

No. 688,055.

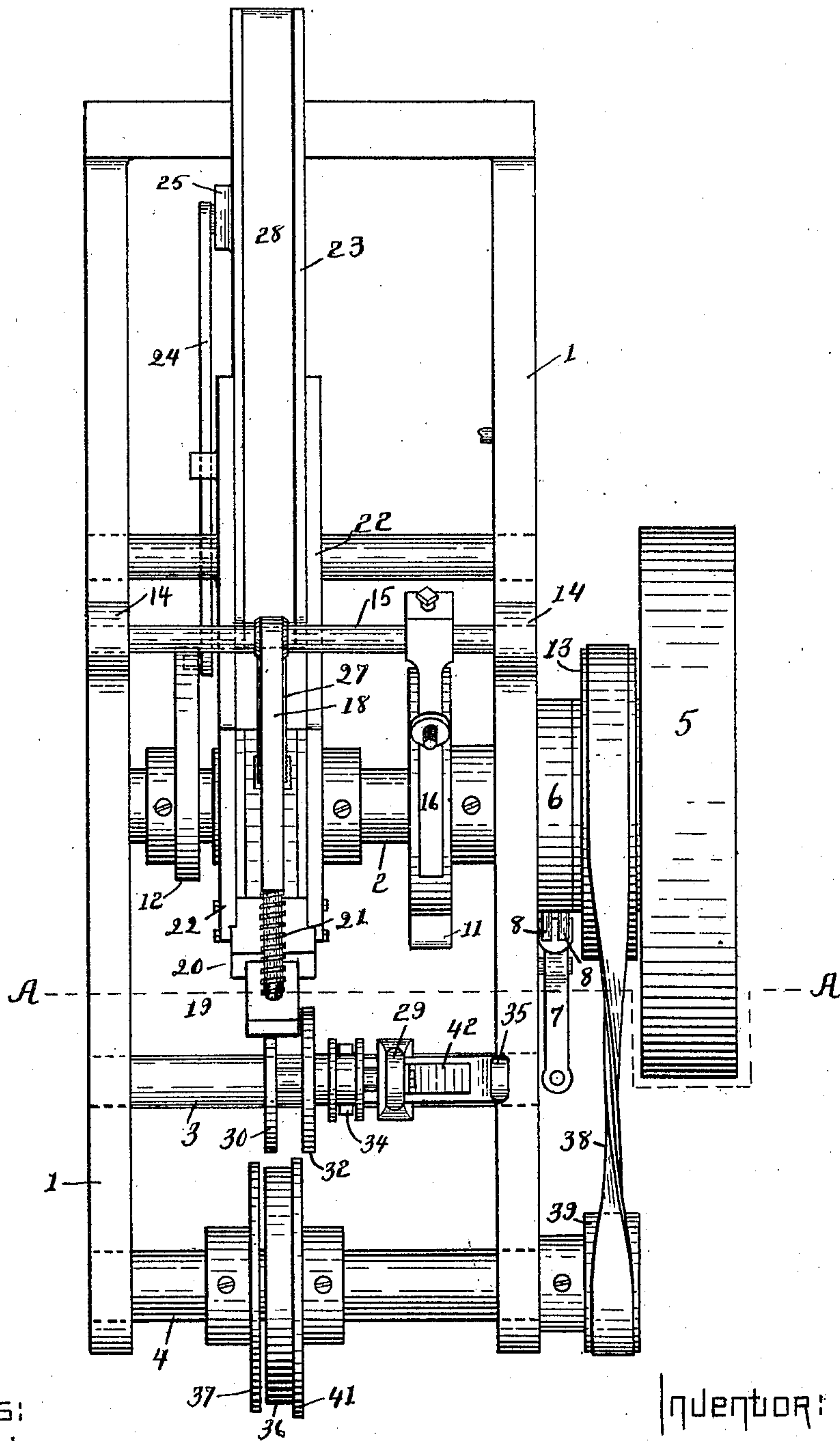
Patented Dec. 3, 1901.

H. B. BLACKINTON.
MACHINE FOR COVERING BOXES.

(Application filed Jan. 7, 1901.)

(No Model.)

4 Sheets—Sheet 1.



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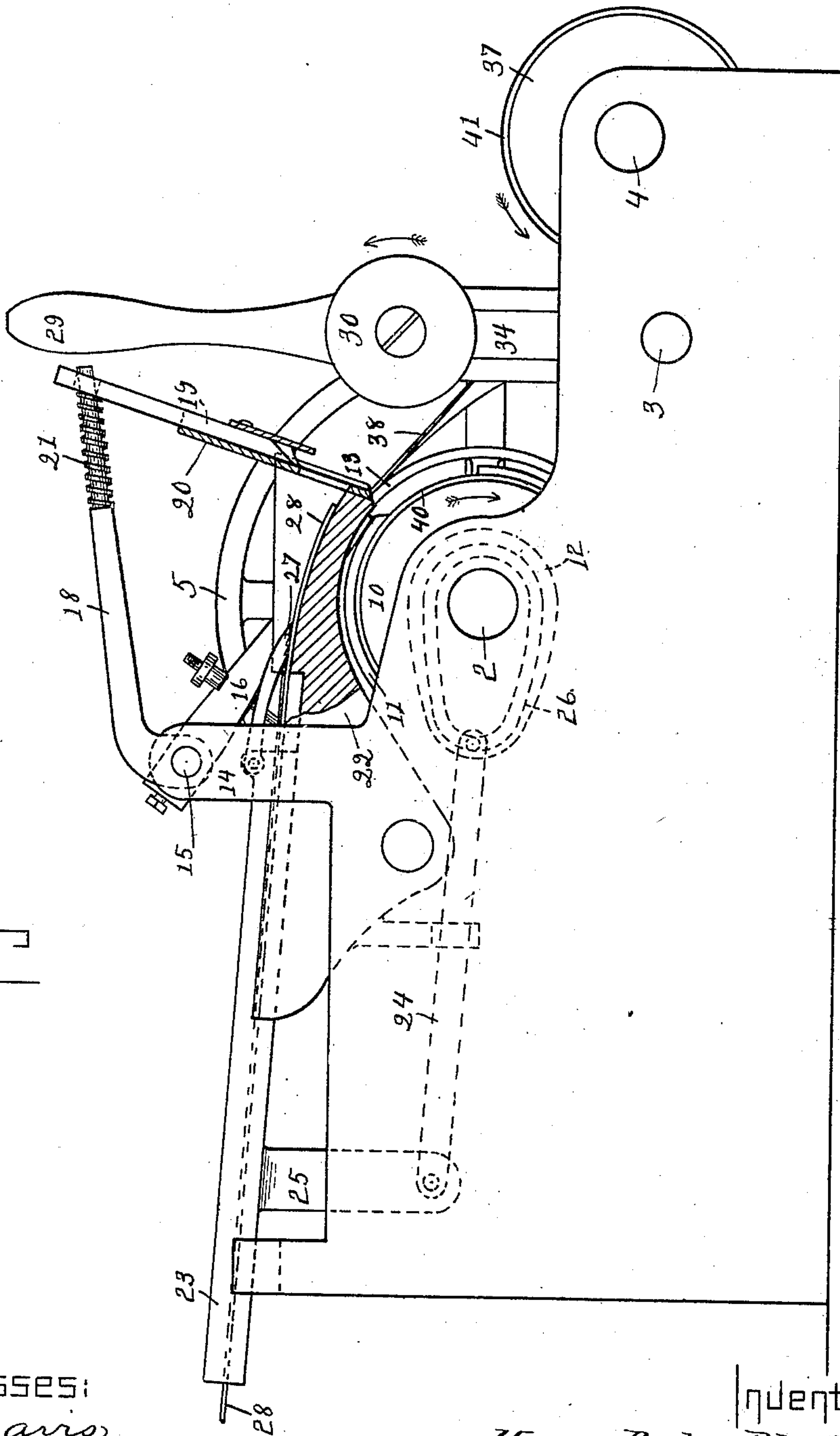
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FIG-2-



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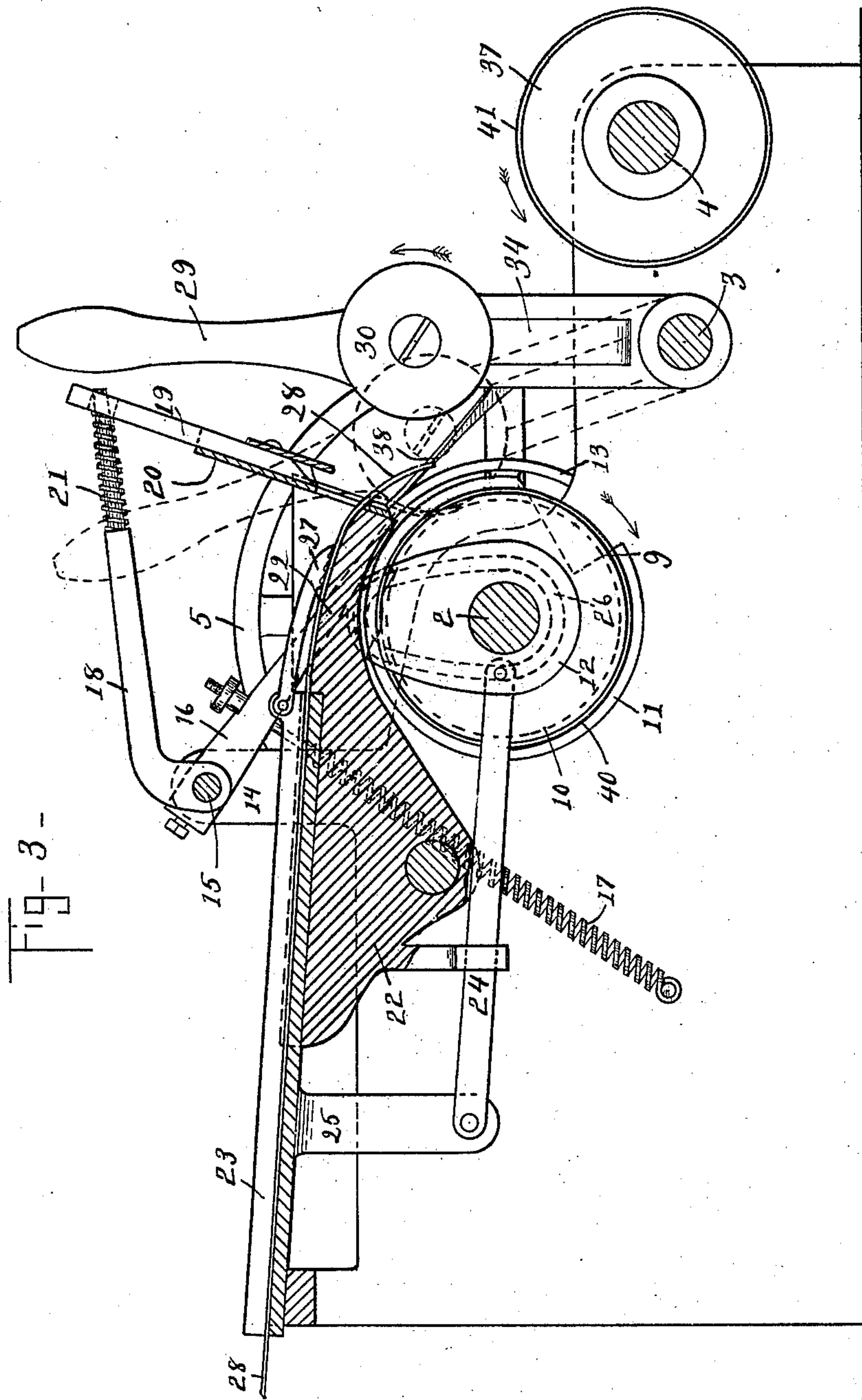
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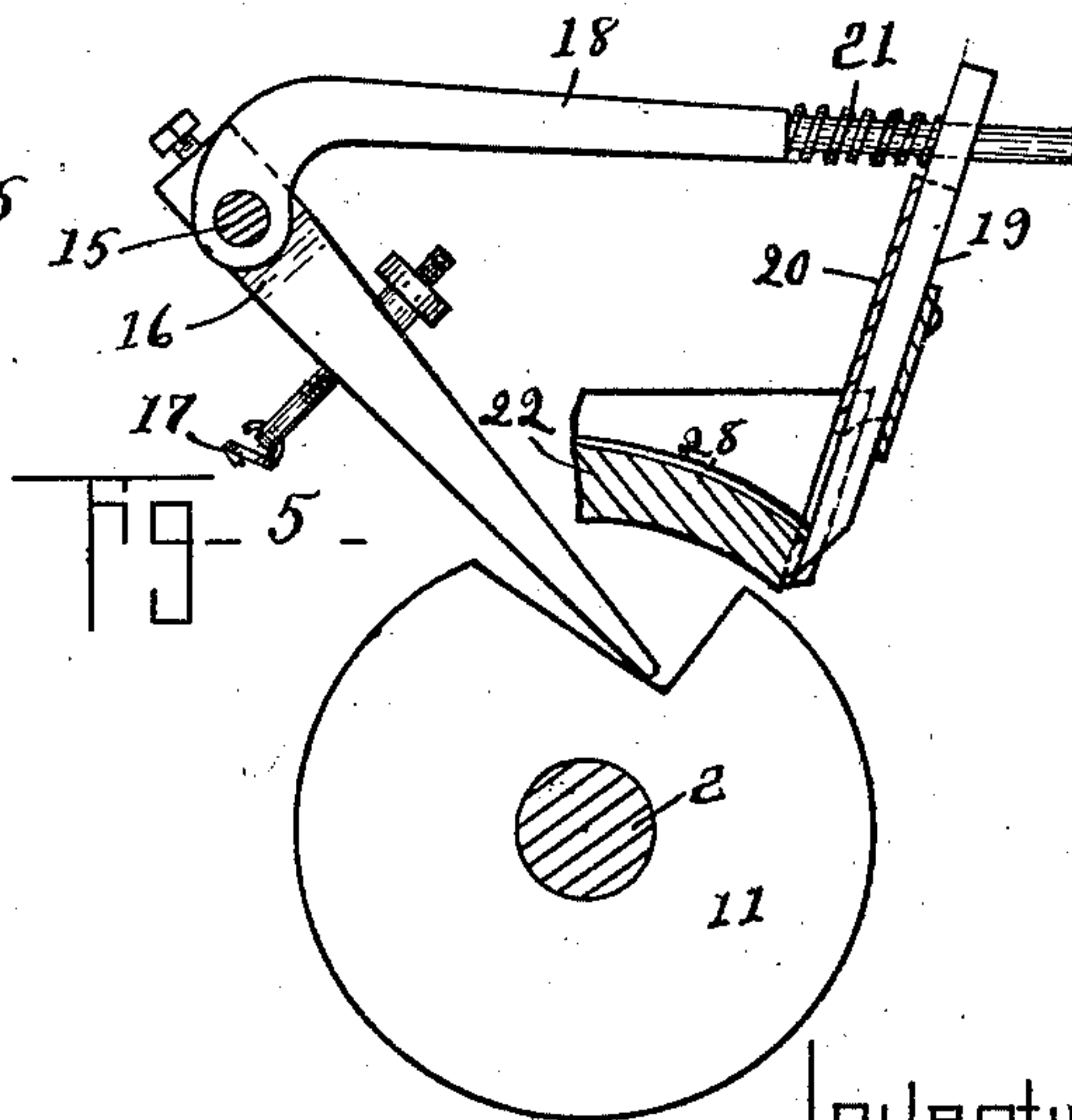
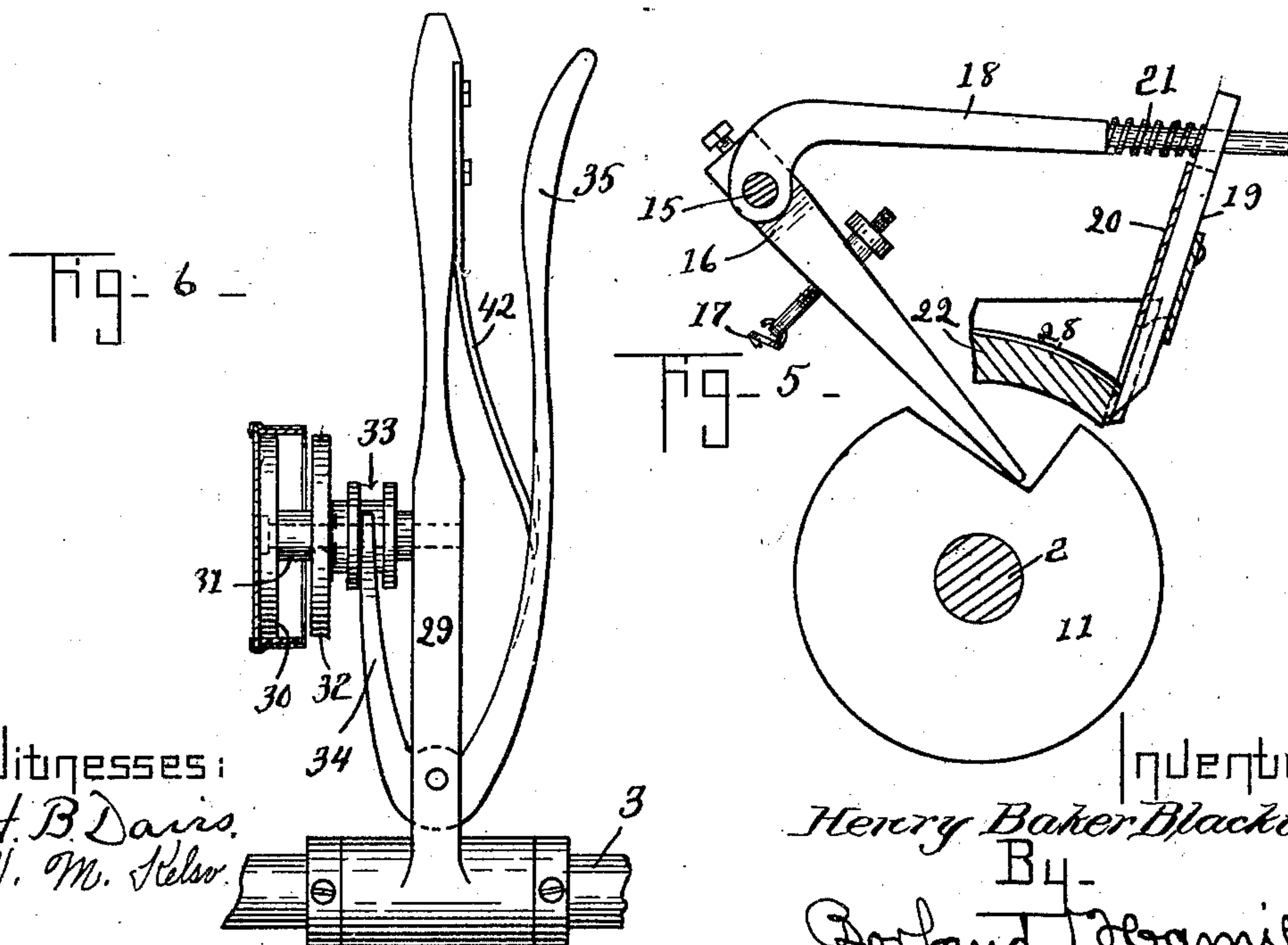
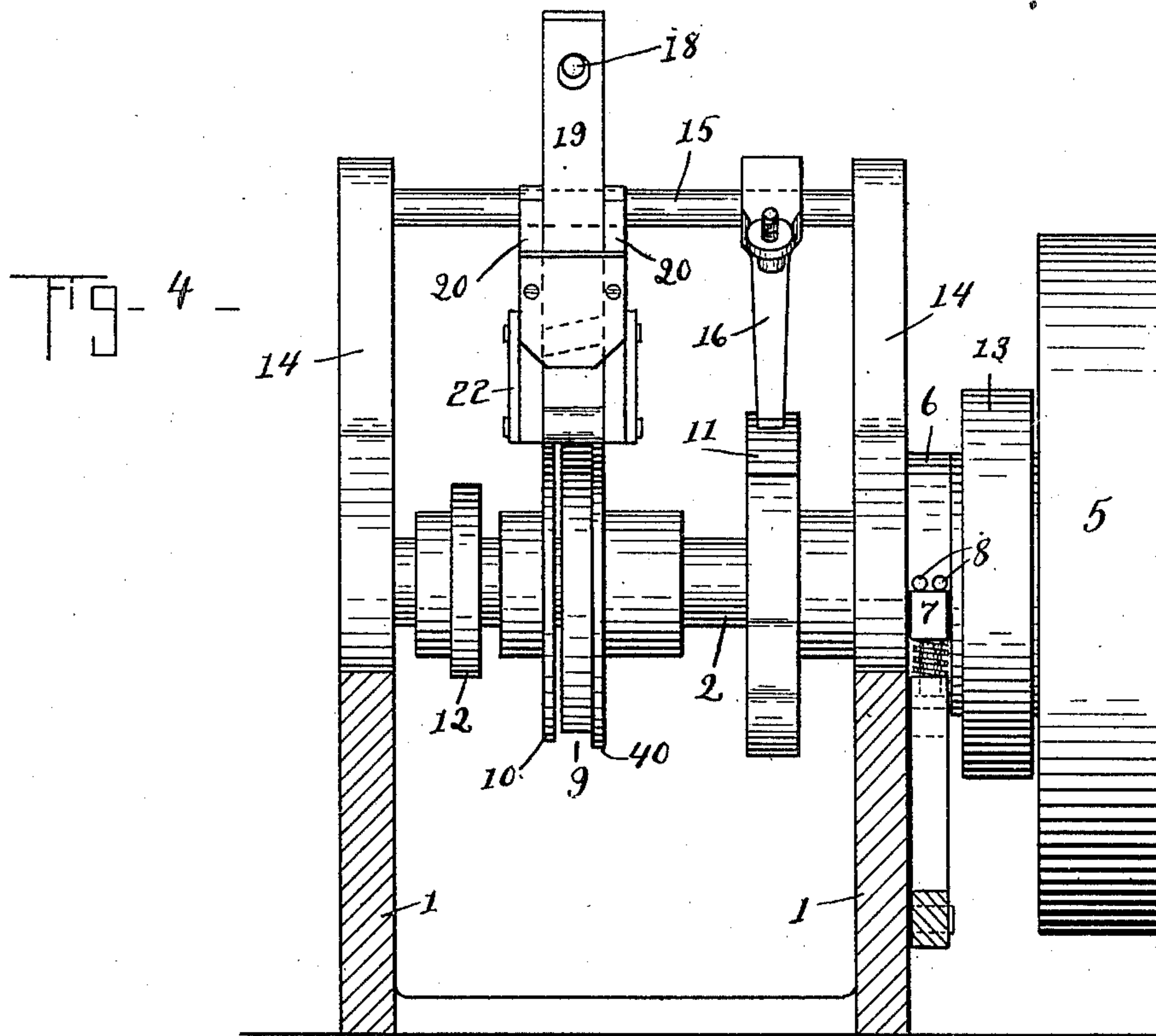
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4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

HENRY BAKER BLACKINTON, OF WINTHROP, MAINE, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO COX AND COMPANY, INCORPORATED, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

MACHINE FOR COVERING BOXES.

SPECIFICATION forming part of Letters Patent No. 688,055, dated December 3, 1901.

Application filed January 7, 1901. Serial No. 42,458. (No model.)

To all whom it may concern:

Be it known that I, HENRY BAKER BLACKINTON, a citizen of the United States, and a resident of Winthrop, in the county of Kennebec and State of Maine, have invented a new and useful Improvement in Machines for Covering Boxes, of which the following is a specification, reference being had to the accompanying drawings, in which—

10 Figure 1 is a plan view of my new machine. Fig. 2 is a side elevation, partly in section, showing the slidable guideway moved to the rear. Fig. 3 is a side elevation, partly in section, showing the slidable guideway moved to the front. Fig. 4 is a sectional front elevation on line A A, Fig. 1. Fig. 5 is a detail showing the cam which operates the knife. Fig. 6 is a detail showing the mechanism for pressing the covering-strip on the inner side walls of the box.

20 My invention relates to improvements in machines which apply an adhesive covering-strip to boxes.

25 One feature of my invention is the mechanism for severing the covering-strip. When a length of the strip sufficient to cover the box has been fed, the strip is severed automatically.

30 Another feature of my invention is the means employed to feed, after the cutting mechanism has operated, a length of the strip sufficient to engage the box at the beginning of the next operation.

35 A third feature of my invention is the finishing mechanism, into contact with which the box is thrown after the cutting mechanism has operated. The strip having been severed and the severed end having been fed out sufficiently to engage the next box the main shaft carrying the press-roll ceases to rotate. To complete the pressing of the strip upon the side surface and bottom of the box and the turning of an edge portion over the mouth of the box, the box-holder is swung forward into contact with the finishing-roll and disk, which rotate continuously.

45 A fourth feature of my invention is the mechanism for pressing an edge portion of the strip upon the inner side walls of the box.

This mechanism is carried wholly upon the lever, in which is journaled the shaft of the box-holder, and is therefore readily operated, thus saving much time and increasing the production.

50 Other features of my invention will be pointed out in the description and claims which follow.

My invention consists in the mechanisms and combinations of mechanisms hereinafter described and claimed.

60 In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle, (see Figs. 1 and 4,) 1 is the supporting-frame, journaled in which are the main shaft 2 and shafts 3 and 4. The main shaft 2 is connected to the driving-pulley 5 through a well-known form of clutch 6, by which the shaft 2 may be made to rotate intermittently revolution by revolution. When the arm 7 engages the lugs 8, the main shaft 2 ceases to rotate, while when the lugs 8 and arm 7 are disengaged the shaft 2 rotates with the driving-pulley 5. This pulley 5 rotates continuously, as does the pulley 13, which is connected by the crossed belt 38 to the pulley 39 on shaft 4.

70 Fast on shaft 2 are the press-roll 9, disk 10, and cams 11 and 12. The standards 14 carry a shaft 15, rotatably mounted therein, and fast on shaft 15 is a finger 16, held in contact with cam 11 by spring 17. (See Figs. 1, 3, and 5.) Another arm 18, fast on the same shaft 15, carries at its free end the knife 19, which slides in frame 20. A spring 21 tends to force the lower end of the knife 19 inwardly. In rear of frame 20 (see Figs. 2 and 3) is the fixed guideway 22, upon the base of which slides the movable guideway 23, which is reciprocated through the link 24, one end of which is connected to the lug 25 and the other end of which engages the cam-groove 26 of cam 12. The movable guideway is grooved or channeled, and is therefore formed with walls on both sides. Through the channel passes the glued covering-strip supported on both sides by the walls, which prevent the strip's curling and aid by their friction in feeding the strip forward. Pivoted on the front end

of the slidable guideway 23 is a pawl 27, which is held by gravity in contact with the covering-strip 28, which passes through guideways 22 and 23 on its way from the gluing apparatus (not shown) to the box.

Free to rotate on shaft 3 is the arm 29, (see Figs. 6, 3, and 1,) which carries the rotary box-holder 30, fast on shaft 31. Slidably mounted on shaft 31 is the plunger 32, a groove 33 upon which is engaged by the forked end 34 of lever 35.

Fast upon shaft 4 is a finishing-roll 36 and disk 37. The shaft 4 is driven continuously by pulley 39, fast thereon, being connected by the crossed belt 38 with pulley 13, which rotates with the main driving-pulley 5.

The operation of my new box-covering machine is as follows: Power is applied to the pulley 5, and the arm 7 being disengaged from the lugs 8 on the clutch 6 the main shaft 2 is caused to rotate. The arm 29 being held in the position shown in full lines in Fig. 3, an uncovered box is mounted by the operator on the box-holder 30. The box is then pressed against the press-roll 9, as shown in dotted lines in Fig. 3, the covering-strip lying between the press-roll 9 and the box on the box-holder 30. It will be understood that the side of the covering-strip next to the box has been previously covered with glue. The press-roll 9 drives the box-holder 30 by frictional contact between the roll and the box and presses the strip against the side walls of the box. The flange 40 on press-roll 9 breaks one edge portion of the covering-strip down over the mouth of the box, while the disk 10 passes the other edge portion upon the bottom of the box. When a proper length of the covering-strip has been wound upon the box, the finger 16 falls into the hollow of the cam 11, as shown in Fig. 5, thereby causing the shaft 15 to rotate and the knife 19 to fall and sever the strip under the force of the spring 17. To complete the pressing of the strip and turning of its edge portions, the operator now forces the box into contact with the finishing-roll 36 and disk 37, for the press-roll 9 ceases to rotate after one revolution by reason of the lugs 8 engaging the arm 7, thereby disengaging the clutch 6. The flange 41 on the finishing-roll 36 completes the turning of the edge portion of the strip over the mouth of the box, while the disk 37 completes the pressing of the edge portion of the strip upon the bottom of the box. The shaft 4, carrying finishing-roll 36 and disk 37, is driven continuously from pulley 13 and by the crossed belt 38 in a direction of rotation opposite to that of shaft 2 and press-roll 9. The strip being pressed on the outside of the box sufficiently, the arm 29 is raised by the operator to a vertical position and the lever 35 is pressed inwardly against the tension of the spring 42, and thereby the plunger 32 is forced into the box, pressing the inturned edge portion against the inner side walls of the box. Meanwhile the rotation of cam 12 has caused the slid-

able guideway 23 to move to the rear, and this rearward movement is completed after the strip is severed by the knife 19, the effect of which is to cause the strip to be drawn away from the back of the knife, as shown in Fig. 2, thereby preventing the end of the strip from clinging to the knife. Upon further rotation of the cam 12 the slidable guideway moves forward and the pawl 27 pushes the strip out, as shown in Fig. 3, ready to receive the next box. The main shaft 2 having by this time made one complete revolution, the lugs 8 on the clutch 6 again engage the arm 7, and thereby cause the main shaft to cease to rotate.

What I claim is—

1. The combination of a supporting-frame; a driving mechanism; a press-roll shaft driven by said driving mechanism; a press-roll which is mounted on said shaft and which rotates by frictional contact a box-holder upon which the box is mounted; said rotary box-holder; a cutter; and a controlling mechanism driven from said press-roll shaft to operate automatically said cutter to sever the covering-strip.

2. The combination of a supporting-frame; a driving mechanism; a press-roll shaft driven by said driving mechanism; a press-roll which is mounted on said shaft and which rotates by frictional contact a box-holder upon which the box is mounted; said rotary box-holder; a cam fast upon said press-roll shaft; a lever upon one end of which is mounted a cutter and the other end of which is pressed upon said cam; and said cutter.

3. The combination of a box-holder; a press-roll; a cutting mechanism for severing the covering-strip; and a strip-feeding mechanism comprising a movable guideway for the strip and means for reciprocating said guideway.

4. The combination of a rotary box-holder upon which the box is mounted; a press-roll which rotates said box and its holder by frictional contact with said box and presses the covering-strip on said box; a cutting mechanism for severing the covering-strip; and mechanism for feeding said strip after it is severed.

5. The combination of a rotary box-holder upon which the box is mounted; a press-roll which presses the covering-strip on said box; a cutting mechanism for severing the covering-strip; a finishing-roll into contact with which the box is thrown after said strip is severed; and a driving mechanism.

6. The combination of a rotary box-holder upon which the box is mounted; a press-roll which rotates said box and its holder by frictional contact and presses the covering-strip on said box; a cutting mechanism for severing the covering-strip; a finishing-roll formed with a flange for turning an edge portion of the strip over the mouth of the box after said strip is severed; and a driving mechanism.

7. The combination of a rotary box-holder upon which the box is mounted; a press-roll

which presses the covering-strip on said box; a cutting mechanism for severing the covering-strip; a finishing-roll into contact with which the box is thrown after said strip is severed; mechanism for pressing an edge portion of said strip upon the bottom of the box; and a driving mechanism.

8. A box-covering machine comprising the combination of a driving mechanism; a supporting-frame; a rotary box-holder upon which the box is mounted; a press-roll which presses the strip on the box; a cutting mechanism for severing the strip; mechanism for feeding the strip after it is severed; a finishing-roll; and mechanism for pressing an edge portion of the strip against the inner side walls of the box.

9. A box-covering machine comprising the combination of a driving mechanism; a supporting-frame; a rotary box-holder upon which the box is mounted; a press-roll which rotates the box and its holder by frictional contact and presses the strip on the box; a cutting mechanism for severing the strip; mechanism for feeding the strip after it is severed; a finishing-roll; and mechanism for pressing an edge portion of the strip upon the bottom of the box.

10. A mechanism for pressing an edge portion of the covering-strip upon the inner side walls of the box comprising the combination of a box-holder upon which the box is mounted; an arm in which is journaled the shaft upon which said box-holder is mounted; said shaft; a plunger mounted upon and slidable

along said shaft; and a lever mounted upon said arm for forcing said plunger into the box.

11. In a box-covering machine, the combination of a supporting-frame; a driving mechanism; a movable guideway through which the covering-strip passes; means operatively connecting said movable guideway with said driving mechanism to reciprocate said guideway and thereby move the strip; mechanism for severing the covering-strip; and controlling means operatively connecting said severing mechanism with said driving mechanism to sever the covering-strip just before said guideway attains the limit of its rearward travel.

12. In a box-covering machine, the combination of a supporting-frame; a driving mechanism; a movable guideway through which the covering-strip passes; means operatively connecting said movable guideway with said driving mechanism to reciprocate said guideway and thereby move the strip; and mechanism for severing the covering-strip.

13. In a box-covering machine, the combination of a supporting-frame; a reciprocating guideway through which said strip passes; mechanism mounted on said guideway for engaging said strip; mechanism for reciprocating said guideway; and mechanism for severing the covering-strip.

Dated this 21st day of December, A. D. 1900.

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