Nov. 11, 1941. M. HESS 2,261,999

CONTROL FOR ELECTRICALLY OPERATED PIPE ORGAN

Filed March 13, 1941 2 Sheets-Sheet 1

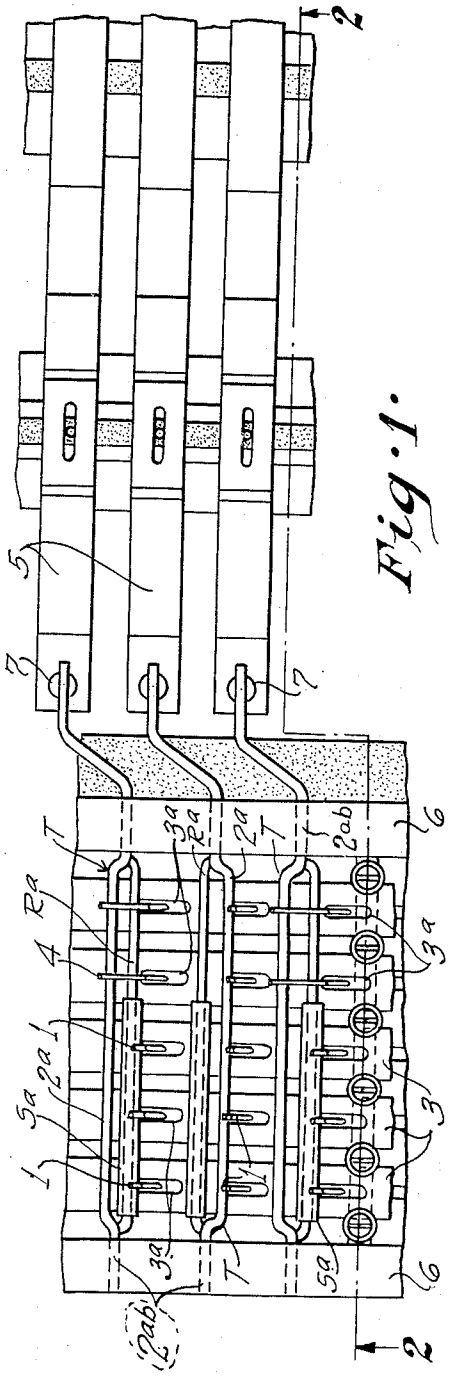


Fig. 1.

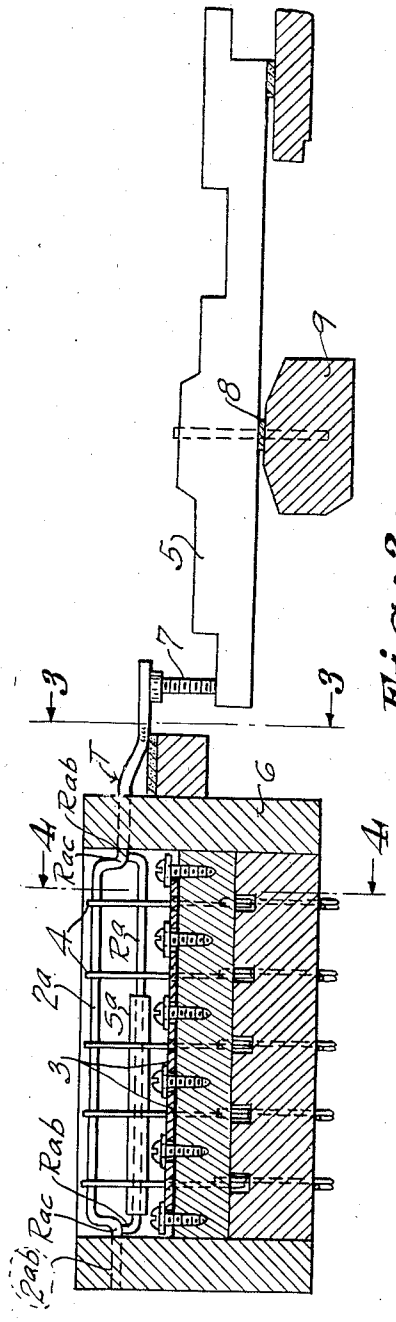


Fig. 2.

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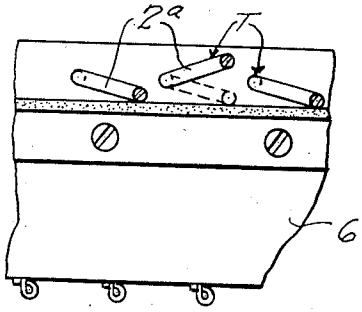


Fig. 3.

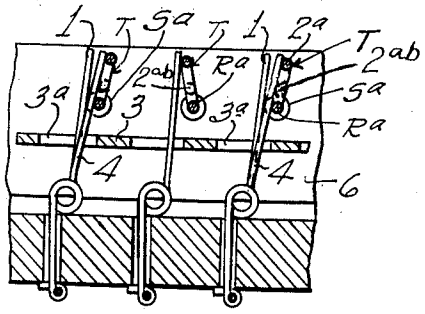


Fig. 4.

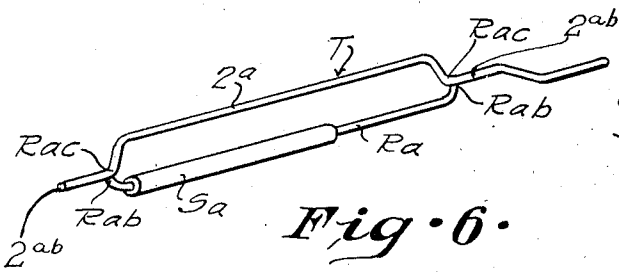


Fig. 6.

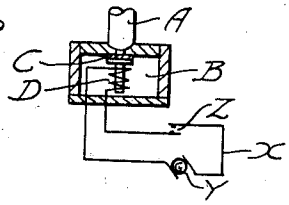


Fig. 5.

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UNITED STATES PATENT OFFICE

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CONTROL FOR ELECTRICALLY OPERATED PIPE ORGAN

Max Hess, Maplewood, Mo.

Application March 13, 1941, Serial No. 383,106

9 Claims. (Cl. 84—343)

This invention relates to controls for electrically operated pipe organs having groups of pipes with valves actuated by electro-magnets, under the control of the organist, by manipulation of the keys and slides, whereby the organist can cause all or only a portion of the pipes of a group to sound or speak. The invention is an improvement upon my prior patent numbered 1,764,682, dated June 17, 1930.

Conventionally and according to the said patent, the magnetically controlled valves of the several groups of pipes are severally operated by resilient electrical contacts mounted alongside looped or yoke-shaped conductors or hot bars, that may, by depressing the keys, be rocked or oscillated against the contacts for energizing them and operating the pipe valves, and transversely arranged slotted slides, through which the contacts extend, and whereby the organist may withdraw certain ones of the contacts from the conductors, thus rendering the connected valves and pipes inactive. In the said patent, the gist of the invention lies in rigidly mounted insulators extended above and in parallelism with the conductors or hot bars and against which the resilient contacts move and rest when the organ keys are released and the conductors are rocked away from them, thus preventing the contacts from accidentally striking the conductors and the connected pipes from sounding or "cyphering."

The primary object of the present invention is to provide, in lieu of the separate and rigidly mounted insulators as rests for the flexible contacts, as described in the said patent, insulators mounted upon or in unitary association with the conductors or hot-bars themselves, and therefore rockable or oscillatable therewith, but in a reverse direction to the hot-bar proper, whereby as the hot-bar moves towards or away from its group of contacts, the associated insulator moves reversely away from or towards the said contacts, thereby greatly accelerating the action and the sounding or silencing of the associated pipes, and rendering the manipulation of the organ keys more facile and easy.

Another object of the invention is to provide, in an assembly of the kind referred to, a combined hot-bar and an insulator, comprising a straight hot-bar proper and a straight insulator spaced from the hot-bar and extended parallel therewith, the two being connected at their inturned ends and forming together a closed elongated loop, band or noose, which when pivotally mounted endwise closely alongside a group of resilient contacts of the kind specified, through aligned pivot points or journal-stems at the ends of the loop intermediate the hot-bar proper and the insulator, may be oscillated in either direction, for striking either the hot-bar or the insulator alternately against the said contacts, simultaneously as the companion element moves away from the contacts, thereby greatly accelerating the speed of the action and facilitating the operation of the organ keys.

With the stated objects in view, together with such other objects and advantages as may appear from the specification, a preferred embodiment of the invention is shown in the accompanying drawings, wherein:

Figure 1 is a fragmentary top plan view of a control mechanism for an electrically operated pipe organ, including the present invention.

Figure 2 is a longitudinal vertical section, on the line **2—2** of Figure 1.

Figures 3 and 4 are transverse sections on the lines **3—3** and **4—4** of Figure 2.

Figure 5 is a wiring diagram of an organ action.

Figure 6 is a detail view in perspective of one of the combined conductor and insulator units.

For the sake of clearness, the reference characters employed in the prior patent, will be adhered to, as far as practicable.

In the wiring diagram of Figure 5, A represents an organ pipe, B a wind-chest, C an electro-magnetically controlled valve for passing air under pressure from the wind-chest B into the pipe A for sounding same, D the electro-magnet for operating the valve, X the energizing circuit for the magnet D, Y a source of electrical energy, and Z the controlling unit for the circuit X.

In accordance with my present invention, I dispense with the separate and immovable insulator rods R and insulators S of my prior Patent 1,764,682, and in lieu thereof I extend insulator rods R*a* across the open sides of the former metallic, yoke-shaped hot-bars **2***a*, and parallel therewith, then, offset or turn their ends to one side in alignment, as indicated at R*ab*, then permanently weld or solder the turned extremities to the outer elbows of the hot-bars, as indicated at R*ac*, and finally mount tubular insulators S*a* upon the rods R*a*. In other words I provide and combine in a single unit both a hot-bar proper and an insulator, in the form an elongated, closed loop including a pair of straight rods or bars **2***a* and R*a* spaced apart and extended in parallelism, joined together at their inturned ends, and having journals or journal-stems **2***ab* extended in alignment at the ends of the loop, in offset rela-

tion to each of the parallel rods, and whereby the units are as before rockably mounted in the frame or support **6**, and suitably insulated therefrom either by the material of the frame itself or by insulation sleeves (not shown). The insulator tubes S*a* are mounted upon the lower, insulator rods R*a*, and as here shown these rods are offset from the journals or stems **2***ab* only slightly as compared with the upper, hot-bars **2***a*, although this eccentricity of the elements **2***a* and R*a* may be varied, as desired.

These combined hot-bar and insulator units may be referred to generally by the reference character T, and as before stated they are rockably mounted in the frame **6** closely alongside their respective groups of contacts **1**, as shown in the drawings. The conventional electrical supply contacts **4** are of course retained and used in combination with this improvement, and function as already stated.

The construction and arrangement of the elements are such that as the organ keys **5** are depressed, the units T will be rocked or oscillated for impinging the hot-bars **2***a* against the contacts **1** and the insulators S*a* reversely away from the contacts. On the keys being released, the movement of the units is reversed, the hot-bars moving away from the said contacts and the insulators moving towards and intercepting them. In either case the action and movement are greatly accelerated owing to the simultaneous reverse movements of the hot-bars and insulators. The result is greatly increased facility and ease of key action and quicker sounding or "speaking" of the pipes. Of course the journal-stems **2***ab* might be extended in direct axial alignment with the insulator rods R*a*, but the accelerated action of the unit would then be lost, although the insulator rods R*a* would still partially rotate on their axes in operation. The slides **3** are transversely and slidably mounted in the frame **6** as described, and function in the manner and with the effect stated, for silencing certain pipes of the several groups while the rest sound. No invention is here claimed in respect of these slides.

While I have here shown and described a specific embodiment of the invention and specific structural features thereof, any desired changes or modifications may be made within the scope of the claims.

I claim:

1. In an electrically operated pipe organ action for an organ having groups of pipes operable by electromagnetically controlled valves therein, and having aligned groups of out-standing flexible contacts arranged in circuits with their respective groups of magnets, a unitary conductor and insulator pivotally mounted alongside each group of contacts, each unit comprising a conductor bar and an insulator rod in parallel spaced relation, joined together at their inturned ends and pivotally suspended from aligned points on their inturned ends intermediately of the bar and rod, whereby as the unit is oscillated the conductor bar and insulator rod will move simultaneously and reversely, one towards and against the group of contacts and the other away from the contacts, thereby accelerating the action.

2. In a device according to claim 1, a covering of insulation material upon the said insulator rod.

3. In a device according to claim 1, means for electrically energizing the conductor bar.

4. In a device according to claim 1, means for oscillating the said conductor and insulator unit.

5. In a combined hot bar and insulator unit for pivotally mounting alongside a group of spaced, outstanding and aligned electrical contacts controlling the action of a group of electrically operated pipes of a pipe organ, a hot-bar and an insulation rod arranged in spaced and parallel relation, the ends thereof being inturned and joined together to form a closed elongate loop, and aligned journal stems extended at the ends of the loop for pivotally mounting the unit at the contacts as aforesaid.

6. In a device according to claim 5, means for electrically energizing the hot-bar of the unit.

7. In a device according to claim 5, means for oscillating the unit on its journal-stems.

8. In a circuit controlling mechanism for an electrically operated pipe organ action, the combination of an organ key, a contact arranged in an electric circuit, a combined conductor and insulator movably mounted at the said contact and connected with the organ key so as to move therewith for impinging the conductor against the contact as the key is depressed, for energizing the circuit in which the contact is located, and for withdrawing the conductor and impinging the insulator against the contact as the key is released, for opening said circuit and preventing accidental impingement of the contact with the conductor.

9. In a device according to claim 8, means for withdrawing the contact from the operative range of movement of said conductor and insulator unit.

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