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MICROTUNER FOR PIPE ORGANS

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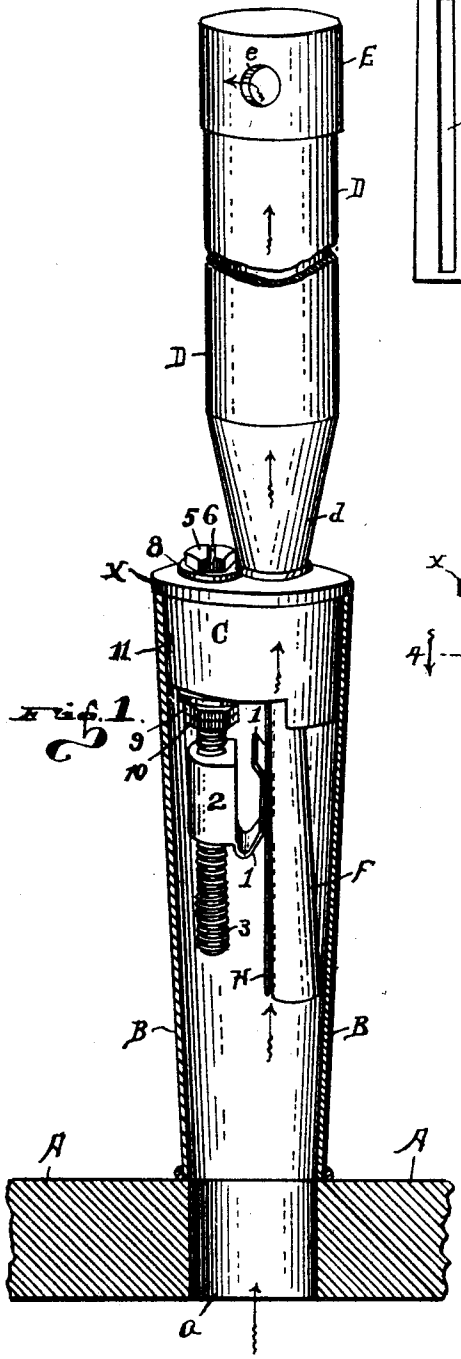

Fig. 1.

Fig. 7.

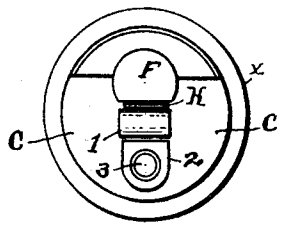

Fig. 3.

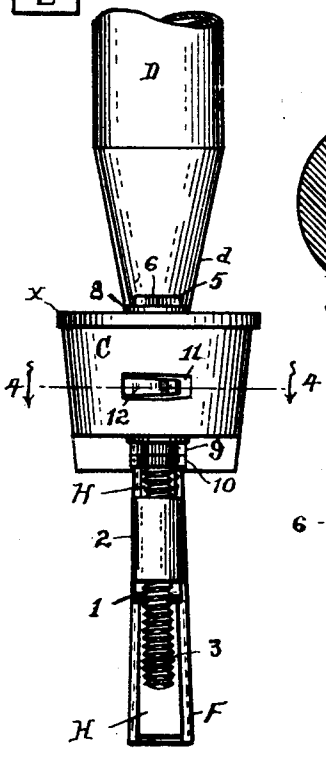

Fig. 2.

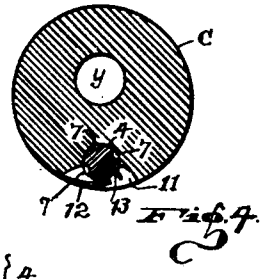

Fig. 4.

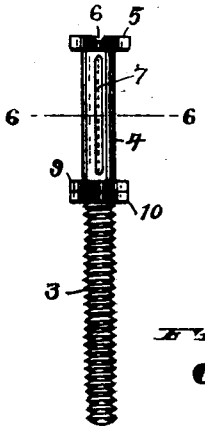

Fig. 5.

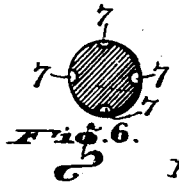

Fig. 6.

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UNITED STATES PATENT OFFICE.

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MICROTUNER FOR PIPE ORGANS.

Application filed February 1, 1927. Serial No. 165 093.

The object of our present invention, broadly speaking, is to provide a micro-tuner for pipe organs, or the like, the same being simple in character, strong and durable in construction, positive in its results, easily operated and controlled, and which can be manufactured and installed at a comparatively low price.

In tuning the pipes of reed organs, it has heretofore been done by moving a damper up and down manually, with the damper in contact with the reed, moving the damper until the desired tonal effect is produced, and then attempting to secure the damper by means of a wire, or the like, which by reason of the vibrations developed, soon allowed the damper to move, thereby destroying the tone desired. Therefore the particular object of this invention is to provide means whereby the position of the damper can be adjusted to an infinitesimal degree of accuracy which, when attained, will be automatically and permanently maintained.

The preferred means for carrying out the principles of our invention in a practical and efficient manner, is shown in the accompanying drawings, in which—Figure 1 is a side elevation, partly in vertical section, showing the invention in operative position in connection with the parts with which it is intended to be employed. Figure 2 shows a front elevation of the invention, also showing certain parts with which the invention is used. Figure 3 is a lower end view of the parts shown in Figure 2. Figure 4 is a cross section of the pipe-base, and the adjusting or regulating screw, showing a pocket in said base, and a locking spring which is located in said pocket. Figure 5 shows the adjusting or regulating screw, and its locking nuts, as the same would appear when removed from the other parts with which it is normally connected. Figure 6 is a cross section taken through the stem of the adjusting screw, as taken on the line 6—6 of Fig. 5, but on an enlarged scale. And Figure 7 is a face view of the chalice.

Similar indices denote like parts throughout the several views.

In order that the construction, the operation, and the several advantages of this invention may be understood and more fully appreciated, we will now take up a detailed description thereof, in which we will set forth the same as comprehensively as we may.

The parts which are old, and with which our invention is associated, comprises the following parts which are denoted by letters. Letter A denotes a top portion of the wind-chest of a pipe organ, through which portion an aperture *a* is formed, with which aperture is connected the toe or lower end of the lower pipe, or pipe foot, B, which in this instance is formed tapering to its lower portion. The upper end of the pipe B is closed by the pipe-base, or head, C which fits securely therein, with a flange *x* extending out from around its upper corner, which flange contacts with the upper end of the pipe B, as shown in Fig. 1.

Formed vertically through the base C is an air aperture *y*.

Secured in and extending upward from the aperture *y* is the pipe flue D, whose lower portion is formed tapering, as shown at *d*.

Letter E denotes the pipe head, which is revolvable on the upper end of the pipe D, there being corresponding apertures *e* formed in the side of the head E which register with like apertures in the upper portion of the pipe D, whereby the volume passing through said pipes may be controlled by turning the head E to increase or decrease the size of the apertures *e*.

Letter F denotes a chalice, which is in the form of a tube, closed at its lower end, with its upper end formed open, and having a flat face on one side. Formed through said face is a slot G, which extends longitudinally thereof, as is shown in Fig. 7.

Contacting with said flat face, extending from end to end thereof, and closing the slot G, is the reed H, which is secured at its upper end in the base C, its remainng portion being free to vibrate when air is forced upward through said pipes.

We make no claim to said parts, and we are not to be limited to the use of said parts in installing our invention, as they may be variously changed to meet different conditions.

Our invention comprises a damper 1, which is in the nature of a flat spring bent into substantially U-shape, the same being secured at one end to the tuner-head 2, the other end portion being free and in contact with the reed H. The head 2 is provided with a threaded aperture extending vertically therethrough, in which is adapted to operate the threaded portion 3 of the tuning screw. Said

screw member also comprises an unthreaded stem portion 4, and a head portion 5, with a driver slot 6 formed across the face of the head whereby the entire screw member may be turned by a screw-driver or other tool. The stem portion is fluted, that is to say,—a plurality of flutes or channels 7, preferably half-round, are formed in the periphery thereof. Said flutes or channels 7 extend longitudinally of the stem, and are spaced equally apart, as shown in Fig. 5. The head 5 may be made seperate from the stem, but when in operative position it must be rigidly secured thereto.

The stem 4 is revolvable in an aperture formed vertically through the base C and parallel with the aperture *y*.

The head 5 of the said screw is adapted to clamp upon the upper face of the base C, with a lock-washer 8 located therebetween.

Numeral 9 denotes a nut adapted to run on the threaded portion 3 of the screw and to contact with the under-side of the base C. A locking nut 10 is also run on said threaded portion 3, and it is adapted to contact with the nut 9 to prevent it from turning.

Formed in the center, vertically, of one side of the base C is an oblong pocket 11, in which is secured, at one end, the flat spring 12, which has a nib, or kink, 13 formed therein near its free end, which nib is adapted to enter either of the flutes 7 as the screw is revolved. The tension of the spring 12 is such that it at all times presses upon the stem 4 of the screw.

Operation.

The operation of our device is very simple. It first being understood that proper air pressure is formed in the wind-chest A, the air pressure passing upward through the aperture *a*, then into the pipe B, the compressed air has no other way of egress, from the pipe B, except through the slot G, and to accomplish which it causes the reed H to vibrate.

Continuing: The air then passes into the chalice, then through the aperture *y*, and then through the neck *d* where the tone is amplified. From the latter the air passes through the flue D, and is then discharged out through aperatures *e*, and of course carrying with it the tone produced by the reed H.

Now it must be understood that the reed H causes a certain tone, depending on the length of the reed below its fixed connection with the chalice, which tone is caused by the air as it passes the reed into the slot G. It is evident that the tone developed by the reed must be controlled or be capable of being changed or varied, in order that it may be harmonized with the tones developed in other pipes of the same organ. The controlling or setting of the tone at the pitch desired is obtained by the damper 1, which is caused to press upon the reed H, and the location of the damper upward, or downward, determines the tone by lengthening or shortening the vibrating portion of the reed H.

The means for moving the damper, for changing the tone, and for maintaining the desired tone at the point to which it has been set, is the predominant object of this invention. To accomplish this the damper is secured to the head 2, and said head is carried by the screw. Therefore by turning the screw it is evident that the damper 1 will be raised or lowered, thereby changing the bearing or point of contact of the damper with the reed.

It is evident that the damper can thus be moved by simply turning the screw with a screw-driver engaged in the slot 6, and that without disassembling any of the parts shown in Fig. 1.

The stem of the screw should fit very snugly in the aperture in the base C still allowing it to be turned when desired, in the manner above stated. In order to positively prevent said screw from turning inadvertently from the position to which it has been set we provide the spring 12, whereby at each quarter-turn of the screw the nib 13 will engage in a channel 7 and thereby retain the screw, and therefore the damper 1, in that position.

The screw is prevented from moving downward by its head 5, and it is prevented from moving upward by the nut 9, when the latter is run upward into contact with the base C. The nut 9 can be locked when desired by means of the nut 10 being contacted tightly thereagainst.

It is to be understood that various changes may be made in the several details of construction herein set forth without departing from the spirit of the invention and without sacrificing any of the advantages thereof which are new and useful and which involve invention.

Having now fully shown and described this invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. In combination with a pipe organ having an air pipe connected at its lower end with air pressure, a base closing the upper end of said pipe, a chalice having a slot in the side thereof with said chalice extending down from said base, and a reed adapted to close said slot; a micro-tuner comprising a screw, with its head at all times resting on the top of said base, and having its upper portion rotatably mounted in said body with its threaded portion extending down in front of said slot and parallel therewith but spaced therefrom, means for preventing endwise movement of said screw, a head adapted to be carried up and down by the rotation of said screw, and a flat spring damper having one end thereof attached to said head and

with its free portion in resilient contact with said reed, all substantially as set forth.

2. A tuning device for pipe organs, comprising a damper formed of flat spring material adapted to press upon the reed of an organ, a head to which one end of said damper is attached, a screw threated through said head and adapted to move the head and the damper when the screw is rotated, means whereby said screw is prevented from moving endwise and automatic means for preventing the inadvertent rotation of said screw.

3. In combination with an organ having a pipe, a base closing the discharge end of the pipe, a chalice secured in an aperture in said pipe and extending into said pipe, a reed secured at one end and extending over a slot in said chalice; a U-shaped spring damper contacting with said reed, a solid head to which the damper is secured, a screw threaded into the head with one portion of said screw revolvable in an aperture in said base whereby the rotation of said screw will change the position of the damper with relation to the reed, means preventing endwise movement of said screw, and a flat spring for securing the screw against inadvertent rotation.

4. In combination with a pipe organ having an air conducting pipe connected at one end with a source of air under pressure, a base member closing the other end of said pipe, a chalice having a flat face on one side with a slot formed through said face and with an air passage leading from the interior of the chalice through said base, a reed connected at one end to said base and projecting over said slot in the chalice; a damper formed of flat spring material pressing against and extending below said reed, a screw revolvably mounted in and extending through said base, a head attached to said damper, with said screw threaded therethrough whereby the rotation of said screw will move the damper upon the reed in order to change the tone developed by the reed, and means whereby said screw is prevented from moving up and down.

In testimony whereof we have hereunto subscribed our names.

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