(No Model.) 2 Sheets—Sheet 1

W. H. PRICE, Jr.

COMBINATION ORGAN STOP ACTION.

No. 337,348. Patented Mar. 2, 1886.

Fig. 1.

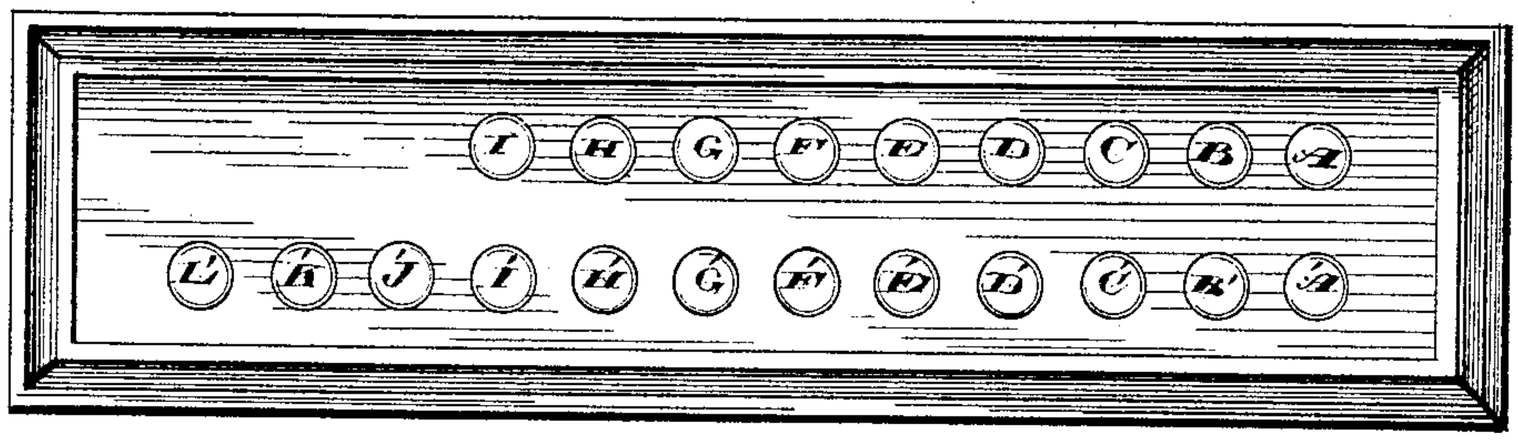


Fig. 2.

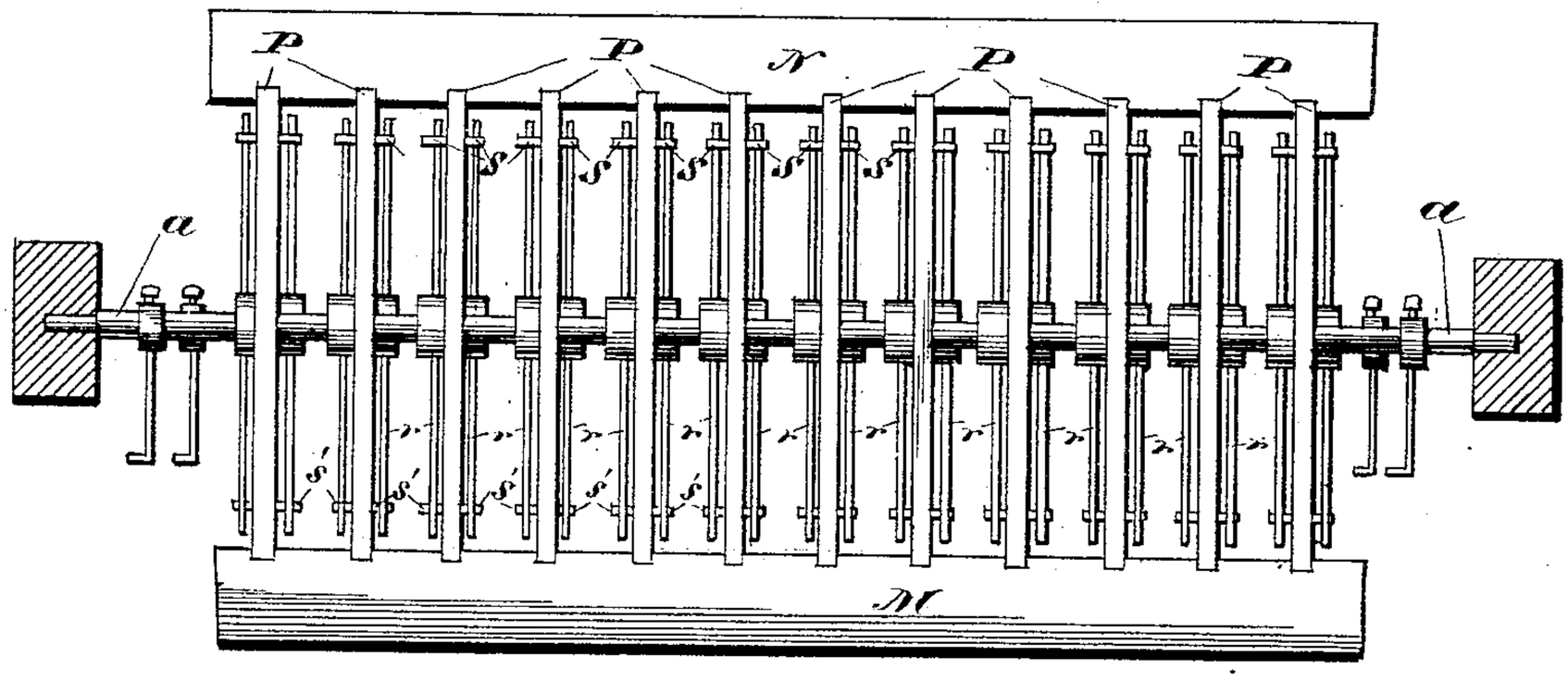


Fig. 7.

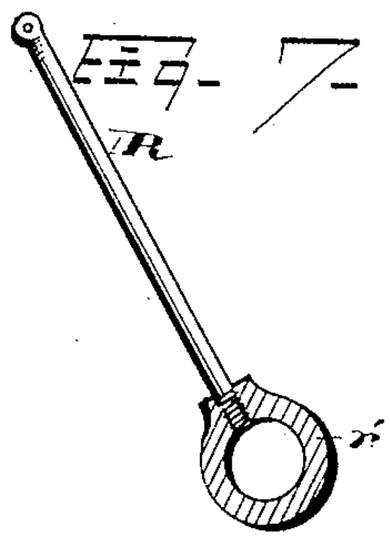
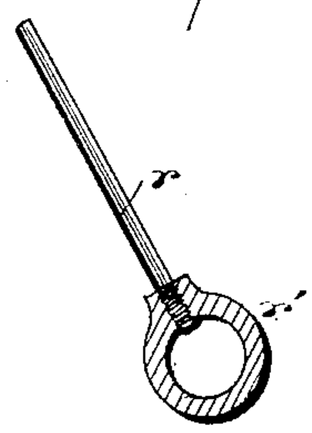


Fig. 8.



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(No Model.) 2 Sheets—Sheet 2.

W. H. PRICE, Jr.

COMBINATION ORGAN STOP ACTION.

No. 337,348. Patented Mar. 2, 1886.

Fig. 3.

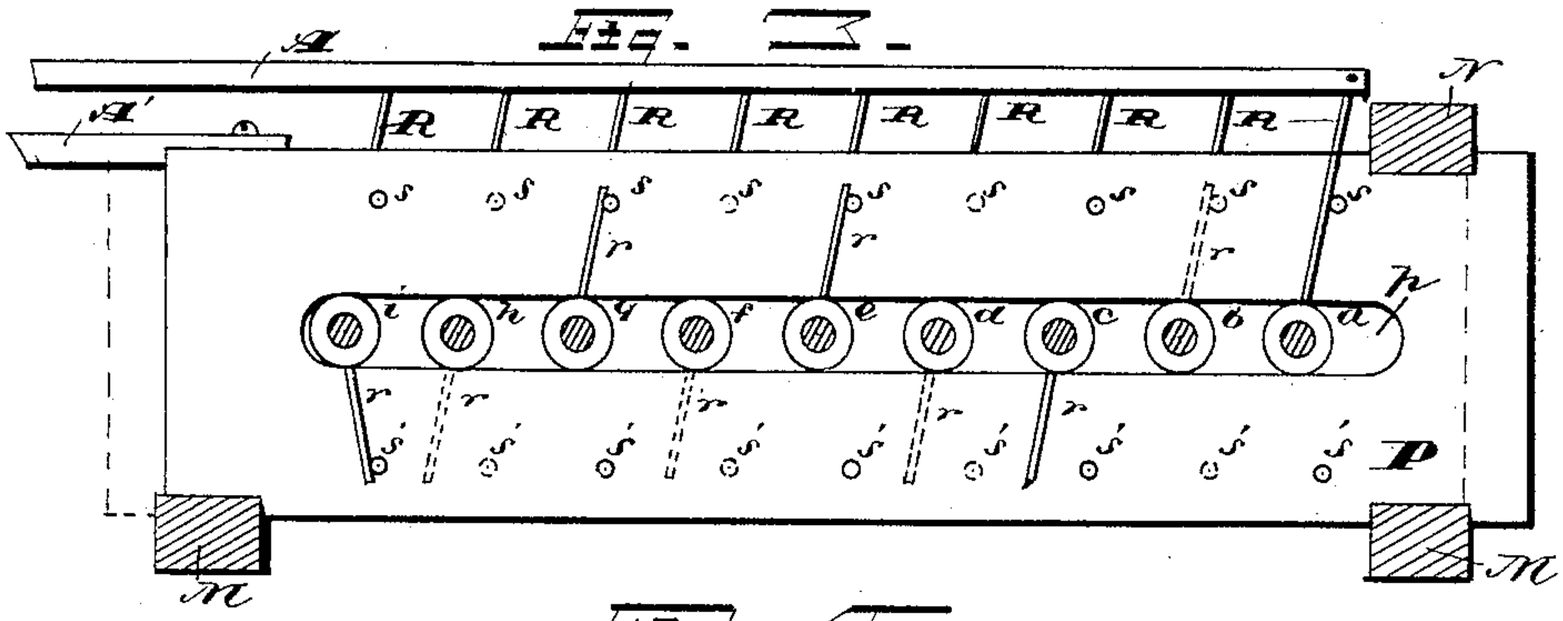


Fig. 4.

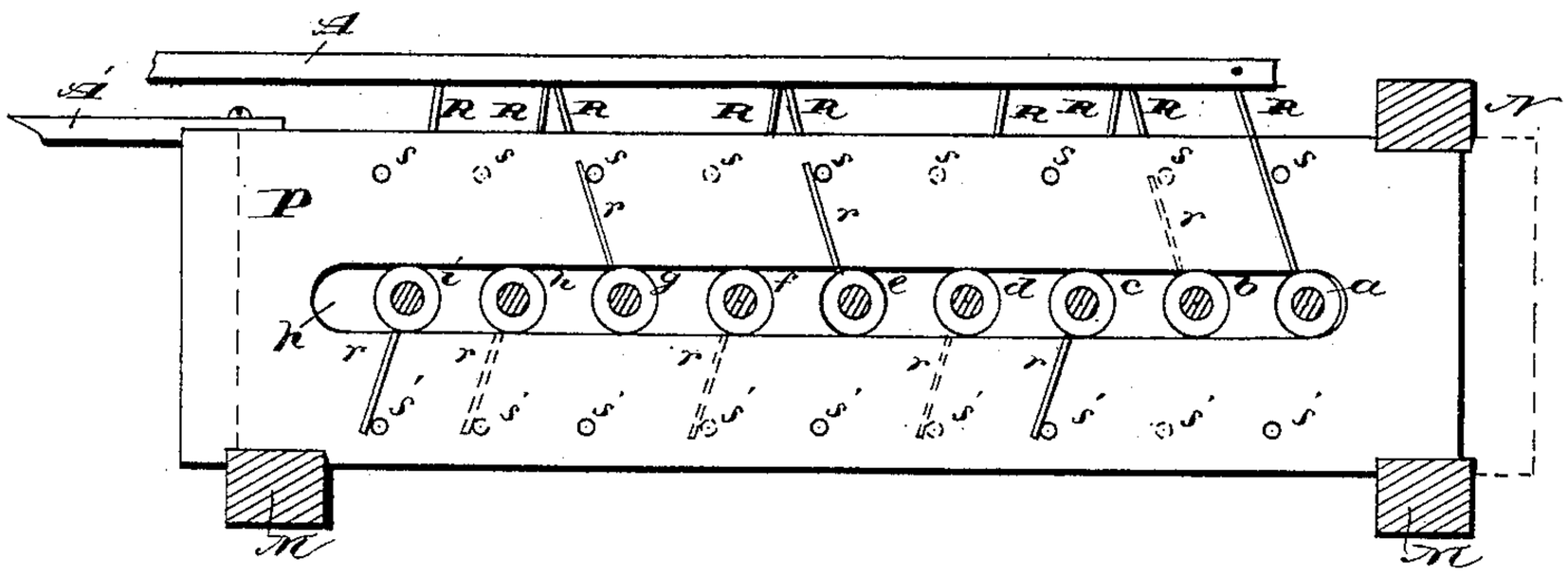


Fig. 5.

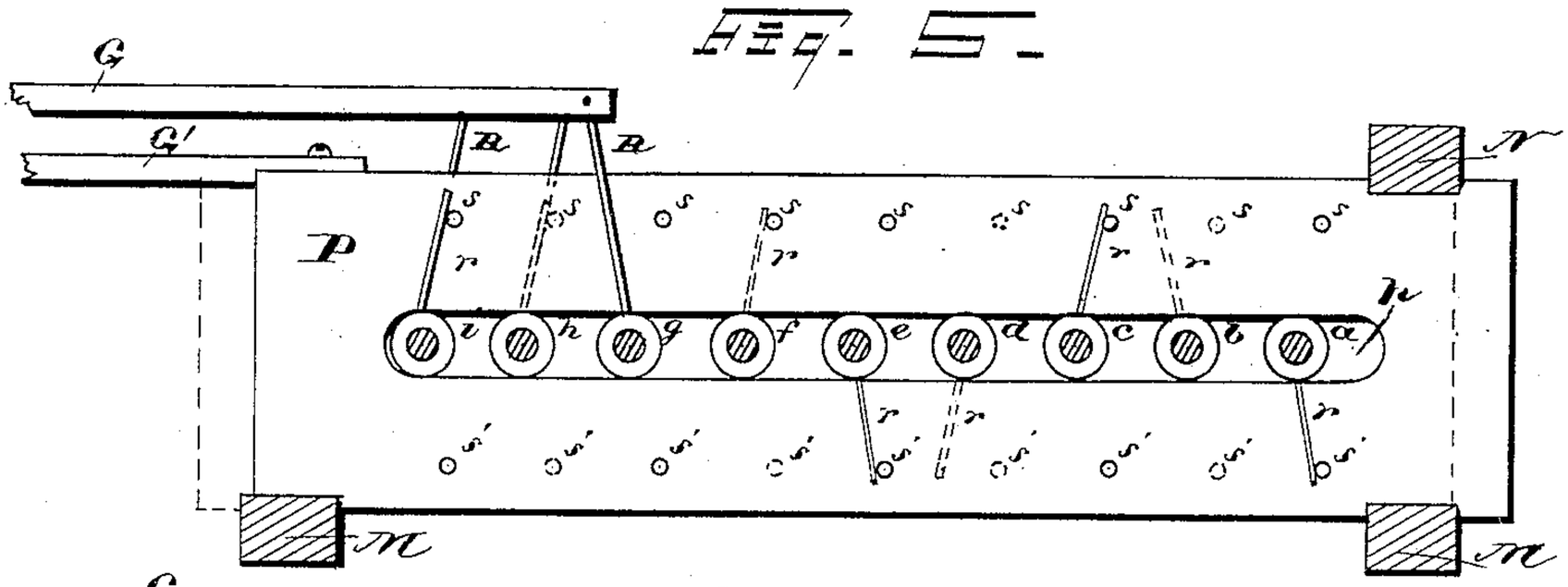
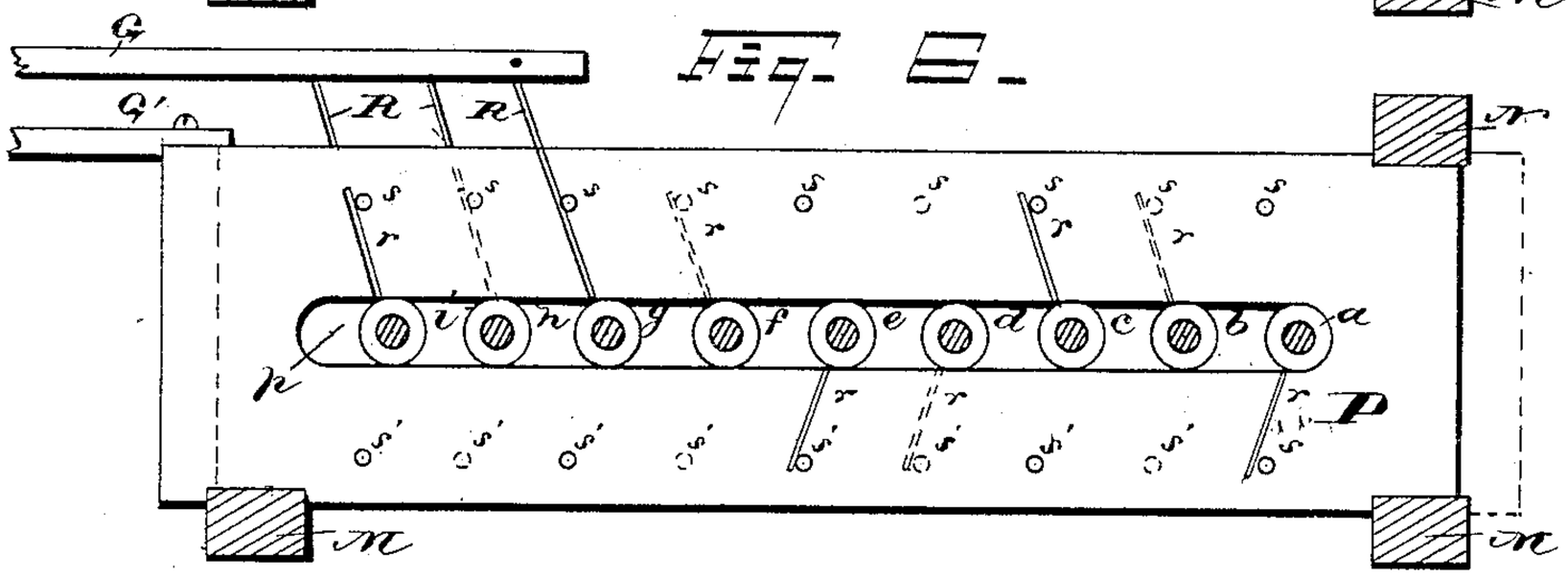


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. PRICE, JR., OF CLEVELAND, OHIO.

COMBINATION ORGAN STOP-ACTION.

SPECIFICATION forming part of Letters Patent No. 337,348, dated March 2, 1886.

Application filed June 17, 1885. Serial No. 168,934. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PRICE, Jr., of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Organ Attachments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in combination-stops for organs, the object being to arrange, in addition to the ordinary stop for opening and closing the valves of the air-chambers with which every set of pipes or reeds is provided, a second set of combination-stops, each of the latter operating a given combination, and so arranged that when one of the combination-stops is in use any other sets of pipes or reeds may be added to the combination by means of the ordinary stops, and that when a combination-stop is drawn out or made operative it will automatically close all other stops not in this combination that have been previously opened, and when a combination-stop has been used it need not be returned or shut off, for the reason that, as aforesaid, the succeeding combinations used will close all of the stops previously left open that are not wanted, to the end that such combinations as are most used can be arranged and operated, respectively, with the combination-stops in less time and with less labor than such combinations could be made by the ordinary stops; also, the arrangement is such that the combination arranged on any stop can in a few minutes be changed to any other combination that is desired.

With these objects in view my invention consists in certain features of construction and in combination of parts, hereinafter described, and pointed out in the claims.

In the construction of both reed and pipe organs it is customary to arrange so-called "rollers"—that is, the rock-shafts with rock-arms that are connected, respectively, with the different stops, and with other rock-arms that are connected with the mechanism for operating the valves of the respective air-chambers. The arrangements of this mechanism vary somewhat in different instruments; but whatever the construction may be I make no change in the same, but take it as I find it, and apply my improvement to the same, with one exception—to wit, the rollers usually extend only so far as the stops to which they are attached; but for applying my improvement it is only necessary to have all of the rollers extend across the line of all of the stops.

The combination-stops in number may be the same as the ordinary stops, or may be more or less in number, as desired.

In the accompanying drawings I show only nine ordinary stops and twelve combination-stops, for the reason that a limited number will illustrate the invention just as well as a large number, and the drawings can be made on a larger scale.

Figure 1 is a front elevation of a portion of the instrument supposed to be above the key-board, showing above the arrangement of the ordinary stops and below a series of combination-stops. Fig. 2 is a rear elevation of the series of slides on which the combinations are arranged, showing also the rear roller and some of the arms connected with the different rollers. Figs. 3 and 5 are side elevations, respectively, of different slides, showing the combinations arranged thereon and the position of parts closed. The rollers are shown in transverse section. Figs. 4 and 6 show the position of parts with these slides open. Figs. 7 and 8 are elevations, respectively, of the rock-arms R and *r*, showing their construction.

The ordinary stops (shown in Fig. 1) are usually labeled to designate the peculiarities of each; but for convenience I use letters A, B, C, &c. Below are shown the combination-stops, (lettered A′, B′, C′, &c.) As there are nine ordinary stops, there will be nine rollers—that is, rock-shafts—(marked *a*, *b*, *c*, &c.,) and each roller will have a rock-arm, R, connected with the corresponding stops. (See Figs. 3, 4, 5, and 6.) A series of slides corresponding with the number of the combination-stops, and each marked P, are arranged to embrace the series of rollers, each slide having a longitudinal central slot, *p*, for this purpose. Each slide is connected with one of the combination-stops. These slides operate in grooves in the frame-work M and N. Any suitable mechanism for supporting the slides so that they will move freely will answer the purpose. These slides are alike, being made, usually, by auto-

matic machinery, so that there is not the slightest variation in them. A series of holes near the upper edge of the slides have laterally-projecting pins S, corresponding in number with the rollers, and another similar series of pins, S′, are arranged near the bottom of the slide. Each roller is provided with an arm, R, to which a corresponding upper stop is connected, and each roller is also provided with a series of arms, *r*, one of the latter being arranged, respectively, by the side of each slide, except where the arms R occur, in which case the arm R performs the function of an arm, *r*, in addition to its other function already mentioned. For convenience, I will speak of the rollers being "opened" and "closed" and as "forming the combinations," meaning, of course, the mechanism (stops, sets of pipes, reeds, &c.) that each roller represents.

A combination is arranged on one of the slides P as follows: The arms *r* by the side of the slide, and that are connected with the rollers to be used in such combination, are turned up; the other arms, connected with the rollers that are not required for the combination, are turned down. (See Figs. 3, 4, 5, and 6.) The arms above incline rearward, and the depending arms have a corresponding inclination forward a distance equal to about half the stroke of the arm.

With some instruments the stops are drawn out or forward to make them operating, in others the stops are pushed in or rearward. I will illustrate my device in connection with the former; but it is equally applicable to the latter, the only difference being that the arms *r* would move in the opposite direction, and the pins would be located in front of the arms. In reed organs the space in which the rollers operate is usually limited, and the rollers are therefore necessarily placed near together. In such case, if there is not room for the arms to swing, alternate arms may be located on the opposite side of the slide, as shown in dotted lines in Figs. 3 and 4, and the pins *s* and *s′* would of course project on the side on which the respective arms were located.

In Fig. 3 is shown the slide P, that is connected with the combination-stop A′. Suppose on this slide it were desired to form the combination that would occur by operating the rollers *a*, *b*, *e*, and *g*. The arms connected with these rollers would be arranged above and next forward of the corresponding pins, *s*. The arms of the other rollers would be arranged below, as shown. Those of the rollers *c*, *d*, *f*, and *h* incline forward, indicating that the rollers are closed. The arm of the roller *i* is shown inclining rearward, indicating that this roller is open. Now suppose, by means of the combination-stop A′, this slide is drawn forward. The pins will move the arms *r* forward to the position shown in Fig. 4. The pins will move up to the depending arms on the rollers *c*, *d*, *f*, and *g*, and will have moved the arm of the rollers *i* forward, as shown, in which position of parts, as shown in Fig. 4, the rollers *a*, *b*, *e*, and *g* are open, and all others are closed.

It will be observed that in the position of parts shown in Figs. 4 and 6, (and it would be the same with all of the slides,) if the slides were moved back, this backward movement would not actuate any of the rock-arms, but the pins would move away from the arms and leave the rollers unchanged. It is therefore useless to move back a combination-stop when it is no longer wanted, unless—as, for instance, closing the instrument—it is desired to return all of the stops to their normal or inoperative position. Suppose after using the combination-stop A′ we should next draw out the stop G′, and that on the connected slide had been arranged the combination *b*, *c*, *f*, *g*, *h*, and *i*. The position of the arms with this slide, before drawing it out would be as shown in Fig. 5. The arms of the rollers *a*, *b*, *e*, and *g* are already removed from the pins, having just been opened by the previous combination. Now, in drawing out this stop the arms of the rollers *b*, *d*, and *g* are not moved; but the rollers *c*, *h*, and *i* are opened and the rollers *a* and *e* are closed. The position of parts with stop G′ drawn out is shown in Fig. 6. Suppose, in addition to this combination, another roller should be added—for instance, the roller *d*. This could be done by drawing out the stop D; but in so doing the depending lever of this roller *d*, that is by the side of the slide connected with the stop G′ just drawn out, would, by means of the contiguous pin *s′*, move back this slide. This would not change any of the arms or rollers, but would simply move back the slide, so that the roller *d* could be added to the combination. If after this another roller should be added, (and there would only remain the rollers *a* and *e*,) either or both of which could now be added to the combination without meeting with any obstruction; but if one of these had been drawn out before the roller *d*, it (the first) would have moved back the slide. In brief, then, the first roller added to an operative combination will draw back the slide of the combination, and each roller used in a combination, when the slide is drawn out, advances the upper stop connected with such rollers. A glance at the upper stops will always show what the operative combination consists of.

As shown in the drawings, a full set of pins, *s* and *s′*, are arranged on each side, respectively, both above and below, although but one arm is used for each roller in connection with each slide. This is done in order that any desired combination may be arranged on any one of the slides, and that any combination can at any time be quickly changed. Any roller not already in the combination can be added thereto by turning the arm of such roller up, and any roller may be dropped from the combination by turning its arm down. Usually the rollers are too close together to admit of removing the arms. The arms are therefore made as shown in Figs. 7 and 8. The arms R

and *r* are respectively screwed into hubs *r'*, the arms serving as set-screws to hold the hubs rigid on the rollers. By removing an arm *r* the hub may be turned a half-revolution on the roller, and the arm again screwed into the hub. By this means any arm can be turned up and added to a combination or turned down and removed from the combination. The long arms R, being connected with the respective upper stops, cannot be turned down, therefore, in arranging a given combination, a slide must be selected that, in case an arm R is located by the side of it, the roller connected with such arm R is to be used in the combination *e g*. The slide shown in Figs. 3 and 4 having an arm R by the side of it that is connected with the roller *a*, the said roller would necessarily be in any combination arranged on this slide, and if the roller *a* is not wanted some other slide must be selected, and in such case any other slide of the whole series would answer the purpose. A combination arranged on the slide shown in Figs. 5 and 6 would include the roller *g;* but on any other slide the roller *g* might be omitted from the combination. The slides connected, respectively, with the combination-stops J', K', and L', of course have no arms R by the side of them, and consequently any of the rollers could be omitted in the combination formed on these slides.

I have an ordinary reed organ on which I have arranged twenty of these combination-stops. More might have been added, and on larger instruments, especially on pipe-organs, the number might be increased indefinitely, and if the combinations are well selected they will include those most used, and in case the size is large about all of the combinations used in ordinary music may be included.

For special occasions combinations may be arranged for the music.

What I claim is—

1. In an organ attachment, the combination, with stops each provided with suitable slides or attachments having pins, projections, or depressions for engaging rock-arms connected, respectively, with the rollers or rock-shafts that operate the valves of the respective air-chambers, of a series of arms attached to said rollers, an arm of each roller being located by the side of each combination-stop attachment and so arranged that the arms extending in the one direction and the attached rollers and connections are included in the combination, and the arms extending in the opposite direction are excluded from the combination, substantially as set forth.

2. In an organ attachment, combination-stops each provided with a suitable slide or attachment having two series of pins, projections, or depressions arranged on opposite sides of the rollers, a series of rock-arms connected with the rollers and so arranged that an arm of each roller is located by the side of each slide, and that arms extending, respectively, in opposite directions will, when engaged by the pins, projections, or depressions of the contiguous slide, move the connected rollers respectively in opposite directions, substantially as set forth.

3. In an organ attachement, combination-stops and connected slides, each slide provided with two series of laterally-projecting pins arranged, respectively, on opposite sides of the rollers, for actuating the roller-arms and moving the rollers in the direction to open or close the air-valves, according to the position of the respective arms, to engage the one or the other set of pins, said pins being arranged, respectively, to move an arm only in one direction, substantially as set forth.

4. In an organ attachment, the combination, with a slide connected with a combination-stop and arranged to embrace the series of rollers, of series of pins extending laterally from the slide and on opposite sides of the rollers, reversible arms connected with the rollers and so arranged that the arms extending in the direction to engage one series of pins will be included in the combination, and arms extending in the opposite direction to engage the other series of pins will be excluded from the combination, substantially as set forth.

5. In an organ attachment, a series of rollers and reversible rock-arms connected with the respective rollers, a slide connected with a combination-stop, a series of pins connected with the slide for moving the respective rock-arms in the direction that opens the valves of the air-chamber, a second series of pins for the rock-arms to close said valves, and the arrangement of parts such that by reversing an arm on the roller such arm and attachments may be included or excluded from the combination, substantially as set forth.

6. In an organ attachment, a reversible rock-arm consisting of a hub with the arm screwed into the latter, the arm arranged to perform the functions of a set-screw in fastening the hub to the roller on which the hub is mounted, substantially as set forth.

7. In an organ attachment, the combination, with a series of combination stops and slides, and series of pins connected with the latter, of a series of rollers, and reversible rock-arms mounted on the latter, arranged substantially as indicated, of rock-arms mounted, respectively, on the respective rollers and connecting each with one of the ordinary stops, and so arranged that these last-mentioned arms are included in the series that are operated by the combination-stop, substantially as set forth.

8. In an organ attachment, the combination, with a series of combination-stops, slides, and pins connected with the latter, of a series of ordinary stops, a series of rollers, rock-arms R, connecting the rollers and ordinary stops, and arms *r*, adapted to engage the pins on the slides, the said parts being arranged substantially as described, whereby any of the ordinary stops may be added to the combination being used.

9. In an organ attachment, the combination, with the combination stops and slides, the latter having pins projecting laterally therefrom, of the ordinary stops and rollers connected thereto and provided with the arms *r*, adapted to engage the pins, the above parts being arranged substantially as described, whereby the opening of a combination-stop will close all open stops not included in the combination, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 21st day of May, 1885.

WILLIAM H. PRICE, JR.

Witnesses:
CHAS. H. DORER,
ALBERT E. LYNCH.