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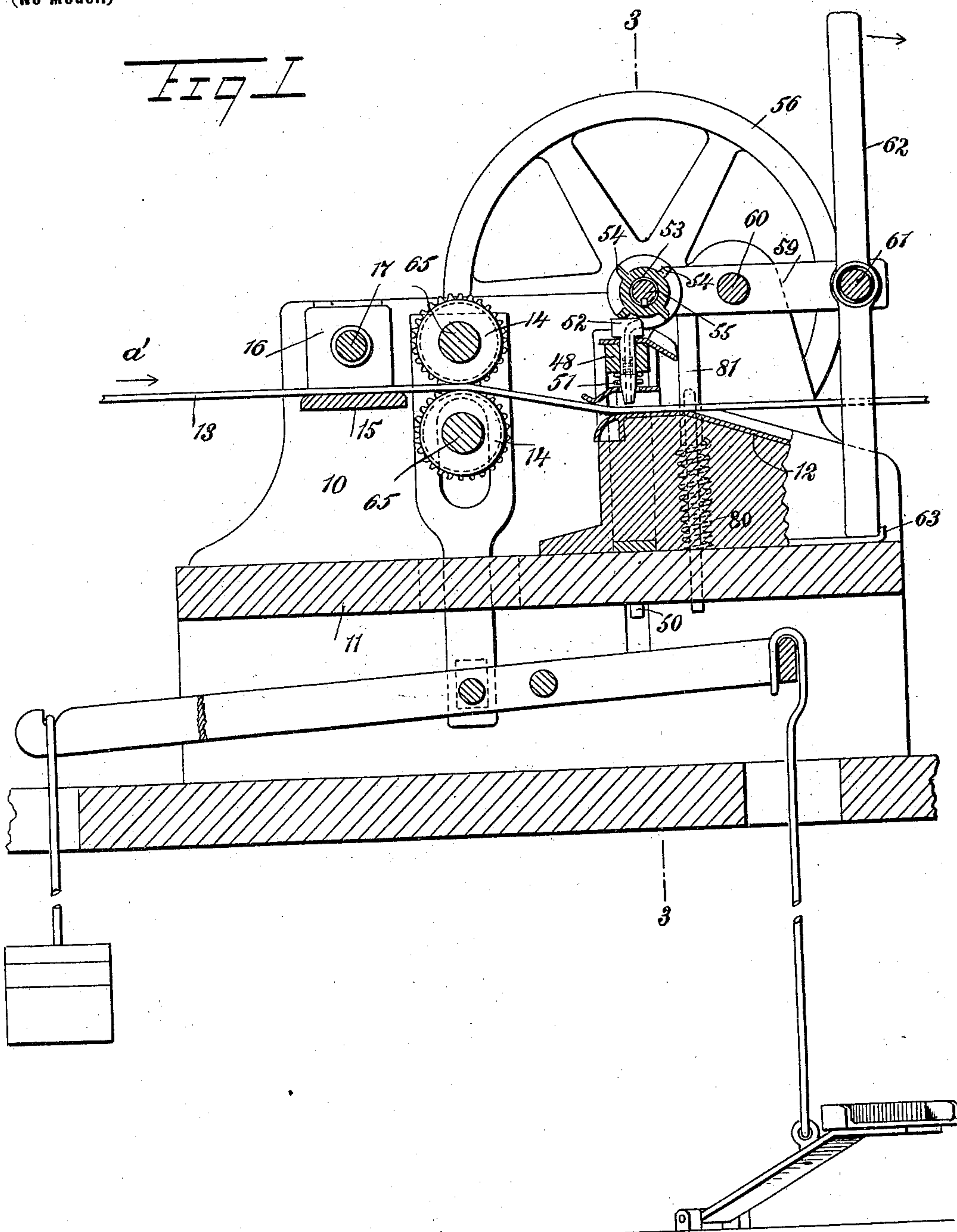
Patented Jan. 28, 1902.

F. F. CUMMS.  
PUNCHING MACHINE.

(Application filed Aug. 29, 1901.)

3 Sheets—Sheet 1.

(No Model.)



WITNESSES:

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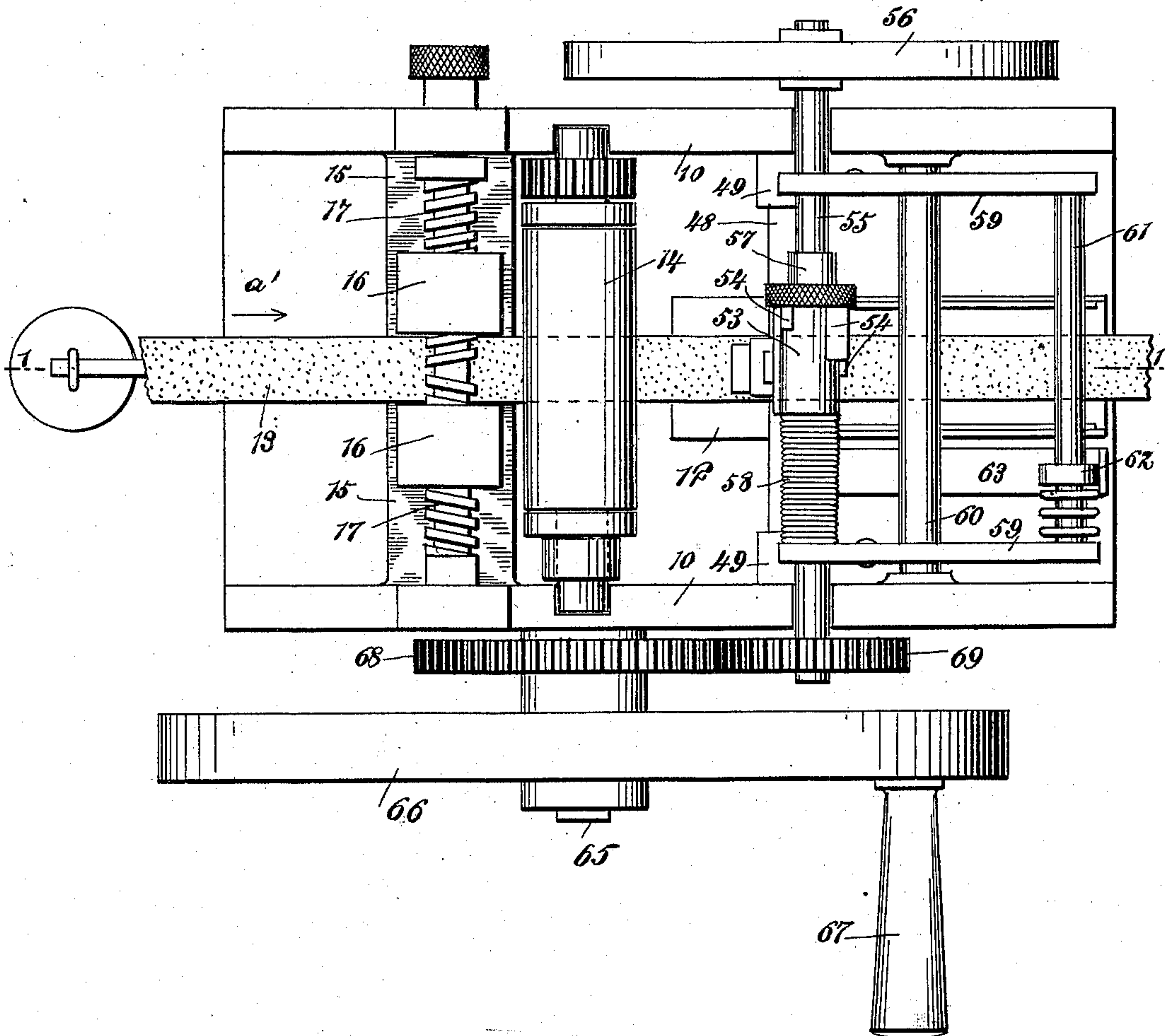
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3 Sheets—Sheet 2.

Fig 2



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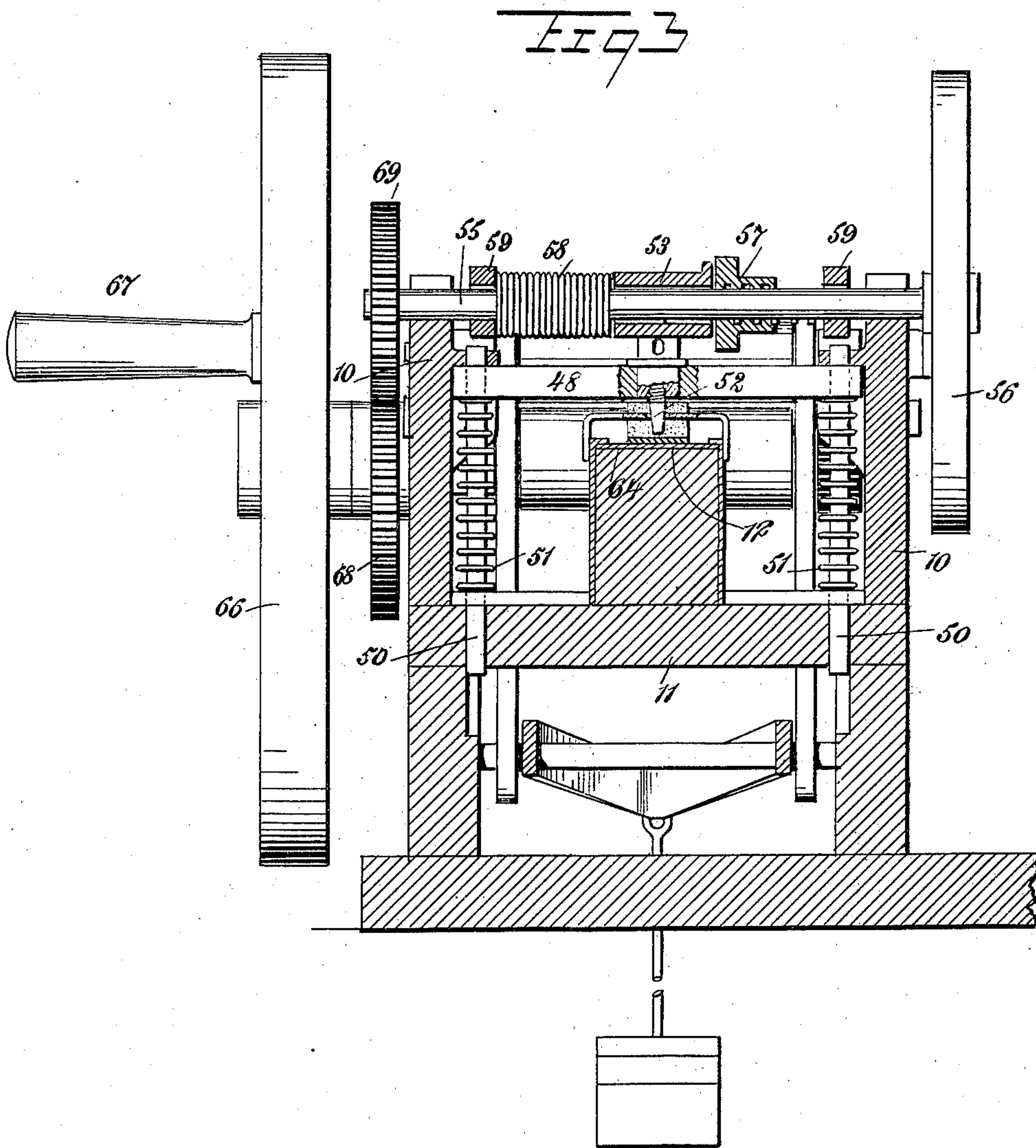
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**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

FRANK F. CUMMS, OF RUTLAND, VERMONT.

## PUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 692,122, dated January 28, 1902.

Original application filed December 4, 1900, Serial No. 38,668. Divided and this application filed August 29, 1901. Serial No. 73,677. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK F. CUMMS, a citizen of the United States, and a resident of Rutland, in the county of Rutland and the State of Vermont, have invented a new and Improved Punching-Machine, of which the following is a full, clear, and exact description, this being a division of the application for Letters Patent of the United States for a leather-working machine, Serial No. 38,668, filed by me December 4, 1900.

The object of the invention is to provide a new and improved punching-machine which is simple and durable in construction, very effective in operation, and more especially designed for punching holes in straps or similar goods at desired distances apart.

The invention consists of novel features and parts and combinations of the same, as will be fully explained hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal sectional elevation of the improvement on the line 1 1 of Fig. 2. Fig. 2 is a plan view of the same, and Fig. 3 is a transverse section of the same on the line 3 3 of Fig. 1.

The punching-machine is mounted on a suitably-constructed frame having side pieces 10, within which is a platform 11, supporting a bed-plate 12, over which passes the strap 13 to be provided with holes. The strap is fed forward in the direction of the arrow *a'* by a feeding device of any approved construction—for instance, revoluble feed-rollers 14, as is shown in the drawings. The strap 13 is guided in its forward movement over a table 15 and between guide-blocks 16, screwing on the right and left hand screw-rod 17 under the control of the operator and serving to adjust the blocks 16 for straps of different widths.

Rearward of the rollers 14 is a punch-carrying bar 48, having its ends engaging in guides 49, attached to the inner sides of the

side pieces 10, and extending downward from the ends of the punch-carrying bar 48 are rods 50, passing freely through openings in the platform 11, and arranged between the upper side of this platform 11 and the under side of the bar 48 are cushion-springs 51, the latter being coiled around the rods 50. The center of the bar 48 is provided with an opening into which a punch 52 may be inserted. Of course a punch of any desired size may be employed.

As a means for forcing the punch downward with the carrying-bar 48 I employ a tappet device, here shown as a sleeve 53, which is provided with a series of outwardly-extended cams or tappet-fingers 54. The tappet-fingers extend in varying lengths from one end of the sleeve 53, so that by adjusting the sleeve 53 longitudinally of the shaft 55, on which it is mounted, the said tappet-fingers may be brought into position to cause one or more of said fingers to engage with the punch during the rotation of the sleeve—that is, by moving the sleeve 53 to its extreme position toward the fly-wheel 56 on the shaft 55 the widest tappet-finger only will engage to operate the punch, and therefore the punch will be operated but once at each complete rotation of the shaft 55.

Should it be desired to punch two holes closer together, the sleeve 53 is to be moved so that not only the longest tappet-finger will engage with the punch, but the next longer tappet-finger will also engage with the punch. This will cause two movements of the punch during one rotation of the shaft. Obviously by moving the sleeve to its extreme position away from the fly-wheel 56 all of the tappets will be brought into position to operate the punch. The sleeve 53 is moved in one direction by means of a nut 57, engaging with a screw-thread on the shaft 55 and abutting at its end against one end of the sleeve 53. The sleeve is moved in the opposite direction when the nut is released or moved toward the fly-wheel by means of a spring 58, surrounding the shaft and engaging at one end with the end of said sleeve and at the other end with one of the arms 59, connected to the shaft 55.



These arms 59 are for the purpose of raising or lowering the shaft 55 to move the punch into or out of operative position.

The arms 59 are connected to a rock-shaft 5 60, having bearings in the side pieces 10, and the outer ends of the arms 59 are connected by a cross-bar 61. Connected with the cross-bar 61 is a holding-lever 62, which has a portion extended upward to be engaged by a person to operate the arms or frame carrying the sleeve 53, and its lower end is designed to engage with a stop 63 on the platform 11 when the arms or frame are moved to bring the tappet device to operative position, as indicated 15 in Fig. 1. The bed-plate 12 is inclined downward and rearward to allow the material punched out to readily discharge from the machine.

On the outer end of one of the shafts 65 20 for the rollers 14 is a drive-wheel 66, that may be operated either by a suitable driving-band or may be operated by a crank-handle 67. On this end of the shaft 65 is a gear-wheel 68, which meshes with a gear-wheel 69, attached to the shaft 55, so that when the shaft 65 25 is rotated a rotary motion is transmitted by the gear-wheels 68 69 to the shaft 55 and to the sleeve 53. Thus the feeding of the strap 13 is in unison with the movement of the sleeve 53, 30 operating the punch 52.

The frame or arms 59 when moved to their downward position are prevented from jar by means of cushion-springs 80, which engage at their lower ends with the platform 11 and 35 at their upper ends with tubes or sleeves 81, against the upper ends of which said arms 59 may strike.

When it is desired to punch holes through the strap, then the holding-lever 62 is moved 40 into a vertical position, as illustrated in Fig. 1, to bring the tappet-sleeve into action for moving the punch 52 into engagement with the straps 13 to punch holes therein.

Having thus fully described my invention, I claim as new and desire to secure by Letters 45 Patent—

1. In a punching-machine, a frame, a vertically-movable punch-carrying bar in said frame, and a rotary tappet having tappet-fingers of varying lengths for causing the 50 downward movement of said bar, as set forth.

2. In a punching-machine, a frame, a punch-carrying bar movable vertically in said frame, a shaft supported in the frame, a sleeve adjustable longitudinally on said shaft, and a 55 series of tappet-fingers on said sleeve for operating the punch, said fingers being of varying lengths, as set forth.

3. In a punching-machine, a frame, a punch-carrying bar movable vertically in the frame, 60 a shaft extended across the frame, means for raising and lowering said shaft, a sleeve adjustable longitudinally of the shaft and a series of tappet-fingers on said sleeve, said tappet-fingers being of different lengths, substantially as specified. 65

4. A punching-machine having a spring-pressed bar mounted to slide and adapted to carry a punch, and a revoluble tappet-sleeve having tappet-fingers of different lengths, as 70 set forth.

5. A punching-machine having a spring-pressed bar mounted to slide and adapted to carry a punch, a revoluble tappet-sleeve having tappet-fingers of different lengths, and 75 means for adjusting said sleeve transversely to bring one or more of the tappet-fingers in operative position relative to the punch, as set forth.

In testimony whereof I have signed my 80 name to this specification in the presence of two subscribing witnesses.

FRANK F. CUMMS.

Witnesses:

B. H. STICKNEY,  
R. L. RICHMOND.