

No. 668,280.

Patented Feb. 19, 1901.

R. C. BERRY.

LETTER OPENING MACHINE.

(Application filed July 8, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

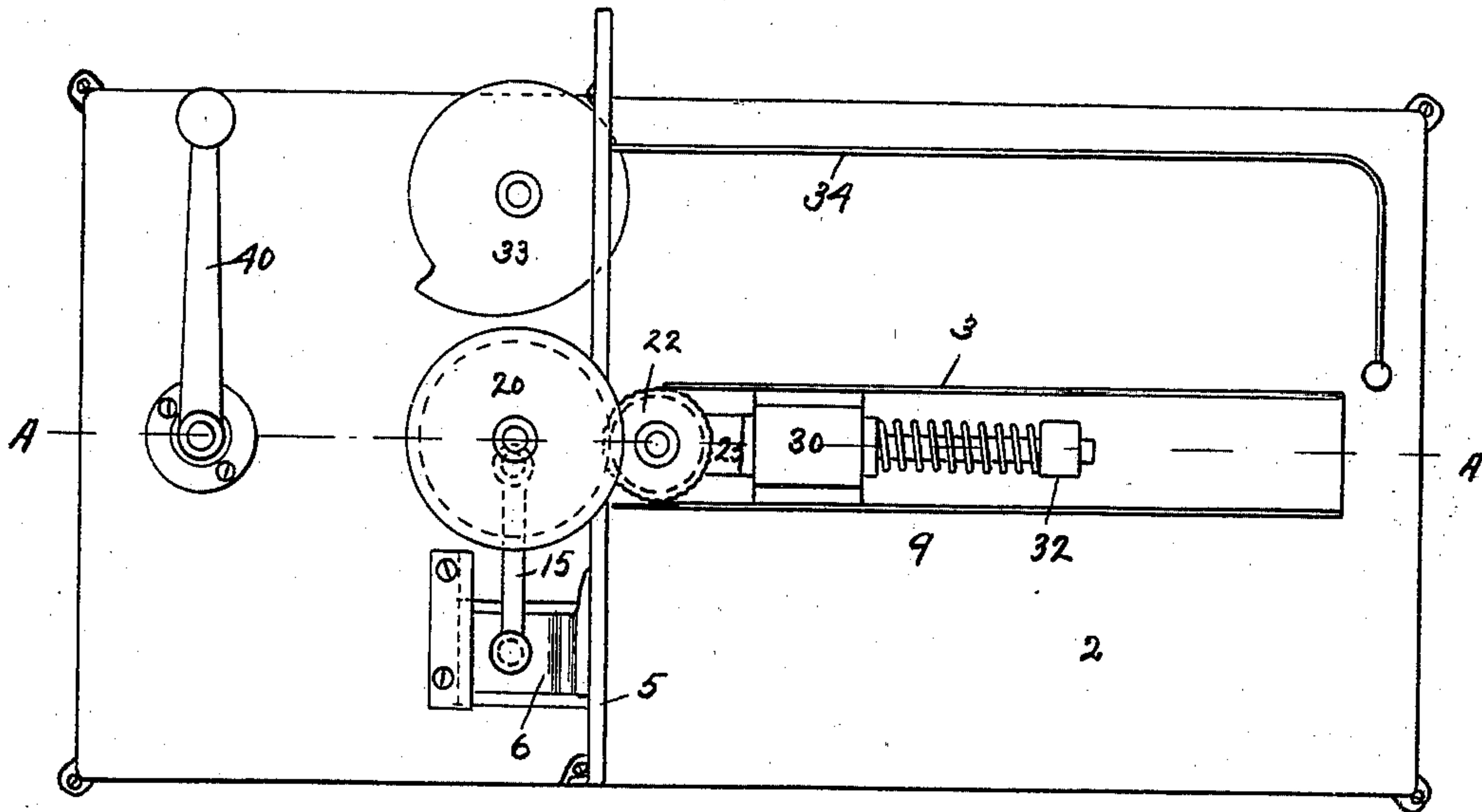
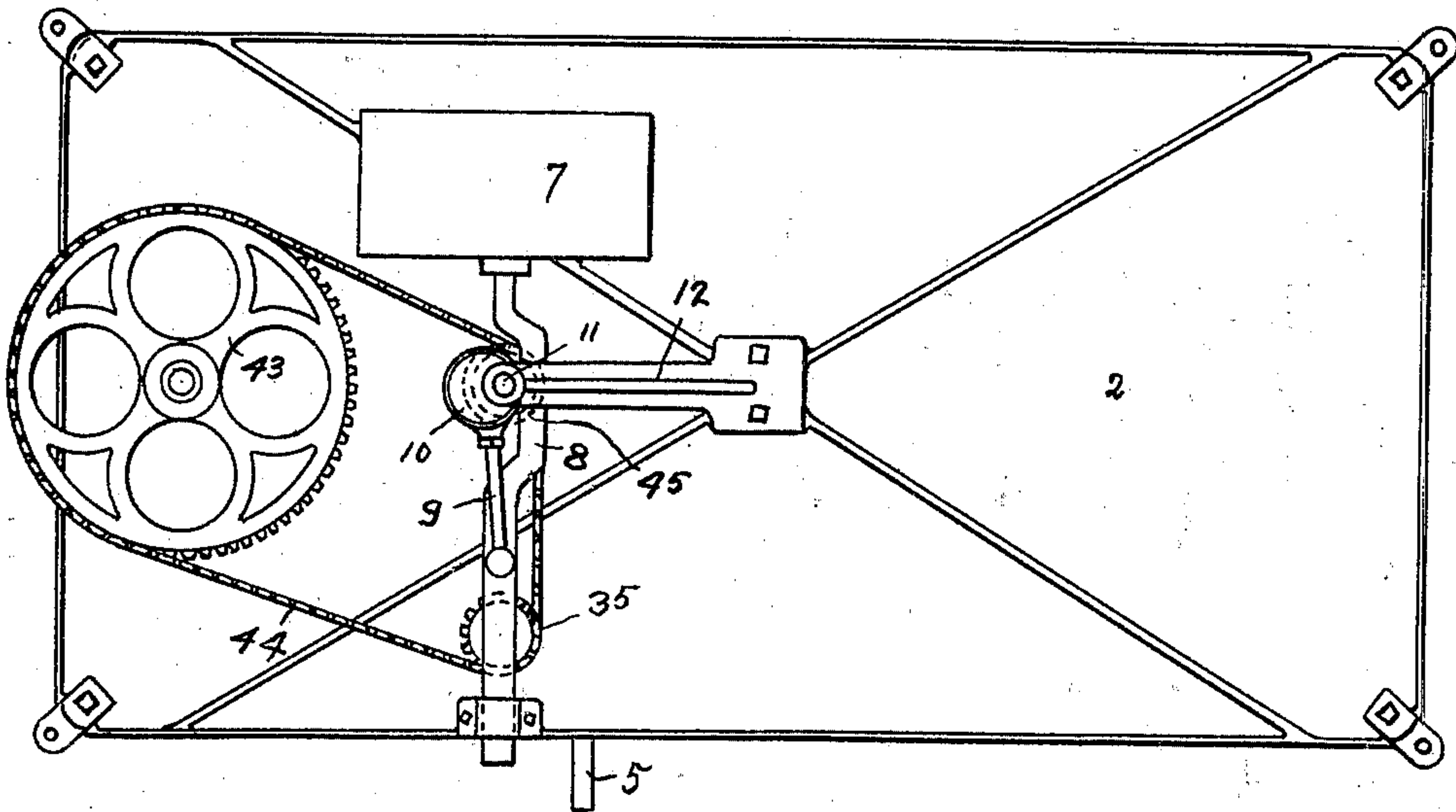


Fig. 2.



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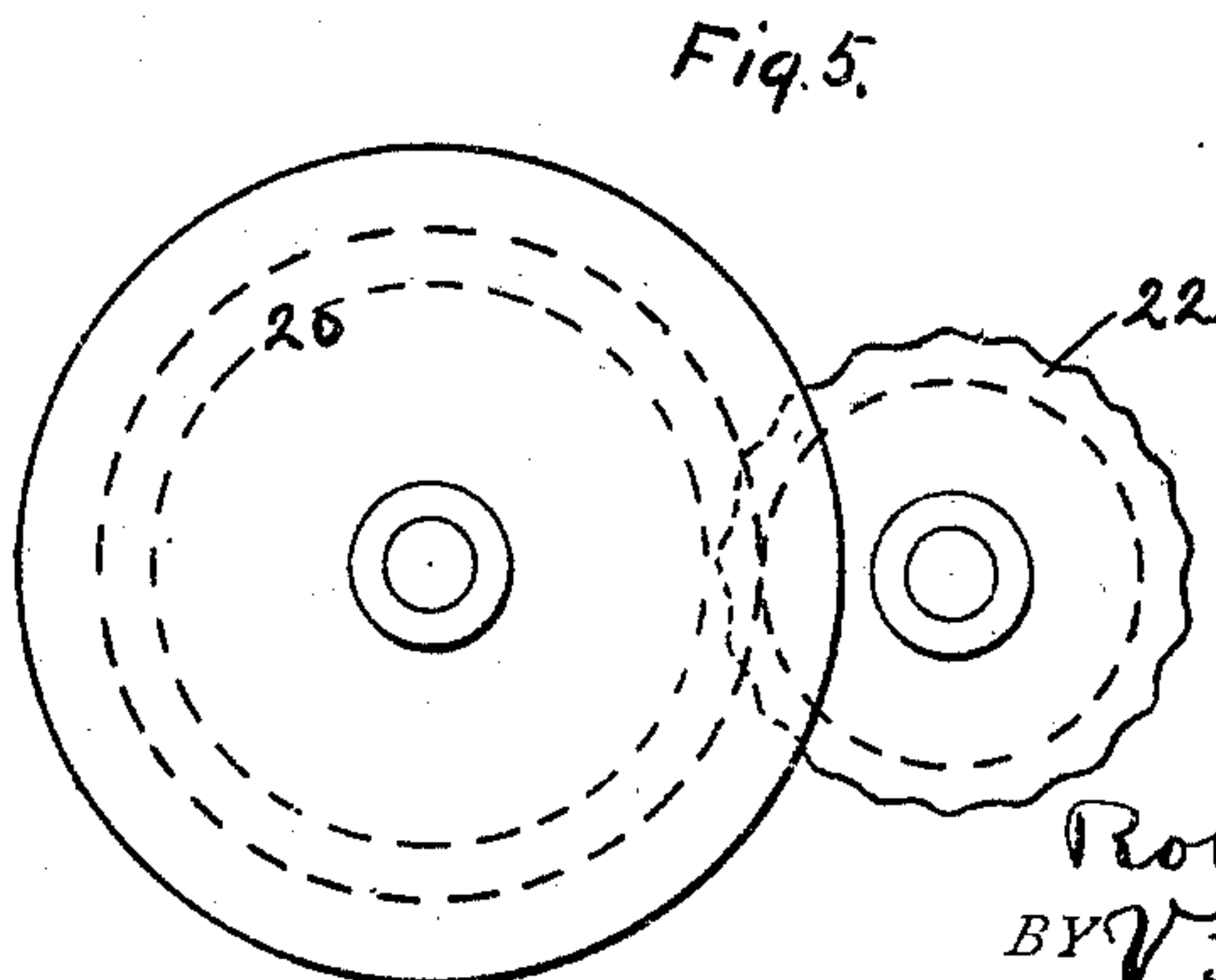
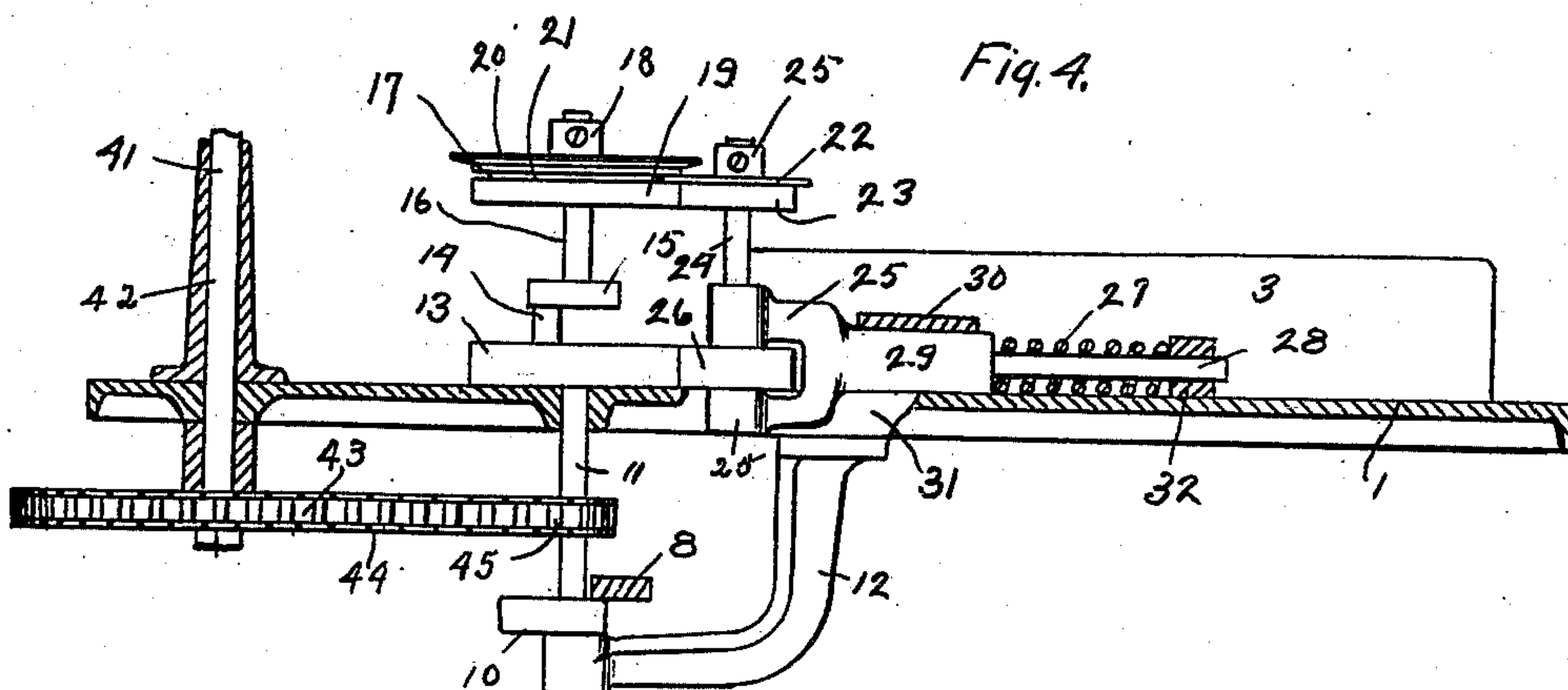
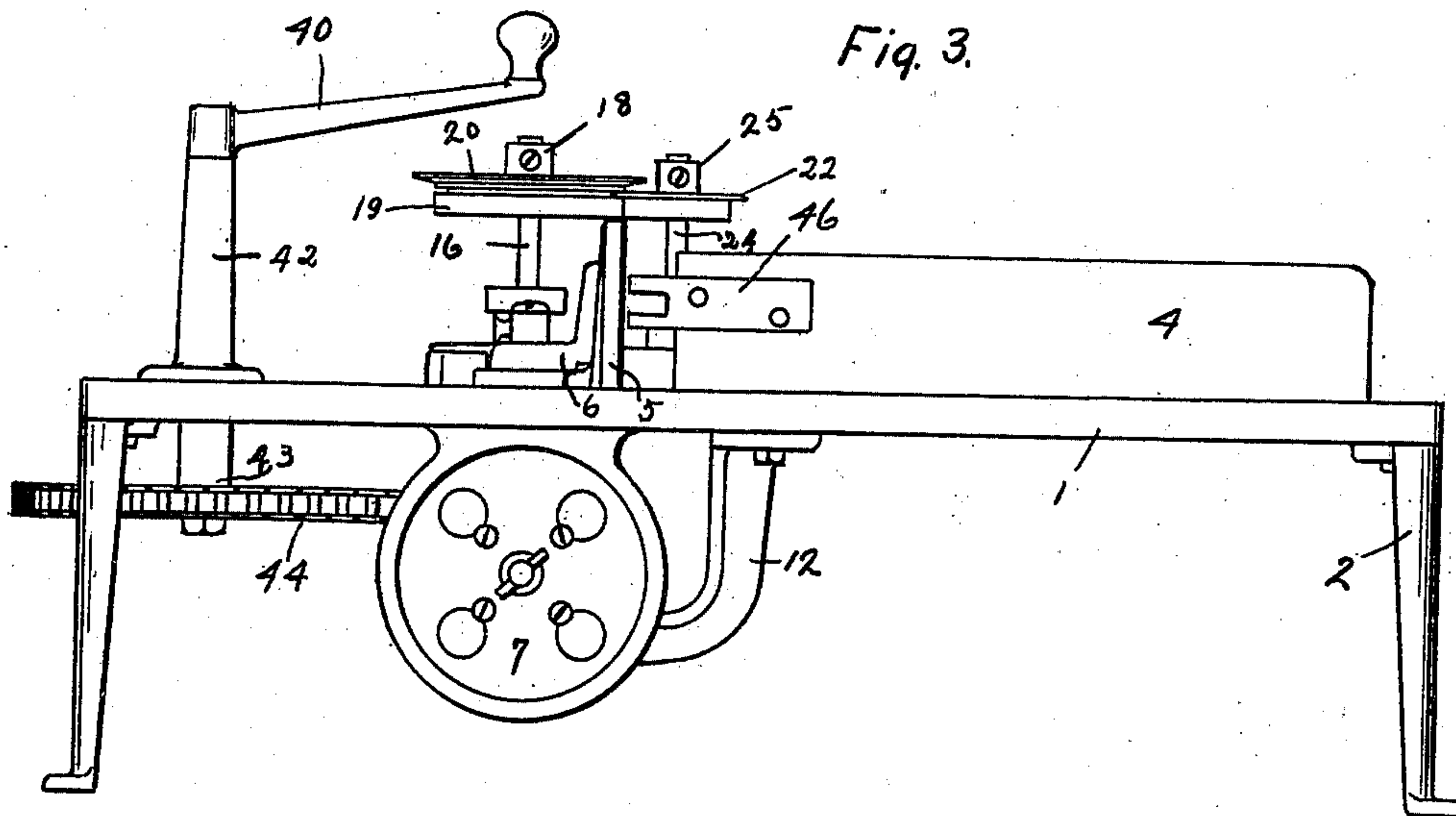
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UNITED STATES PATENT OFFICE.

ROBERT C. BERRY, OF INDIANAPOLIS, INDIANA.

LETTER-OPENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 668,280, dated February 19, 1901.

Application filed July 8, 1899. Serial No. 723,181. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. BERRY, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Letter-Opening Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

The object of this invention is to enable post-office employees to rapidly open letters. It is chiefly useful for opening envelopes containing registered-letter advices, although it is useful to anybody who has a large number of letters or envelopes of uniform width to open. The full nature of my invention will appear from the accompanying drawings and the description and claims following.

In the drawings, Figure 1 is a plan and Fig. 2 a bottom view of one form of machine embodying my invention. Fig. 3 is a side elevation of the same. Fig. 4 is a vertical section on the line A A of Fig. 1. Fig. 5 is a plan of the cutters.

The machine which I have deemed best to show herein as embodying my invention is in detail made and arranged as follows: A table 1 is mounted on legs 2. Partitions 3 and 4, as shown in Fig. 1, divide the table longitudinally into two sections, upon one side of which the letters are fed up to the letter-opening mechanism and upon the other side of which the letters after being opened are stacked. A feed-board 5 extends transversely of the table and is provided with a suction feed-box 6, such as shown in my prior patent, No. 622,107, issued March 28, 1899. The air is exhausted from said feed-box 6 by a pump 7, whose piston 8 is actuated by the rod 9 from the eccentric 10, that is mounted on the shaft 11. This shaft, as appears in Fig. 4, is mounted in the arm 12 at its lower end and extends up through the table.

On the upper end of the vertical shaft 11 the feed-roll 13 is secured. It carries a wrist-pin 14, eccentrically located, on which the connecting-rod 15, (shown in Fig. 1,) extending from the reciprocating suction-box 6, is mounted. In this way said suction-box is reciprocated. Said wrist-pin is connected with an eccentric 15, carrying a centrally-located spindle 16, upon which the female cut-

ting-disk 17 is mounted, being held in place by the collar 18, that is screwed on the upper end of said spindle 16. This female cutting-disk is formed as shown in Figs. 3 and 4. The lower portion 19 is a plain disk of considerable thickness and serves as a feed-roll. The upper portion 20 is widened materially to form a guide or guard disk to prevent the upward movement of the letter or envelop. Between these two a groove 21 exists, in which the male cutting-disk operates. The distance said groove 21 is from the guide or guard-disk 20 above determines the distance below the upper edge of the envelop that it will be cut by this mechanism.

The male cutting-disk 22 is formed of two parts—the cutting-disk proper and the feed-roll portion 23, that is similar to the part 19 of the female cutting-disk and with which it coöperates to feed the envelop through the machine. The cutting-disk 22 is preferably scalloped, as shown in Fig. 5. This male cutting-disk is held in place on the vertical rod 24 by means of the collar 25, that is screwed to the upper end of said rod. The lower end of said rod 24 is held in the divided bearing-block 25, having two jaws between which the lower feed-roll 26 operates. It is mounted on the rod 24 and contacts and coöperates with the feed-roll 13. By reason of the contact between the feed-rolls 13 and 26 and the feed-rolls 19 and 23 the rolls 26 and 23 are rotated on the rigidly-mounted rod 24 by the rolls 13 and 19.

The rolls 26 and 23, as well as the knife 22, are held in engagement with the other rolls and knife by the spring 27, that is wound spirally about the shank 28 of the block 29, having the jaws 25. A guide 30 for said block 29 is formed on the table between the partition-boards 3 and 4. The lower jaw 25 likewise operates in the slot 31 in the table. The spring 27 lies between the movable block 29 and the stationary block or lug 32.

After the letters or envelops have been cut they are received by the packer-disk 33, that packs them against the packer-board 34. The packer-disk is mounted on a vertical shaft (not shown) that is driven by the gear 35, mounted on said shaft.

The parts of the machine are actuated by the crank 40, secured to the crank-shaft 41,

that operates through the standard 42. On the lower end of said crank-shaft a large gear-wheel 43 is mounted, and about this wheel a sprocket-chain 44 is driven, that actuates the gear 35, as well as the gear 45, that is mounted on the vertical shaft 11. Through these and the connections above described all parts of the machine are operated.

The operation of this machine is as follows:

10 The letters are fed up on the table on their edges against the feed-board 5 in front of the suction-box 6. This box feeds them singly along the board 5 and across the table to the feed-rolls. As they pass between the feed-rolls the two cutting-disks cooperate to cut the envelop a short distance below the upper edge. This cut is for the full length of the envelop. After the letters pass through they are packed on the other side of the table, as in mail-stamping machines. The board 46, (shown in Fig. 3,) provided with two fingers, prevents the passage of but one letter at a time.

I do not wish to limit myself to the means of feeding the letters into the rolls and knives nor to the packing mechanism which are herein shown.

The male cutting-disk is scalloped to allow the letter to reach the feed-rolls, for said disk must extend beyond the rolls, and if its periphery were regular it would hold the letters away from the rolls. When scalloped, the letters will be fed into a scallop and be grasped thereby and cut so the letter can reach the rolls.

It is observed that the letters preparatory to their passage between the knives to be cut are alined by gravity on the table 2 and against the feed-board 5, so that letters of the same size will extend equidistant up from the table 2 and the knives can be set so as to cut merely the upper edge of the letters. Therefore the rotary knife is mounted parallel with the table 2 in order to accomplish this result.

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

1. In a letter-opening machine suitable feed-rolls between which the letters can pass, a guide for the letters before they enter the rolls which enables the letters by gravity to become properly alined, and a rotary knife mounted parallel with said guide to cut an edge of the letters while they pass between said rolls.

2. In a letter-opening machine a table, vertically-disposed feed-rolls extending above the table between which the letters can pass, and a rotary knife to cut the upper edge of the letters as they pass between said rolls with their lower edge on the table.

3. The combination with suitable feed-rolls,

and means for feeding letters or envelops on their edges singly to said feed-rolls, of cutting-disks adjacent to the feed-rolls adapted to rotate therewith and to receive between them one edge of the letter or envelop.

4. The combination of a table, a guide for one edge of the letters, which permits the alinement of the letters by gravity, cutting-disks to cut the opposite edge of the letter as it passes between them, and means for feeding the letters singly through the machine.

5. The combination of a horizontal table, a vertical feed-board extending across the table, means for feeding letters from a stack singly on their edges along said feed-board, horizontally-mounted cutting-disks sufficiently far above said table that the upper edge of the letters will pass between the disks, and means for rotating the disks.

6. The combination of male and female cutting-disks, the male disk consisting of a cutter and feed-roll portions, the cutter extending beyond the feed-roll, and the female disk consisting of a feed-roll portion and a guard or guide disk with a groove between the two to receive the cutter, and means for rotating the same.

7. The combination with a table, of a vertically-mounted shaft extending above the table, means for rotating the same, a feed-roll on the lower end of said shaft, another feed-roll on the upper end thereof, a guard-disk above the upper feed-roll so arranged as to leave a groove between it and the feed-roll, a spring-pressed rod parallel with said shaft, feed-rolls mounted thereon that engage the feed-rolls on said shaft, and a cutting-disk on the upper feed-roll that engages said groove.

8. The combination with a table, of two pairs of horizontal feed-rolls, one above and one below, adapted to grasp the letters or envelops along the opposite edges thereof, cutting-disks adjacent to one pair of said feed-rolls, and means for rotating the same.

9. The combination with a table, of a pair of feed-rolls and a cutting-disk, means for actuating the same, a double-jawed block slidably mounted in the table, a vertical rod carried thereby, feed-rolls and a cutting-knife mounted thereon to engage the other feed-rolls and knife, and a spring for pressing said block toward the first-named feed-rolls.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

ROBERT C. BERRY.

Witnesses:

M. C. BUCK,
V. H. LOCKWOOD.