

(No Model.)

2 Sheets—Sheet 1.

T. B. CASWELL.

MECHANISM FOR OPERATING TYPE SETTING OR OTHER MACHINES.

No. 596,739.

Patented Jan. 4, 1898.

Fig. 1.

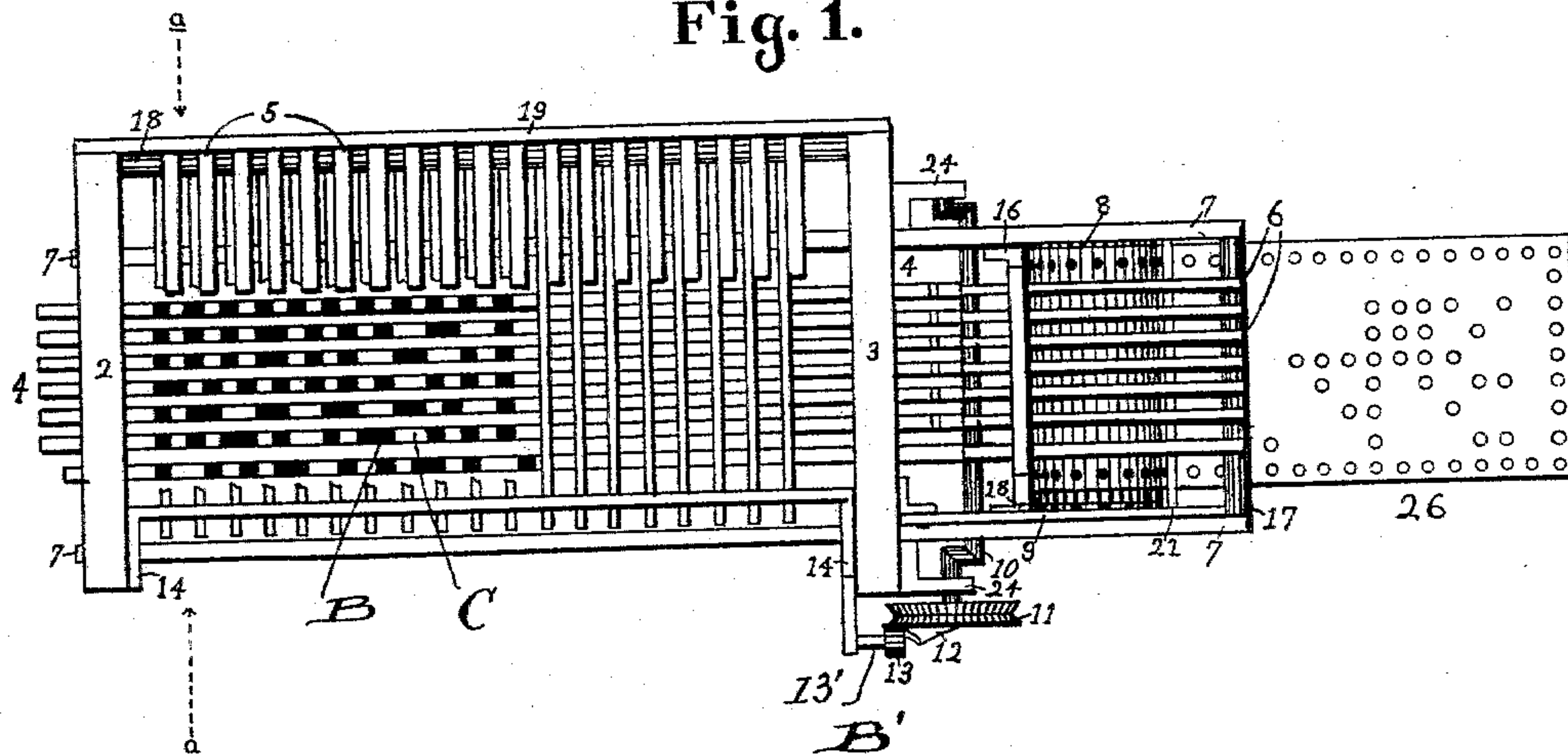
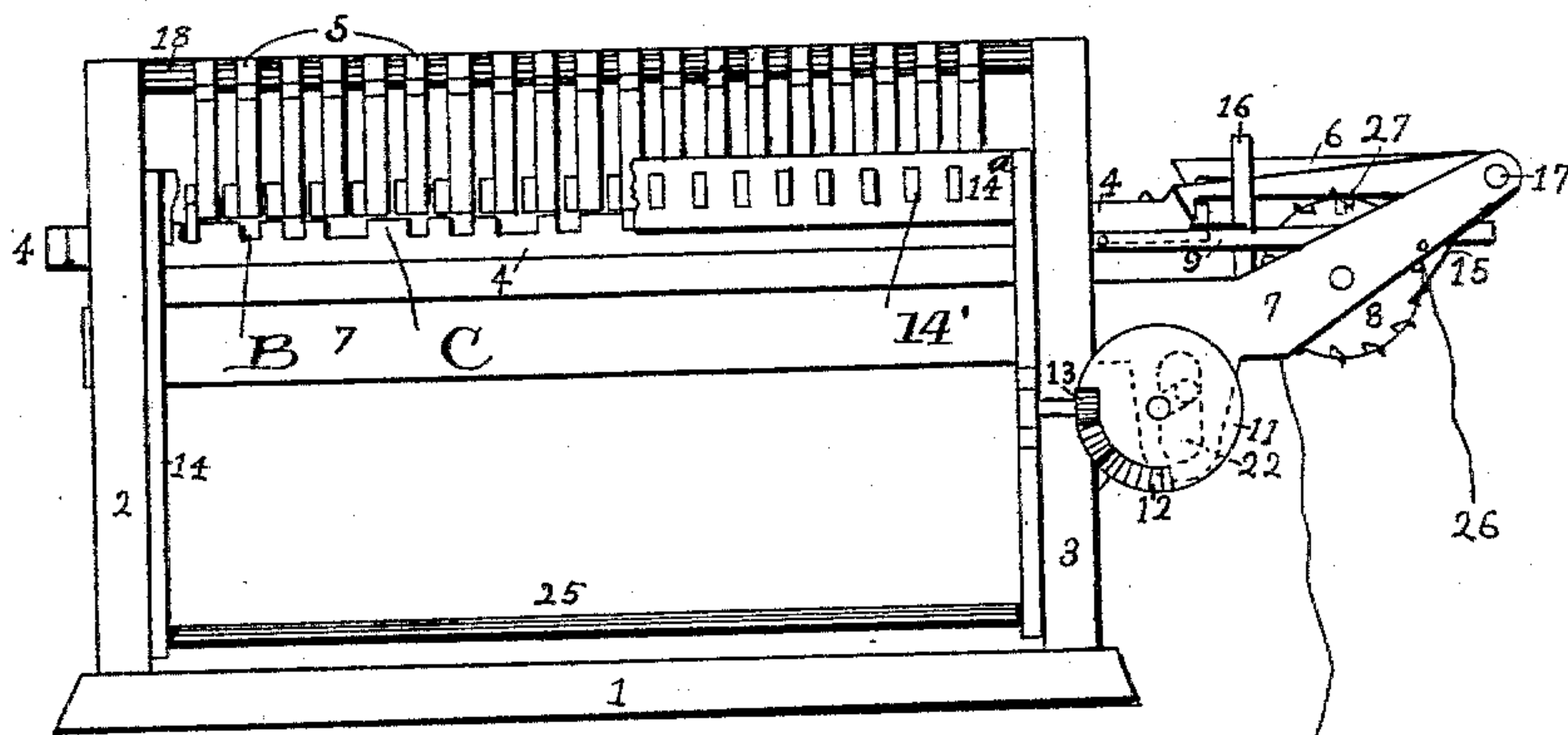


Fig. 2.



Witnesses

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2 Sheets—Sheet 2.

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Fig. 3.

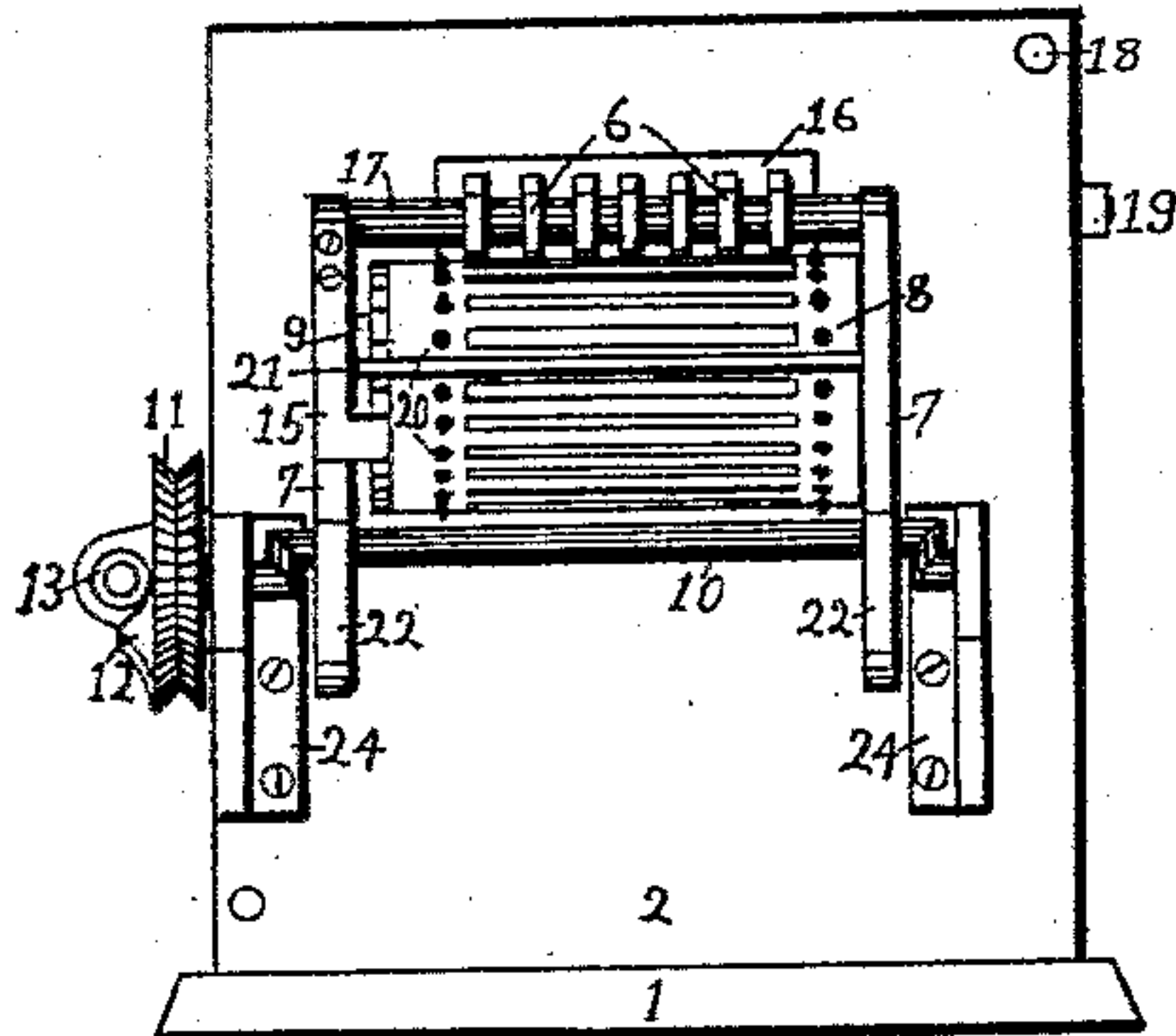


Fig. 4.

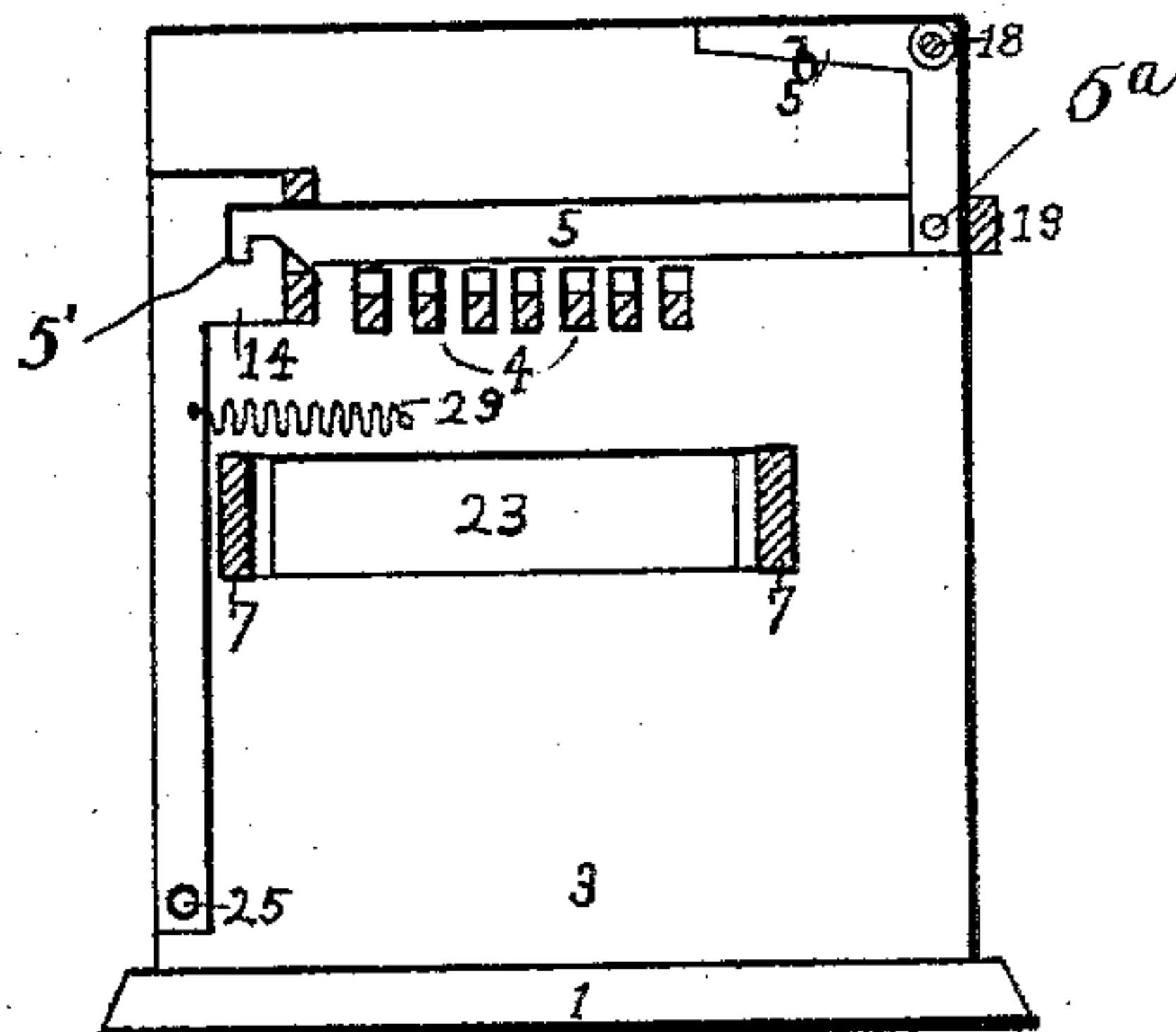
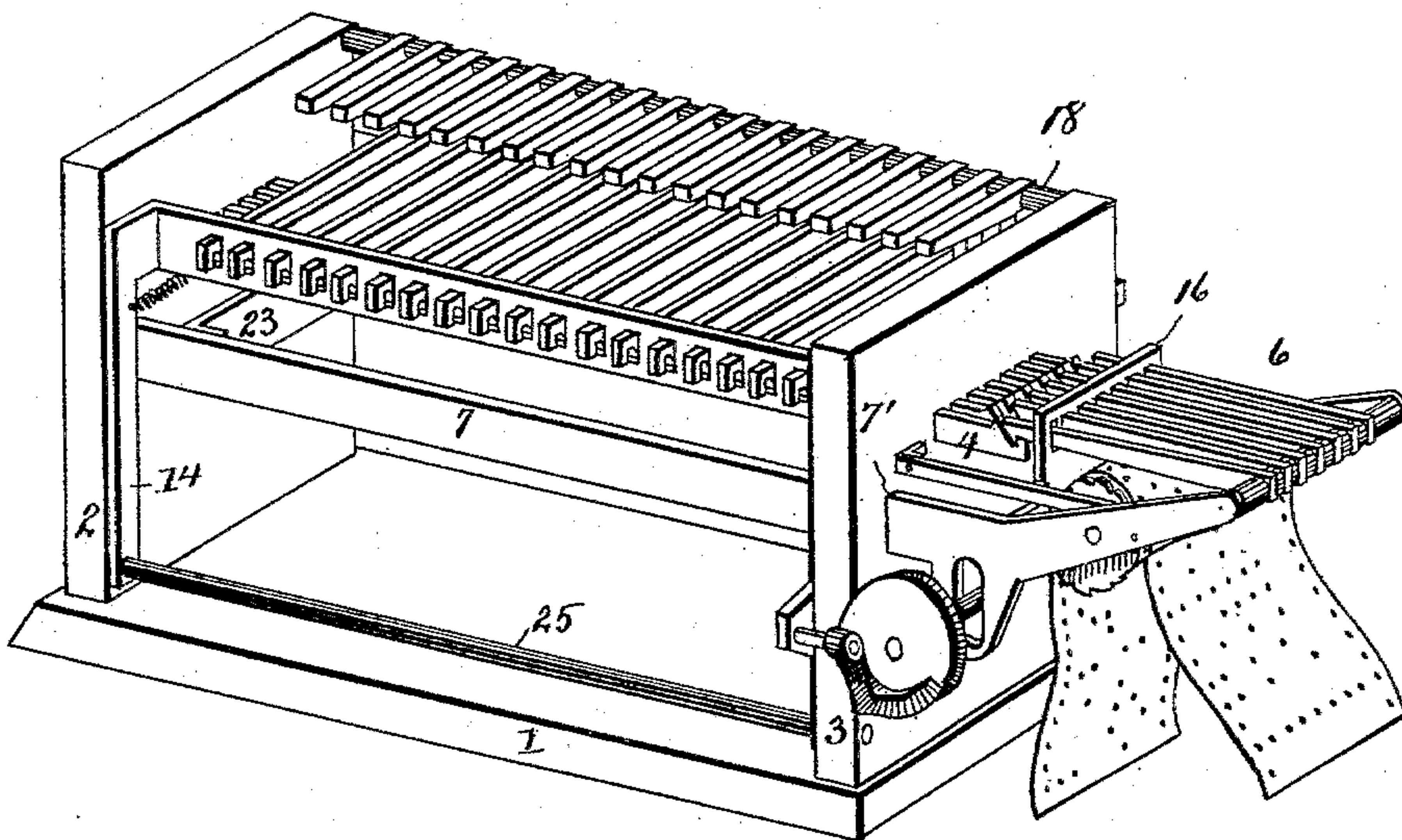


Fig. 5.



Witnesses

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MECHANISM FOR OPERATING TYPE-SETTING OR OTHER MACHINES.

SPECIFICATION forming part of Letters Patent No. 596,739, dated January 4, 1898.

Application filed March 13, 1897. Serial No. 627,409. (No model.)

To all whom it may concern:

Be it known that I, TRACY B. CASWELL, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Mechanism for Operating Type-Setting or other Machines; and I do 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, reference being had to the accompanying drawings, and to the figures and letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in mechanism for operating the keys or the parts which are acted upon by keys of type, matrix, and die setting, distributing, and other machines by means of a perforated strip of paper or other suitable material which has been previously prepared for the purpose.

In carrying out my invention it is my purpose to provide a series of longitudinally-sliding bars mounted in a suitable frame and provided with alternate depressions and elevations which are designed to be actuated automatically by means of pawls which are adapted to engage with the said sliding bars when pins secured to the said pawls are allowed to fall through apertures in a perforated paper which is fed over a suitable cylinder adjacent to the said pawls, by which mechanism the said sliding bars are brought into such a position as to allow feelers to drop into a series of registering depressions in the sliding bars, whereby in conjunction with a rocking movement which is imparted to a swinging frame angle-levers are actuated, the free ends of which may be so disposed as to contact with the operating-keys of type-setting or other machines.

To these ends and to such others as the invention may pertain the same consists, further, in the novel construction, combination, and adaptation of the parts, as will be hereinafter more fully described, and then specifically defined in the appended claims.

I clearly illustrate my invention in the accompanying drawings, which, with the figures and letters of reference marked thereon,

form part of this specification, and in which drawings similar reference figures and letters indicate like parts throughout the several views, in which—

Figure 1 is a top plan view of my mechanism with portions of the feelers broken away to illustrate the positions of the depressions and elevations on the sliding bars located beneath the same. Fig. 2 is a side elevation of the machine. Fig. 3 is an end elevation. Fig. 4 is a transverse section through the mechanism on line *a a* of Fig. 1. Fig. 5 is a perspective view of the machine complete.

Reference now being had to the details of the drawings by figures and letters, 1 represents the base, upon which rise the supports 2 and 3 at its ends. Mounted in the said supports 2 and 3 is a shaft 25, on which is pivoted the rack 14, which has a cross-piece 14^a secured to its upper portion and which piece has a series of apertures 14', which are adapted to receive the outer free ends of the feelers 5, each of the said feelers being provided at its end with a hook 5', which is adapted to engage over the lower edge of an aperture, whereby the said feeler is caused to move longitudinally with the rack as it is caused to be rocked in a manner which will be hereinafter more fully described.

Mounted in apertures 7' in the supports 2 and 3 is the longitudinally-movable rack or frame 7. This frame is provided with brace 23 and plate 16, while the cylinder 8 is journaled between the projections of the said frame beyond the end of the support 3. Mounted in the brackets 24 is the crank-shaft 10, which passes through the elongated apertures 22 in the extension of the framework 7, whereby as the said crank-shaft is caused to revolve the said frame 7 will be caused to make a reciprocating movement.

Mounted on the extreme outer ends of the strips 7 on the shaft 17 is a series of pawls 6, each of which is guided in the plate 16 and has at its free end a hook which is adapted to normally engage with a hook at the end of one of the longitudinally-movable bars 4, whereby the said sliding bars are pulled out as the frame is drawn forward and closed by the plate 16 striking the end of the bar as the frame is forced back. Disposed along the upper surface of each of the said sliding bars

4 are depressions and elevations, as indicated at B and C, and pivoted to the angle-levers 5^b is a series of feelers 5, the free ends of which are notched, as at 5', and so located that when a depression in each of the said sliding bars is brought so as to form a registering series of depressions a feeler will drop therein, which will cause the angle-lever 5^b, which is pivoted to the rear end of the feeler and also to a shaft 18, to be raised above the level of the top of the supports 2 and 3 by a rocking frame engaging with the notched end of the feeler. This free end of the lever 5^b is designed to come in contact with a key or other part which is directly acted upon by a key of a type-setting or other machine.

Located about the circumference of the cylinder 8 and at each end is a series of points 20, and mounted on the said cylinder is the strip of paper 26, which has a series of perforations along each longitudinal edge, which perforations are designed to fit on the said points on the cylinder 8 to give the strip a positive movement and make it travel with the cylinder.

Keyed to the outer end of the crank-shaft 10 is a pulley 11, which has formed about its outer face a cam 12, which is designed to contact with a pinion 13, which is mounted on a stub-shaft 13', secured to the end of the projection 14, whereby as the said pulley is caused to revolve a rocking motion is imparted to the rack 7, which rocking movement is provided for the purpose of tilting the angle-levers 5^b by means of their connection with the feelers 5, the notches in the free ends of which engage over the edges of the apertures in the frame 14 after the sliding bars 4 have been set, so that one of the feelers will be allowed to fall into a series of registering depressions therein.

Secured to the under side of each of the pawls 6 is a pin 27, which is designed to drop into a perforation in the said paper strip 26 and through into a registering hole on the circumference of the cylinder when it is desired to allow the notched end of one of the pawls to engage with a sliding bar 4, whereby the sliding bar may be moved longitudinally as the frame carrying the cylinder is caused to reciprocate.

For each letter and space used in the type-setting machines, &c., from seven perforations across the strip to no perforations at all or a blank space are used. The varying positions and the varying numbers make the difference in the perforations for the different letters and spaces. The first row at the right of the strip in Fig. 1, it will be seen, has the full seven perforations. In the next section of the strip there are no perforations. In the next section of the strip three perforations occupy the first, third, and sixth positions from the bottom of the drawings without counting the perforations at the edge of the strip. In the next section of the strip three perforations occupy the first, third, and fifth positions;

the next section, the second, fourth, and sixth positions; in the next section, the third, fourth, fifth, and sixth positions. Longitudinally each arrangement for a character or space will occupy the same amount of strip and there can be made one hundred and twenty-eight different arrangements of the perforations for letters and spaces.

In order to give the cylinder an intermittent motion, a pawl 9 is secured to the frame 3 and provided with a projection which engages in a notch about the periphery of the cylinder to impart a step motion to the cylinder as the frame 7 is reciprocated, and a spring-pawl 15, secured to the said frame, is adapted to engage with the teeth at the end of the cylinder 8 to prevent a reverse movement to the said cylinder.

It will be noted that below each feeler when the sliding bars are in normal position will be elevations on one or more bars, except below the feeler, which is to be operated by the blank in the strip. These elevations are to support feelers when they are not to be acted upon. The bars have an end movement one-half the distance from center to center of the said feelers, and in either one or the other of the extreme positions of the sliding bars every feeler will have a depression below it, while in the other position will be an elevation. Suppose a feeler is supported when the sliding bars are in the first or normal position by the elevations on three bars. If these bars are moved to second position, this feeler will drop, but if a fourth bar is moved to second position another elevation comes below the feeler and prevents it from dropping. When a feeler drops, a hook in the end catches on the rocking frame 14, so that when this frame is drawn back that feeler will be drawn with it, thus rocking the angle-lever, as previously described. The pressure of the key on this angle-lever tends to draw the feeler back until the end strikes the bar 19. On the return of the rocking frame a beveled shoulder on the end of each feeler lifts any feeler which may be dropped above the elevations on each side of the notches in which it rests. In the drawings the machine shows the first sliding bar drawn forward. Fig. 1 has eleven of these feelers at the left broken away to show the elevations and depressions. These are arranged to drop the feelers one by one from right to left when the perforated strip shown in the drawings is fed through the machine. The single perforation in the first position at the left of the strip will draw the first sliding bar forward, as shown in the drawings, and thus give a straight row of depressions across all of the sliding bars below the feeler at the left. If instead of the first sliding bar being drawn forward the second and fourth bars had been drawn out by the fourth row of perforations from the left, there would have been a straight row of depressions below the fourth feeler from the left. When no bars are drawn out, there will be a straight

row of depressions below the last feeler broken away at the right.

In operation power is applied to the pulley 11. The sliding frame 7 will be pushed out by the crank-shaft 10, but the pawls 6, being held up by the paper strip when the points carried thereby do not register with perforations in the strip, will not catch on any of the sliding bars, and so they are not moved. The feelers will all be held slightly above the sliding bars 4 by the rocking frame 14 below the beveled shoulders. While the sliding frame is out, the cam 12 on the pulley 11 will strike the pinion 13 and force the rocking frame outward, and the feeler, which is represented by a blank in the strip, dropping in the notches of the sliding bars below it as the rocking frame moves outward, will be caught by the rocking frame and drawn forward. The cam passing the pulley 13, the rocking frame is drawn back by a spring 29 and the feeler returned to the first place and is raised from the notches by the beveled shoulder on the feeler. As the pulley-wheel completes its revolution the sliding frame will be returned to its first position, carrying the cylinder with it, and the pawl 9 will strike against a tooth in the ratchet on the cylinder, moving it, together with the strip, forward a notch, while the spring-pawl 15 engages with a tooth at the end of the cylinder and holds it against a reverse movement. When any of the sliding bars 4 have been pulled out, the plate 16 strikes them on the return of the sliding frame and returns them to first place, and a bevel on the hook on the ends of the pawls 6 strikes against the ends of any of the bars 4 which have been pulled out and raises the point 27 out of any perforation in which it may have dropped. The sliding frame with the elongated apertures 22, being wider than the diameter of the crank-shaft 10, gives twice as much movement as the sliding bars, and is so designed that the points 27 may be lifted from the perforations before the strip shall be moved forward. These operations are continued as long as the strip is in the machine and the band-wheel revolves, the only difference being that different sliding bars may be drawn out and so different feelers dropped.

It is my purpose to modify, if desired, the various features of my invention and still not depart from the spirit thereof. The longitudinally-movable bars 4 may be circular, forming the rim of a wheel, or semicircular. The feelers may have no longitudinal movement. Springs instead of gravity may be used to drop the feelers into registering depressions. Any number of longitudinally-movable bars may be employed, as well as many other modifications.

In the appended claims I have used the term "longitudinally-movable bars" to indicate, among other forms, circular or semicircular bars forming the rim of a wheel or segment of a wheel.

Having described my invention, what I

claim as new, and desire to secure by Letters Patent, is—

1. A mechanism for operating type-setting and other machines, comprising in combination with the framework, a series of horizontally-disposed and longitudinally-movable bars, said bars having alternating elevations and depressions in their upper edges, the feelers resting at right angles across said bars and designed to fall by gravity into a row of registering depressions in the bars and means for operating the bars and raising the feelers out of the depressions, substantially as set forth.

2. A mechanism for operating type-setting and other machines, having a series of longitudinally-movable bars mounted in a suitable framework and having alternating elevations and depressions, a series of feelers crossing said bars, and means for moving feelers which have fallen into rows of registering depressions, a reciprocating frame mounted in said framework, a series of pawls carried thereby having points for entering perforations in a perforated strip, which pawls are adapted to engage with and move the said bars, and means for raising said points out of the perforations, combined substantially as shown and described.

3. A mechanism for operating type-setting and other machines, having a series of longitudinally-movable bars mounted in a suitable framework, and having alternating elevations and depressions, a series of feelers crossing said bars, means for moving feelers which have fallen into rows of registering depressions, a reciprocating frame mounted in said framework and carrying a series of pawls for engaging and moving said bars, a cylinder carried by said longitudinally-movable frame, a perforated strip below the points on said pawls, adapted to travel on said cylinder, a series of depressions in the face of said cylinder, points about said cylinder adapted to engage perforations in said strip, and carry said strip with the cylinder, and means for giving said cylinder a step-by-step movement, combined substantially as shown and described.

4. A mechanism for operating type-setting and other machines, having a series of longitudinally-movable bars mounted in a suitable framework and having alternating elevations and depressions, a series of vertically and longitudinally movable feelers crossing said bars, means for successively bringing in alignment rows of depressions across said bars so that feelers may fall therein, a series of angle-levers pivoted to a shaft on the framework, one end of said angle-levers being pivoted to the feelers, means for tilting said angle-levers by moving the feelers longitudinally, and means for raising the feelers out of the depressions, combined substantially as shown and described.

5. A mechanism for operating type-setting and other machines, comprising in combination with longitudinally-movable bars

mounted in a suitable framework and having
alternating elevations and depressions, a se-
ries of vertically and longitudinally movable
feelers crossing said bars and pivoted to angle-
5 levers which are pivoted to a shaft on said
framework, means for successively bringing
into alinement rows of depressions across
said bars so that feelers may fall therein, a
rocking rack pivoted on a shaft on the frame-
10 work, a portion of said rocking rack being
perforated to receive the hooked ends of said
feelers and adapted, on being rocked, to catch
feelers dropped into rows of registering de-
pressions, move it longitudinally and remove
15 it from the depressions, and means for rock-
ing said rocking rack, substantially as shown
and described.

6. A mechanism for operating type-setting

and other machines, comprising in combina-
tion with the rocking rack, the feelers, angle- 20
levers, sliding bars, longitudinally-movable
frame mounted in the framework and pawls
and cylinder carried thereby, a crank-shaft
journalled to the frame and working in elon-
gated apertures in the longitudinally-movable 25
frame, the driving-pulley on said shaft, cam
on the outer face of the pulley, and a pinion
adapted to contact therewith and which is
connected with the said rocking rack, sub-
stantially as shown and described. 30

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

TRACY B. CASWELL.

Witnesses:

JOHN G. CANFIELD,

HARRY CARSON.