

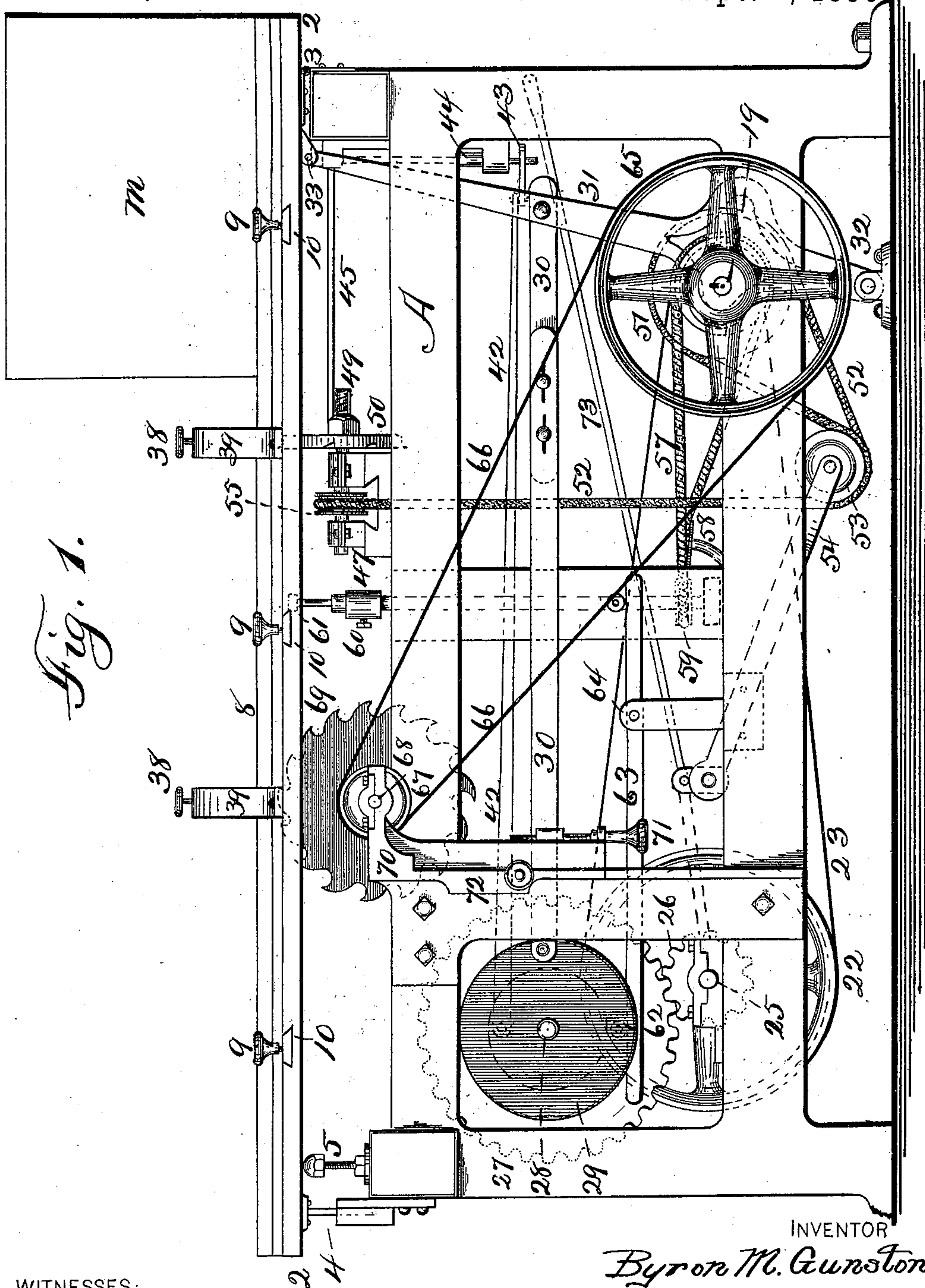
(No Model.)

4 Sheets—Sheet 1.

B. M. GUNSTON.
BOX COVER MACHINE.

No. 567,094.

Patented Sept. 1, 1896



WITNESSES:
Charles Marvin
Manuel C. Cooke

INVENTOR
Byron M. Gunston.
BY
Smith & Wenslow
ATTORNEYS.

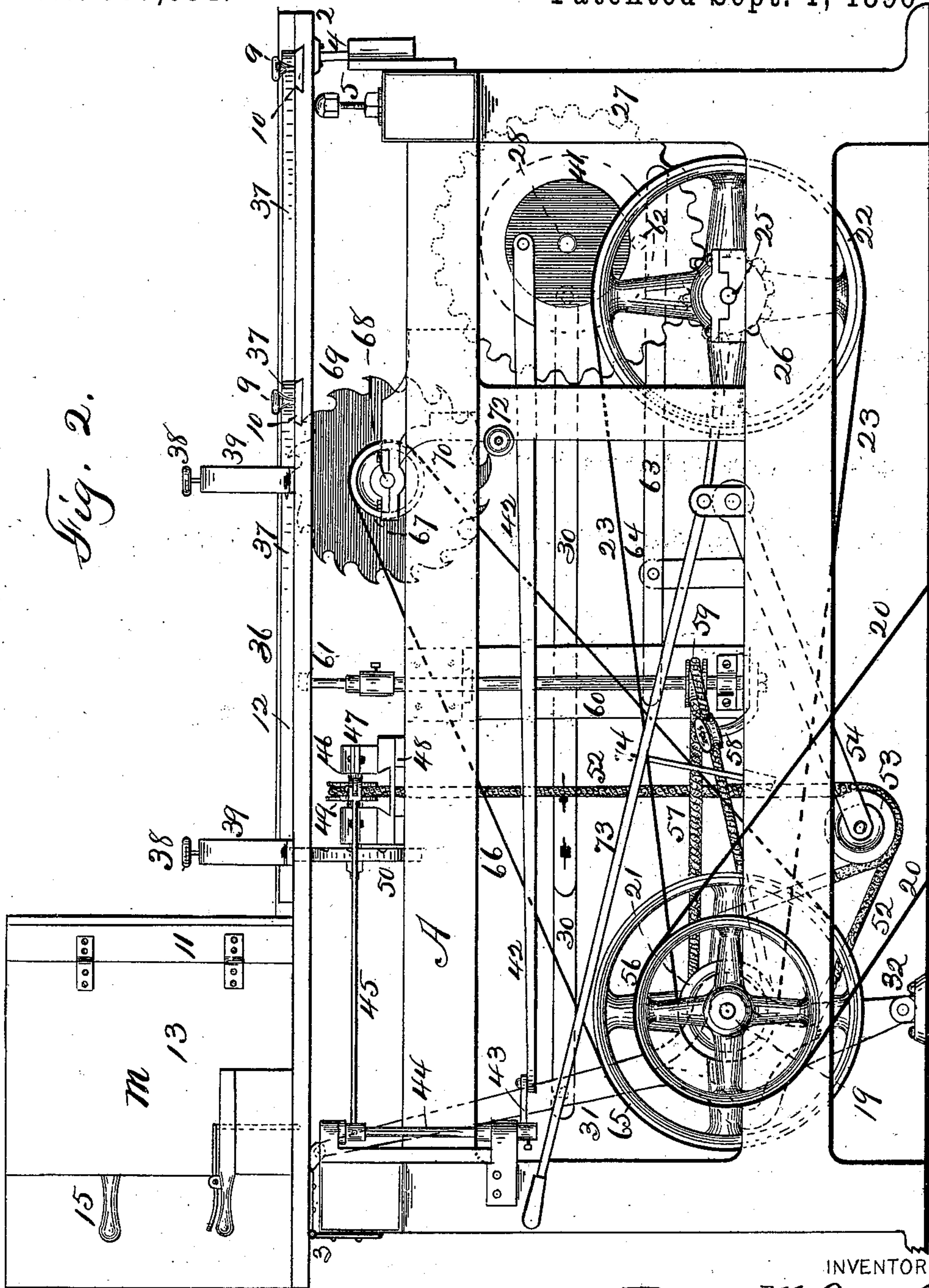
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B. M. GUNSTON.
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No. 567,094.

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WITNESSES:

Charles Morin.
Maudie E. Locke.

INVENTOR

Byron M. Gunston.

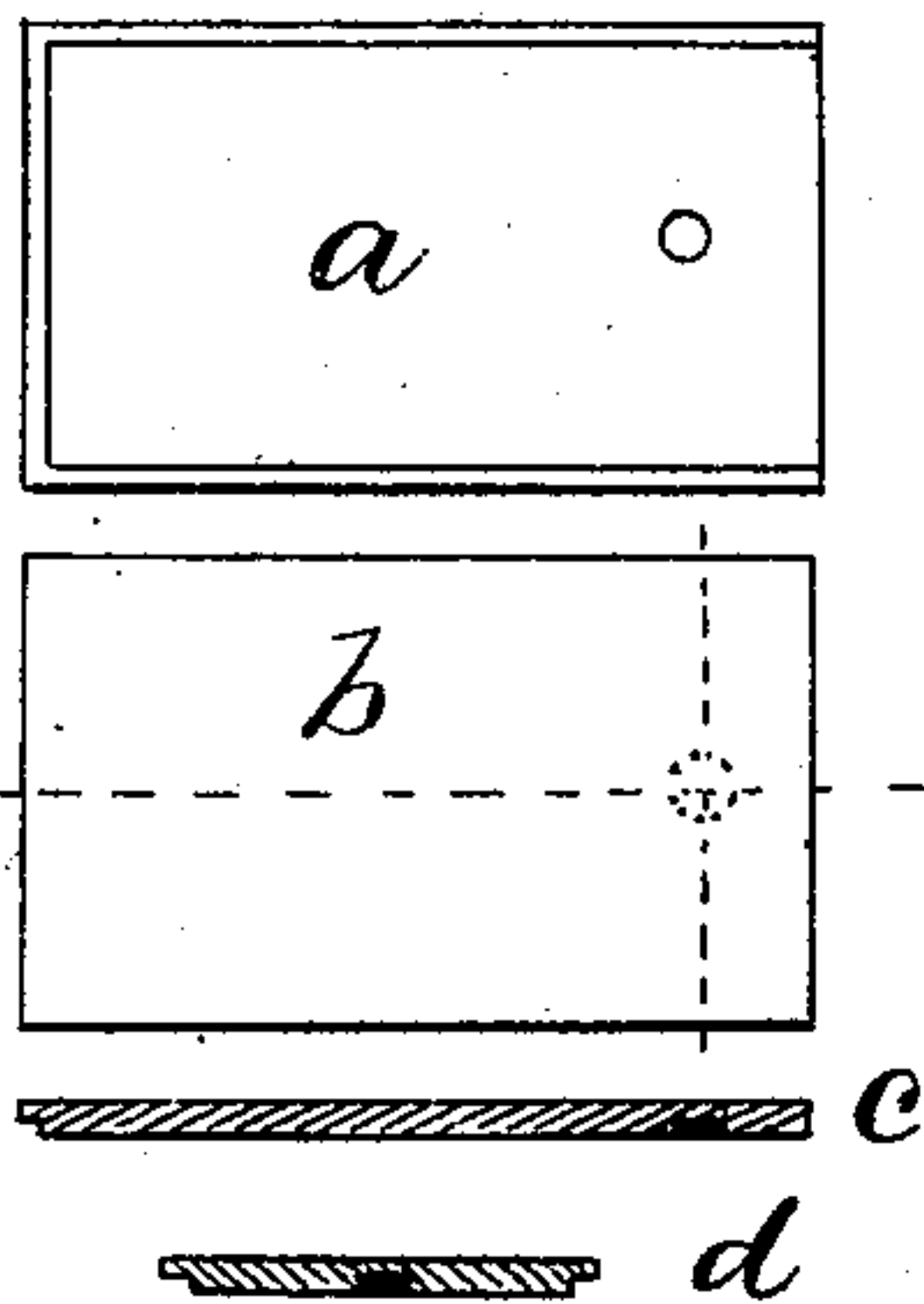
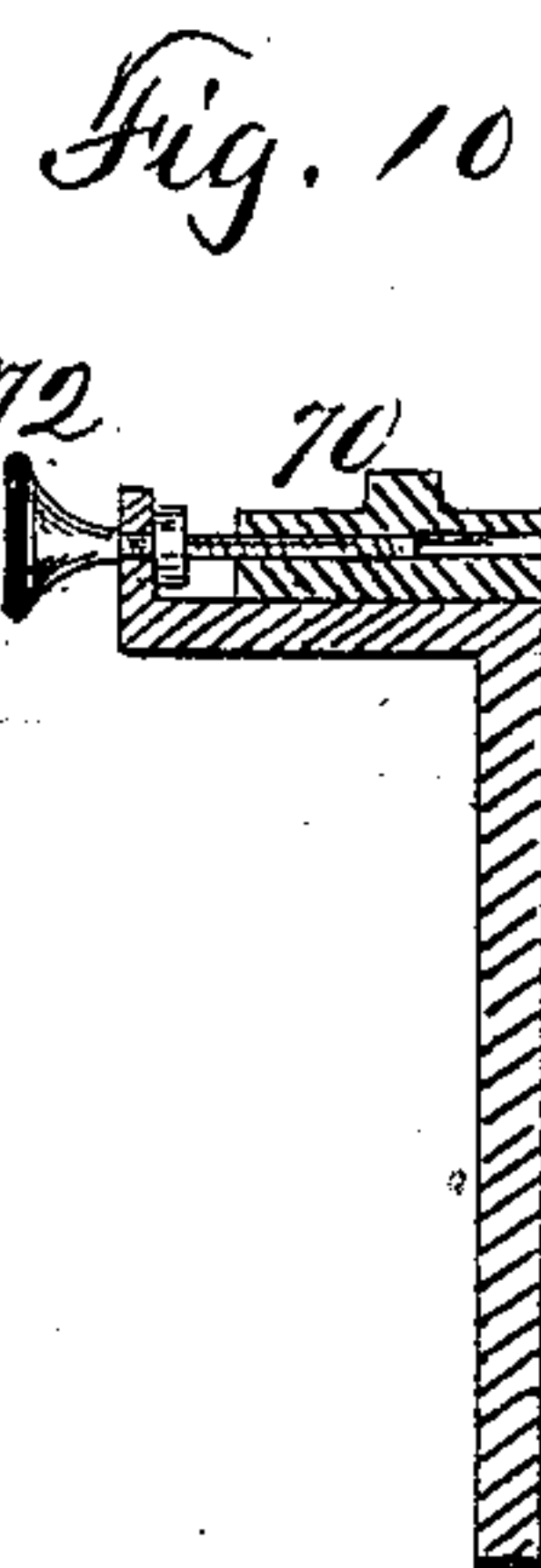
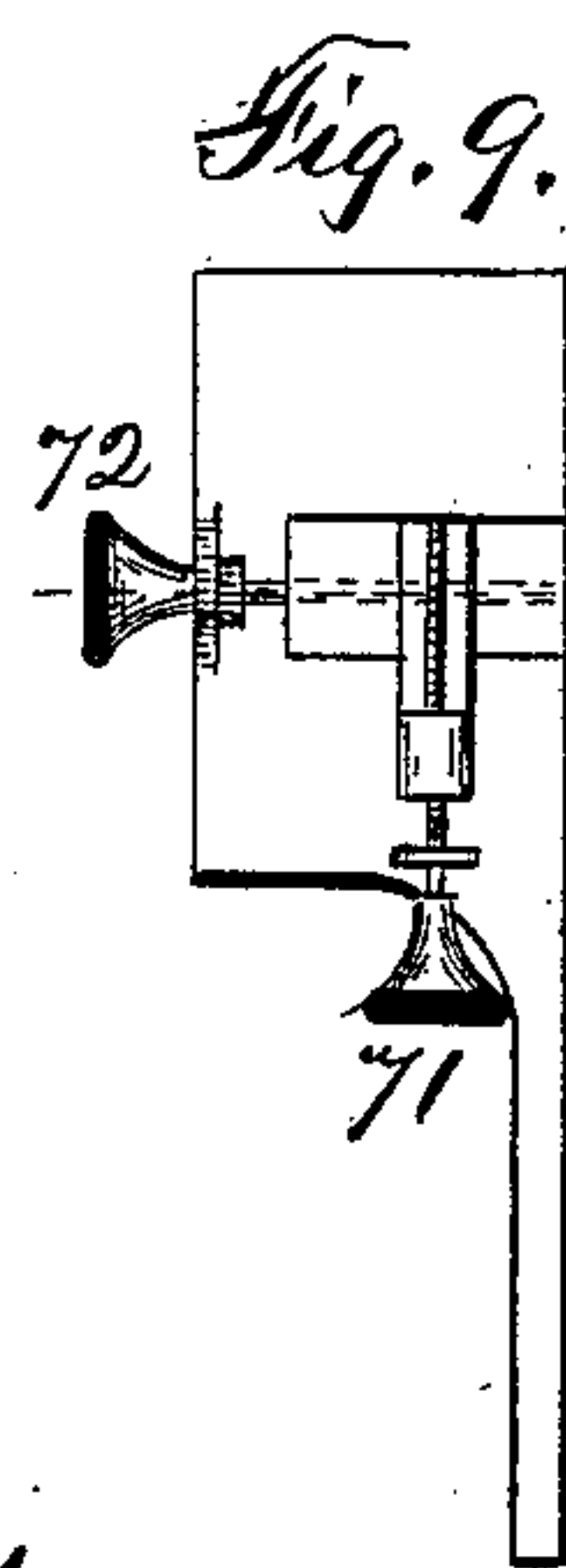
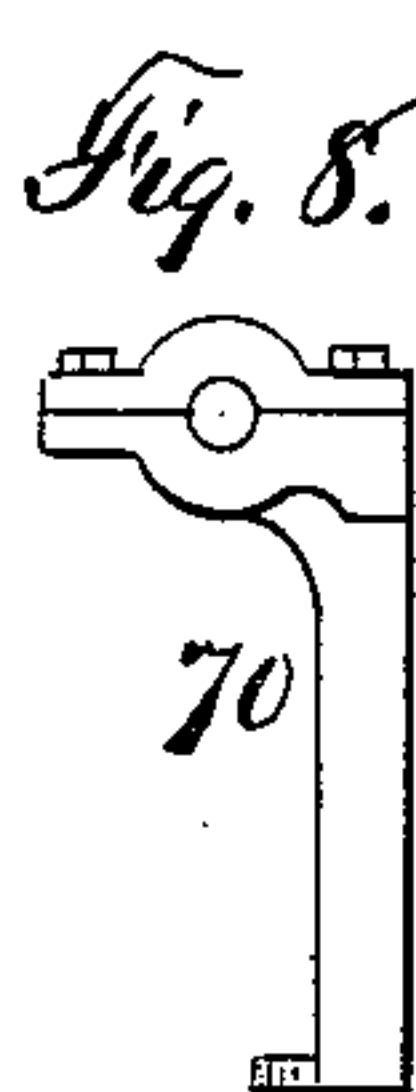
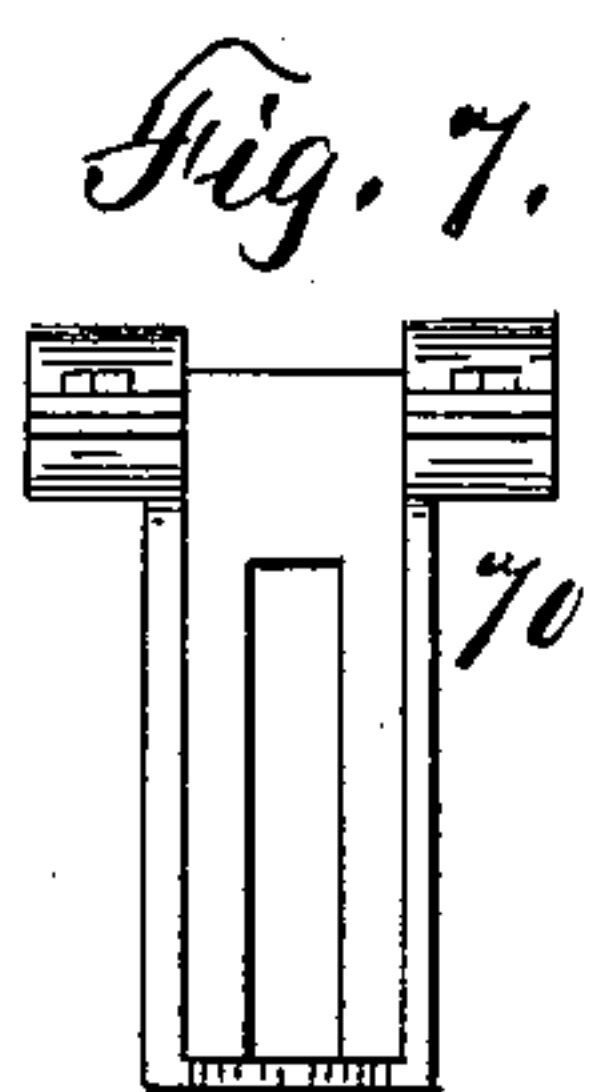
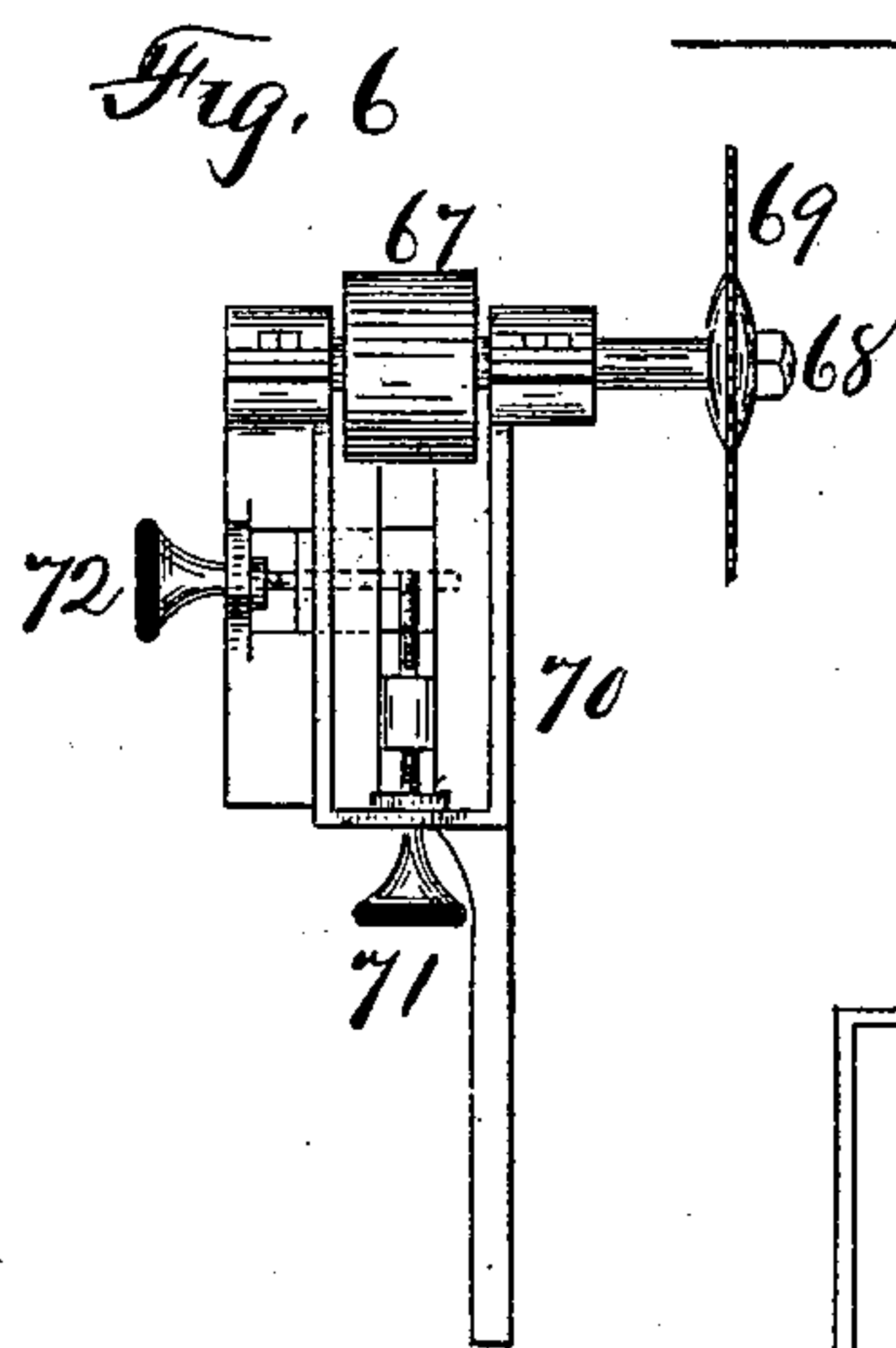
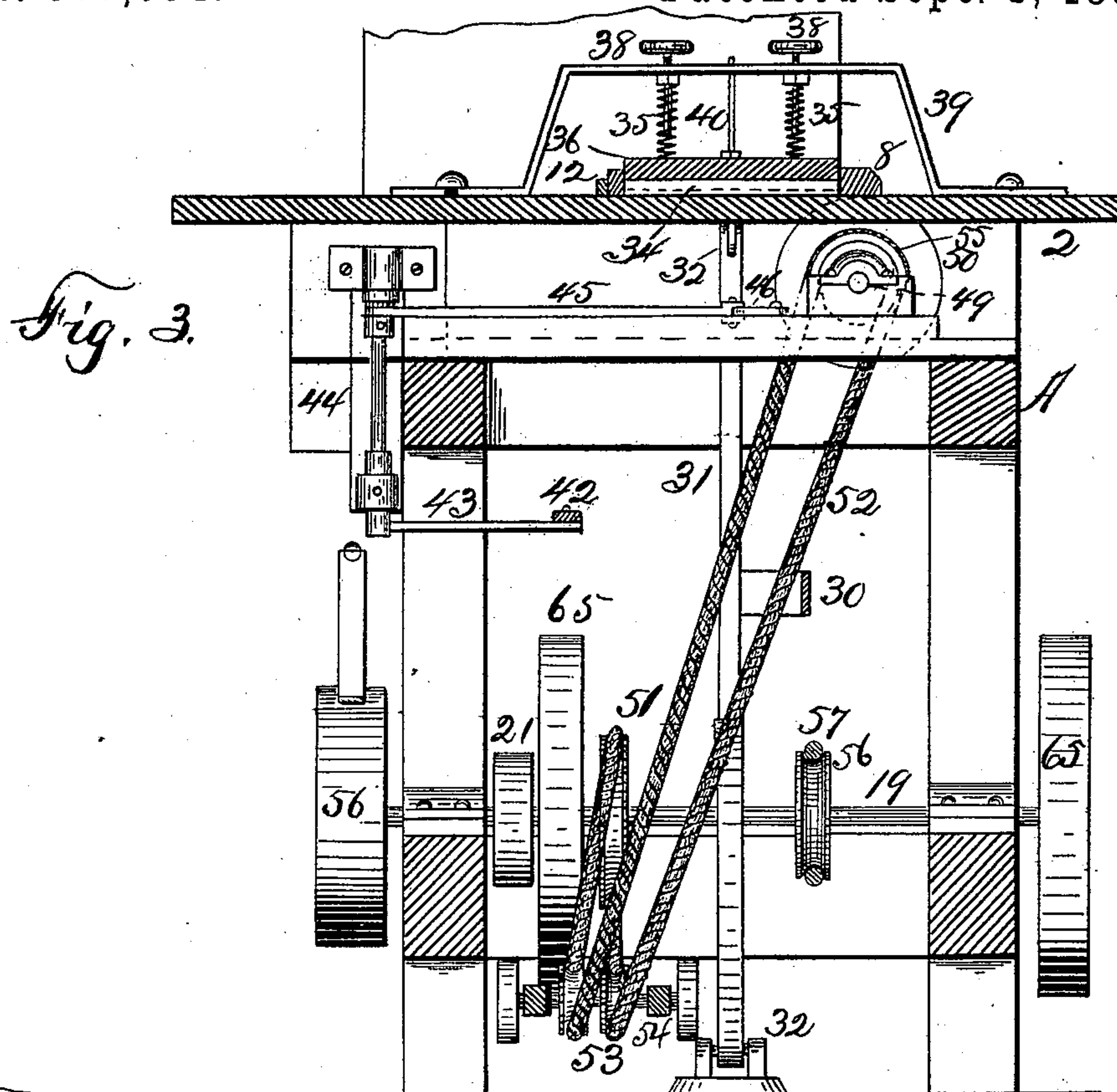
BY

Smith & Benson
ATTORNEYS.

4 Sheets—Sheet 3.

No. 567,094.

Patented Sept. 1, 1896.



WITNESSES:

Charles Marvin
made E. Crooke

Fig. 11.

INVENTOR

Byron M. Gunston

BY

Smith & Benson
ATTORNEYS.

(No Model.)

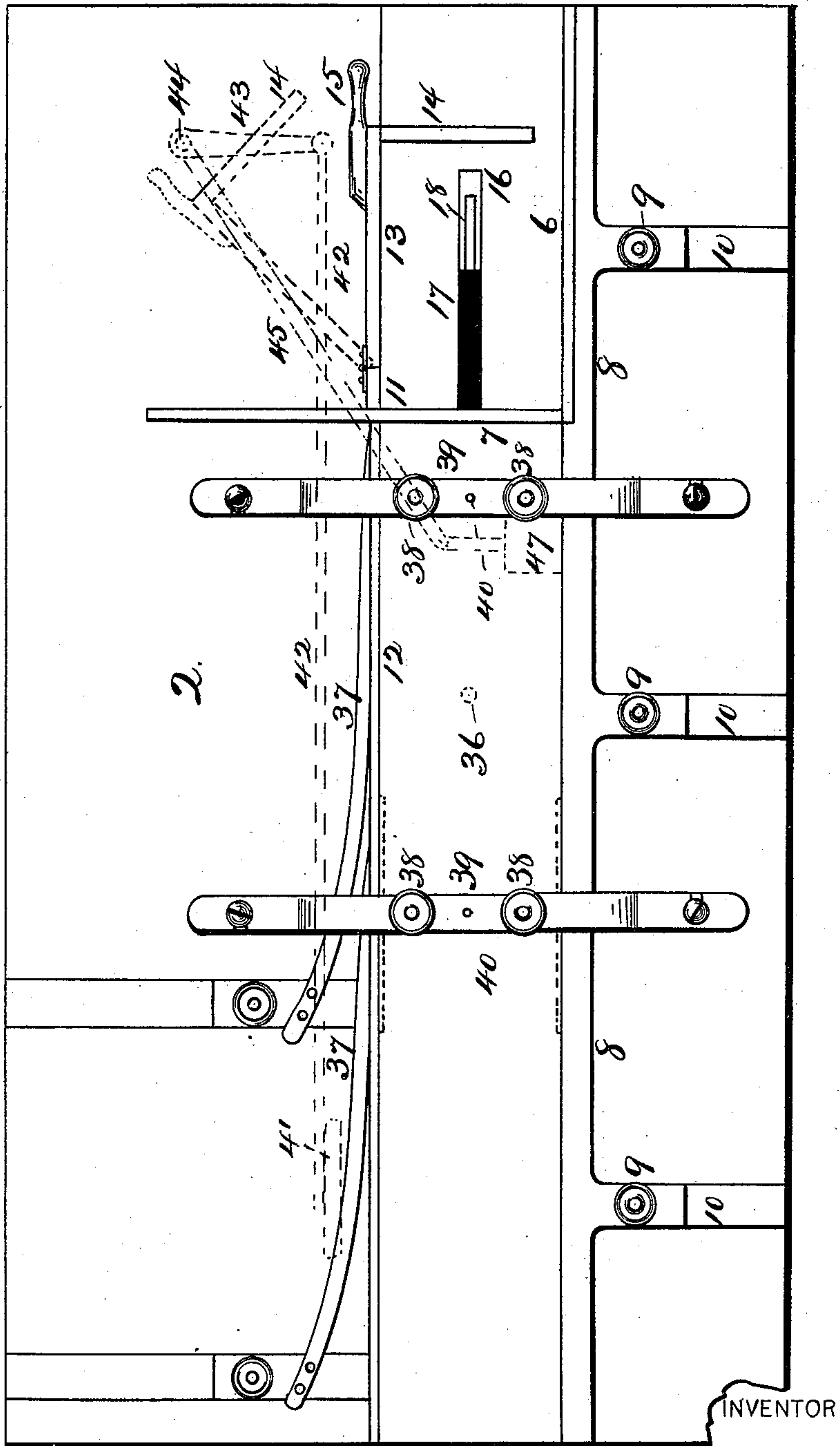
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Fig. 4.



WITNESSES:

Charles Marvin
Manole & Co.

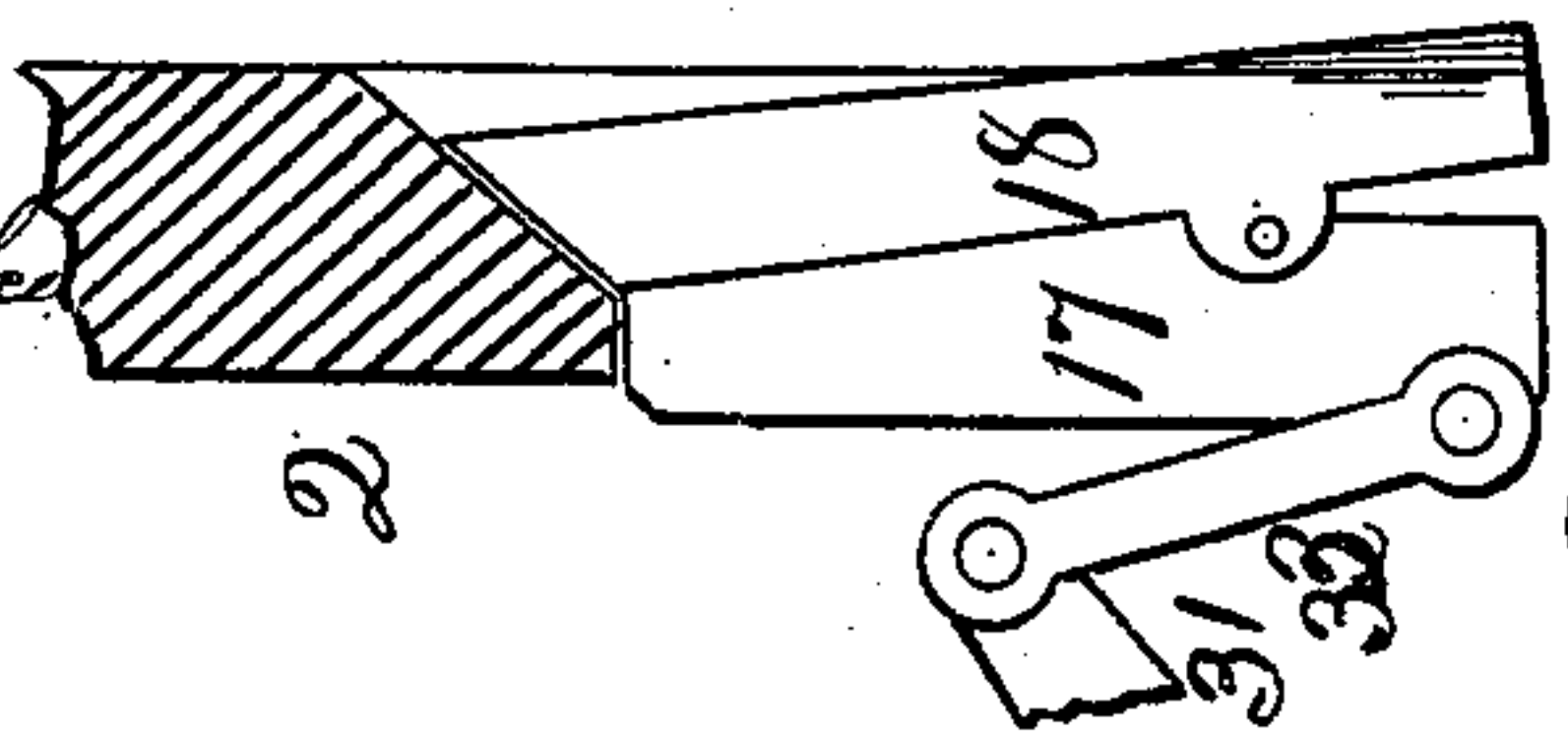


Fig. 5.

Byron M. Gunston
BY

Smith & Benson
ATTORNEYS.

UNITED STATES PATENT OFFICE.

BYRON MORTIMER GUNSTON, OF OSWEGO, NEW YORK, ASSIGNOR TO
THOMSON KINGSFORD, OF SAME PLACE.

BOX-COVER MACHINE.

SPECIFICATION forming part of Letters Patent No. 567,094, dated September 1, 1896.

Application filed May 1, 1896. Serial No. 589,855. (No model.)

To all whom it may concern:

Be it known that I, BYRON MORTIMER GUNSTON, of Oswego, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Box-Cover Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to machines for rabbeting the sides or edges and end of box-covers, and at the same time cutting a recess in the other end to aid in removing said cover, the rabbeted edges and end of which fit into corresponding grooves in the sides and one end of the box.

My object is to produce a machine in which the edges and one end of a box-cover are rabbeted and the recess cut near the other end, all substantially simultaneously. It comprises a hopper receiving the cover-blanks, a feed mechanism by which said blanks are fed out one at a time, a rotating cutter upon a traversing frame by which a rabbet is cut across one end of said blank, a boring-head upon a vertically-reciprocated shaft by which a recess is cut part way through said cover near its outer end, stationary saws parallel to each other and spaced apart according to the width of said blank, and by which rabbets are cut in the edges as they are fed through a channel having a stationary side and a spring-pressed side, and also having a spring-pressed top to hold said blanks in proper relation to the rabbet-cutters and borer, means being provided to adjust the rabbet-saws vertically and laterally to take up wear and to covers of different widths or thicknesses. It is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the machine. Fig. 2 is a rear elevation thereof. Fig. 3 is a vertical transverse sectional elevation of the same. Fig. 4 is a top plan. Fig. 5 is a detail of the blank-feeder. Fig. 6 is an elevation of a saw and the means for its adjustment. Fig. 7 is a plan of the saw-frame. Fig. 8 is an edge view thereof. Fig. 9 is an elevation of the saw-frame holder and adjusting-screws. Fig. 10 is a vertical section thereof. Fig. 11 shows at *a* a top plan of a

cover, at *b* a bottom plan, and *c d* sections on the dotted lines.

A is a suitable frame upon which the work-table 2 is mounted by a hinge 3 at one end and by a guide pin or pins 4 and adjusting-screws 5 at the other, so that said table can be tilted to afford better access to the rabbet-cutters and the borer.

Upon the table a cover-blank hopper *m* is erected, comprising a vertical side 6 and a like end 7, erected upon a slide 8, adjustable by means of the set-screws 9, and dovetailed or other ways 10, and also comprising a post 11, secured to the end 7, substantially in line with the bar 12, which is a side of the blank-conduit, and to this post 11 is hinged a side piece 13 to which is secured an end 14, and 15 is a handle by which the parts 13 and 14 are swung around to open the hopper, and which when swung back holds the cover-blanks therein with their sides and ends in vertical alinement. In this table a slot 16 is cut in which a slide 17 is mounted, upon which the feed-dog 18 is pivoted.

The main drive-shaft 19 is suitably journaled in the frame and driven by the belt 20, and 21 is a pulley on said shaft driving the belt 23 and pulley 22 on the shaft 25, thus driving the pinion 26 on said shaft and the gear 27 on the shaft 28, which rotates the crank-disk 29, which reciprocates the adjustable pitman 30, and this oscillates the lever 31, pivoted at 32 and connected by the link 33 to said feed-dog slide, and thus reciprocates the latter and with each forward movement feeds a cover-blank into the conduit 34, of which the slide 8 constitutes one side, the bar 12 the other side, against which the springs 37 bear to hold the cover-blank firmly against the slide 8. This conduit is provided with a top or cover 36, against which the springs 35 bear, their tension being regulated by the screws 38, through the arches 39, mounted upon the table, and said top is guided vertically by a suitable guide or guides 40, extending up through said arches. The feed-dog pushes the blank into said conduit, leaving it in proper position to have one end rabbeted and the other recessed.

Upon the shaft 28, and driven by it, a crank-

disk 41 is secured, actuating a pitman-rod 42, connected to an arm 43, secured to the rock-shaft 44 to rock said shaft and vibrate a lever 45 secured to it, and thereby through a link 46 reciprocate a frame 47, mounted in a way or ways 48 upon the main frame. This frame consists of a base and two uprights thereon in which the cutter-shaft 49 is journaled, and 50 is the end-rabbeting cutter secured upon said shaft, all so that said cutter is reciprocated in a suitable slot (not shown) in the table, and in a direct line, being guided by said ways.

Upon the shaft 19 a pulley 51 is secured, and 52 is a belt driven by it, passing under the tightener-idlers 53 upon the swinging bar 54 and around the pulley 55 upon the cutter-shaft. This rabbets the end of the blank. A pulley 56 upon the shaft 19 drives the belt 57, guided by the idler 58, the pulley 59, the shaft 60, to which it is secured, and upon which a suitable borer 61 is secured. This is normally out of contact with the blank. It is adapted to be reciprocated through a suitable opening in the table by the following mechanism.

Upon the disk 29 a pin 62 is secured, adapted to intermittently engage with a lever 63, pivoted at 64 and suitably connected to the borer-shaft, so that while in such engagement the cutter is raised to bore a recess part way through the blank. This recess is used to aid in removing the cover from a box.

When the end rabbet has been cut, the cutter is at one side, and when the borer has cut a recess it is retracted, (or falls of its own weight,) and both are out of the path of the next blank, which when fed in pushes the preceding one along in the channel for the edge rabbeting. A pulley 65 upon the shaft 19, a belt 66, and pulley 67 upon the saw-arbor 68 drive the rabbeting-saw 69 on one side of the machine, and a like mechanism drives a like saw on the other side, so that both edges of the blank are rabbeted simultaneously, as it is pushed along by the feeding in of the succeeding blanks, and finally discharged from the tail of the machine.

The saw-arbors are each journaled in a vertically and laterally movable slide 70, and each saw is vertically adjusted and set to make any desired depth of rabbet cut by means of a set-screw 71, and to vary the width of the cut by the set-screw 72. The set-screw 71 is also used to take up the wear of the saw, or its reduction in radius incident to its use, filing, &c. A lever 73, suitably pivoted at 74, engages with a suitable clutch upon the shaft 25 to shift it for stopping or starting the feed and boring mechanisms.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a box-cover machine, a conduit, a hopper, and means to feed the cover-blanks therefrom singly into said conduit in combination with a rotating cutter mounted in a traversing frame and means to rotate said cutter and traverse said frame across said conduit to cut a rabbet across one end of a cover-blank.

2. In a box-cover machine, a hopper, a conduit, and means to feed the cover-blanks into said conduit singly in combination with a disk having a crank-pin, a crank-rod connected to it, a rock-shaft, a rock-arm secured to it and connected to said crank-rod, a vibratory arm secured to and actuated by said rock-shaft, a rotating cutter mounted in a frame, and a link connecting said frame to said vibratory arm, whereby said frame is reciprocated transversely to said conduit causing said cutter to rabbet the end of a cover-blank.

3. In a box-cover machine, a hopper, a conduit, and means to feed the cover-blanks into it singly, in combination with a rotating disk having a stud in its face, a rocking lever with which said stud intermittently engages, a vertical boring shaft with which said lever engages to reciprocate it vertically and recess the cover-blank, and means to rotate said disk and shaft.

4. In a box-cover machine, a hopper, a conduit, and means to feed the cover-blanks into it singly, in combination with a rotating disk having a crank-pin in one face, and a stud in the other face, a crank-rod connected to said crank-pin, a rock-shaft, a rock-arm secured to it and connected to said crank-rod, a vibratory arm, secured to said rock-shaft, a rotating cutter mounted in a frame, and a link connecting said frame to said vibratory arm, a rocking lever with which said stud intermittently engages and a vertical boring shaft with which said lever engages to reciprocate it vertically, whereby one end of the cover-blank is recessed and the other is transversely rabbeted.

5. In a box-cover machine, a hopper, and a conduit receiving cover-blanks therefrom, in combination with a rotating cutter traversing across said conduit whereby one end of each blank is transversely rabbeted, a vertically-reciprocating borer whereby an end of each blank is recessed, and rotating saws on opposite sides of said conduit whereby the edges of each blank are longitudinally rabbeted.

In witness whereof I have hereunto set my hand this 29th day of April, 1896.

BYRON MORTIMER GUNSTON.

In presence of—

H. L. HOWE,

WM. V. BURR.