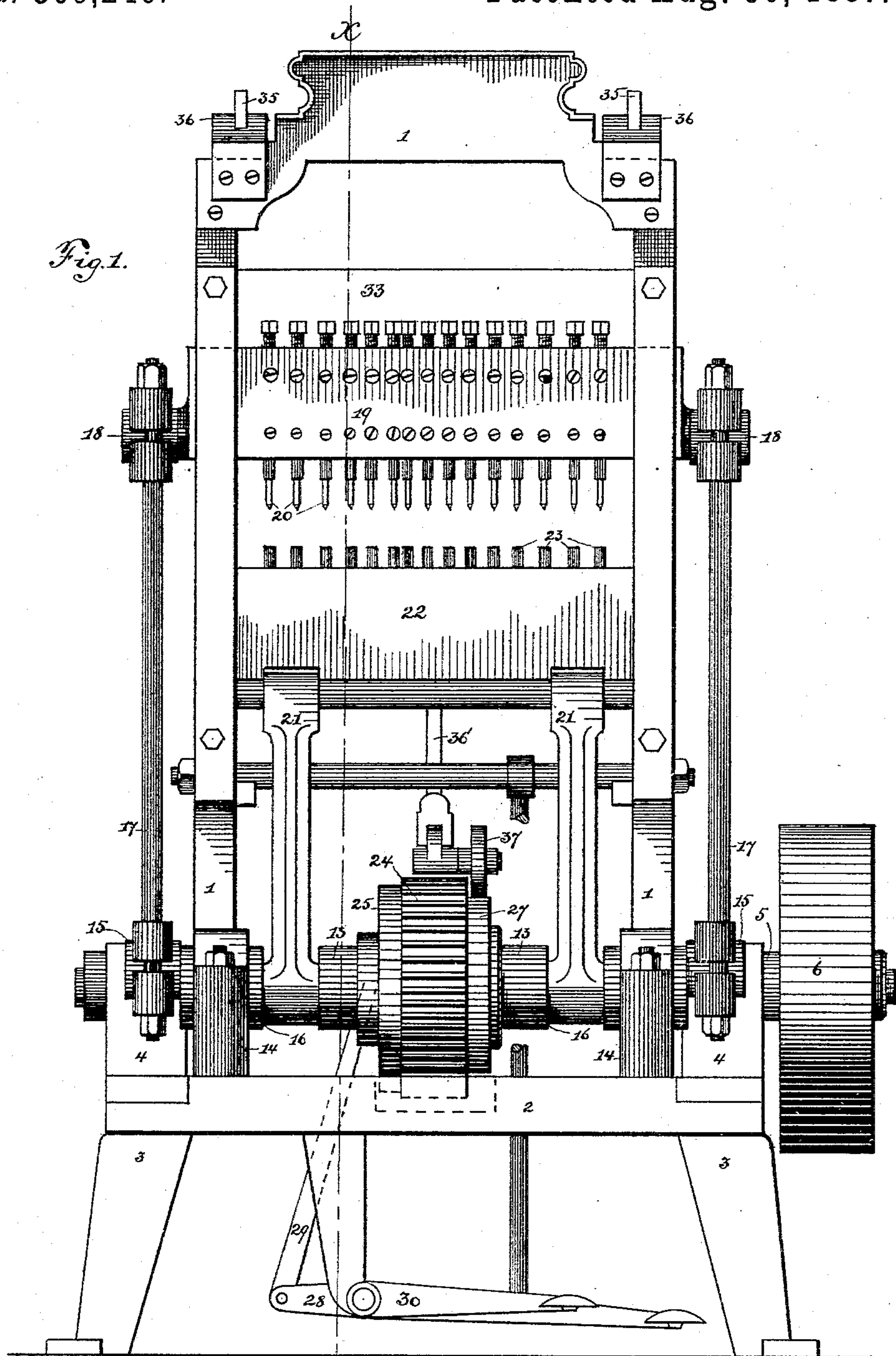


J. A. HOUSE.
EYELETING MACHINE.

No. 369,246.

Patented Aug. 30, 1887.



Witnesses,
S. Williamson
C. L. Hubbard

Inventor
James Alford House
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attorneys

(No Model.)

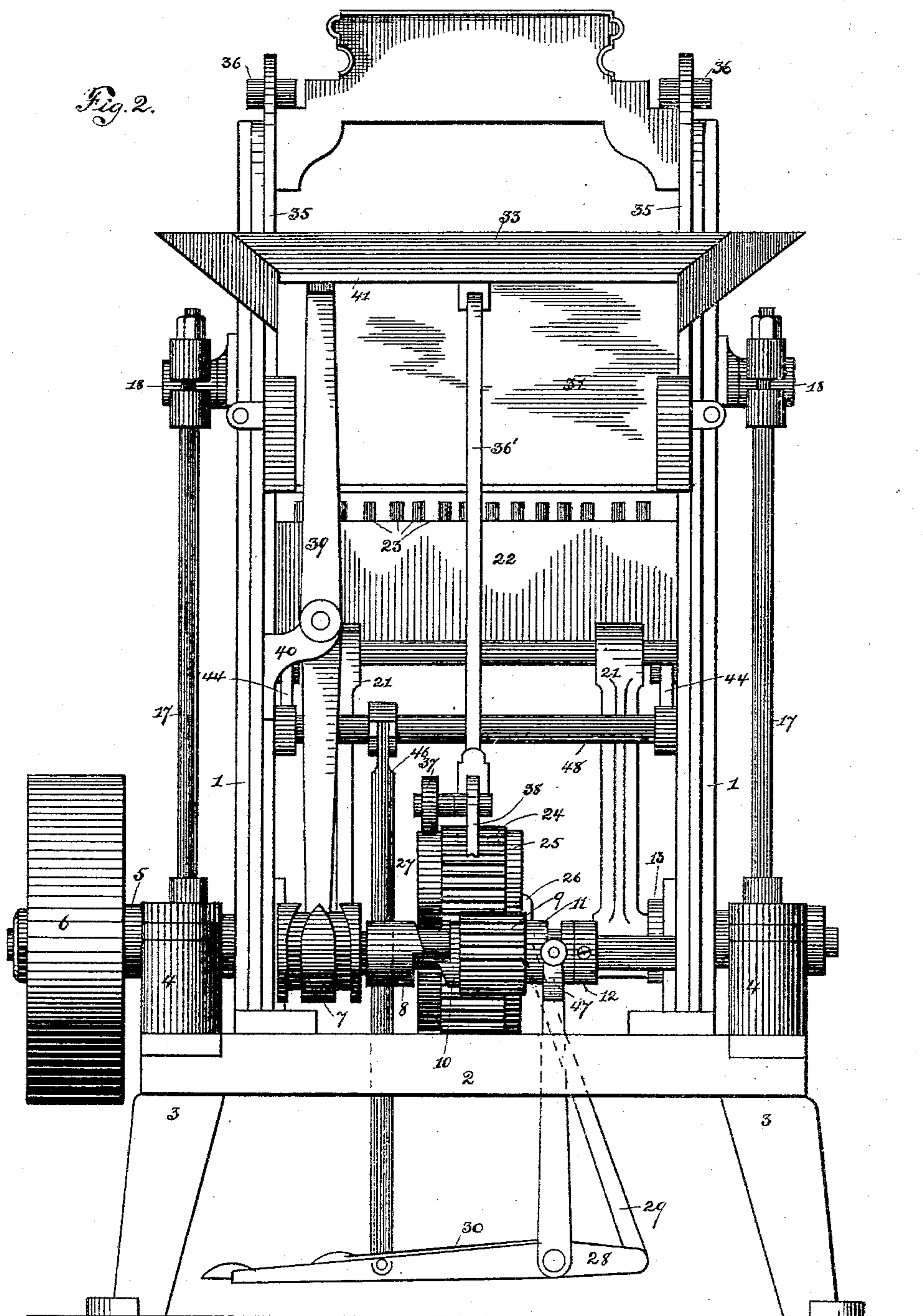
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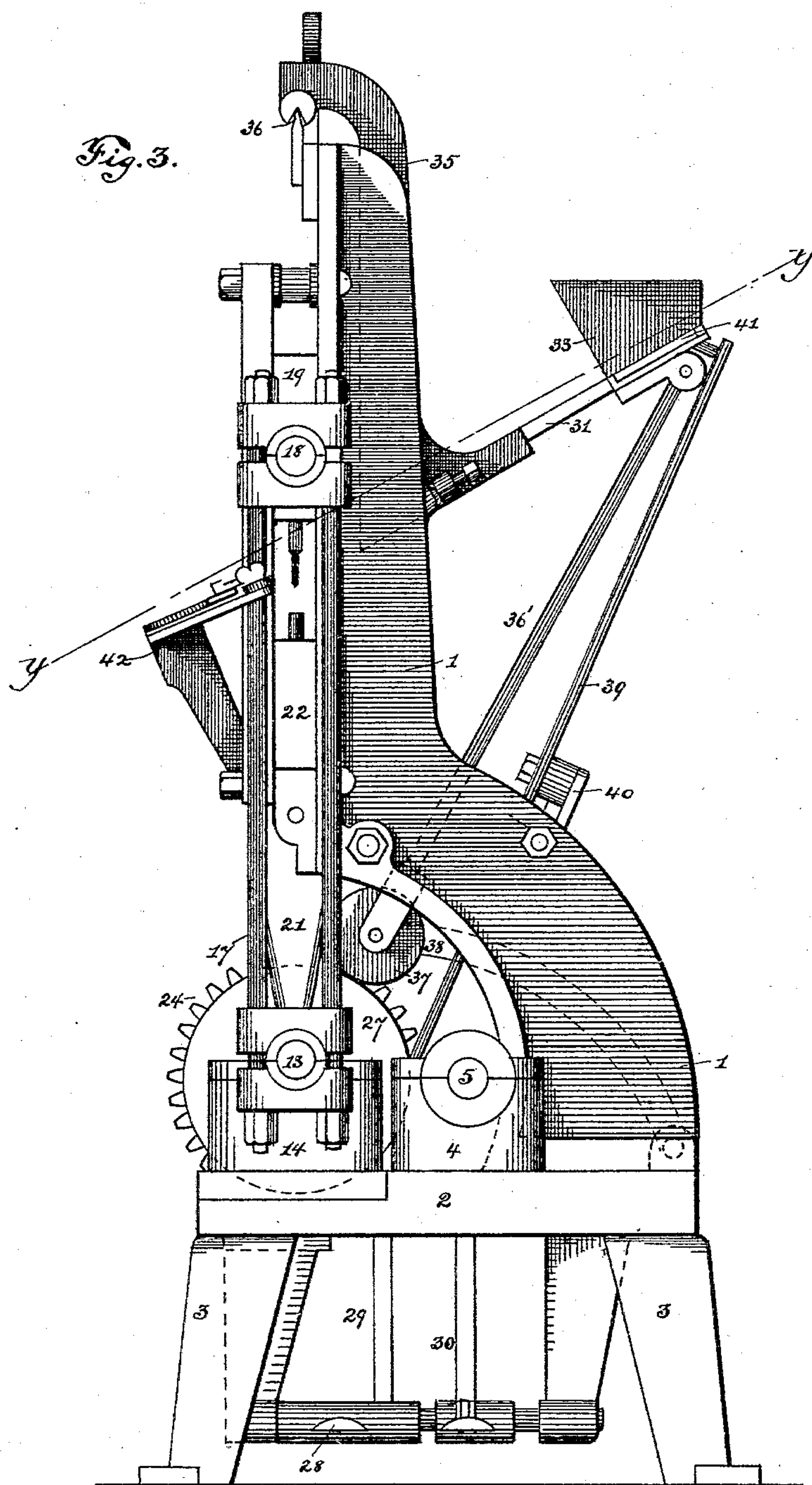
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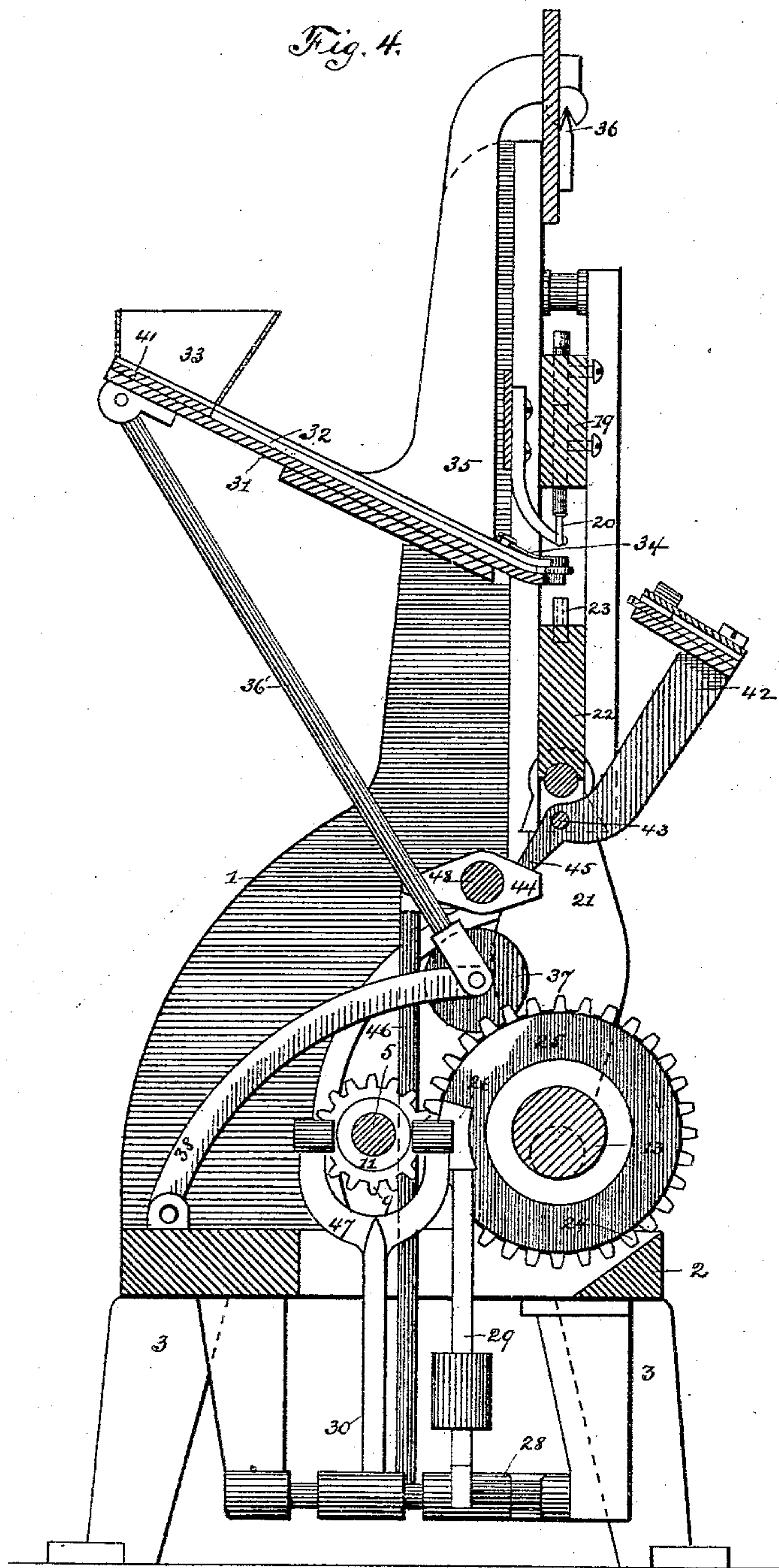
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5 Sheets—Sheet 5.

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Fig. 5.

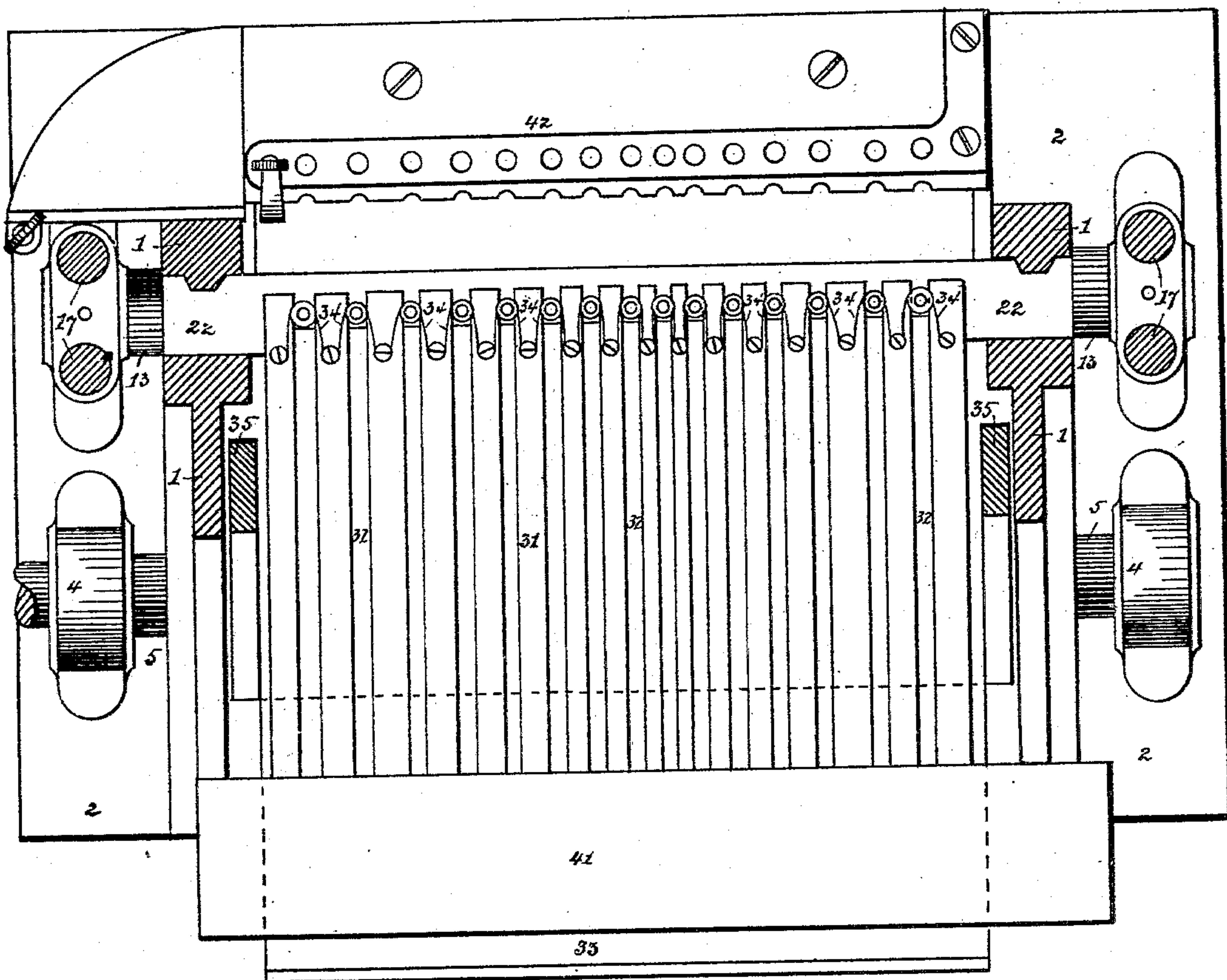
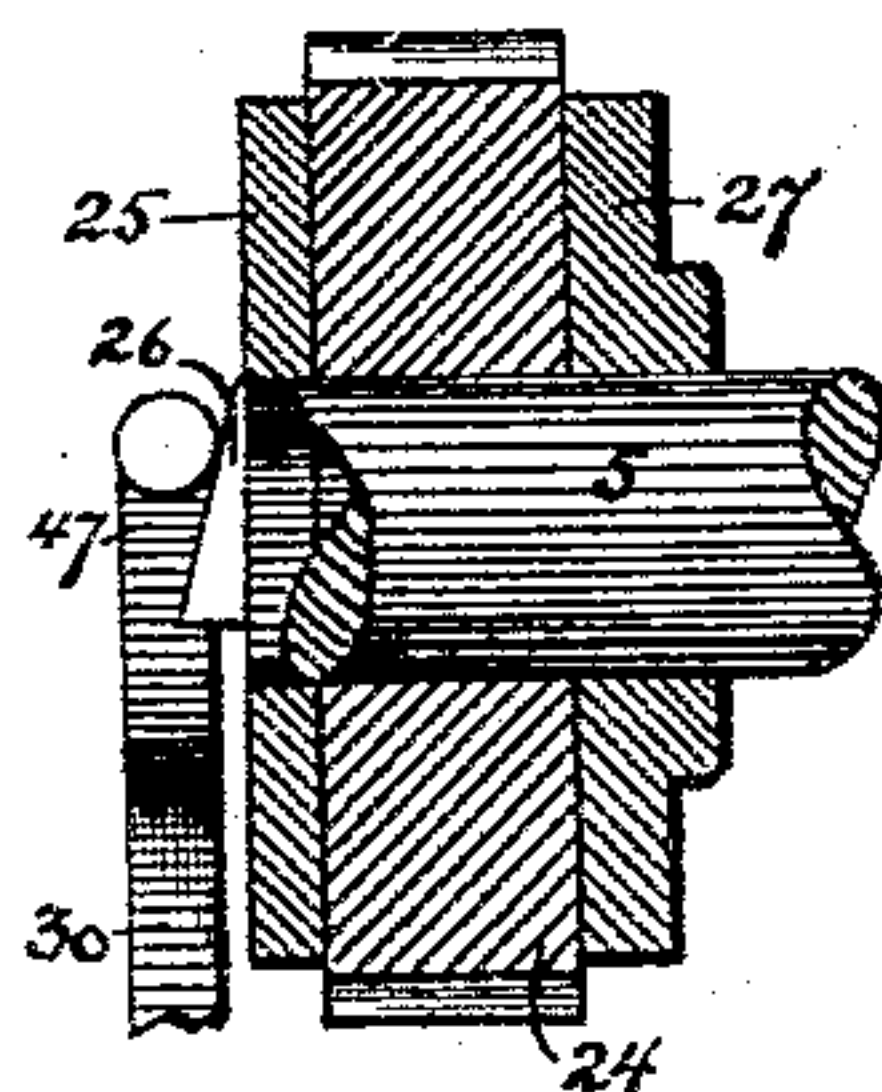


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES ALFORD HOUSE, OF BRIDGEPORT, CONNECTICUT.

EYELETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 369,246, dated August 30, 1887.

Application filed April 11, 1887. Serial No. 234,335. (No model.)

To all whom it may concern:

Be it known that I, JAMES ALFORD HOUSE, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Eyeletting-Machines; and I do hereby 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.

My invention relates to certain new and useful improvements in corset-eyeletting machines, and has for its object to provide a machine which shall be strong and simple in its construction, which shall be adapted to feed and set simultaneously the whole number of eyelets which are necessary to be inserted along the rear edge of the corset-section, and which shall, furthermore, be so arranged that the section to be eyeleted must be in its proper position beneath the punches before the mechanism for feeding and upsetting the eyelets can act; and with these ends in view my invention consists in the details of construction hereinafter fully set forth, and then recited in the claims.

In order that those skilled in the art to which my invention appertains may more fully understand how to make and use my improvements, I will describe the same in detail, referring by figures of reference to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a front elevation of my machine, the work-table being removed; Fig. 2, a rear elevation; Fig. 3, an end elevation; Fig. 4, a vertical section taken at the line *xx* of Fig. 1; Fig. 5, a section taken at the line *yy* of Fig. 3, showing the feeding-plate in plan view. In this figure the feed-box is omitted. Fig. 6 is a detail section of the clutch mechanism.

Similar figures of reference indicate like parts in all the figures of the drawings.

1 is the vertical frame of the machine; 2, a horizontal table from which the frame extends, and 3 are suitable legs upon which the table and frame aforesaid are upheld.

4 are journal-blocks mounted upon the table 2. 5 is the main shaft, which turns in said journals, and 6 is the driving-pulley, whereby said shaft is rotated. Secured upon

and carried by shaft 5 are a switch-cam, 7, and a clutch, 8, whose functions will be hereinafter more fully explained.

9 is a gear having at either end thereof and fast thereto the clutch 10 and collar 11, respectively. The gear, clutch, and collar are journaled on shaft 5, which revolves within them, except as will be presently set forth.

12 is an abutment-collar secured on and carried by the shaft aforesaid.

13 is the pitman-shaft, journaled near its ends in bearings 14 on the table. This shaft has two pairs of cranks or eccentrics formed thereon—viz., a pair numbered 15 at its ends, outside the bearings 14, and another pair, 16, inside the said bearings. The eccentrics 15 and 16 are set at one hundred and eighty degrees to each other, as may be seen by reference to Fig. 1.

17 are pitmen connected at one end to cranks 15, and at the other end to wrists 18, formed on a sliding bar, 19, which latter is adapted to be actuated vertically through the pitmen last aforesaid.

20 are eyelet-punches which project downwardly from the bar 19, and which are preferably adapted for removal and adjustment.

21 are other pitmen connected to eccentrics 16, and also to the bottom of another vertically-sliding bar, 22, which is arranged in ways in the frame, and which has upon its top edge a series of flanging-dies, 23, corresponding to the punches on the upper bar. The arrangement of the eccentrics and pitmen aforesaid is such as to draw the bars toward each other at each revolution of the shaft 13, and then to return them to their normal position, which is as shown at Fig. 1.

24 is a gear-wheel secured upon and carried by shaft 13. Its teeth mesh with the teeth of the smaller gear, 9, which imparts rotation thereto at certain times, as will hereinafter be fully set forth.

25 is a disk journaled on the shaft 13 and carried by friction with gear 24. It is not so tight against the latter, however, but that it may be moved independent thereof. Said disk has upon its outer face a wedge, 26. (See Figs. 1 and 4.)

27 is a cam secured upon the gear 13 at the side opposite to the friction-disk last described.

28 is a foot-lever pivoted beneath the machine, and 29 is a pawl extending from the end of said lever upward and resting its end against the friction-disk, as seen at Fig. 4.

30 is a pivoted bell-crank lever whose upwardly-extending arm is yoked at 47. The yoke engages collar 11, and is adapted, when the lower arm of the lever is depressed, to move the said collar and the gear and clutch lengthwise of the shaft 5. At the rear of the machine is arranged the feeding-plate 31, having formed therein guideways 32, through which the eyelets are fed from the feed-box 33 at the top of the plate to the punches. Springs 34 prevent the eyelets from slipping out of the guideways by gravity, but they are not sufficiently powerful to prevent the said eyelets being readily withdrawn from their grasp. The feeding-plate and feed-box are hinged upon brackets 35, which rest upon knife-edges 36 at the top of the frame, (see Figs. 2 and 4,) and the plate and box are further supported and also receive a backward rocking movement on the knife-edges from a rod, 36', whose wheel 37 rests on the periphery of cam 27, and the said rod is steadied by a pivoted brace, 38, which extends from the wheel to the table, as seen at Fig. 4.

39 is a lever pivoted at its center to a bracket, 40, on the frame, and extending from the sliding bottom 41 of the feed-box to the switch-cam 7, which, through a shoe or roll, serves to oscillate said lever on its pivotal point, and thereby to reciprocate the bottom of the feed-box across the top ends of the eyelet channels or guideways, so that eyelets are constantly introduced therein.

42 is the work-supporting table, pivoted at 43 to the frame and adapted to be turned on its pivotal point upward to bring the work into proper position relative to the punches. Upon said work-table is superposed a binding-strip, and between said table and strip the corset is drawn, so as to be tightly held while being operated upon.

44 are swinging stops secured on the short shaft 48, and against these stops the extensions 45 on the table abut when in the position shown at Fig. 4. A rod, 46, secured through a short arm to shaft 48, connects the latter to the foot-lever 28. The effect of this connection is to prevent any movement of the said foot-lever while the table is engaging said stops.

The operation of my invention is as follows: The corset-section is placed in position on the work-table by drawing it longitudinally beneath the binding-strip, (see Fig. 5,) and the table is then turned from its normal position, Fig. 4, upward to bring the work between the punches and the dies. This movement of the table frees the stops 44 and the rod, so that the treadle 28 may be depressed by the foot of the operator. When the work is in position, as aforesaid, the treadle 28 is first depressed. The wedge 26, when the machine is at rest, is interposed between the disk, of which it forms

a part, and the yoked portion of the bell-crank lever, and the end of the pawl 29 rests against the surface of the disk directly beneath the wedge. The wedge is therefore an obstacle to any sliding movement of the gear 9 and its collar and clutch on the shaft. The depression of the foot-lever 28 through the pawl 29, which engages the wedge, rotates the disk independent of the gear 24, and raises the wedge out of the path of the yoke on the bell-crank, so that the latter is free upon pressure applied to lever 30 to slide the gear 9 and its clutch and collar along the shaft. When so moved, the clutch 10 engages clutch 8, which is constantly revolving with the shaft, and thereby, through gear 9, gear 24 is caused to turn. The rotation of the shaft 13, effected by the gear last referred to, draws the bars 19 22 together and sets the eyelets firmly in the corset-section, as will presently more fully appear. When the gear 24 starts, it carries with it by friction the disk 25, and when the former has completed one turn the wedge 26 on the latter forces itself behind the yoke of the bell-crank, withdraws the clutch 10 out of engagement with the clutch 8, and the machine stops. The arrangement described—viz., the use of two levers, both of which must be depressed—is adopted so that accidental starting may be rendered improbable, and the abutment of the work-table against the stops which connect with lever 28 is thought necessary so that the machine cannot be set in motion unless the work is in proper position between the punches. These features are found to secure great uniformity of the finished work, since it would be difficult to run the machine in any but the right way. The feed-plate, which has the channels for the proper slide of the eyelets, has the feed-box mounted at its upper end, and the reciprocation of the bottom of the said box, upon which the eyelets lie, constantly carries said eyelets back and forth before the openings of the channels, so that the latter are constantly kept filled. The position of the plate when the punches first commence their descent is such that the end eyelet of each channel is taken on the point of one of the punches, which then pierce the fabric of the corset-section. Were it not for the rocking movement now imparted to the feeding-plate the said plate would be caught between the dies and the enlarged top portion of the punches. At this time, however, after the punches have pierced the goods, and before the eyelets have been flanged, the cam-surface 27 raises the rod 36', and the plate is rocked back on its pivotal point out of the way of the punches. As it recedes, the eyelets which have been taken on the punches are drawn from the grasp of the springs, and new eyelets slide by gravity into proper position at the ends of the channels. As the punches and dies come together, the eyelets are properly flanged and compressed, as in ordinary machines for setting eyelets. When the punches have again receded, the plate returns

by gravity to its normal position. When the table has been turned upward to present the work to the punches and the lever 28 has been depressed, the shaft 48 turns on its axis, and the stops lock the table in its upturned position till, by the raising of the foot-lever, the shaft 48 and the stops are rotated back to the position in which they are shown at Fig. 4, and the table thereby released.

10 Having thus described my invention, I claim—

1. The combination, in a machine of the character described, with the upper and lower bars arranged to slide in ways and carrying punches and dies, as described, of the shaft having two pairs of eccentrics arranged at one hundred and eighty degrees thereon, and two pairs of pitmen connected, respectively, to the said eccentrics and to the upper and lower bars and adapted to actuate them toward and from each other, all operating substantially as and for the purpose set forth.

2. The combination, with the bars arranged to slide in the ways, as described, and having the punches and dies mounted thereon, of the pitman-shaft and pitmen for actuating the said bars, the continuously-rotating main shaft, and means, as a pair of gears, for connecting the two shafts together, all operating substantially as described.

3. The combination, with the punch and die-bars, the pitmen, the pitman-shaft, and the gear secured thereon, of the main shaft and its loose gear meshing with the pitman-shaft gear, a pair of clutches secured the one on the loose gear, the other on the main shaft, and means, as described, for engaging the two clutches, whereby movement is imparted to the pitman-shaft, substantially as set forth.

4. The combination, with the pitman-shaft and the gear secured thereon, of the main shaft and the loose gear and clutch, the disk and wedge carried by the gear on the pitman-shaft, the lever and pawl for the partial rotation of the disk and wedge, and the bell-crank lever adapted to move the loose gear and clutch longitudinal of the shaft, substantially as set forth.

5. The combination, with the bars and the dies and punches carried thereby, of the feeding-plate whereby the eyelets are presented to the punches, the feed-box mounted upon said feeding-plate, and means, as described, whereby said plate may just before the flanging of the eyelets be withdrawn out of the path of the punches, substantially as set forth.

6. In a machine of the character described, the inclined feeding-plate supported upon brackets hung from above upon a rocking bearing and having the feed-box mounted thereon, in combination with means—as a cam and connecting-rod—whereby at certain predetermined times the said feeding-plate may be rocked backward upon its point of support

out of the path of the punches and dies, substantially as set forth.

7. In a machine of the character described, the feeding-plate and box supported by means of brackets arranged to swing upon a pivotal point from above, and means, as described, for imparting to said plate its rocking movement, in combination with the punch and die-bars, the pitmen and pitman-shaft, and mechanism, as set forth, for effecting connection between the pitman-shaft and main shaft, substantially as and for the purpose described.

8. The combination, with the punch and die-bars, and means, as described, whereby they are actuated toward and away from each other, of the pivoted work-table adapted to be swung upward to present the work held thereon to the punches, and then to be withdrawn out of the path of their descent, substantially as specified.

9. The combination, with the punch and die-bars and their appropriate operating mechanism, of the pivoted work-table, the locking-stops engaged by said work-table, and a connection from said stops to the starting mechanism, whereby the latter is controlled by the position of the table, substantially as set forth.

10. The combination, in a machine of the character described, with the continuously-revolving shaft and the clutches and gear and the levers the same constituting the starting mechanism, and the pivoted work-table, of locking-stops interposed between said starting mechanism and the table and adapted to lock the former, except at such times as the latter is withdrawn out of its engagement with said stops, substantially as set forth.

11. In a machine of the character described, the combination, with the starting-levers, of the pivoted locking-stops connected therewith and the pivoted work-table adapted to be swung into or out of the path of said locking-stops, whereby when said table is down the starting-levers are locked fast and when said table is properly presented to the punches said starting-levers are released, substantially as and for the purpose specified.

12. In a machine of the character described, the combination, with the main shaft, the sliding bars and pitmen, and the means for connecting the two shafts together, of the rocking feeding-plate and the rod and cam for swinging the same out of the path of the dies and punches, and the pivoted work-table and the locking mechanism under the control of the latter and whereby the starting mechanism is locked or released, according to the position of the table, substantially as set forth.

13. In an eyeleting-machine, the shaft 13, having the gear 24 and the disk and cam 25 arranged upon either side thereof, in combination with the main shaft, the gear 9, and clutches 8 10, arranged thereon, and the levers

and their connections for imparting longitudinal movement to the said gear 9 and its connections, substantially as described.

14. The combination, with the eyelet-setting
5 mechanism, of the feeding-plate adapted to carry the eyelets to the punches, said plate being hung from the top portion of the frame and adapted to have a swinging movement, the feed-box mounted at the top of the feed-

ing-plate, the sliding bottom of the said box, 10 and the lever connected to the latter and also to the main shaft, substantially as specified.

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

JAMES ALFORD HOUSE.

Witnesses:

S. H. HUBBARD,

S. S. DIMOND.