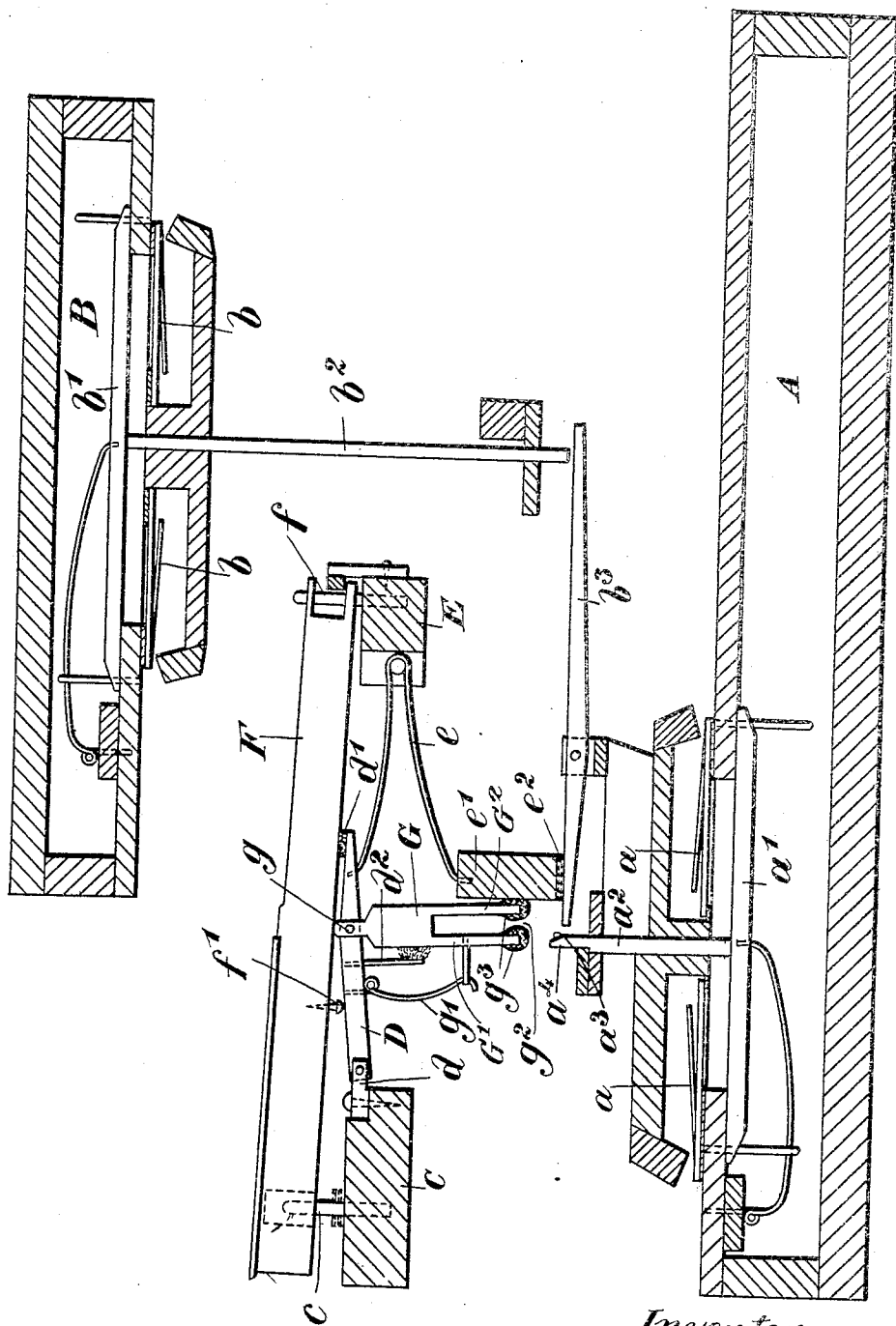


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 ACTION FOR HARMONIUMS, ORGANS, AND THE LIKE INSTRUMENTS.
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1,232,744.

Patented July 10, 1917.



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UNITED STATES PATENT OFFICE.

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ACTION FOR HARMONIUMS, ORGANS, AND THE LIKE INSTRUMENTS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ERNEST RICHARD WISKER, subject of the King of Great Britain and Ireland, residing at Orial, Byron Road, Wealdstone, in the county of Middlesex, England, piano-tuner, have invented certain new and useful Improvements in Actions for Harmoniums, Organs, and the like Instruments, of which the following is a specification.

My invention relates to improvements in actions for organs, harmoniums and the like instruments the object of which is to provide an improved construction of apparatus of the kind which enables sounds of different intensity to be produced according to the force or speed at which the key or keys are struck or depressed as distinct from apparatus of the kind in which these results are obtained by the distance the keys are depressed.

According to my invention the movement of each key of an organ, harmonium or like instrument is communicated to a special variable striker adapted, to effect a selective action so as to operate one or more of a series of valves, electrical contacts or the like controlling reeds or other sound producing devices of different intensity so as to produce loud or soft tones according to the intensity with which the note is struck.

In carrying out my invention the key proper acts upon a lever to which is pivoted the striker, normally held in the desired relative position thereto, by means of a spring or other flexible means. When the note or key is struck gently the stiffness of the spring is sufficient to retain the striker in approximately the same relative position with the lever to which it is hinged, in which case a valve controlling a reed or other sound producing device of soft tone or small intensity is operated whereas if the key be struck hard or sharply, the inertia of the parts will overcome the spring and the striker will operate in a different position to operate another valve controlling a reed or other sound producing device, tuned to the same pitch but of a louder intensity.

Any convenient number of valves controlling reeds or other sound-producing devices of different intensity or degrees of loudness may be arranged to be operated according to the degree of force or sharpness with which they may be struck or various combinations of these valves may be arranged to

be operated together to afford a greater degree of variation in the intensity of sound produced.

In order that my invention may be fully understood it will now be described in greater detail with reference to the accompanying drawing in which:—

Referring to the drawings the two wind chests A and B are each provided with a series of reeds *a* and *b* pallets *a*¹ and *b*¹ and pallet operating plungers *a*² and *b*² the latter being adapted to be operated indirectly through the medium of the plunger operating levers *b*³. The wind chests A and B with their usual accessories are of ordinary or normal construction with the exception that the reeds *a* and *b* while being tuned to the same pitch are of different sound intensity, *a* being the soft and *b* the loud reeds.

Mounted upon the longitudinal rail C are the levers D, hinged to the flange *d* which is fixed to the rail C by screws or other convenient means. These levers are normally held up by the springs *e* mounted in the front of the rail E and acting between the outer end of the levers D and the rail *e*¹ the under side of which is padded at *e*² and acts to hold the plunger levers *b*³ in position when not in action. Mounted on top of the rail E at *f* are the keys F which at their free ends are guided upon pins *c* on the rail C. The keys F are provided with adjustable screw pins *f*¹ by means of which their downward movement, when struck is communicated to the levers D. When the keys are not depressed, they assume the position shown in drawing, by virtue of the springs *e* acting through the levers D and screw pins *f*¹ to raise the keys F until the padded ends *d*¹ of the levers D come into contact with the undersides of the keys. The strikers G are hinged to the levers D at *g* and are held in the required relative position viz., about right angles thereto, by means of the springs *g*¹ which hold them against the pins *d*². The lever end of the striker G is forked at *g*² and the ends of the two limbs *G*¹ and *G*² are swelled out and covered with felt or the like at *g*³. The plunger *a*² is beveled off at the back of the upper edge at *a*³ and provided with a flat *a*⁴ to prevent it turning in its guide.

The action of the striker is as follows:—When the key F is struck or depressed softly, the striker G retains its original relative position to the lever D being held

against the pin d^2 and the rearward limb G^2 of the forked striker depresses the plunger a^2 to operate the pallet a^1 and cause a soft toned note to be sounded. If however
 5 the key F be struck somewhat harder, the forked end g^2 straddles the plunger a^2 and the rearward limb is deflected by the bevel a^3 of the plunger a^2 onto the plunger lever b^3 which is thus depressed and raises the
 10 plunger b^2 to operate the pallet b^1 and sound the loud toned reeds b on the wind chest B. If the key F be struck sufficiently hard or sharply, the striker G will be further deflected rearward about its pivot g against
 15 the action of the spring g^1 so that the forward limb G^1 of the forked end g^2 will engage upon the top of the plunger a^2 while the rearward limb engages on the lever b^3 ; thus both plungers a^2 and b^2 will be operated to cause both loud and soft reeds to be
 20 sounded together so as to give a still further increased volume of sound.

The wind chests A and B are preferably connected to the same source of supply and
 25 contain air compressed to the same degree but if desired for special purposes or where several sources of supply are available, air of differing pressure may be used in the different wind sheets.

30 What I claim as my invention and desire to secure by Letters Patent is:—

1. In a reed organ, a lever hinged beneath each key of the instrument and contacting at its free end with the under-surface of the said key, means for maintaining
 35 the free end of said lever in contact with said key, a striker pivoted to the lever, a flexible connection between the pivoted striker and the hinged lever, a pin against
 40 which the striker is normally held by the said flexible connection, a pair of reeds or other sound producing devices of the same pitch but of different intensities or degrees of loudness, and a pallet controlling each of
 45 these reeds or other sound producing devices, one or other or both of which pallets are actuated according to the hardness or sharpness with which the key is struck and consequently the speed at which the striker
 50 descends.

2. In a reed organ, a longitudinal rail beneath each key of the instrument, a lever hinged at one end to this rail and contacting at the other end with the under-surface of said key, a second rail to which the
 55 keys are hinged, a spring mounted upon the front of this second mentioned rail, a third rail disposed between the first rail and second rail between which third mentioned rail
 60 and the hinged lever the said spring acts to maintain the free end of this lever in contact with the under surface of said key, a

striker pivoted to the hinged lever, a flexible connection between the pivoted striker and the hinged lever, a pin against which the
 65 striker is normally held by said flexible connection, a pair of reeds or other sound producing devices of the same pitch but of different intensities or degrees of loudness, and a pallet controlling each of these reeds or
 70 other sound producing devices, one or other or both of which pallets are actuated according to the hardness or sharpness with which the key is struck and consequently the speed at which the striker descends.
 75

3. In a reed organ, a lever hinged beneath each key of the instrument and contacting at its free end with the under-surface of said key, a spring to maintain the free
 80 end of said lever in contact with said key, a downwardly extending striker pivoted to said hinged lever and having lower forked ends which are swelled out and covered with felt, a spring flexibly connecting the pivoted
 85 striker to the hinged lever, a pin upon the hinged lever extending downward and padded at its extremity, against which the pivoted striker is normally held by the said spring, a pair of reeds or other sound
 90 producing devices of the same pitch but of different intensities or degrees of loudness, a pallet controlling each of these reeds or other sound producing devices, one or other or both of which pallets are actuated according to the hardness or sharpness with
 95 which the key is struck and consequently the speed at which the striker descends.

4. In a reed organ, a lever hinged beneath each key of the instrument and contacting at its free end with the under-surface of said
 100 key, a spring to maintain the free end of said lever in contact with said key, a downwardly extending striker pivoted to said hinged lever, and having lower forked ends, a flexible connection between the pivoted
 105 striker and the hinged lever, a pin upon the hinged lever against which the striker is normally held by said flexible connection, a reed of soft tone mounted in a wind chest, a pallet controlling this reed, which pallet is
 110 operated directly by one forked end of the striker when the key is struck softly, another reed of the same pitch but of louder intensity mounted in a wind chest, a pallet controlling this reed, which pallet is
 115 operated indirectly through a series of levers by the other forked end of the striker when the key is struck harder, while both pallets are operated simultaneously by both ends of the striker when the key is struck harder
 120 still.

In witness whereof I have hereunto set my hand.

ERNEST RICHARD WISKER.