel section, and are pivoted in and between metal brackets *g*, of which the upper set are adjustably fixed. The lower brackets *g* take between the keyed and an air trunk *e*, and are gripped

by screws *i*, whereby the frame *k* is supported in position with the ends of the lower levers *l* taking under projections *d* of the corresponding striking-pneumatics *c*. The links *n* are of tubular formation. Felt pads *r*, which may be shaped under heat out of half-disks, are gripped or cemented in the ends of the upper levers *l*.

29,034. Streich, R. Dec. 14.

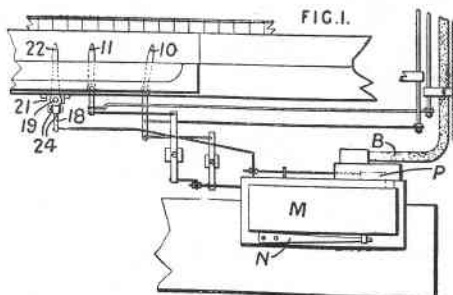


Player-pianos.—In an action for manually or automatically operated grand pianos, the wippen is connected by an arm 26 to a lever 25, which carries the hammer check 28 and is provided with an extension 29 for operating the damper 31.

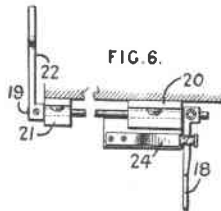
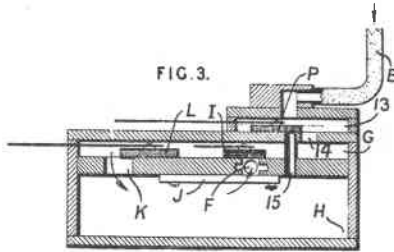
The lever 25 is adapted to be operated by the striker 27 of the automatic action. A spring 32, the tension of which can be adjusted by a screw 33, supports the weight of the action.

29,264. Royston, E. R., [Auto Pneumatic Action Co.], Dec. 16.

Tempo-regulating means; winding-mechanism.—Two tempo-regulating valves *P*, *L* are provided, which are operated by levers 22, 11 and control ports 15, *K* leading into chambers 13, *G*, respectively. The chamber *G* is connected by a port 14 to the chamber 13, which is connected by a pipe *B* to the motor. The ports 15, *K* lead into a chest *H*, which is connected to the exhaust-pipe *F* through a port controlled by a pivoted governor-valve *J*. The governor *M* is provided with the usual spring *N*. The lever 22 controlling the valve *P* is carried by a spindle 19, which rotates in bearings 20, 21. An arm 18 on the spindle 19 is arranged between springs 24, so that the lever 22 is automatically returned



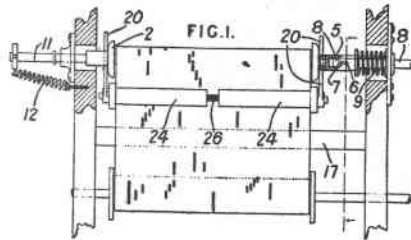
to the normal position when released. To re-wind the tune-sheet, an ungoverned connexion may be opened between the motor and the exhaust pipe F by operating a lever 10, which



opens a valve I. At the same time, the spindle driving the take-up roll is shifted and clutched to a sprocket-wheel for driving the music-roll,

a pinion on the spindle being disengaged from a spur-wheel driving the take-up roll.

29,659. Lake, H. W., [Aeolian Co.].
Dec. 21.



Winding - mechanism.—The tune-sheet is guided over the tracker-bar 17 by means of a flanged roller 24, which is mounted on pivoted arms 20 and tensions the tune-sheet by gravity. The downward movement of the arms 20 is limited by stops. A right and left handed screw 26 is provided for varying the length of the roller 24. The supports 8, 11 for the delivery roll 2 are pressed towards each other by springs 9, 12. The support 8 is provided with a sliding collar 5 having a slot 7 through which a pin 6 passes.

To be continued

TRADE MARK



D. ALLARD & SANDOZ

MANUFACTURERS · GENEVA ·

Organocléide

1st part

- | | | |
|---------------------------|--------------------|---------|
| 1 William Tell | Andante | Rossini |
| 2 Il Trovatore | ai nostri monti | Verdi |
| 3 Home, sweet Home | | |
| 4 The Last Rose of Summer | | |
| 5 Don Giovanni | la ti darò la mano | Mozart |
| 6 Don Giovanni | Batti Batti. | " |

2^d part

- | |
|--------------------------|
| 1 Sun o' my Soul |
| 2 Abide with me |
| 3 O Come |
| 4 Our blest Redeemer |
| 5 Jesu, Lover o' my Soul |
| 6 Hark, Hark, my Soul |

No 4.526

13" 29m.

9383

Forti et Piano,
Crescendo Diminuendo

Etouffoirs en acier
Rouage à Balancier.

Musique à Expression.

Huit airs

1156	The Camelian Polka.	Julien
1241	Or little soggetto, Muehbell	Verdi
1105	Dermot Astore	Prombs
1053	Grande Valse de la Syrene	Auber
1254	Stella Polka	Hoening
1140	The Dream of horn	B.
1152	Il faudra qu'on me supplie. Diamant	Auber
964	Le Prince de Gallien Valtzer.	Labitzky

TWO INTERESTING TUNE SHEETS

From Member Graham Webb come two more interesting tune sheets. That overleaf is from an Organocleide manufactured by D. Allard & Sandoz. Founded in 1880, the partnership between Allard and Sandoz was comparatively short-lived and by 1895 the business was known as D. Allard & Co. The address was 2, Place des Alpes, Geneva — very close to the premises of B.A. Bremond. Allard produced high-quality boxes and specialised in the making of complicated musical movements, singing birds, orchestrians and, by 1903, phonographs. The trade mark, seen enlarged on the facing page, was a bird standing upon a musically-pinned cylinder.

The tune sheet above is printed in blue and bears the mark of David Lecoultre, Brassus, in the upper right corner. This detail is shown to a larger scale in the section on the facing page. A maker of excellent-quality key-wind musical boxes, David Lecoultre was in business from about 1810 onwards. He exhibited at the Great Exhibition held in the Crystal Palace in Hyde Park, London, in 1851. On that occasion, he showed a very large twin-comb overture box playing three overtures - De Semiramis and Guillaume Tell by Rossini, and Robert le Diable by Meyerbeer.

1906

N^o 9383

Forti et Piano,
Crescendo Diminuendo



Etouffoirs en acier
Rouage à Balancier.

Musique à Expression.

Huit airs

Patent d'Invention à Paris 1889
Exposition de Vienne 1894

D·ALLARD & SANDO



MANUFACTURER

Quatre Vols

NEW PUBLICATION.

COLNAGHI, SON & C^o.,

N^o 11, Pall-Mall East,

**BEG LEAVE TO ANNOUNCE THAT THEY INTEND TO PUBLISH UNDER
THE PATRONAGE OF HIS MAJESTY,**

A Mechanical Horse

**IN WOOD, WHICH IS CAPABLE OF BEING PLACED IN ALL THE
ATTITUDES OF THE LIVING ANIMAL.**

TERMS OF SUBSCRIPTION.

**SUBSCRIBERS NAMES WILL BE RECEIVED BY COLNAGHI, SON ET C^o, N^o 11, PALL-
MALL EAST, AND BY F. AND J. FULLER, RATHBONE-PLACE.**

The price of the Horse..... £ 12 : 12.

Those Subscribers, who send in their names before the 15th of december, will receive the model by the end of January 1829; and the Names received by the latter period, will have their copies by the latter end of March 1829. Those who subscribe after the above date, will receive the models in the course of two or three months, after the others given.

Prospectus.

THE Artist, to whom the honor is due of having invented the beautiful piece of mechanism now offered to the Public, had no other object in view whilst bringing his work to perfection, than to make it useful to himself, as a painter; but, in consequence of the wishes of several Artists and Amateurs, who had

seen it, and who were anxious to share the benefit of his useful and ingenious invention, he has had correct copies made from it, under his own direction, for which he has opened a Subscription in order that Gentlemen, who may be devoted to the study of the Horse, may have it in their power, to become possessor of the most perfect model of the animal ever yet produced. The figure is composed of 140 separate pieces, and the action of all the parts is so complete and perfect, that the model is capable of being placed in all the various attitudes of the living animal, with the grace and flexibility of nature.

His Majesty has been graciously pleased to inspect the original, and to command that His Name should be placed at the head of the list of Subscribers. Many Artists of celebrity have likewise shown their admiration of this surprising work, by becoming subscribers; and when its usefulness and merits are further known, it will no doubt receive the patronage of every admirer of the Horse.

The same Artist is, at present, employed in forming a human figure, on the same scale as the Horse, which, when brought to perfection, will likewise be submitted to the Public.



This unusual leaflet, undated save for an acquisition date of 7th January, 1875, was found by The Editor in the British Museum to whom grateful acknowledgement is given for its reproduction.

PARIS:

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PHONOGRAPHIC CORNET.

The Latest and Greatest Musical Wonder.

The Phonographic Cornet is the latest invention in the musical line. The action of this instrument is almost marvellous. It plays the most complicated airs equal to a first-class Cornet solo. The picture represents the manner of playing: simply turning the little crank on the side produces most exquisite music. The music-producers are genuine first-class Organ Reeds, and the music itself is like that of a first-class Organ played on the high notes, with the flute stops out. *Any tune that ever was written can be instantly played on the Phonographic Cornet, without any instruction or knowledge of music whatever by the operator.* A little strip of paper in which the tune has been perforated, is placed in the instrument, and then simply turning the little handle brings out the tune in a clear and extremely melodious manner. Selections of choice music accompany each "cornet." Any child can play this instrument; the music is very pleasing; all the new tunes can be easily obtained, and no musical instrument in the world can provide more genuine entertainment, at home or in company, than the Phonographic Cornet. **Anyone** can play it, and produce the latest music in a manner that will surprise everyone. The instruments are all strongly and elegantly made of fancy woods, ebonized trimmings, and silvered bolts. They are packed in a neat case, with music strips, directions, &c., &c., and sent by express to any address for **\$3**; by registered mail, prepaid, **\$3.30**. Extra tunes, comprising all the latest popular music, are now ready.

Address **THE MASSACHUSETTS ORGAN CO., 43 Washington Street, Boston, Mass.**

Contributed by Member Frank Greenacre of Gorleston-on-Sea.

Melography, the recording of musical sounds on to paper, was a subject which taxed the inventive abilities of many men during the burgeoning days of mechanical music. As long as there has been music and musical intelligence, Man has striven to perpetuate melody. For those who could use conventional musical notation, the task was easier, but still there could be no immediate preservation of an extempore performance. When the invention of pneumatic actions and, later, electro-magnetic actions allowed the instantaneous punching of holes which represented musical sounds into paper, melography became a thing of the past. Today when one thinks of melography, one thinks automatically of the work of Carpentier and the instruments which he made. But there were others who all contributed to the development of the successful melograph. One was Creed who later went on to perfect the tele-typewriter. The following article deals with another inventor and his work. This interesting paper appeared in "Das Neue Universum" published by W. Spemann of Stuttgart in 1883 and comes from the library of the Editor. The translation has been prepared for THE MUSIC BOX by the courtesy of Member Lyndesay G. Langwill, author of "Church & Chamber Barrel Organs".



THE MELOGRAPH

A Machine for Recording Music on Paper

IT HAS NOW become debatable whether it may be desirable to possess an apparatus which permits the recording of the improvised performance of a pianist, so that an expert can translate the written result into notation just as the telegraphist converts the dots and dashes on the paper roll of his apparatus into ordinary script. For us it is not a question of the suitability or usefulness of such an apparatus but the means by which this aim could be attained — indeed has been attained.

As long ago as 1856, Du Moncel carried out experiments aimed at this but without obtaining a satisfactory result. At a time when electric batteries were still very imperfect, this had to wait. However at the Vienna International Exhibition of 1873, an apparatus designed expressly for the purpose was exhibited by the engineer Roncalli and, although it did not meet all the requirements, it is through it that the first steps in the solution of the problem were taken and it is interesting to follow the means employed.

At the outset it is essential to have paper which is soaked in a mixture of equal parts of a solution of yellow alkaline salt (calcium iron cyanide) and salt-

petre ammoniac (ammonium nitrate). If one allows a steel stylus to glide over writing paper which is thus prepared, glazed and slightly moistened, it will produce hardly any variation. If, however, an electric current passes from the stylus through the paper to a metal surface beneath, there is produced a ferric oxide salt which, in the presence of potassium iron cyanide, gives a blue precipitate which appears on the whole line which the pin or stylus traces on the paper. This immediately ceases when the current is interrupted. If, instead of a steel stylus, one of copper or copper-alloy is used, the line becomes red; cobalt produces a brown line; that from a stylus of bismuth becomes visible only after the paper strip has been placed in clean water when it shows up as a bright yellow line. Nickel and chromium produce green lines and silver an invisible trace which turns brown after exposure to light.

It is clear that by these means a particular notation can be obtained. Roncalli's Melograph (Melody-writer) makes use of these chemical phenomena. In the musical instrument shown in Figure 1, there is situated on the right the writing apparatus which is connected by copper wires to the individual keys. At the left is a clockwork motor by which means the paper strip, upon which the writing will be made, is rolled. Between both components is an ordinary metronome or time-counter.

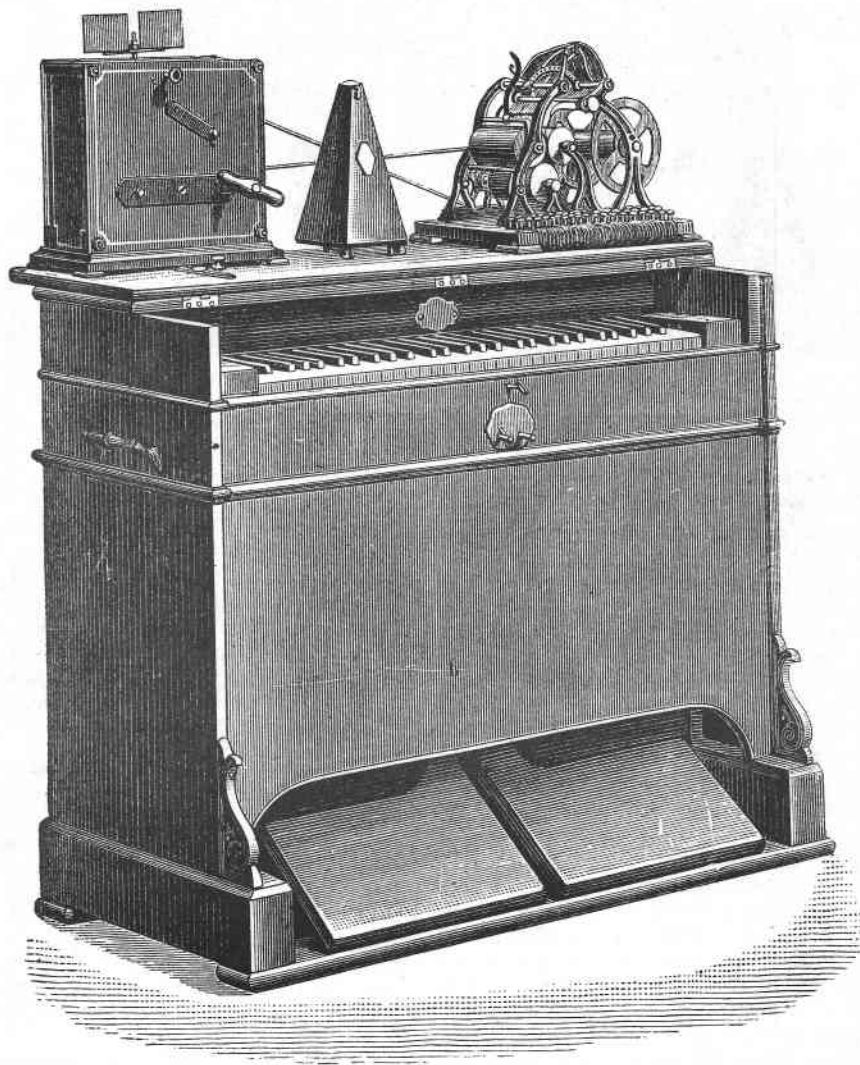
Now let us consider this ingeniously-constructed note-writer more closely. It is depicted to a larger scale in

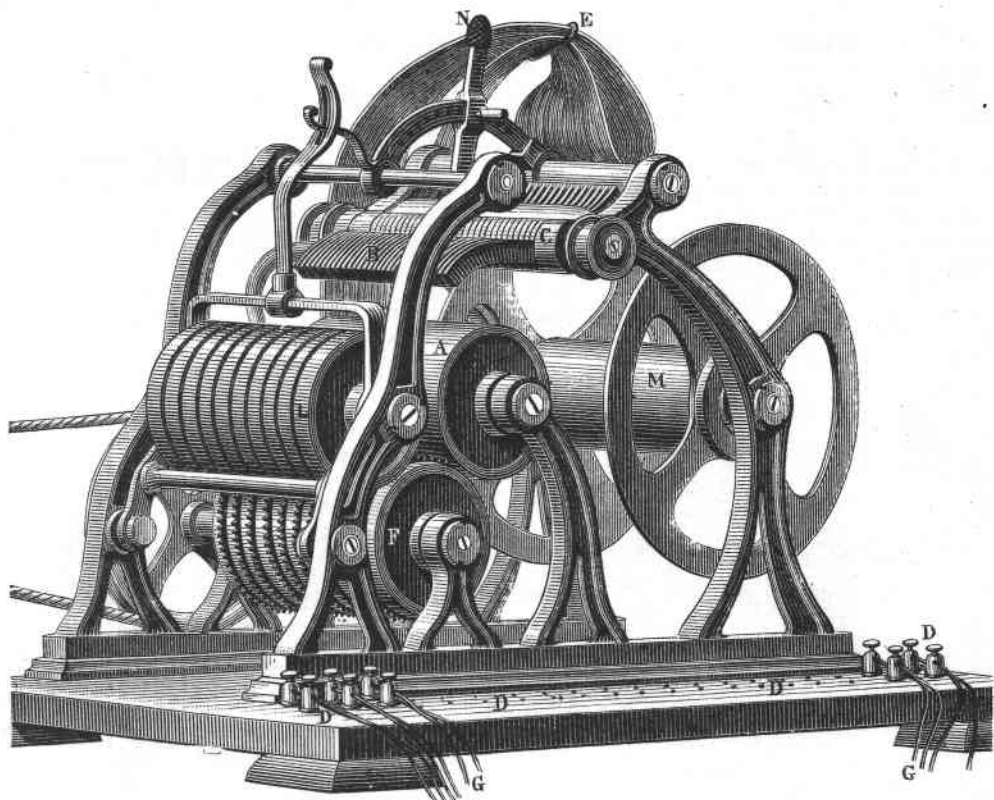
Figure 2. The metal roller A is connected with the negative terminal of an electric battery. B is a comb-like metal strip comprising as many closely-spaced teeth as the piano has keys (which are tape recorded). The teeth representing the semi-tones are of a different metal from those which are connected with the keys for the whole notes. The insulated wires E lead to the block D from which they are connected through wires G with the individual keys. By means of the lever N, the comb can be pressed in contact with the cylinder A or drawn clear of it. Between comb and roller A is the prepared paper strip which is wound on the barrel M and finally passes between the two rollers F and C. The former is set in

motion by the clockwork (Figure 1) via a small driving belt.

To nine forks on roller L there correspond nine toothed rings which are pressed against F by a spring.

Below the keys of the piano, harmonium or whatever instrument the Melograph is connected with, there lies a brass strip which is connected to the positive terminal of the battery. If a key is depressed, a spring establishes contact with the corresponding wire G of the key. The circuit is closed and the current passes through the paper whereupon the corresponding tooth of the comb lies. Immediately, the chemical reaction takes place and pro-





duces a coloured line on the moving paper so long as the key is depressed.

As, however, the paper continuously unrolls, a line must be traced on another part of it when the same or another key is subsequently depressed. Precisely as this is with one key, so it is with all the keys (which are so connected): as soon as they are depressed, they must react on the paper and produce a sign there. It is, however, understandable that the writing apparatus makes no difference between c^\sharp and d^\flat , and that is subsequently the business of the transcriber to write in the correct notes.

In the case of more complete instruments with five and more octaves, the writing apparatus with its many teeth would be very broad and prove deficient. The paper strip would also have to be of considerable width. Roncalli has therefore hit upon a device in his Melograph so that the outermost octaves are connected with the preceding ones. Thus the first writes in the path of the second, the fifth in the path of the fourth. So that they may be distinguished from one another, the writing teeth are of different metal and consequently the lines are coloured differently.

The speed remains a very strange defect in the whole of this simple and ingenious device. The metronome marks the time in a set way and the performer must accommodate himself to it. If, however, he exceeds this speed, it is not discernible in the longer and shorter lines on the written paper. One can, with the help of the pedals which can be connected electrically with a special tooth of the comb, produce a particular sign on the paper. This is to say that whilst there may be a difference in the speed, which performer, when improvising, pays regard to such detail?

Chemical telegraphy with a writing stylus on prepared paper, despite the long time it has been known, has not been widely adopted. The principal reason may perhaps be that the metal baseplate, like the stylus, tarnishes in use and, for this reason, makes a difficult and meticulous cleaning frequently necessary. This inherent defect must stand in the way of Roncalli's Melograph, but the development of the principle is already of special interest while only such short accounts of it are found in textbooks specially devoted to telegraphy that they are insufficient to enable an exact understanding of the apparatus.

Member Roger Hough of Devon has sent in this interesting Monopol sheet, unfortunately badly rust-stained, which he found with the discs accompanying a Monopol Model 32, 7½" disc size instrument he recently got.

LIST OF TUNES

(7½ inches diameter)

FOR THE

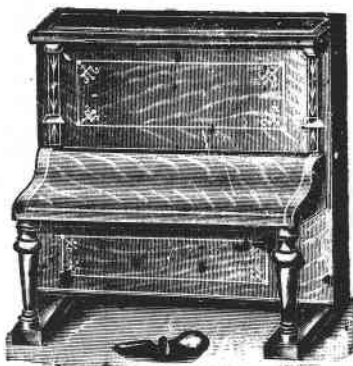
MONOPOL MUSICAL BOXES

(30 Tongues).

No. 30, 31, 32, 33, 130, 300, Motor Car,
Mail Cart, Piano, and Motor Bus Models



No. 300.
Size 9½ × 8 × 3½ inches.



No. 33.
The Tunes are placed upon the back.
Size 9½ × 8½ × 4½ inches



No. 32.
Size 11½ × 8½ × 9½ inches.



No. 30, 31 & 130
Size 10½ × 8½ × 6 inches.

In ordering it is only necessary to quote the
number of the Tune required.

TUNES CANNOT BE EXCHANGED.

10000 The Bird seller, song
 10001 The Roses, waltz
 10002 Skobeleff march
 10003 Carmen, polka
 10004 Angot, polka
 10005 The fair Polish girl, mazurka
 10006 The Cossack's ride, gallop
 10007 Russian national hymn
 10009 Mazurka, from the "Life of the Czar"
 10010 When the leaves are rustling
 10011 Gasparone march
 10012 Don't be angry, song from the "Head Miner"
 10013 Funiculi, funicula
 10014 Russian mazurka
 10016 Kiss waltz
 10017 War adventures, gallop
 10018 You cannot foresee, waltz
 10020 Daisy Bell
 10021 Do you know, dear mother, what I dreamt?
 10022 Austrian national hymn
 10025 The bee-hive, march
 10031 Silent night, holiest night
 10032 O sanctissima
 10033 O fir tree dark
 10034 The Child cometh
 10035 Watch-night bells
 10036 My pearl is a bowery girl
 10037 She wanted something to play with
 10038 The Mikado, waltz
 10039 Sweet little Rosey Posey
 10040 Little Teddy Brown down at Margate
 10041 Robin Adair
 10042 Glorious Beer
 10043 Maritana waltz
 10044 The dancing Viennese, waltz
 10045 High upon the Dachstein, song
 10046 Dogana waltz
 10047 Hansel and Gretel, song
 10048 Royal Navy hornpipe
 10049 Gaiety polka
 10050 Long, long ago
 10051 Austrian Ländler
 10052 Excelsior mazurka
 10053 O deep blue sea
 10054 Belgian national anthem
 10055 The Dove (Habenera)
 10057 Mazurka from "L'African"
 10058 The Sunshine of Paradise Alley
 10059 Toy duet (the Geisha)
 10060 The Soldiers of the King
 10061 The fairy of the Prater, waltz
 10062 Woodland flowers, schottische
 10063 The Kiss of Love, waltz
 10064 Roses from the South, waltz
 10065 Chon Kina (the Geisha)
 10066 The Dove, Mexican song
 10067 Under the Double Eagle, march
 10068 The blue Danube, waltz

Christmas songs

10069 The air of the Vienna Wood, waltz
 10070 At my time of life
 10071 Is yer mammie always with ye
 10074 The donkey ride, polka
 10072 The jewel of Asia
 10073 We are going to call on the marquis } The Geisha
 10075 The rat catchers, waltz
 10076 The women's waltz
 10077 You and you, waltz
 10078 Vienna blood, waltz
 10081 Secret love, gavotte
 10086 Morning papers, waltz
 10087 Margaretha polka
 10088 Victoria polka
 10089 Wine, woman and song, waltz
 10092 O so good song ("Martha")
 10098 The three weddings
 10099 The march of the Budapesth landlords
 10105 Lorely (German song)
 10107 Waves of the Danube, waltz
 10108 Victoria and merrie England, waltz
 10109 The wood auction, schottische
 10110 The Fairies, waltz
 10111 Merryland schottische
 10112 Good night, my dear child, song
 10115 You have the brightest eyes
 10116 I know an ~~also~~ so mild, song
 10117 Our lodger is such a nice young man
 10118 A 1 at Lloyd's, barn dance
 10119 Old China, polka
 10120 Journey adventures, polka
 10121 Once in royal David's city
 10123 Art thou weary
 10124 Louisiana Lou
 10125 Impudence, schottische
 10126 Hark, the herald angels sing
 10127 Sunshine above
 10128 Sweet Marie
 10129 Berlin polka (Karl Kaps)
 10130 Looking for a coon like me
 10131 Fair pleasure's march
 10133 Women's heart, mazurka
 10134 Hip, hip, hurrah, march
 10135 The monastery bells, nocturne
 10136 My Queen, waltz
 10137 Stars and stripes, schottische
 10138 Pas-de-Quatre
 10139 I can't think of nothing else but you
 10140 The empty chair
 10141 Honeymoon march
 10142 The Idler
 10143 La Czarine, mazurka
 10144 The last rose from "Martha"
 10145 When the swallows homewards fly
 10146 The carnival of Venice
 10147 All years that come } Christmas songs
 10148 The Christmas tree

10149 Little pferrots, march
 10150 Marche Lorraine
 10151 The ball at the Ministers' mazurka
 10153 Norwegian national song
 10158 Private Tommy Atkins
 10159 Tin gee gee, polka
 10160 Heel and toe, polka
 10161 Bella Nita, waltz
 10162 There'll come a time
 10163 The Japanese, polka
 10165 Whisper and I shall hear
 10170 Little Dolly Daydream
 10171 Many happy returns of the day
 10172 The Piccadilly Johnny
 10173 Fairyland, schottische
 10174 Jolly Tars, polka
 10175 Onward, Christian soldiers
 10176 Strolling in the garden
 10182 Come, Carline, come
 10183 The Rixdorfer, polka
 10184 La belle Parisienne
 10185 She is the belle
 10186 On the beach at Narragansett
 10187 While London is fast asleep
 10188 Neapolitana waltz
 10189 Tut-tut polka
 10190 At supper, comic song
 10191 Under the banner of victory, march
 10192 Margarethe, comic song
 10193 The skaters, waltz
 10194 The Masher Queen, schottische
 10195 The Dandy, march
 10196 The Bird seller, polka
 10197 Spinn, spinn, Swedish song
 10198 Torgauer march
 10199 Radetzky march
 10200 The merry coppersmith
 10201 Amboss polka
 10202 The little goose wife, polka
 10203 Boccaccio march
 10204 The watch on the Rhine
 10205 Behold the Lord, song
 10206 The Soldiers in the park
 10207 I love you, my love, I do
 10208 The Knickerbocker, barn dance
 10209 The Piccaninnies, barn dance
 10212 How sweet, waltz
 10213 Edelweiss, song
 10215 Hohenfriedberger march
 10216 The Washington post, mar.
 10218 Over the waves, waltz
 10019 Oh Lilly, Lilly, Lilly, waltz
 10220 Fata Morgana, waltz
 10221 Is there no stool for Hulda, mazurka
 10222 Faust waltz
 10223 After the ball, waltz
 10226 God save the King
 10229 Mignon, skirt dance

The Belle of New York

10230 The Bells of Corneville
 10231 Cavalleria rusticana, intermezzo
 10232 Stephanie gavotte
 10233 Ling a Ling, polka
 10235 The Marseillaise
 10236 Bridal Chorus ("Lohengrin")
 10237 Fanny Rosa, polka-mazurka
 10238 Tyrolienne from "William Tell"
 10240 Boccaccio waltz
 10241 Dinah (Negro serenade)
 10242 All is fair
 10243 The girl of my heart } "A
 10244 A song of love } Greek
 10245 El Capitan march } Slave"
 10249 Abide with me
 10250 O come, all ye faithful
 10251 Christians, awake
 10252 Lead, kindly light
 10253 There is a green hill
 10254 There's a friend for little
 children
 10255 Where is my wandering boy
 10256 Shall we gather at the river
 10257 Susie Ue
 10258 Sweet Rosie O'Grady
 10259 Just one girl
 10260 All along the rails
 10261 What ho! She bumps
 10262 "A Frangesa!" march
 10263 The Absent-minded beggar
 10264 The Queen's own little box of
 soldiers
 10265 The white coon's march
 10266 Under the same old flag
 10277 Dancing in the barn
 10279 Bonne bouche polka
 10280 Princess gavotte
 10281 Florodora waltz
 10282 Dolores waltz
 10283 Espana waltz
 10284 The Sirens waltz
 10285 Vindobona march
 10286 Air from "The Barber of Seville"
 10287 Air from "Traviata"
 10288 Waltz from "Traviata"
 10289 "Faust" march
 10290 Air from "Faust"
 10291 Air from "Rigoletto"
 10292 Duet from "Il Trovatore"
 10293 Donna Juanita mazurka
 10294 Donna Juanita waltz
 10295 Canareino waltz
 10297 Bebe polka
 10298 Boulanger polka-march
 10300 Nina bella mazurka
 10301 The May blooms but once a year
 10304 Diavolino polka
 10305 Gran via mazurka

Hymns

10309 Kathleen inavourneen
 10310 Auld Lang Syne
 10311 The Campbells are coming
 10312 The blue bells of Scotland
 10313 Bravo! Dublin Fusiliers
 10314 Annie Laurie
 10315 Bonnie Dundee
 10316 The flowers of the Forest
 10317 St. Patrick's-day jig
 10318 The harp that once thro' Tara's
 10319 Rory O'More
 10320 Come back to Erin
 10321 Ye banks and braes
 10322 The minstrel boy
 10323 I'll be your sweetheart
 10324 Marcia Reale polka
 10327 Cavalleria rusticana (Stornello)
 10328 The lake is sleeping, song
 10329 The messenger boy
 10330 Maisie
 10331 When the boys
 come home
 10332 The Red, White, and Blue, patri-
 otic song
 10333 Far from the ball, Intermezzo
 10334 The Clowns polka
 10335 Rose mousse, waltz
 10339 Champagne gallop
 10340 Mimosa waltz (The Geisha)
 10341 Florodora barn dance
 10342 Lubly Dinah, plantation dance
 10343 Talma waltz
 10344 Belle of Baltimore, barn dance
 10345 Highland Queen schottische
 10346 Elise waltz
 10347 Two loves' waltz
 10348 Dreamy twilight waltz
 10349 Empire quick march
 10350 Yellow kids' patrol
 10351 Waltz from "The Fortune
 Teller"
 10352 Uncle Joe's jig
 10353 Three women to every man
 10354 She is my wife
 10355 Edward VII, coronation march
 10356 Ye Boston tea party march
 10357 Six little wives, "San Toy"
 10358 Valse bleue
 10363 Home, sweet home
 10364 Brooklyn cake walk dance
 10370 Cadets march
 10376 Class, class, class } The Silver
 10379 A Glimpse-impse } Slipper
 10378 Stars and stripes for ever, march
 10380 Our Threepenny Hop
 10381 Once we were sweethearts
 10382 The Honeysuckle and the bee
 10383 Liza Johnson
 10384 Ma Rainbow Coon
 10466 Down by the Zunder Lee
 10467 La Petite Polka
 10468 Jogo Barn Dance
 10469 Heavy Wicker Waltz
 10470 Dublin's Billy Two Topi

10385 Good-bye, Mignonette
 10386 Good-bye, Dolly Grey
 10387 Oh! Flo (the motor car), song
 10388 Edward VII Coronation march
 10389 The Horse the missus dries the
 clothes on
 10398 Dream waltz
 10399 Annen waltz
 10400 Light cavalry gallop
 10401 The Merry Wives gallop
 10403 The Star waltz
 10405 Hansel and Gretel polka
 10407 Violetta polka
 10408 The Sunflower and the sun
 10410 Mandoline serenade
 10411 Summer evening waltz
 10412 Let go, Eliza!
 10413 Everybody's loved by someone
 10415 Whistling Rufus march
 10416 Skylark! Skylark
 10417 When the band begins to play
 10418 Pliny! come kiss yo baby
 10421 Noël, Christmas song
 10422 Bundle of mischief, polka
 10424 Try again, Johnnie
 10425 Coo
 10426 Yo ho, little girls,
 yo ho!
 10427 Two little chicks,
 duet
 10428 The Country girl,
 waltz
 10429 The Miller's daughter,
 10430 Girls, girls, girls
 10431 Tea and cake waltz
 10432 Three little maids waltz
 10434 Hark, the glad sound
 10435 Light after darkness
 10436 Brief life is here our portion
 10437 The golden shore
 10438 Hushed was the evening
 10439 Mister Dóoley, popular song
 10440 Fredy-walzer
 10441 (Lustige Brüder,) Jolly Fellows
 waltz
 10442 The Cake Walk, dance
 10445 Bedelia
 10446 Sammy song
 10447 Bill Bailey
 10448 Blue Bell song
 10449 The Glory song
 10450 Anona
 10451 Navaho
 10453 The Veleta (new round dance)
 10454 Josie (barn dance)
 10455 Little Yellow bird (barn dance)
 10456 Hot stuff (cake walk)
 10457 Laughing Water (two-step polka)
 10458 My Irish Molly O.
 10471 Love's Last word Waltz
 10473 Poppies
 10474 A Little Jolly Polka
 10475 The Buttered Egg Barn Dance
 10476 Waltz Duet Waltz

From
A Country
Girl

From
Three
Little
Maids

From
Three
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Maids

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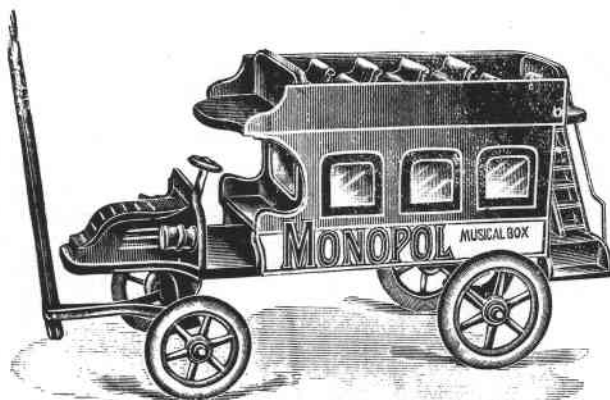
From
Three
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List of Tunes for Toy Models



Motor 'Bus.



Mail Cart.



Motor Car.

The Winter meeting of the Musical Box Society of Great Britain was held on Saturday, November 21st at the Great Western Royal Hotel, Paddington, London. More than one hundred Members and their guests attended which combined with the fine display of Members' boxes on show to make this one of the best meetings we have so far staged.

SOCIETY MEETING

The meeting began at 10.30 a.m. with Registration and coffee. First lecture of the programme was a talk and exhibition of cylinder re-pinning given by Member Keith Harding who has in recent times developed his technique of re-pinning to a fine art.

Aided by both drawings and partly-worked cylinders, Keith Harding clearly demonstrated the steps involved in giving a smooth cylinder a new life and showed a fascinated audience the intricacies of pickling cylinders in acid, re-pinning, re-cementing and finally shaving.

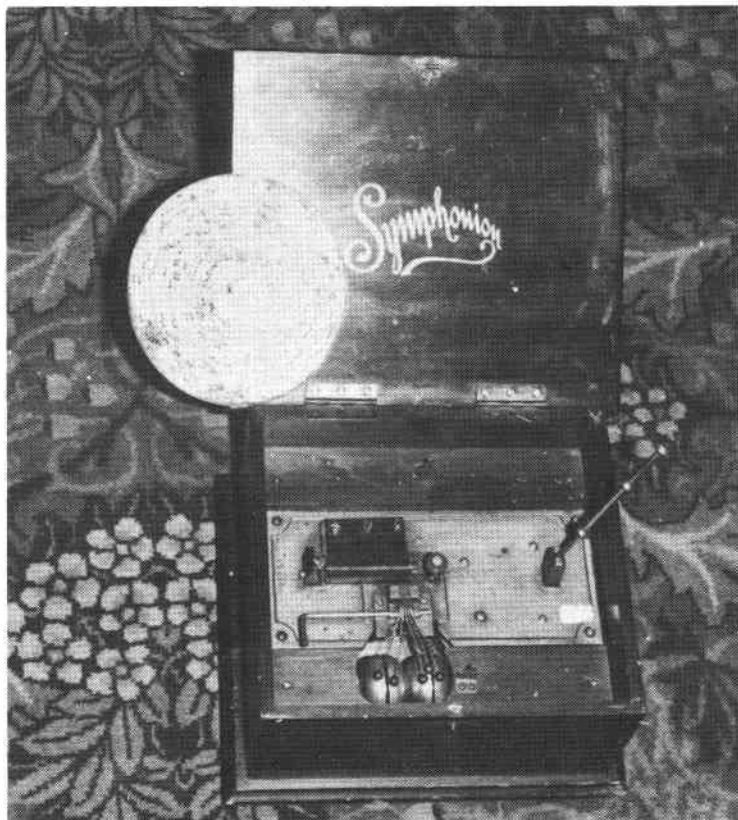
Members were interested to learn that Mr. Harding is preparing a text describing his work which it is hoped will be available for publication in THE MUSICAL BOX in due course.

After the luncheon interval, the first talk of the afternoon was delivered by Member P. Radford who spoke on early key-wind musical boxes and other items of interest from his collection. He illustrated his talk with slides and demonstrated a number of items.

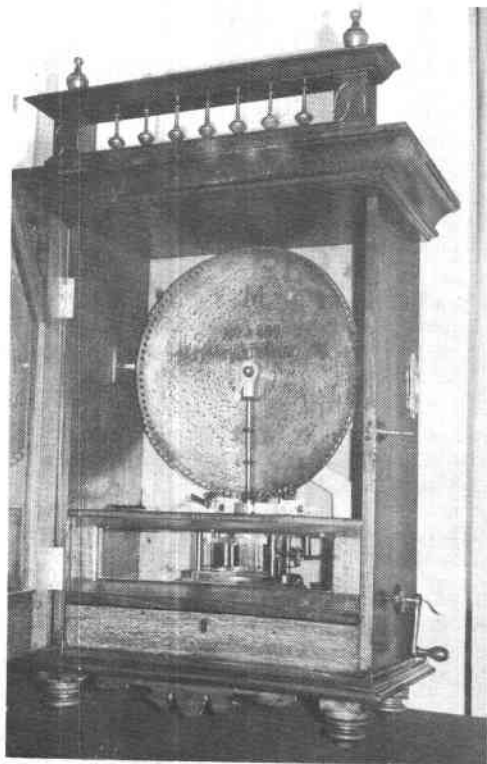
The second paper of the afternoon was a talk by Editor Arthur Ord-Hume who described some fascinating discoveries he had made as a result of work he recently undertook to restore Tippoo's Tiger for the Victoria & Albert Museum. Tippoo's Tiger, a unique musical automaton figure representing a Bengal tiger in the act of savaging a prostrate European, features

three semi-mechanical organs and the instrument was extensively restored by a well-known organ-builder in 1882. Mr. Ord-Hume restored the instrument to playable and workable condition but was puzzled by certain features of the mechanism which did not seem right or which appeared superfluous. He was particularly disturbed by some aspects of the work which were obviously not original. Quite by chance he discovered in his own library a book containing a description of Tippoo's Tiger detailing the

Continued on page 560



Unusual item seen in the display was this diminutive Symphonion with five bells. Most bell-equipped disc musical boxes are of larger dimensions.



Above is one of the rarer types of disc-playing musical box - the Adler. Made by Zimmermann of Berlin and identical to the range of instruments produced under the Fortuna name, this 'M'-sized instrument appeared to be in fine playing order.



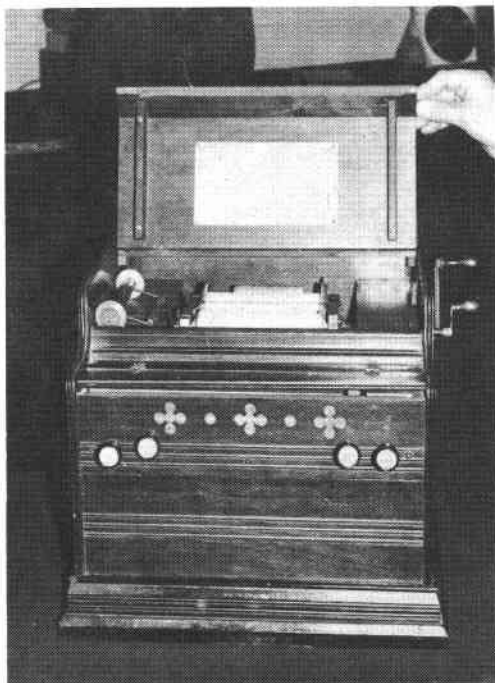
In past issues of *THE MUSIC BOX*, reference has been made to the Polyphon gramophone records. In the 'static' show was this interesting 10-inch disc bearing the title "Polyphon Record" and the trade-mark familiar to those who own the more familiar type of Polyphon 'record'.



Right: Member Jocelyn Walker as a 'cylinder-jockey' demonstrating some of the Members' boxes present



Above: Member Keith Harding delivering his lecture on re-pinning musical box cylinders.



Above right: An unusual Celestina-type organette.



Right: This fine key-wind box, shown by Member C. W. Cramp, complete with the label of Wehrle Bros. who originally sold it.

instrument published in 1832 from which he was able to deduce exactly how the instrument had originally been intended to work. His talk, illustrated by colour slides specially prepared for him by the Museum, was of particular interest since it demonstrated the irrevocable damage which can be done by uninformed restorers as evidenced by the 1882 work. Special guests for this lecture were Mr. Lowry, Curator of the Indian Department of the Victoria & Albert Museum, and his wife and two daughters.

After the tea interval, a recital of Members' musical boxes was given under the production of Member Jocelyn Walker.

Secretary Reg Waylett told Members that the visit to Europe by Members of the Musical Box Society International of America was now arranged to coincide with our 1971 Annual General Meeting and two-day

convention. It is expected that the length of time which our American friends will spend in London is about five days after which they are to tour Europe, visiting the Swiss musical box centres of Baud Freres and Reuge.

The next Regional Meeting of the Society has been fixed to take place at the Sheffield Museum on Saturday, March 27th, 1971. Secretary Reg Waylett will be circulating full details to everybody in due course. Our last Regional Meeting, held at Droitwich, was not well attended and it is to be hoped that as many Members as possible will be able to get to Sheffield for what will undoubtedly be a very interesting meeting. Certainly, we would like to see some of our Midlands and North Country Members - as well as some of their musical boxes.

THE KEYS (ALL 88 OF THEM) TO SUCCESS or THE TALE OF A BROADWOOD PLAYER GRAND

by Arthur W. J. G. Ord-Hume

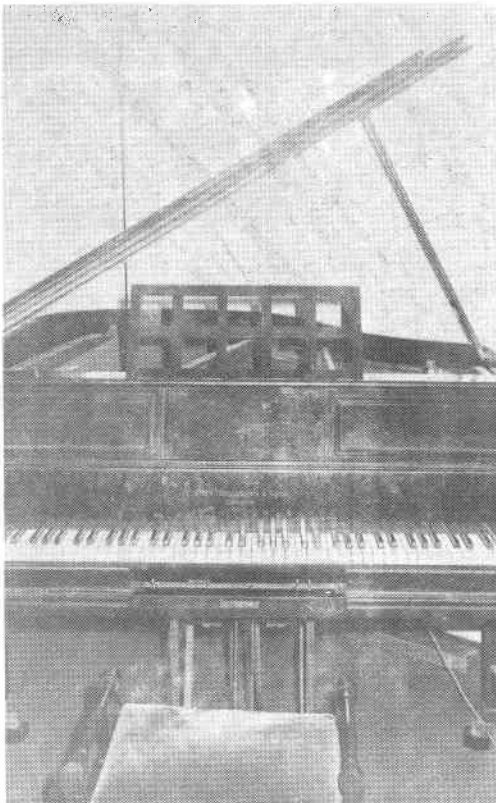
I HAD ALWAYS averred, quite loudly, that when space and cash allowed I would buy a piano and that the piano would be a full reproducing instrument, electrically-operated and with a superior selection of quality music rolls. I had always said that I would look at no other instrument. I had, in fact, always said all this.

Numerous attempts at piano purchase had all come to nought. Either the piano was no good, or it was not what I wanted. Or it was too expensive, or it had no rolls, or it was broken, or it was of the wrong pedigree, - or I couldn't afford it. You see, one has to be in the right frame of mind to lumber oneself with upwards of half a ton of effectively immovable object which will take up the best part of 190 cubic feet of your living room. Oh yes, buying a piano is not kid's stuff. It's like getting married - or having a tooth out. It's something akin to burning your bridges behind you and you have to be quite certain what you are about.

So it all came as rather a shock for me to discover that after all this determination for the *creme de la creme*, I should end up with acquiring a valetudinarian foot-operated player piano in very positive non-working order accompanied by a couple of tea-chests full of the most shocking and really appalling music rolls. The whole business happened

quite suddenly. You see, I was in bed at the time, sipping my Sunday morning cup of tea whilst at the same time perusing the obituary columns of the *Sunday Times* to see if my name was there. My eyes wandered across the small type and came to rest on a tiny advertisement which read "Broadwood player piano, rosewood grand, many rolls, needs slight attention. £50". A London telephone number followed.

Later on that day, I was standing in the jumbled-up dining room of a South London house eyeing this rather nice-looking jo. My Cockney friends will at once realise that "jo" is short for "johanna" which is rhyming slang for "pee-annah" which is U.S. mid-West for "piano". The owners were moving and had decided that the time had come to part company with their faithful six-legged monster. It didn't play mechanically and it barely played by hand, the action having got thoroughly damp and the felts having reared countless generations of moth grubs. I thought to myself that "needs slight attention" should have read "suitable for odd spares". It had a good sound-board, though, and the strings were not too badly rusted. I was generally disappointed, but also felt that this was a sad and sorry jo which, unless rescued to live again, would probably end up as the main attraction for one of those fearful piano-smashing contests wherein the object of the exercise is to make it possible to



cram a whole piano through the average four-inch letter-box - one fragment at a time. I looked at the player action. I had never seen anything like it before - a mass of unit valve blocks, lead tubing and push-rods, pull-rods, an organ-type roller board for the treble notes and an army of lever-controlled pneumatics which looked far more like the intimate workings of a steam engine. None of it showed the slightest inclination towards working and one obvious reason was the large section of mains wind trunking - of drain-pipe proportions - which was just not there.

The owner looked nervous. I had been, he said, the only mug to reply to his advertisement. I was nervous, too. Although he didn't know it, I didn't have £50 to spend - certainly not for this. As I could not see him agreeing to an offer much less than £40, I decided that the best thing to do was to forget the whole episode and take my leave. At the door, the vendor clutched my arm and poured out a whole woman's-magazine-full of sad story. He had to move into a smaller place, had nowhere for the jo,

needed the space, didn't want the jo, wanted it to have a good home and so on and so on. I felt the tears welling up in my eyes. He was so sad and unhappy.

I patted his head and said "There, there, now don't cry". He looked appealingly into my eyes and asked if I'd give him £25 for the piano. For some reason which remains inexplicable to this day, I offered him £27. 10. 0 which he joyously accepted, leaving me to make my somewhat unsteady way home wondering what the hell was wrong with me.

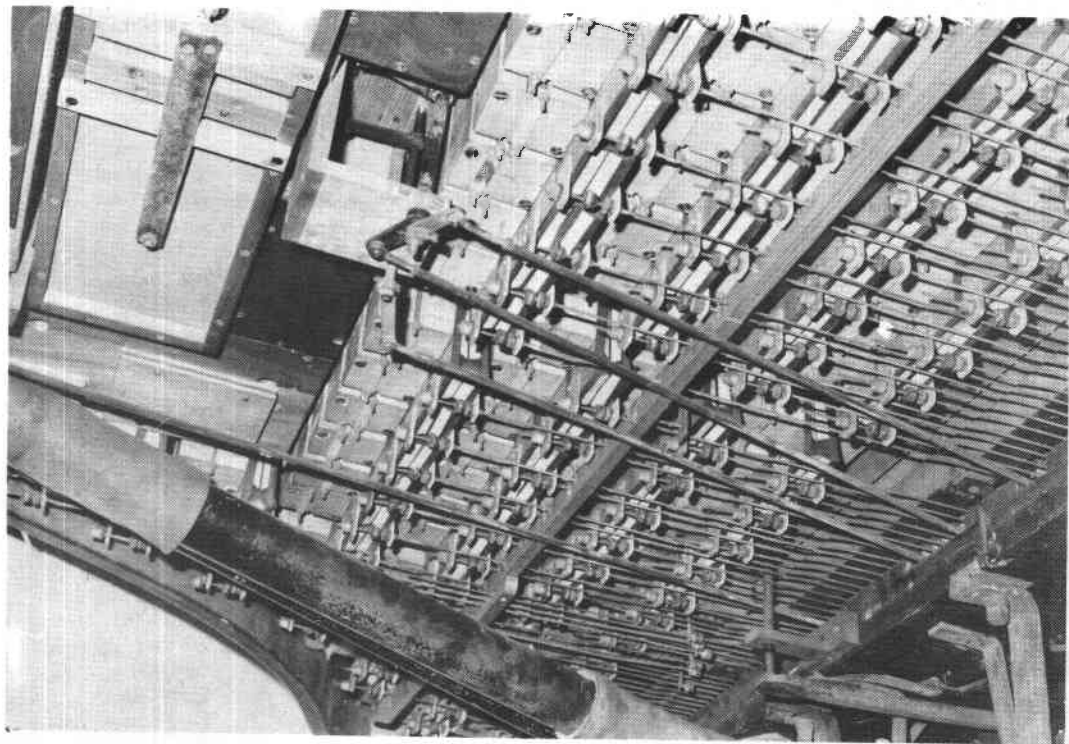
The piano removers said yes they would remove the piano and deliver it. "How big was it? Oh yes, that's fine. What's that you say? A *player* piano? Hmmm. We don't like them - they're so heavy". I began not to like them either, particularly as my recollections of the instrument suggested that it was considerably larger than the hallway through which it had to be manoeuvred into my sitting room door. Even with the legs off, tipped on its side, I could see it removing the banisters, the useful bits of the central heating system and some of the more superfluous but nevertheless interesting bits of the door-frame.

The only other possible opening was the large central bay of the sitting room window. I carefully removed the bits of beading around the sashes, spent some time prising out the middle bits of wood between the upper and lower ones, freed both sashes, drew them both back into the room and tied them to the picture rail with stout string. We now had an opening six feet by four. It was winter.

Several days later, the van arrived containing the piano. I had already taken a dislike to it. Three small but muscular men entered the hall, had a casual look around, glanced curiously at the vast opening in the middle of the window frame - and trundled the piano in through the front door, into the hallway, effortlessly propelled its dead weight around the corner into the sitting room, spun it around into the correct position and prepared to refit the legs. One of the men looked up at me and, nodding towards the gaping window through which the snow was blowing, said "See you like your fresh air, guv!" Replacing the window coincided with the failure through old age of the sash cords. It was several weeks before the bruises on my knuckles mended and the new putty will be OK to paint next summer. Next job was to raise the piano to put glass insulators under the castors to protect the carpet. The weight of the piano actually bent my car jack.

For a year the piano has stood there, silent, forlorn and nothing but a dubious status symbol. Until my wife bought some new net curtains for the sitting room windows, we used

If you lie on your back in the sitting room and look up under the piano, this is the sight which greets you.



to keep the lid open and some music on the music stand. But soon even the passers-by got wise to the fact that this was only a pretending piano and that it was closer to chopping than Chopin.

This uneasy sort of stalemate, brought about by my having too many more important things to do than to fiddle about with a decrepit piano, continued until early last summer when, in a fit of sudden enthusiasm aided by a screwdriver, I rendered the instrument into little pieces. The mechanical action was certainly very interesting and quite early. Perhaps I could throw it away (where, though, does one *throw* anything away when you live in a built-up area?) and fit a player action from another piano? A quick appraisal of the magnitude of such a task hastily dispelled that thought. I bought some leather and some rubber cloth and half-heartedly began restoring the bits I already had. At least, I thought, I might get it playing manually again and then I could sit at a lovely Broadwood grand – a rosewood grand – and play Chopsticks.

Finally, after much back-breaking work re-fitting all the bits under the thing, all was ready for a "first try". I had carefully serviced the piano action, ensuring that all the keys operated all the hammers the right way. The missing length of wind-trunk was replaced using ingenuity and cunning under cover of

a dark night.

The only problem which remained was – where had I put the pedals? Never refitted since the piano arrived, I had put them somewhere in my workroom. It did not, however, take long to call to mind the precise whereabouts of that tangle of iron which gashed my shins each time I tried to step over it.

The ironwork was refitted. Here was learned Lesson One. When you prop up a piano on carpet insulators, you must also put a block of wood under the front edge of the pedals otherwise they swing down so far that (a) they clobber the normal piano pedals, and (b) they assume a position so that the only comfortable way in which to operate them is by lying on your back on the floor in front of the instrument.

A music roll was thrust into place and the foot treadles eagerly worked. From the vast piano emerged the faintest tinkling through which could just be detected, with a strong stretch of the imagination, something almost like the thread of the melody being played. A clue to the trouble lay in the depression of almost all the piano keys the moment the treadles were pumped and regardless of the music roll perforations. Lesson Two was at hand.

Removal of the top cover to the tracker-bar in the spool box showed the full sorry story. Every one of the short rubber tubes connecting the

tracker bar to the main lead tubing to the pneumatic motors (provided so as to allow the tracker bar to be moved laterally by the automatic tracking device), was broken. The rubber, over the years, had become rock-hard, brittle and so unlike rubber that one could have sworn that it was Bakelite.

Removal of the tracker-bar itself followed by clearing out all the splinters and slivers of shattered tubing left one with the problem of how to get the hardened rubber off the ends of the tracker-bar tubes and the lead tubes, for it had originally been glued into place and was now, so it seemed, immovably cemented. I recalled a little trick which I had learned quite by accident – namely that paint stripper softens rubber. I dunked the protruding tubes of the tracker bar in stripper and waited. A loud word of warning here. These paint strippers are NOT inflammable – but they will convert into phosgene gas if heated. This means never use the strippers near a hot surface and NEVER smoke whilst you are anywhere near them. It is the *vapour* which is dangerous. The liquid also has a habit of rotting your skin if you splash it. All told, this is not nice stuff to use. Work with it preferably in the open, certainly in a well-ventilated room – and watch that smoking/hot surface rule for as long as the smell persists.

The stripper dissolved the rubber off the tracker bar and I washed this very thoroughly in cold running water followed by a rinse in white spirit and then a brush in very hot water and detergent.

The tubes protruding from the back of the spool box presented a bigger problem. Here I felt it risky to get stripper anywhere near them, having visions of the inside of the piano gradually dropping out in a sticky mess. I pared the rubber off these using a scalpel (and about twenty blades!) and fine sandpaper. The vacuum cleaner was then used to suck out all the dust particles from the tubes.

Slipping rubber tubes on to nipples is one of these jobs which the experts dismiss as kid's stuff. Shoving the things on to tight nipples in awkward places can be frustrating, very hard on the fingers and extremely tiring. You can lubricate the job with soapy water but really this is not all that effective, particularly since the soap dries hard and forms a solid deposit which can upset the properties of the rubber.

Chemists sell tubes of surgical rubber lubricant which is absolutely ideal for this job. The technique is to smear the ends of the metal tubes liberally with the lubricant – and then leave them for about an hour to dry off. This puts an invisible 'first coat' of lubricant over the bits where the rubber will be pushed.

Using red rubber tube, 1/8" bore with a 1/32" wall thickness, I then cut sufficient pieces

all the same length so as to fit between the spool box tubes and the tracker-bar nipples. With the tracker bar removed to make things easier, I then set about fitting all the rubber tubes to the spool box tubes. These are all very close together and are, as on most pianos, arranged in three staggered rows. The job calls for firm and tiny fingers but I found an easy way to do the job using my own podgy fingers.

I found a piece of silver-steel rod which was an easy fit inside the rubber tubing. My procedure was to slip the short length of rubber on to the steel and to smear a little rubber lubricate over the end of the tube with the rod protruding about half an inch. Withdrawing the rod by that amount carried the lubricant up inside the rubber. By moving the rod forward again and engaging the tip of it in the end of the tube on which the rubber was to be fitted, the rubber tube could easily be pushed on without its crumpling up or mis-engaging the metal end. This bit of the operation was completed inside half an hour.

Refitting the tracker bar, having carefully pushed the loose ends of the tubes out of the way, preceded completion of the tubing. Here it is important, both for the success of the job and the sanity of the restorer, to complete each of the three staggered rows of tubes one at a time, even though the lower row calls for forcing your fingers through a tangle of tubes. With one end of the rubber tube secured, smearing the other end with lubricant and easing it on to the tracker-bar tubes was comparatively easy. Once engaged on the tube end, the rubber could be worked up the tube very easily using a pair of cranked tweezers thanks to the previous lubrication of the metal. It becomes obvious at this stage that the correct length of these rubber tubes is very important.

The phase of the operation was completed in another hour. One difficult problem was what to do with one metal tube which had broken off flush with the wood at the back of the spool box. Fortunately, it was one of the automatic tracking tubes and was not quite so cramped for space as the others. I drilled a 3/16" hole in a piece of 3/8" wooden dowel cut to 1/2" long. This I glued to the back of the spool box over the broken end of the tube, accurately locating it (whilst the tracker bar was off) with a metal rod which entered the metal tube. When the glue was set (I used Evostick Resin W woodworker's glue) I inserted the end of the rubber tube into the hole in the dowel rod and glued that into place.

Certain other bits of the piano had been absent at the time I acquired it. The damper-lift control, for example had to be evolved from the evidence of two screw holes and a stain on the key-bed. However, with all this done, would success be my reward?

Sufficient to say that the old Broadwood has been returned to its former glory and, instead of being a mute monstrosity, has become a fine musical instrument – and a mechanical one at that. I still have two boxes of really foul music rolls which surely some mug – er, collector – must want.

Two musical keys from the collection of Member C. W. Bruce. Both are oval shaped and are of enamelled gold. That on the left is $1\frac{1}{4}$ inch wide and stands 1 inch high. The medallion ornament is embossed in two shades of gold. Above is the connucopea motif. It plays one tune. That on the right is approximately the same size and has an elaborately embossed gold design with two panels in painted enamels. One shown is a lake with chalet and a bridge and on the reverse is a vase with flowers. Note the supporting design of four snakes. It also plays one tune.



Player Piano

THE HISTORY OF THE MECHANICAL PIANO AND HOW TO REPAIR IT

BY

ARTHUR W. J. G. ORD-HUME

Player-Piano tells for the first time the fascinating story of the mechanical piano from earliest times up to the heyday of the instrument in the 1930's. Never before has this story been related, although the end of the player-piano is certainly still within the living memory of most of us and many hundreds of these devices are still to be found in our homes.

In addition to telling the story of the development of these pianos which strove to produce perfect music without the need for skills on the part of the 'performer', this book sets out in copious detail exactly how these complex mechanisms work. For the owner of an instrument, step by step instructions for the restoration and preservation of both the early barrel-playing pianos and the more sophisticated player and reproducing instruments are given. To fully illustrate their development, design and mechanical processes, no less than 112 plates and 110 line drawings are included. There are 296 pages.

The value of this book is best expressed in the words of one of the many famous piano manufacturers who have gladly co-operated with the author in the sifting of information. 'We are so glad that at last someone has found time to preserve for always the story of these wonderful instruments'.

With a resurgence of interest in player-pianos, here is a work which will earn a valued place not



only amongst the many pianola enthusiasts, but also with those who cherish the endeavours of a past era.

About the author

Arthur W. J. G. Ord-Hume is both a collector and a restorer of mechanical musical instruments and musical automata. By a system of recording copious notes on the 500 or more varied instruments which have passed through his hands, he has built up a knowledge of this subject probably without equal. As an authority on mechanical music and as a contributor to specialist magazines, his name is widely known to collectors, antique dealers and museums alike.

Mr Ord-Hume is the author of *Collecting Musical Boxes and How to Repair Them*, and is presently working on a further volume, dealing with the mechanical organ in all its shapes and forms. He also edits the quarterly journal of the Musical Box Society of Great Britain, of which he is a founder member.

The first definitive book ever written on the street piano, the clockwork piano and the player piano.

Also contains instructions for rebuilding player organs.

published January 1971 by GEORGE ALLEN & UNWIN LIMITED

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Book Reviews



THE FAIRGROUND ORGAN by Eric V. Cockayne. David & Charles, Newton Abbot, 53/- 239 pp. 8¾ in by 5¼ in, illustrated.

The romance of the fairground, more particularly the pre-war fairground as remembered by the enthusiasts in our ranks who can go back to the pre-amplified-pop era, was a mixture of traction engines, improbable side-shows, the whiff of coal smoke and the sight of the gaily-coloured, illuminated, fairorgan pounding out often surprisingly-high-brow music from its encircling ride of colourful carved horses to blend with the cries of the hoop-la entrepreneur.

The fairorgan today is the subject of the adoration and veneration of its own preservation society and has probably more devotees than the musical box. Eric Cockayne in his book tells us how the organ works, how the music is arranged and cut and finally, in an appendix written by Ronald Leach, how to restore it. The reader will possibly find Cockayne's arrangement of chapters at first confusing since he starts straight off by telling us about the music before getting down to describing the organ. In truth, it becomes apparent that Mr. Cockayne is writing for the reader who is already basically aware of the instrument and how it operates. He assumes us to know some, if nowhere near, all our onions. Since the book bears the sub-title – *Its Music, Mechanism and History*, this is acceptable, even if the reader must of need return to the opening chapters after completing the book to appreciate the import of wise words. The line drawings and the photographs in this book are excellent. Expanded from Cockayne's earlier "The Fair Organ – How It Works" (reviewed Volume 3, page 379), the facts and information contained in this handsome book will be greatly appreciated by the large number of fair-organ enthusiasts.

E G BRADFORD

very clearly in an easy-to-follow style. In fact, his description of the workings of the ordinary player piano are the most lucid the present reviewer has ever come across. The history of the instruments is covered ably although there are some important points – such as the "themodist" and "tempo" markings on music rolls – over which he glosses too briefly.

An interesting link between Shakespeare and the clockwork spinet is postulated and Mr Ord-Hume suggests that such an instrument was intended to be used in "Cymbeline".

There are several insights into the character of the author and one finishes his book with the knowledge that he loathes modern architecture, is probably equally intolerant of modern music and the present age, and that he is an enthusiast with all the trappings which accompany it. Here and there he wanders from the subject to recount some incident such as the 'discovery' of the keyed bugle but all this, one must admit, seems to weld the story into a palatable whole.

The author is obviously happy with his subject but in the devotion of one chapter to the reproducing piano and its workings, one senses that he has tried to compress far too much into too small a space. A tubing diagram for the Duo-Art, for example, whilst superbly drawn, is of a middle-period model and needs an explanatory note to the effect that it represents only one layout. Since the present reviewer has never seen two Duo-Art mechanisms with similar plumbing, this could mislead the over-enthusiastic restorer who has stripped all his pipes in one furious bout of zealotry – and then finds difficulty in replacing the tubing. All in all, the present reviewer found this chapter rather short and, whilst the author rightly says that Duo-Art, Welte and Ampico reproducing pianos are ably covered by reprints of their servicing manuals, there are a few items which he might easily have covered in greater depth, such as the three periods of Welte action (all quite different), the interchangeability of Ampico A and B mechanisms, the Hupfeld action (which worked on a different system) and the developments of the late 'thirties. It is easy to criticise and the saving grace is that much of this missing material is available elsewhere. For the historian, for the novice and for the restorer, however, this is a remarkably good book. The list of makers is incredibly comprehensive and the appendix which gives dates and serial numbers of many player pianos will be of value to most owners.

F BUCKLEY, D.Mus., F.R.C.O. L.R.A.M.

PLAYER PIANO by Arthur W. J. G. Ord-Hume. George Allen & Unwin, London, 90/- 296 pp. 10 in by 7¾ in, illustrated.

It is three years since the last offering by our Editor, that one being "Collecting Musical Boxes". The first impression when examining this book, which, incidentally, is in matching format and style with his earlier book, is that of the two this is an even more scholarly work. Described as "The History of the Mechanical Piano and How to Repair it", the first impression is that the field is too large for one book, and that this book covers not just player pianos, but player organs, street pianos, barrel pianos and barrel spinets. Mr. Ord-Hume treats his subjects in logical order and, certainly as regards the barrel piano and player piano, he writes

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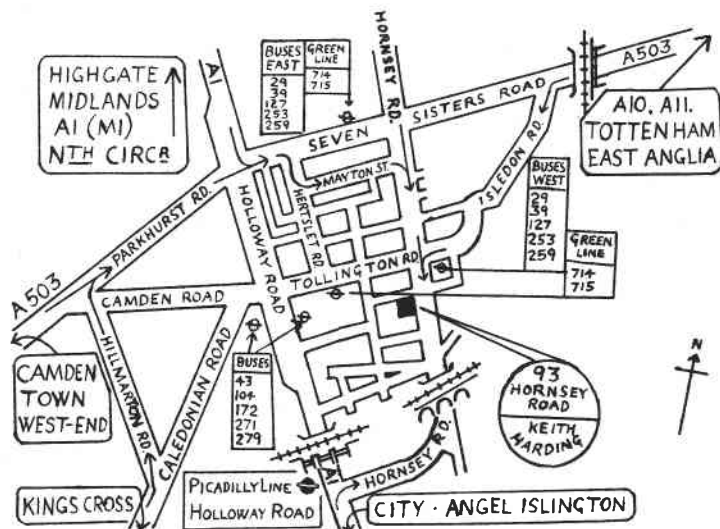
The 1971 Regional Meeting of the Musical Box Society of Great Britain will be held on Saturday, March 27th, at Sheffield. Details of the programme will be circulated within the next few weeks by our Secretary.

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