March 29, 1932. W. D. SMITH 1,851,459

CONTROL MEANS FOR MULTIPLE SOUND REPRODUCERS

Filed Sept. 23, 1930

Fig. 1

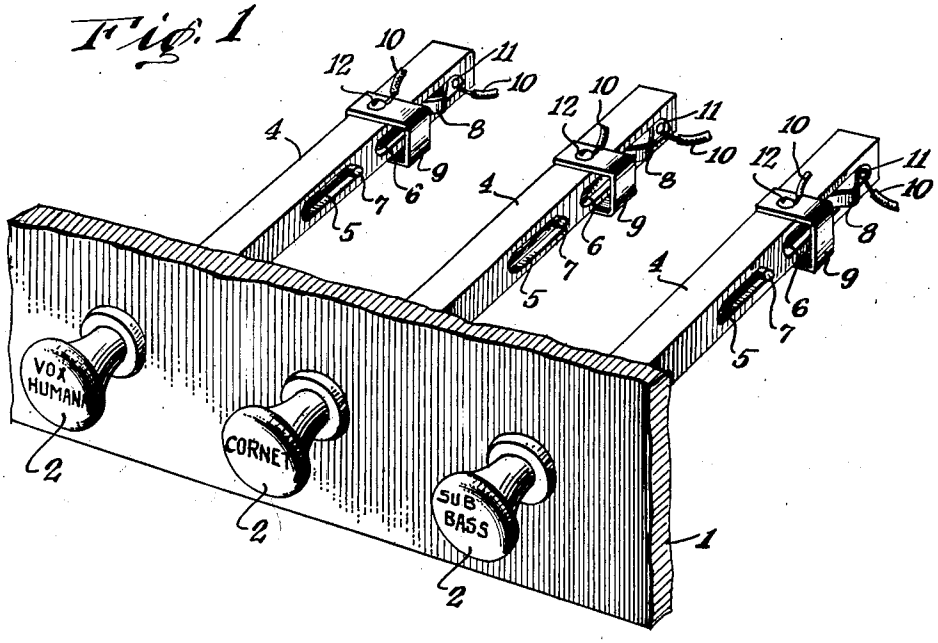
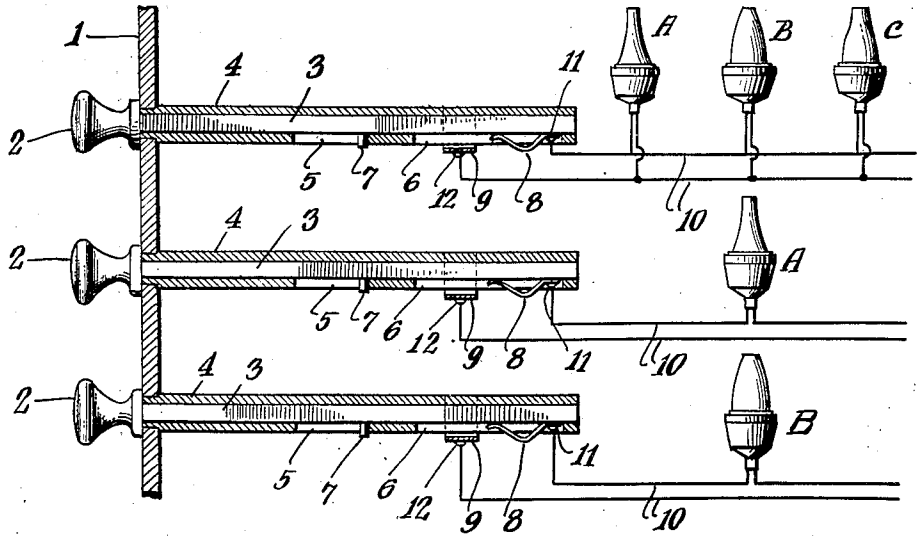


Fig. 2



Winfield D. Smith
INVENTOR

BY ATTORNEY
Frederick W. Barker

Patented Mar. 29, 1932

1,851,459

UNITED STATES PATENT OFFICE

WINFIELD D. SMITH, OF PEEKSKILL, NEW YORK, ASSIGNOR TO EUGENE A. WIDMANN, OF NEW YORK, N. Y.

CONTROL MEANS FOR MULTIPLE SOUND REPRODUCERS

Application filed September 23, 1930. Serial No. 483,959.

This invention relates to control means associated with a plurality of sound reproducing devices whereby said devices may be selectively brought into operation, either singly or in groups.

As an example of sound reproducing devices with which the control means are applicable, reference may be had to the system of multiple concentrators for articulate sound reproduction comprised in my patent application Serial No. 425,222, filed February 1, 1930.

Whether the sound reproducing devices be used in conjunction with a radio receiving set, a phonograph, or other apparatus, my present invention consists in the provision of a series of stops, similar to those used upon organs, to serve as the controlling media for the electromagnetic means that actuate the respective palpitating members of the sound reproducing system.

The stops employed by me include stems that are slidable through a panel, such for example as the front wall of an instrument casing, said stems being adapted in their out and in movements to close and open the electrical circuits whereby the palpitating members are actuated, and the handles for these stems, which are located outside the panel, bear upon their faces the respective names representing the tone quality or timbre of the reproduced sounds that will be delivered when any one or more of the stops are pulled out.

The various tone qualities represented by the stops and indicated by name upon the handles may be, for example, Vox humana — Cornet — Subbase — Diapason, and in fact any, or all of those sound qualities found upon organ stops.

The musical public is familiar with organ stops and is therefore able to appreciate the effect that will be produced in pulling out any one or more stops labeled with indications of the tone colors they represent, and since I have provided, in my said patent application Serial No. 425,222 a sound reproducing system which includes members that vary in size and in their interior contours, whereby they are able to function both unitedly and selectively for the delivery of different sound qualities, therefore the use of organ stops, set forth in this application, constitutes a practical means for the selective operation of individual sound reproducers and groups thereof in the series.

For example, a single sound reproducing device, or a group thereof, in my system may have the size and interior contour especially adapted for delivering the tone of a cornet, and a cornet stop is therefore provided whose operation will serve to close the electrical circuit for this cornet device or group thereof. Similarly a sub-base sound reproducing device, or group thereof, may be controlled by a stop labeled Sub-base. Then again, certain stops like that labeled, for example, Vox humana, may control a group of sound reproducing devices possessing different characteristics, in order to produce a blend of the various tone colors represented as best suited for delivering the sound qualities of the human voice.

The number of stops to be employed in conjunction with an apparatus of the character described is limited only by the number of separate sound reproducing devices, plus the number of groups of said devices used with the apparatus.

Other features and advantages of my invention will hereinafter appear.

In the drawings:

Figure 1 is a perspective, partial view of a panel that supports the stops to be used in an apparatus employing a plurality of sound reproducing devices, and

Fig. 2 is a diagrammatic view, with the panel and guide means for the stop-stems in section, also showing the circuit closing means with respect to some of the sound reproducing devices.

In the figures, 1 indicates a panel or the front part of a casing for a radio set, phonograph, or other sound reproducing apparatus.

Handles or knobs 2 are placed at the outer side of the panel and have stems 3 that extend through the panel, said stems being supported in guides 4 that are secured to the panel and extend rearwardly thereof. The

guides 4, as here shown, are rectangular in cross section and serve to slidably contain the stems 3 which are also rectangular in cross section.

A side wall of each guide 4 is provided with the longitudinal slots 5, 6, the stem 3 carrying a pin 7 that engages slot 5 which limits the sliding movement of the stem in both directions.

Each stem 3 has a bent, spring like contact member 8 attached thereto, said contact member lying in the slot 6, and serving to engage a contact bridge member 9 when the stem is moved outwardly, said bridge member being secured to the guide 4.

The letters A, B and C indicate different sound reproducing members comprised in a system thereof, said members all differing from one another and each being especially adapted to reproduce certain tone colors or sound qualities.

In the upper part of Fig. 2 a group comprising the sound reproducing devices A, B and C are shown as included in an electrical circuit 10, terminals of said circuit being connected respectively to the spring contact member 8, as at 11, and to the bridge 9, as at 12.

Normally the circuit is open with the stop in its pushed-in position. The stop, it will be noted, comprises the knob or handle 2 and stem 3. But on pulling out the stop, the pin 7 limiting this movement, thereby the contact member 8 is brought into electrical contact with the bridge member 9, and closes the circuit causing the sound reproducing devices to function with respect to the issuance of the combined tones of devices A, B and C in reproduction of, for example, the human voice.

In the middle portion of Fig. 2 a similar stop device is employed with its circuit closing means in respect to a single sound reproducing device A, which may, however, be typical of a group of said devices; and the stop device indicated at the bottom of Fig. 2 is shown as controlling a sound reproducing device B which may be typical of a group of said devices.

From the foregoing description it will be appreciated that a sound reproducing apparatus may be equipped with as many stops as there are individual sound reproducing devices and groups thereof comprehended in the system to which I have referred.

Also, as will be obvious, whilst the stop devices herein illustrated operate in pulling out movements to close the electrical circuits, and to open said circuit when pushed inwardly, these movements may be reversed if desired.

Also, as will be quite well appreciated, my invention is not to be limited to the use of organ stops as the control means for securing the selective operation of a plurality of sound reproducing devices, such for example as those previously referred to herein, because I am perfectly well aware that other suitable mechanical means may be employed therefor, and the organ stops are merely introduced herein as an example of a practical operating means.

Actually, also, I am not limited to the use of the name characteristics found upon organ stops and capable of representation in the sounds produced by an organ, since by the use of my system of multiple sound reproduction, even any peculiar tone color that distinguishes individuals is capable of reproduction with my system.

Therefore the visual indications on the stops or other actuating devices may, for example, be the names of the individuals whose voices are to be reproduced.

Variations within the spirit and scope of my invention are equally comprehended by the foregoing disclosure.

I claim:

1. The combination with a plurality of sound reproducing devices of manually operable individual means for the selective operation thereof.

2. The combination with a plurality of sound reproducing devices, each having different tonal characteristics, of manually operable individual means for the selective operation thereof.

3. The combination with a plurality of sound reproducing devices, each having different tonal characteristics, and a group of said devices, of manually operable individual means for the selective operation of said sound reproducing devices and group thereof.

4. The combination with a plurality of sound reproducing devices, of manually operable individual stops for the operation thereof.

5. The combination with a plurality of sound reproducing devices, each having different tonal characteristics, of manually operable individual stops for the operation thereof.

6. The combination with a plurality of sound reproducing devices, each having different tonal characteristics, and a group of said devices, of manually operable individual stops for the selective operation of said sound reproducing devices and group thereof.

7. The combination with a plurality of sound reproducing devices of individual means for the selective operation thereof, said individual means bearing visual indications of the respective tone qualities they represent.

8. The combination with a plurality of sound reproducing devices, each having different tonal characteristics, of individual means for the selective operation thereof, said individual means bearing visual indications of the respective tone qualities they represent.

9. The combination with a plurality of

sound reproducing devices, each having different tonal characteristics, and a group of said devices, of individual means for the selective operation of said sound reproducing devices and group thereof, said individual means bearing visual indications of the respective tone qualities of said sound reproducing devices and group thereof.

10. The combination with a plurality of sound reproducing devices, of individual stops for the operation thereof, said stops bearing visual indications of the tone qualities they represent.

11. The combination with a plurality of sound reproducing devices, each having different tonal characteristics, of individual stops for the operation thereof, said stops bearing visual indications of the tone qualities they represent.

12. The combination with a plurality of sound reproducing devices, each having different tonal characteristics, and a group of said devices, of individual stops for the selective operation of said sound reproducing devices and group thereof, said stops bearing visual indications of the respective tone qualities they represent.

Peekskill, N. Y., September 22nd, 1930.

WINFIELD D. SMITH.