

J. V. PILCHER.
ORGAN STOP ACTION.

Patented May 9, 1893.

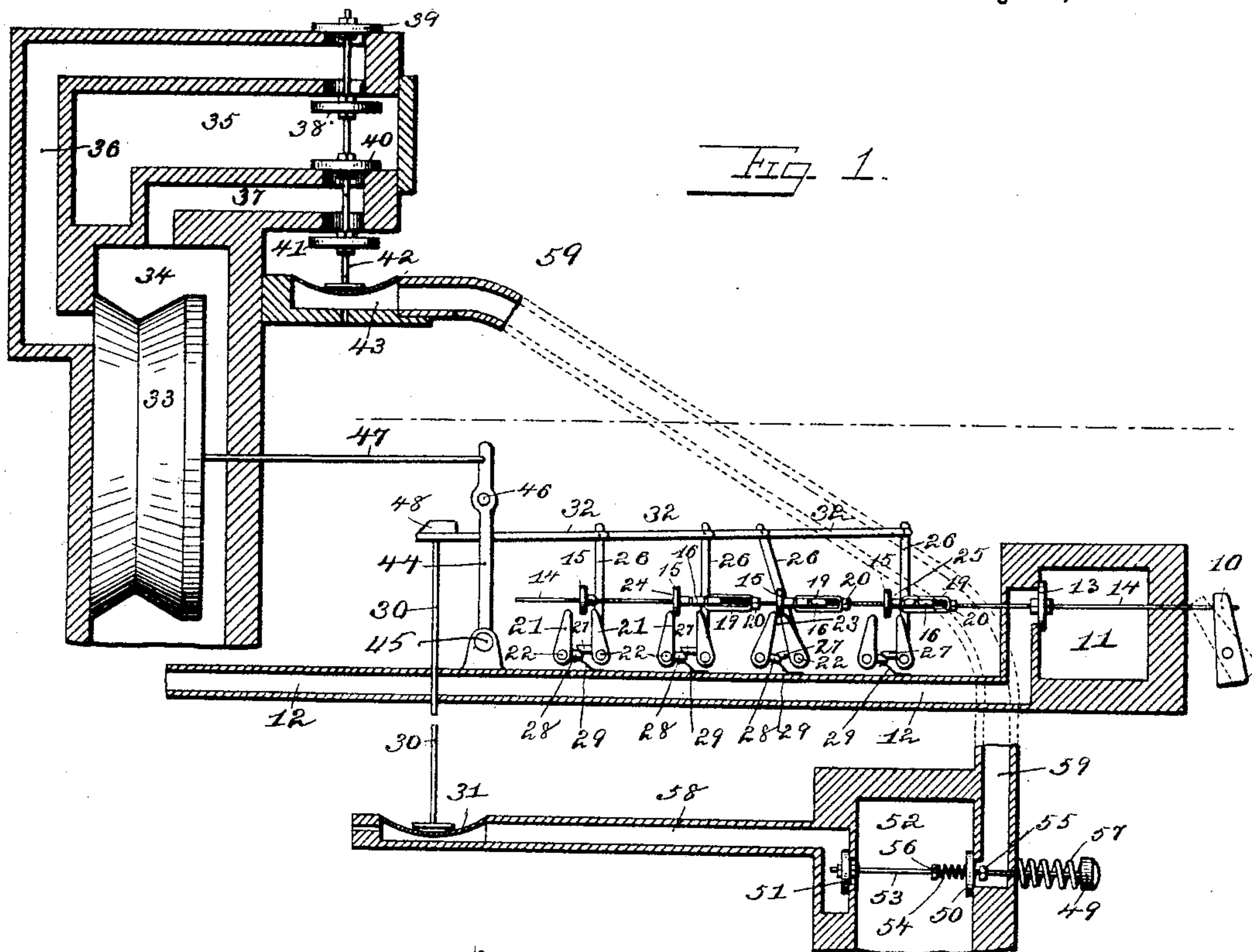


Fig. 2.

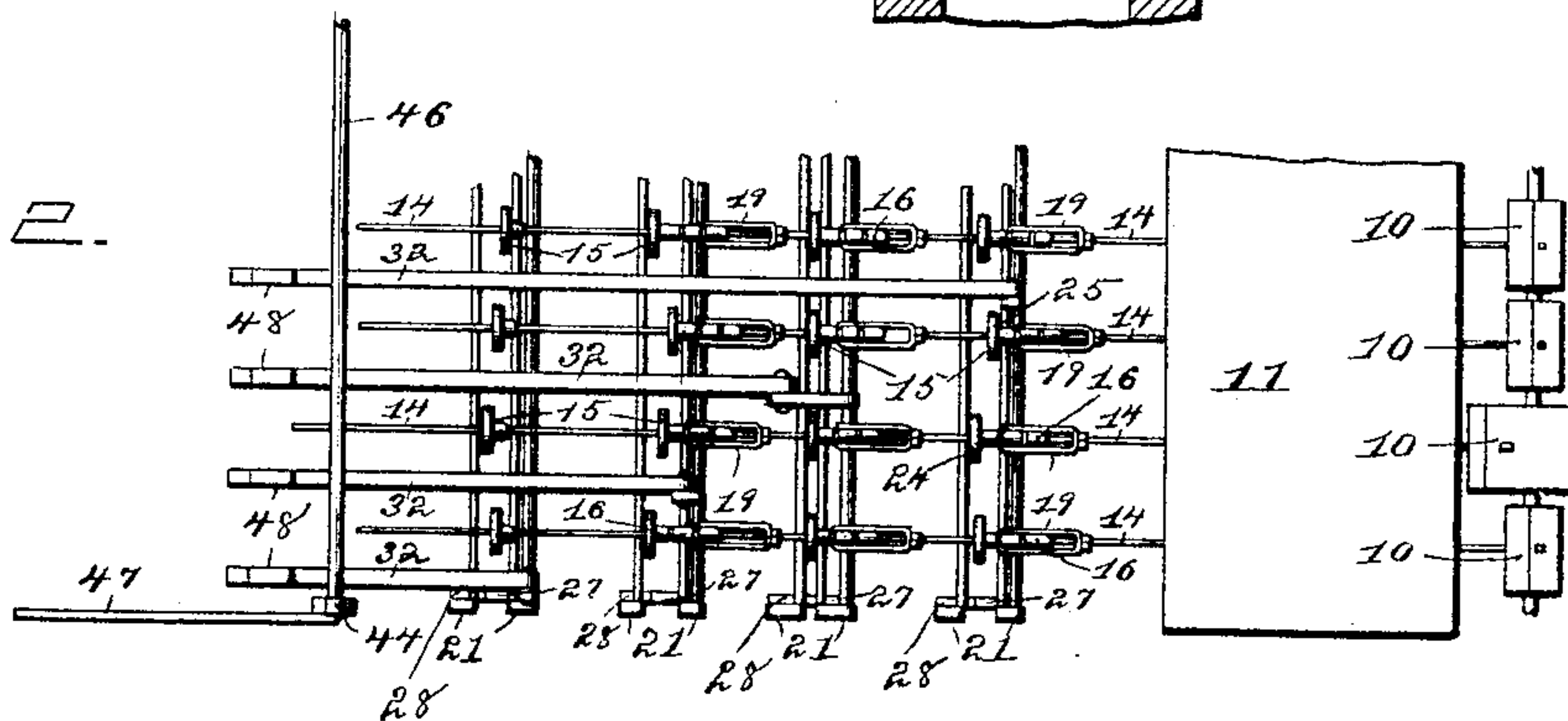
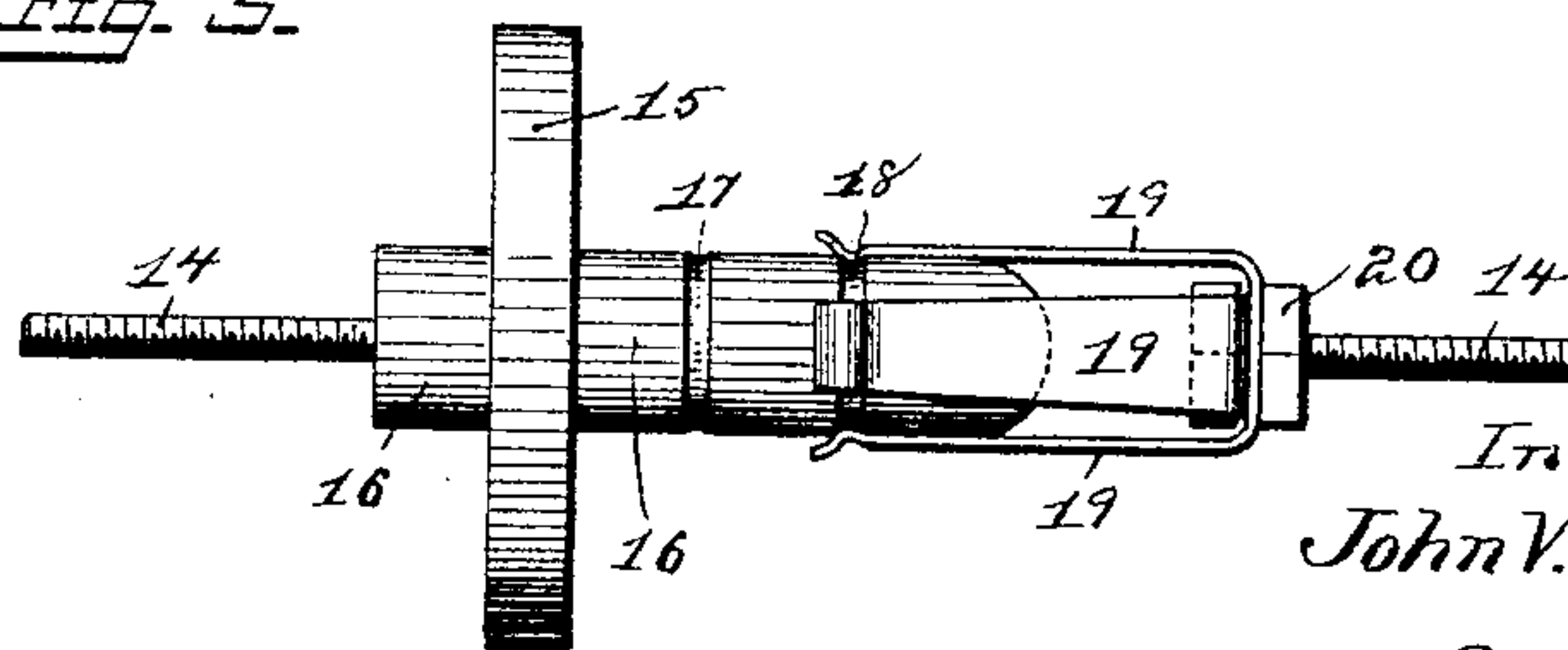


Fig. 3.



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ORGAN STOP-ACTION.

SPECIFICATION forming part of Letters Patent No. 497,206, dated May 9, 1893.

Application filed February 7, 1893. Serial No. 461,380. (No model.)

To all whom it may concern:

Be it known that I, JOHN V. PILCHER, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Organ Stop-Actions; 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 appertains to make and use the same.

The object of this invention is to provide simple means whereby a variety of combinations of organ stops may be first arranged at the will of the operator and then any one of those combinations be brought into action at any moment and yet permit the free use of the same stops in other combinations or individually immediately before or after they are thus called into action.

To this end my invention consists in the construction and combination of parts forming a combination organ-stop action hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1, is a vertical section of a portion of a pneumatic organ transverse to the line of the key-board and showing the principal features of my invention in side elevation. Fig. 2, is a plan view looking downward from the line $x-x$ Fig. 1. Fig. 3, is a side view of my stop setter on a larger scale.

10 represents the stop keys of an organ, sometimes called stops, and they may be either the pivoted domino variety here shown, or they may be of the common pull and push knobs.

11 represents a compressed air box, 12 passages leading therefrom to the stop chambers, 13 valves for the said passages, each valve being located upon a wire or bar 14 that is connected with the key 10. Upon each of these wires is located my stop-setter which is the main characteristic of this invention. This setter comprises a button 15, a body 16, springs 19 and a nut 20. The button is rigidly fixed to the body 16 which is fitted to slide freely upon the wire 14, and the body has two notches 17 and 18 grooved around it to receive lugs projecting from the free ends of the springs 19. These springs are secured at their other ends to the nut 20 which is screw threaded upon the wire for the purpose of ad-

justing it to its permanent location upon the wire, though this nut might be permanently fixed to the wire when properly located and answer the purpose of my invention.

21 represents a pair of wings pivoted at 22, to swing their free ends to and from each other to act upon the button 15 to bring it to the center between them as shown at 23 whether it was found at the inner end of its path as shown at 24, or at the outer end as shown at 25. There are to be as many stop-setters upon each stop wire and as many pairs of wings to act upon those setters as the number of combinations to be prearranged upon the stops.

26 is a lever attached to one wing of each pair. 27 is a toe upon the same wing fitted to act upon a similar toe 28 upon the other wing whereby a pull inward upon the lever causes the wings each to approach the other and 29 is a spring whereby the wings are restored to their normal position when not in service.

30 is a push-rod standing upon the diaphragm 31 or other equivalent of a pneumatic motor, and 32 is a rod freely connecting the upper ends of the lever 26 and the rod 30.

33 is a motor-bellows located within a box 34 and connected with a compressed air chamber 35 by two air passages 36 and 37.

38 is a valve to the inlet port and 39 is a valve to the exhaust port of the passage 36 leading to and from the interior of bellows 33, and 40 is a valve to the inlet port and 41 is a valve to the exhaust port of the passage 37 which leads into the box 34 exterior to the bellows. The four valves 38, 39, 40 and 41 are located upon a rod 42 which stands upon a pneumatic motor 43.

44 is a lever pivoted at 45 and provided with a cross-bar 46 extending over all the rods 32 and connected at its free end with the bellows 33 by a rod 47.

48 is a lug located upon each rod 32 normally just below the path of the cross-bar 46.

49 represents a push knob in the key-board for each stop-setter, and 50 and 51 are valves in the compressed air box 52 and connected with the knob by a wire 53. The valve 50 is loose on the wire and is actuated to open by a nut 55 fixed on the wire while it is closed by a spring 54 acting between it and a nut 56

fixed on the wire, and 57 is a spring acting to restore the knob to its normal position with the two valves closed. The spring 54 permits the valve 50 to yield after becoming seated so that the valve 51 may also be securely seated.

58 is an air passage leading from the valve 51 to the motor 31, and 59 is a passage leading from the valve 50 to the motor 43.

10 In operating this device the performer first pushes a knob 49 and holds it in while he sets the different stop keys out or in as he desires to arrange a combination to be brought on at a future time. Then he releases that knob 49
15 and again proceeds to arrange the stop keys for another combination wholly disregarding the positions of the stop keys in the previous arrangement. Then he releases that knob 49 and pushes in another and proceeds to arrange
20 the stops, thus repeating the operation for as many arrangements as he desires within the limit of the organ, and there is no other limit than the number of stop-setters on the wires with their accessories described, one setter on
25 each stop wire to be set for every different combination desired. The effect is as follows: When knob 49 is pushed in the valve 51 is opened admitting air to motor 31 and raising rods 30 and 32 thus bringing the
30 lug 48 into the path of the cross-bar 46. The valve 50 having been opened a little later admits air through passage 59 to the motor 43 whereby valves 38 and 41 are closed and valves 39 and 40 are opened thus admitting
35 air through passage 37 to the chamber 34 outside of the bellows 33 and permitting the air to exhaust from the inside of the bellows through passage 36. The rod 47 is pulled with the connected arm 44 and cross-bar 46,
40 thus engaging the lug 48 and operating the lever 26 to close the wings 21 and moving the button 15 to a central position between the wings as shown at 23 if the button is not already central. For example, let us sup-
45 pose that pulling out the key 10 Fig. 1 sets its stop on. That key is now shown pushed in, the buttons 23 and 25 stand central between the wings, but button 24 is to the left of center. Now if that knob 49 which actuates but-
50 ton 23, were pushed in, the wings would close on that button and then if the key 10 were drawn out the button being held by the wings would permit the wire and the springs 19 to draw to the right hand notch. Then the knob
55 49 being released the wings will open and leave the button free to move out or in with the key 10 without being affected, and yet when it is desired to bring on the combination in which the button 23 controls one stop,
60 the knob 49 for that pair of wings is to be pushed in and the wings will bring all the buttons of that combination to the position in which they were set, and by the buttons the stop keys will be set out or in according
65 as they were arranged. The springs 19 have sufficient frictional engagement with the notches 17 and 18 to move the stops by the

buttons, but not enough to prevent easily setting the stops out or in relative to the buttons. Of course there may be buttons, fixed upon the wires or screw threaded in the usual way, to actuate fixed combinations, or to restore the stops to either an on or off position without interfering with my automatically adjustable buttons.

My buttons are automatic in being mechanically set to correspond with any arrangement of stops that the operator may make while pushing the knob 49, and in that sense the words automatically adjustable will be used in the claims as distinguishing my invention from common buttons which are arranged to be set along the wire by a screw thread as usual for the purpose of adjustment, to positions on the wire where they are permanently fixed in service as the nut portion 20 of my stop-setter is fixed. It will be seen that by means of the cross-bar 46 extending over all the rods 32 to be engaged by any one or more of the lugs 48, a single bellows motor 33 may serve to actuate all the combinations.

Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

1. The combination in an organ stop action of a stop key wire, one or more nuts thereon; springs secured to the nut and having nibs at their free ends; one or more buttons having each a body portion fitted to slide freely upon the wire and two notches in the length of each body adapted to be frictionally engaged by the said springs and a pair of wings connected with a motor or equivalent means for setting the buttons along the wire relative to the springs, substantially as described.

2. The combination in an organ stop action of a wire for each stop key; one or more buttons automatically adjustable along the wire; means for holding the button while the stop is being arranged and means for actuating the stop when arranged, substantially as described.

3. The combination in an organ stop action of buttons automatically adjustable upon individual stop keys relative to their line of movement, and means for holding the buttons while the stops are moved in arranging a series of them and for moving that series of buttons and stops back to the arranged position at a future time, substantially as described.

4. The combination in an organ stop action of a series of stop keys having each an automatically adjustable button; means for actuating each button relative to its key; a series of rods connected with the actuating means and having each a projecting lug; a cross-bar extending over the said series of rods; a motor for actuating the cross-bar and means for moving the lugs into the path of the cross-bar and for starting the motor, substantially as described.

5. The combination in an organ stop action

of a series of stop keys; a series of rods there-
for; a series of buttons on each rod; pairs of
wings located transversely to the rods, each
pair of wings being adapted to engage a sin-
5 gle button upon two or more of the rods; a
pneumatic motor, and a separate rod serving
as a connecting link between each pair of
wings and the motor, substantially as de-
scribed.

10 6. The combination in an organ stop action
of a series of stop keys each key being pro-
vided with buttons; a series of operating de-
vices each device adapted to operate two or

more keys by means of a single button be-
longing to each of the said keys; a pneumatic 15
motor and separate means for communicating
between each operating device and the motor
substantially as described whereby a single
motor is adapted to actuate a number of op-
erating devices. 20

In testimony whereof I affix my signature in
presence of two witnesses.

JOHN V. PILCHER.

Witnesses:

R. E. PILCHER,

I. S. MADDOX.