

(No Model.)

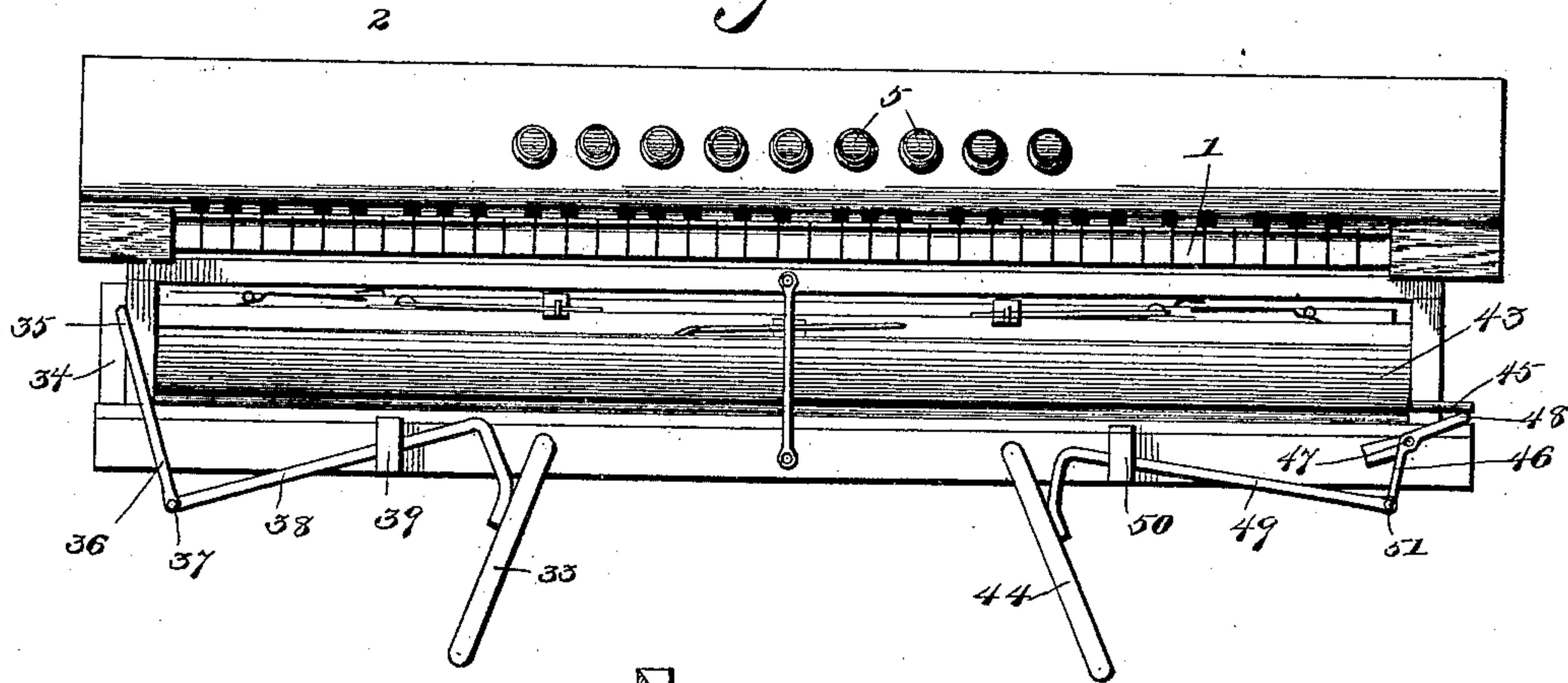
2 Sheets—Sheet 1.

McCLELLAN WASHBURN.  
ORGAN STOP ACTION.

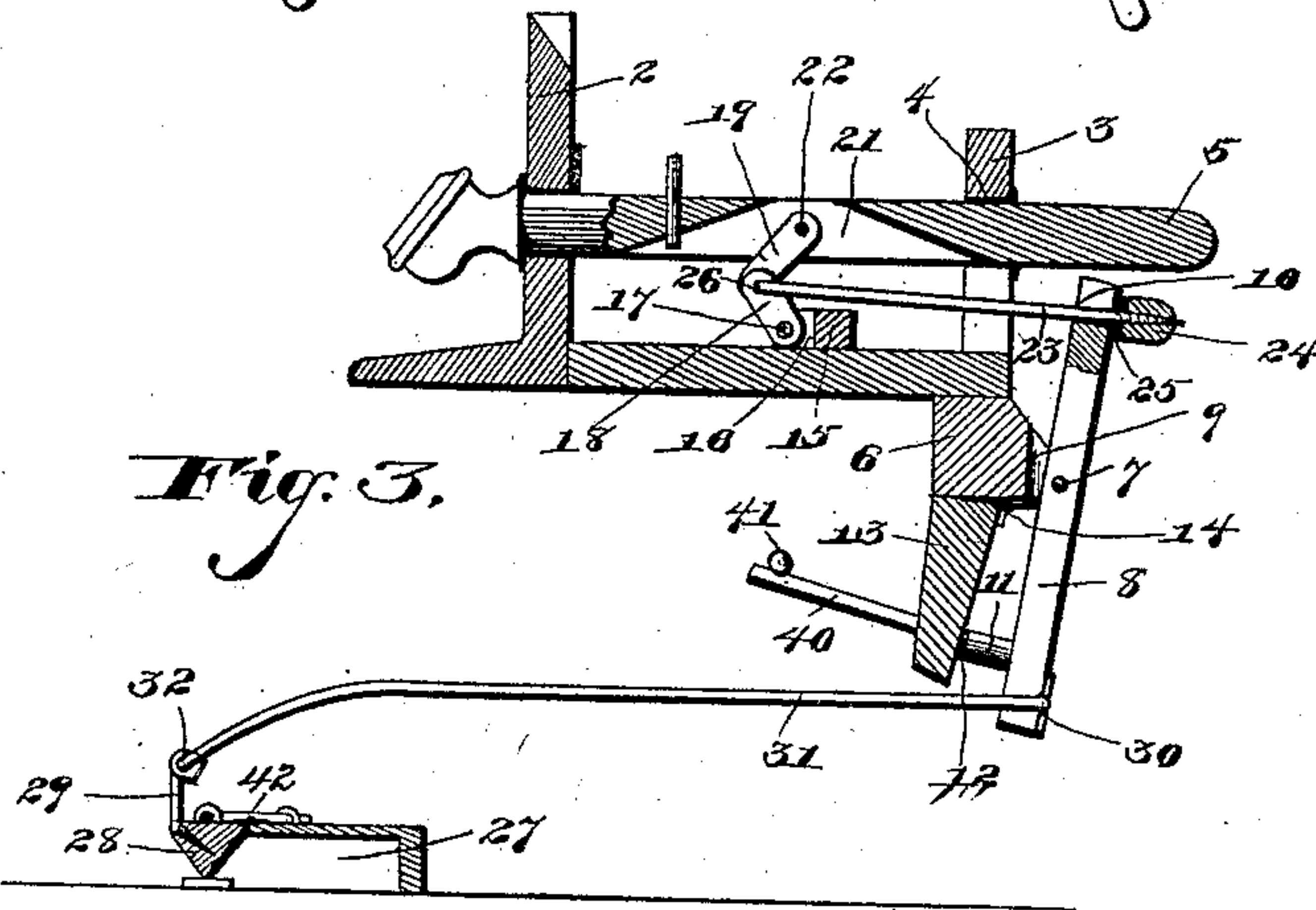
No. 442,343.

Patented Dec. 9, 1890.

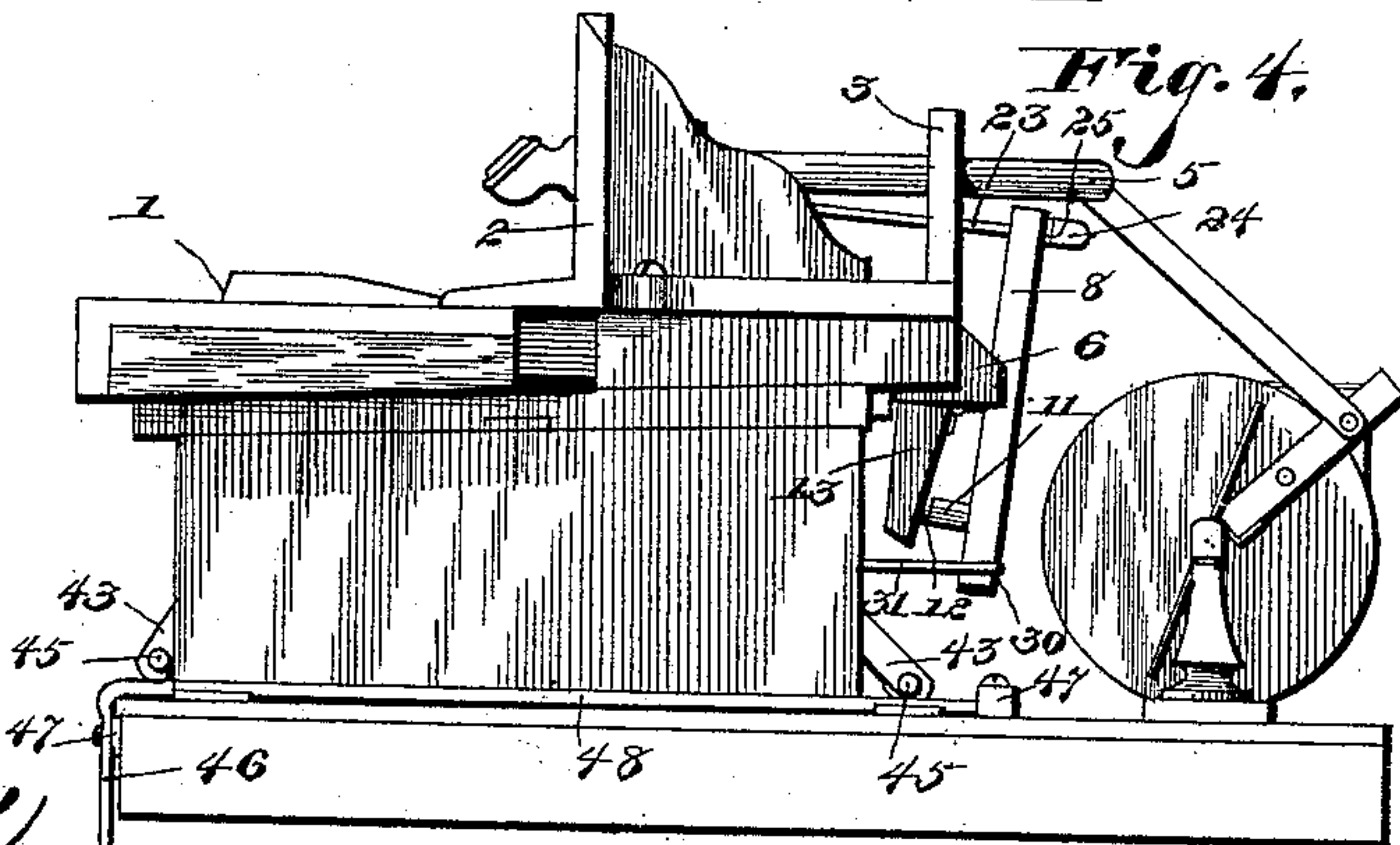
*Fig. 1.*



*Fig. 3.*



*Fig. 4.*



Witnesses:

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By *his* Attorneys,

*C. A. Snow & Co.*

(No Model.)

2 Sheets—Sheet 2.

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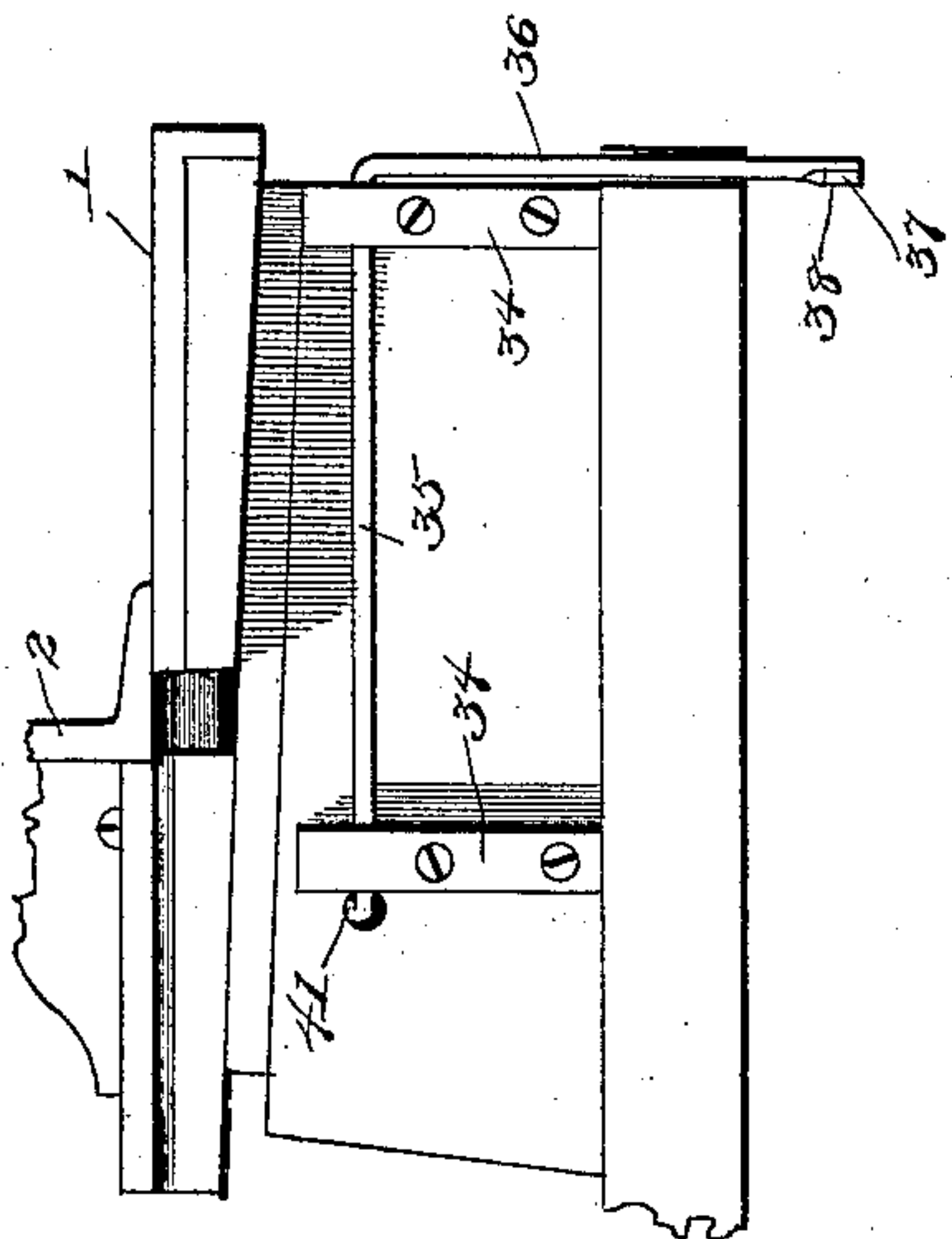


Fig. 5.

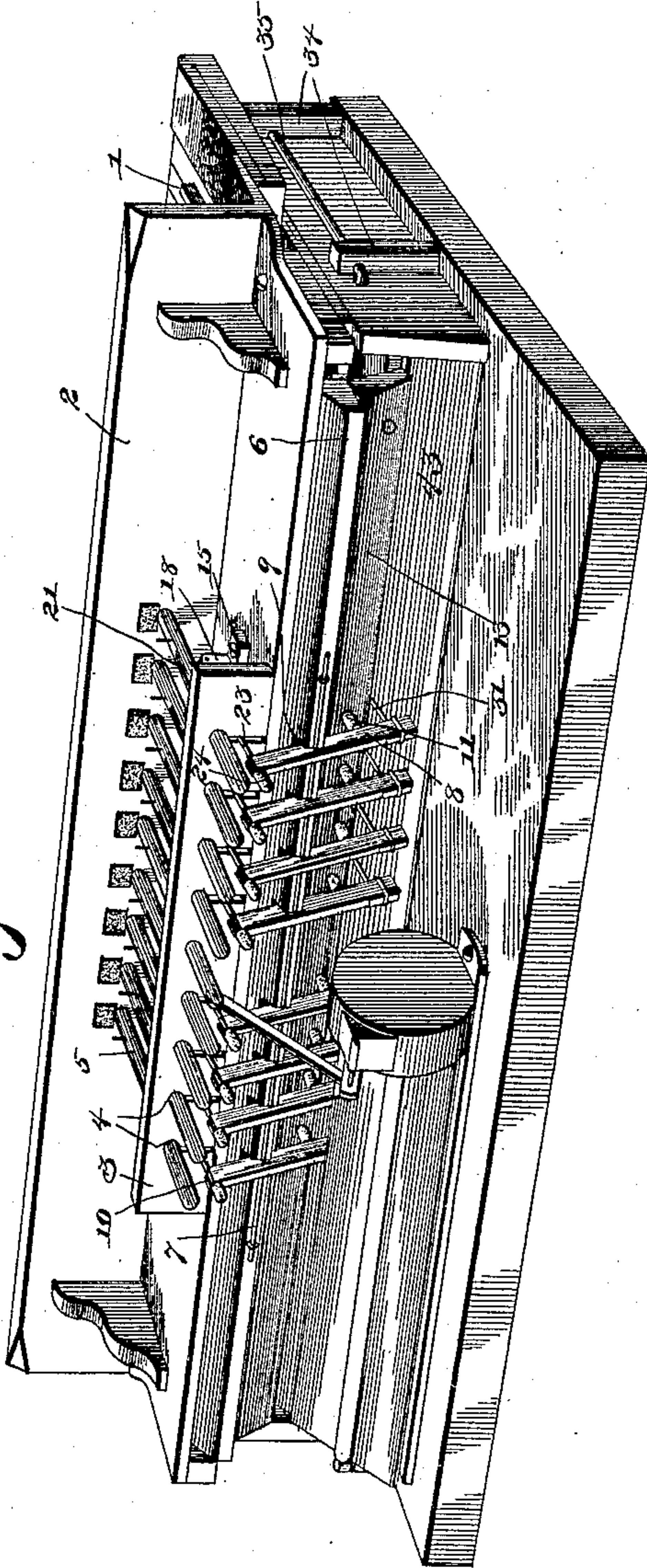


Fig. 2.

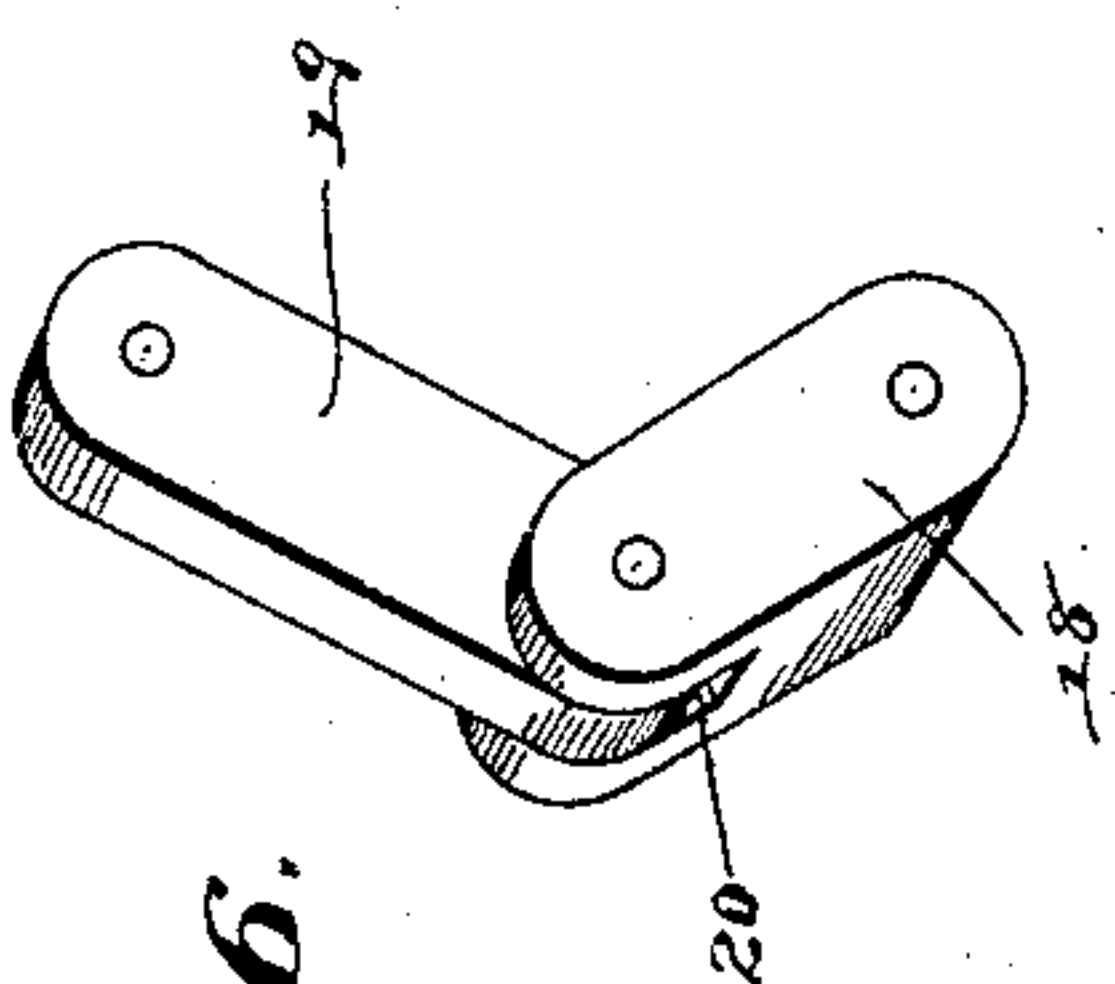


Fig. 6.

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# UNITED STATES PATENT OFFICE.

MCCLELLAN WASHBURN, OF WASHINGTON, NEW JERSEY.

## ORGAN STOP-ACTION.

SPECIFICATION forming part of Letters Patent No. 442,343, dated December 9, 1890.

Application filed July 28, 1890. Serial No. 360,217. (No model.)

*To all whom it may concern:*

Be it known that I, MCCLELLAN WASHBURN, a citizen of the United States, residing at Washington, in the county of Warren and State of New Jersey, have invented a new and useful Stop Attachment for Organs, of which the following is a specification.

This invention has relation to stop attachments for organs; and the objects of the invention are to simplify the construction of the stop-operating mechanism, adapting the same for operating in connection either a "grand" organ or an ordinary single-stop organ, and to provide for a perfect adjustment for the stop-levers and the mute-wire.

Various other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is an elevation of an organ-action constructed in accordance with my invention. Fig. 2 is a rear perspective of the same. Fig. 3 is a vertical transverse section illustrating so much of the construction as applies to my invention. Figs. 4 and 5 are opposite end views. Fig. 6 is a detail in perspective of the toggle-lever.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the key-board, in rear of which is located the name-board 2, in rear of which is the rear board 3. These boards are, as usual, provided with the opposite circular openings or bearings 4, in which is mounted the series of horizontal stops 5.

In rear of the rear board 3 there is located the horizontal bar 6, let into which is a bearing-rod 7, upon which opposite each stop is pivoted a stop-lever 8, each of said levers being mounted in recesses 9 and adapted for oscillations upon their fulcrums. The upper ends of the levers are provided with kerfs 10, and near their lower ends are provided with adjustable set-screws 11, the ends of which are covered with sound-deadening disks 12, designed to abut against "the grand-organ bar" 13, which latter is hinged, as at 14, to the under side of the lever-bar 6. Below the centers of the series of stops there is secured to the base-board a base-strip 15, provided at points opposite each of the stops with cut-out portions or recesses 16, and passing through

the series of recesses is a fulcrum-wire 17. Mounted pivotally upon the wire 17 in each of the recesses 16 is the lower member 18 of the toggle-lever, the upper end of said member being pivoted to the upper member 19 and bifurcated, as at 20, to receive the lower end of the latter. Each of the stops near its center is provided with a slot 21, in which the upper end of the upper member of the toggle-lever is pivoted, as at 22.

23 designates a series of connecting rods or wires, the outer ends of which rest in the kerfs 10 of the stop-levers 8, said ends extending beyond the rear faces of the levers and there threaded and provided with set-screws 24, which may be run in or out upon the rods, said nuts being faced upon their inner ends, as at 25. The inner ends of the connecting-rods pass through the inner ends of the toggle-lever members or sections, as shown at 26, and serve as pivots for said members.

27 designates the reed-cells, having the usual hinged mutes 28 located at their front ends, said mutes being provided with the usual bearing-standards 29.

Notches 30 are formed in the several levers 8 near their lower ends and at their rear sides, and resting therein is a series of mute-wires 31, the front end of each wire being pivotally connected, as at 32, to the said bearing-standards 29.

33 designates the left-hand pivoted knee-lever located at the front and below the key-board of the action, as is usual. At the left-hand side of the action is located a pair of bearing-blocks 34, in which is mounted for oscillation a shaft 35, horizontally disposed and having its front end cranked, as at 36, around the front of the action, and pivotally connected, as at 37, to the outer end of a rod 38, which passes through and is adapted to reciprocate in a bearing-block 39, secured to the front of the action, and is connected at its inner end to the left-hand knee-lever 33. The left-hand end of the hinged grand-organ bar 13 is provided with a pin 40, extending into the action, said pin being inclined, as shown. The rear end of the shaft 35 is bent inwardly, forming an arm 41, which arm rests upon the inclined arm of the grand-organ bar. By drawing upon any one of the stops



5 it will be apparent that the lower member of the toggle-lever will be thrown to a horizontal position and the upper member thereof swung to a vertical position. Such movement upon the parts of the toggle-lever members brings the joint thereof in advance of the point it occupies when the stop is closed. This draws upon the rod 23 and draws the upper end of the lever 8, to which it is attached, inwardly, and consequently throws the opposite or lower end of said lever to the rear, which action, through the medium of the mute-wire, operates the mute 28 upon the reach 27. By pushing the stop inwardly a sufficient distance to bring the pivot-point 26 of the toggle-lever beyond the dead-center it occupies when the stop is drawn out the full distance, the spring 42, which is connected to the mute and reed of the action, serves to close the mute and so act upon the mechanism described as to finish the inward movement or reciprocation of the stop. By a proper manipulation of the set-screws 24 and 11 the stop-action may be perfectly adjusted so that the mute will be closed completely at exactly the instant the buffer 12 of the set-screw 11 comes in contact with the rear face of the grand-organ bar and the rear upper end of the lever 8 comes in contact with the inner face of the set-nut 24. In addition to the above the action of the stop is perfectly noiseless and easy of movement when being drawn out or thrown in.

43 represents the front and rear hinged shutters of the right-hand knee-lever, and said shutters are provided at their right-hand ends with outwardly-disposed pins 45.

46 designates a shaft mounted in bearings 47, located opposite the front and rear shutters, and said rod between the bearing-points is centrally cranked, as at 48, and upon the centrally-cranked portions rest the pins 45.

49 designates a rod mounted for reciprocation in a bearing-block 50, said rod being connected at its outer end in a pivotal manner, as at 51, to the front bent end of the shaft 46, and at its opposite end to the right-hand loud knee-lever. By operating this lever the opposite shutters are simultaneously opened by reason of the centrally-cranked portion of the shaft 46 being elevated and thus raising the free ends of the shutters.

The addition of the grand-organ bar 13, the knee-lever 33, the shaft 35, and the co-acting elements, it will be observed, transforms an ordinary stop-organ into a grand organ, the distinguishing feature between the two being that in an ordinary stop-organ the stops are drawn separately, while in a grand organ the entire series of stops are drawn by a compression of the left-hand knee-lever. In the present instance it will be apparent that a pressure upon the left-hand knee-swell will cause a tilting or oscillation upon the part of the shaft 35 and a consequent depression of the cranked end 41 thereof, which latter influences the grand-bar 13, so as to swing

the same out, and in so doing the outer face of the bar comes against the series of set-screws 11 and swings the lower ends of the levers 8 outwardly, and thus draws upon the entire series of mute-wires 31 and operates the entire series of mutes 28. The adjustment of the set-screws 11 is so fine and accurate that the slightest movement upon the part of the grand-organ bar influences each of said levers to exactly the same degree and in accordance with the amount of movement given to the grand-organ bar. When thus operated, the stops 5, the toggle-levers, and the connecting rods or wires 23 remain inactive, for the reason that the kerfs 10 at the upper ends of the levers permit the levers at said upper ends to swing to the front without actuating the rods 23.

Having thus described my invention, what I claim is—

1. The combination, with an organ-action comprising the usual stops, mutes, and reeds, of a series of pivoted levers arranged between the stops and reeds, toggle-levers pivotally connected at their upper ends to the stops and at their lower ends to the frame-work of the action, wire rods connected to the joints of the toggle-levers and to the upper ends of the pivoted levers, and wires loosely connected at the front ends to the mutes and at their rear ends to the lower ends of the pivoted levers, substantially as specified.

2. The combination, with an organ-action comprising a series of centrally-slotted stops, a series of reeds, a series of hinged mutes, and spring-wires for closing the mutes, of toggle-levers pivoted at their upper ends within the slots of the stops and at their lower ends to the frame of the action, a series of centrally-pivoted levers, rods connecting the upper ends of said levers to the pivots of the toggle-levers at their joints, and wires connecting the lower ends of said pivoted levers to the mutes, substantially as specified.

3. In a grand-organ action, the combination, with a series of reciprocating stops, a series of mutes, a series of reeds, and a transversely arranged and hinged grand-organ bar, of a series of levers, one for each stop, pivoted in rear of the grand-organ bar, connections between the lower ends of the levers and the mutes, a knee-lever and mechanism connecting the same with the grand-organ bar, whereby the latter may be swung against the lower end of the series of pivoted levers, and rods or wires loosely connected at their front end to the stops, threaded and passed through openings formed in the upper ends of the pivoted levers, and set-screws threaded on the ends of the rods outside of the levers, substantially as specified.

4. In a grand-organ action, the combination, with the series of reciprocating stops, the series of mutes and reeds arranged under the same, and a grand-organ bar hinged between the stops and reeds, of a series of pivoted levers having openings in their upper ends, rods passed through the openings, threaded at their



rear ends and loosely connected to the stops at their front ends, set-nuts mounted on the rods, set-screws mounted upon the inner lower ends of the levers, a knee-lever, and means  
5 for connecting the same with the grand-organ bar and swinging the latter against the set-screws, substantially as specified.

5. The combination, with a grand-organ action comprising the usual stops, reeds, mutes,  
10 and the transverse grand-organ bar hinged between the stops and reeds, of a fulcrum-bar notched opposite the stops and having a fulcrum-wire, a series of levers mounted upon the fulcrum-bar and having their upper ends  
15 provided with kerfs and their lower ends notched, wires connecting the mutes with the lower notched ends, set-screws inserted in the lower ends of the levers and adapted to be struck by the grand-organ bar, toggle-levers  
20 connected at their upper ends to the stops and at their lower ends to the frame-work of

the action, wire rods bent at their front ends to pivotally connect the inner ends of the toggle-lever members and having their outer ends passing loosely through the kerfs in the  
25 levers and there provided with set-nuts, a crank-shaft journaled at the side of the action, a knee-lever at the left-hand side in front of the action, a rod mounted for reciprocation in the bearing-bracket and loosely connecting  
30 the knee-lever with the front end of the crank-shaft, and an arm mounted upon the inner face of the grand-organ bar and inclined and adapted to support the rear crank-arm of the crank-shaft, substantially as specified. 35

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MCCLELLAN WASHBURN.

Witnesses:

T. E. GALLOWAY,  
JOSEPH BROTZMAN.