

No. 667,395.

Patented Feb. 5, 1901.

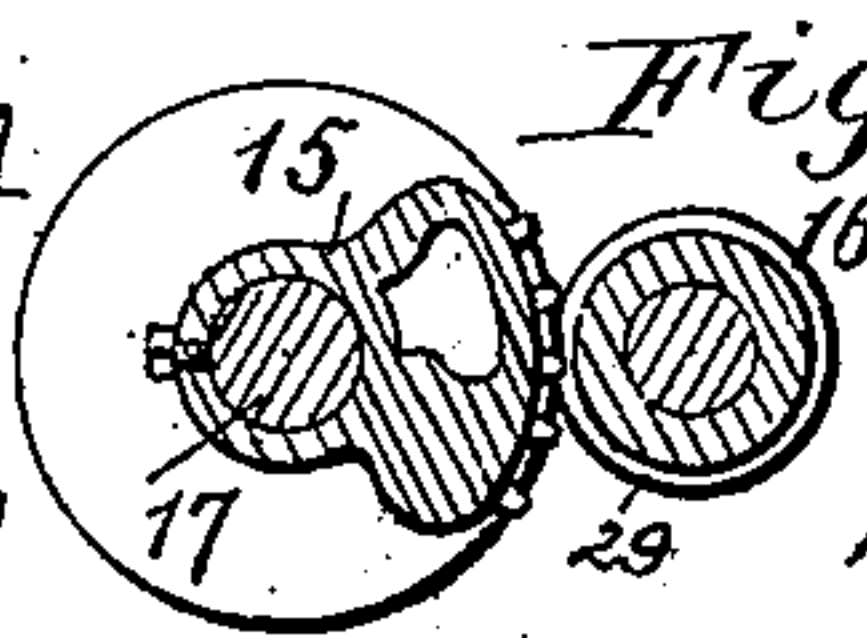
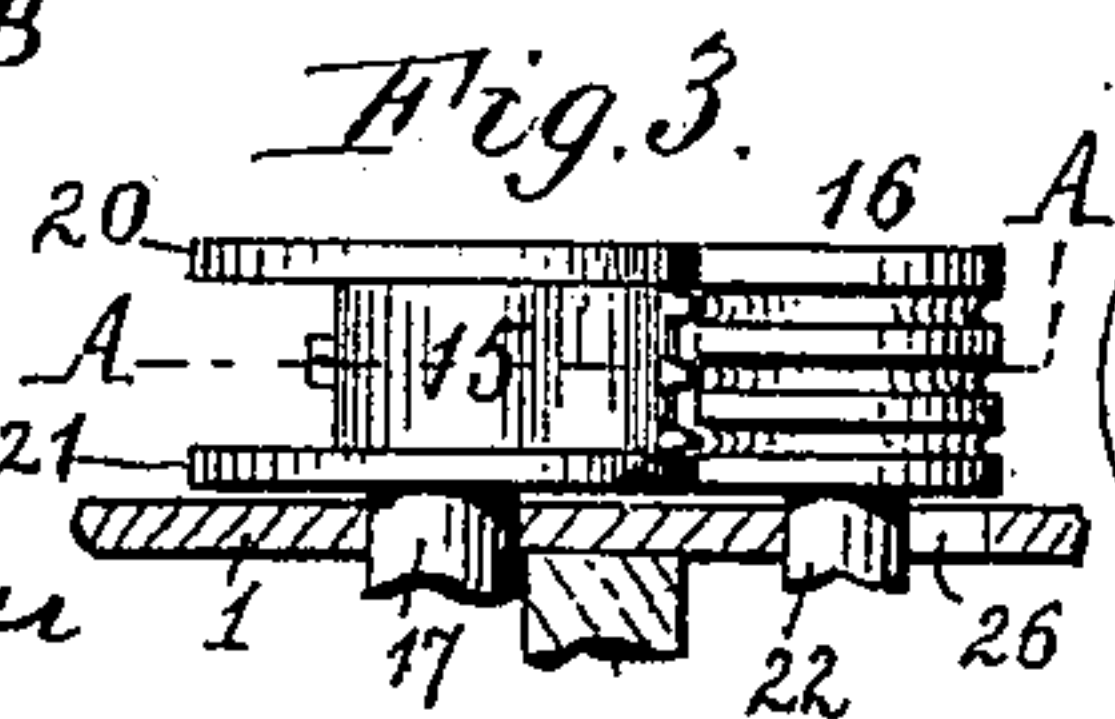
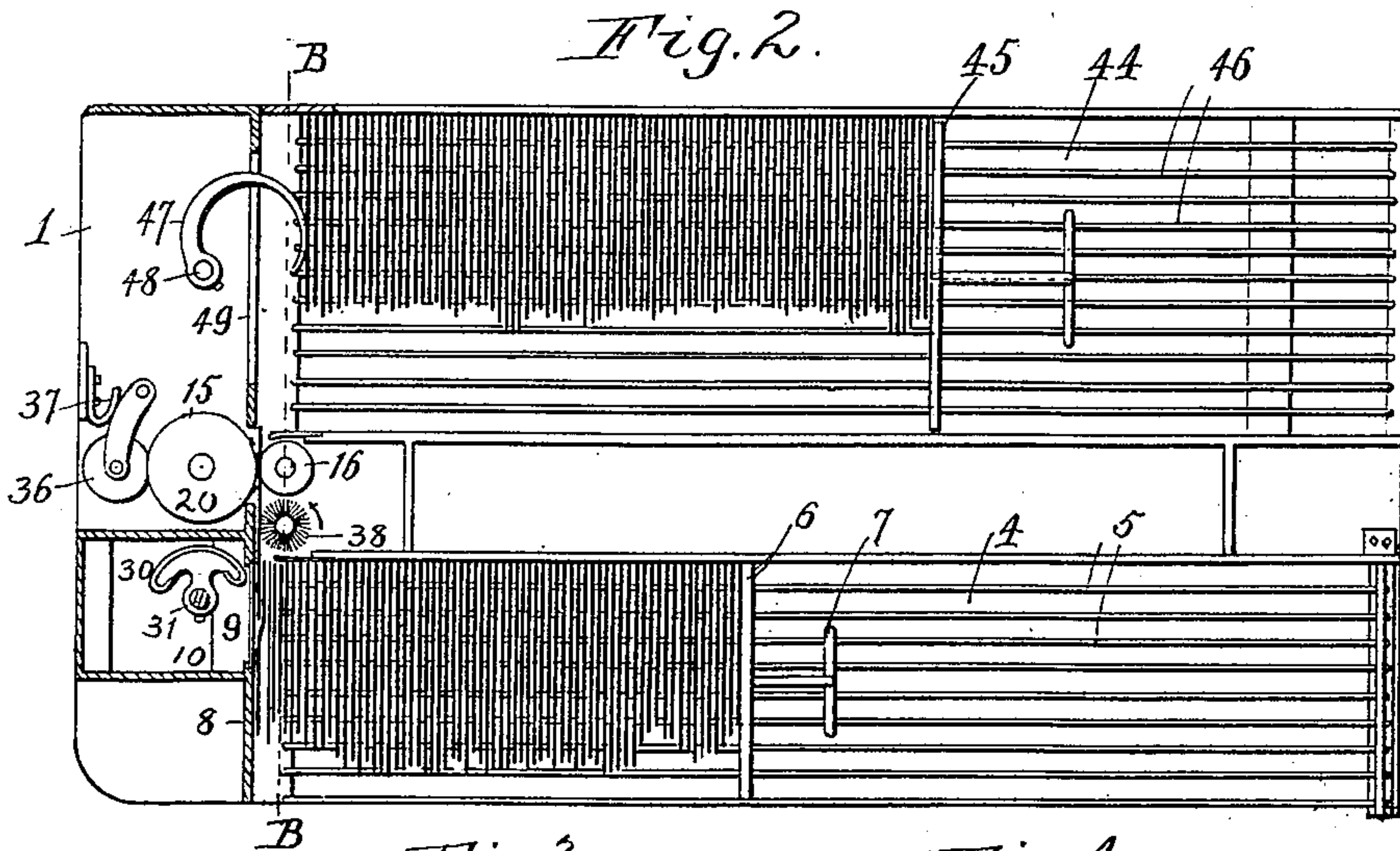
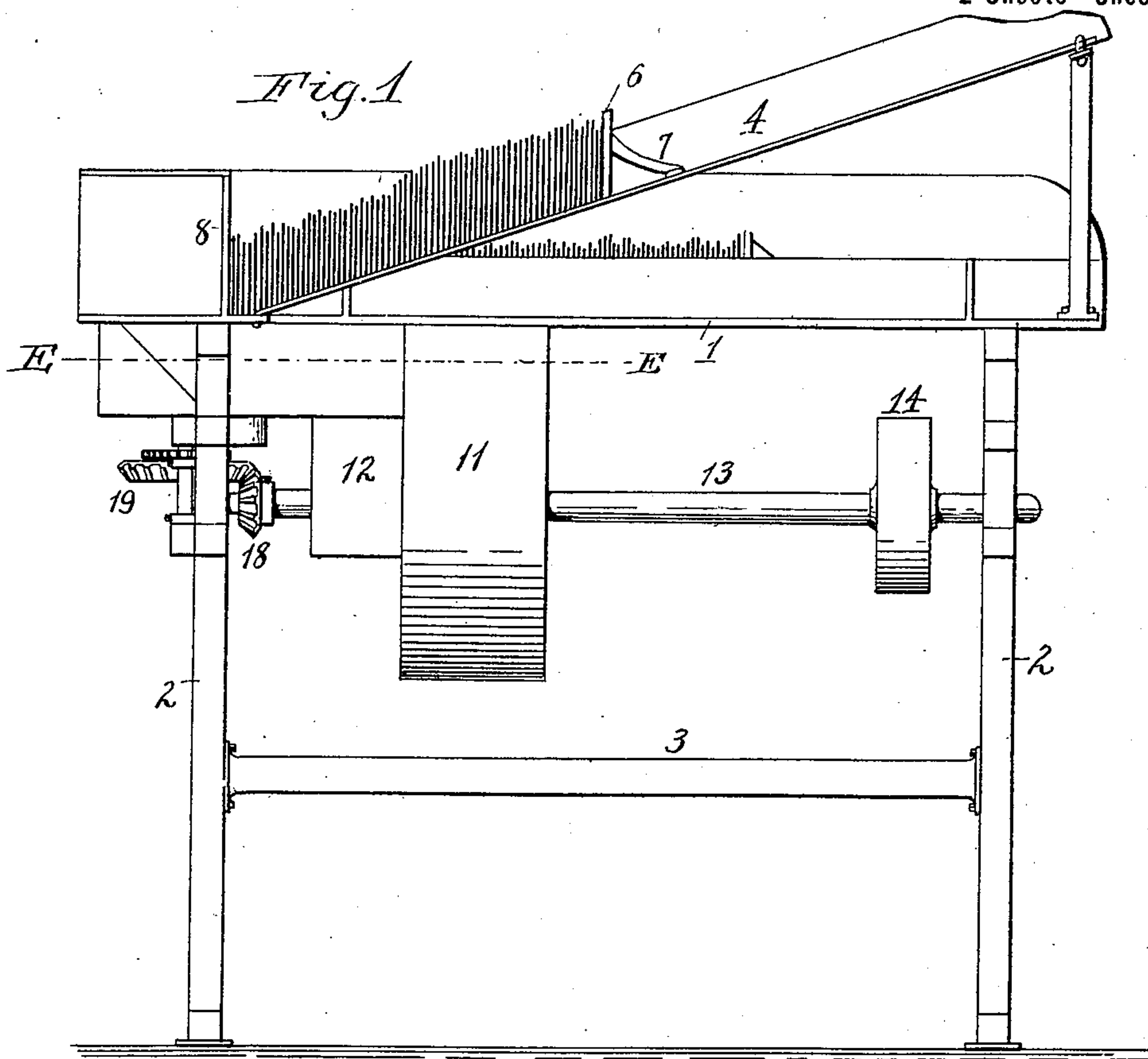
F. C. IELFIELD.

MAIL CANCELING AND POSTMARKING MACHINE.

(Application filed Oct. 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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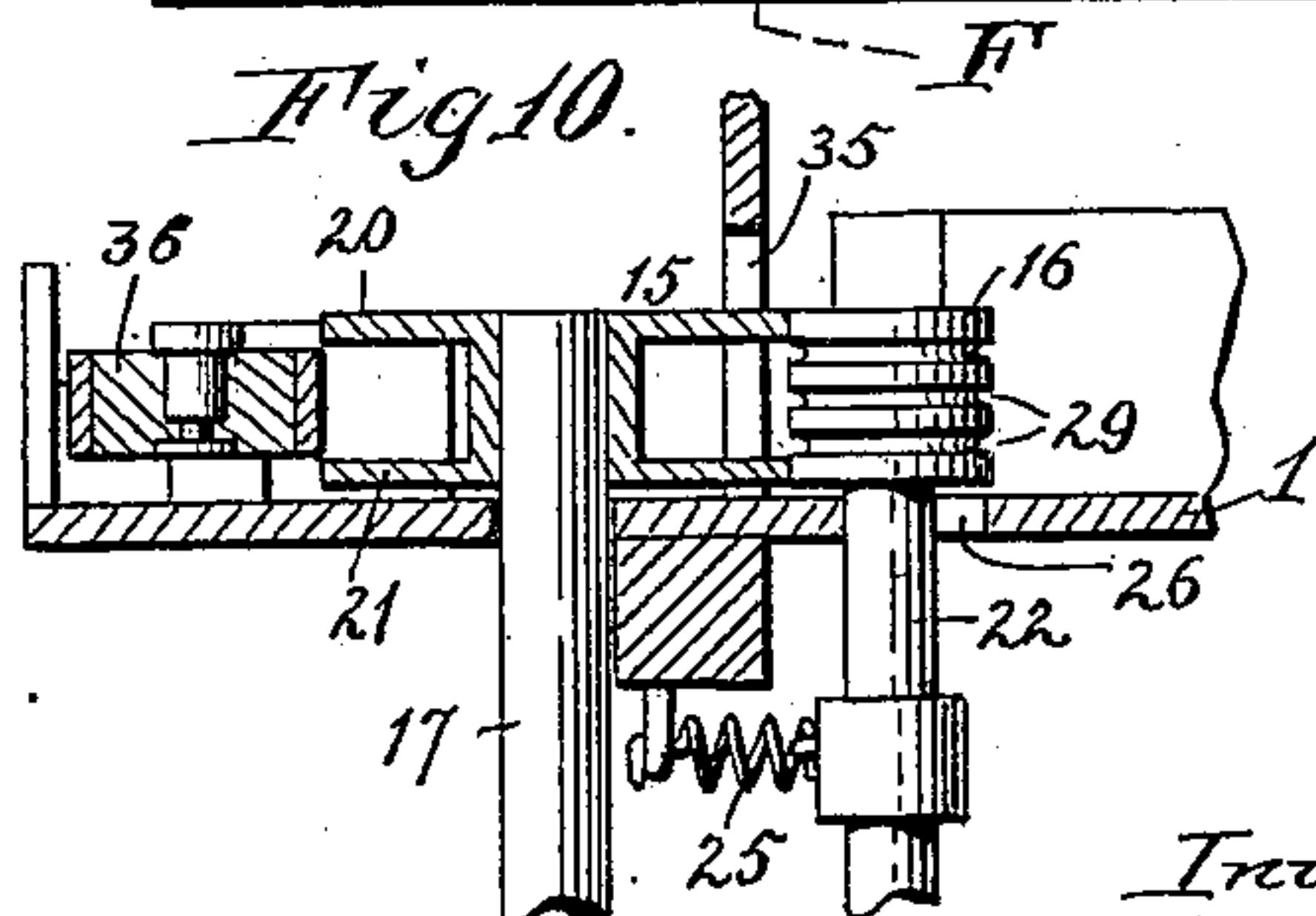
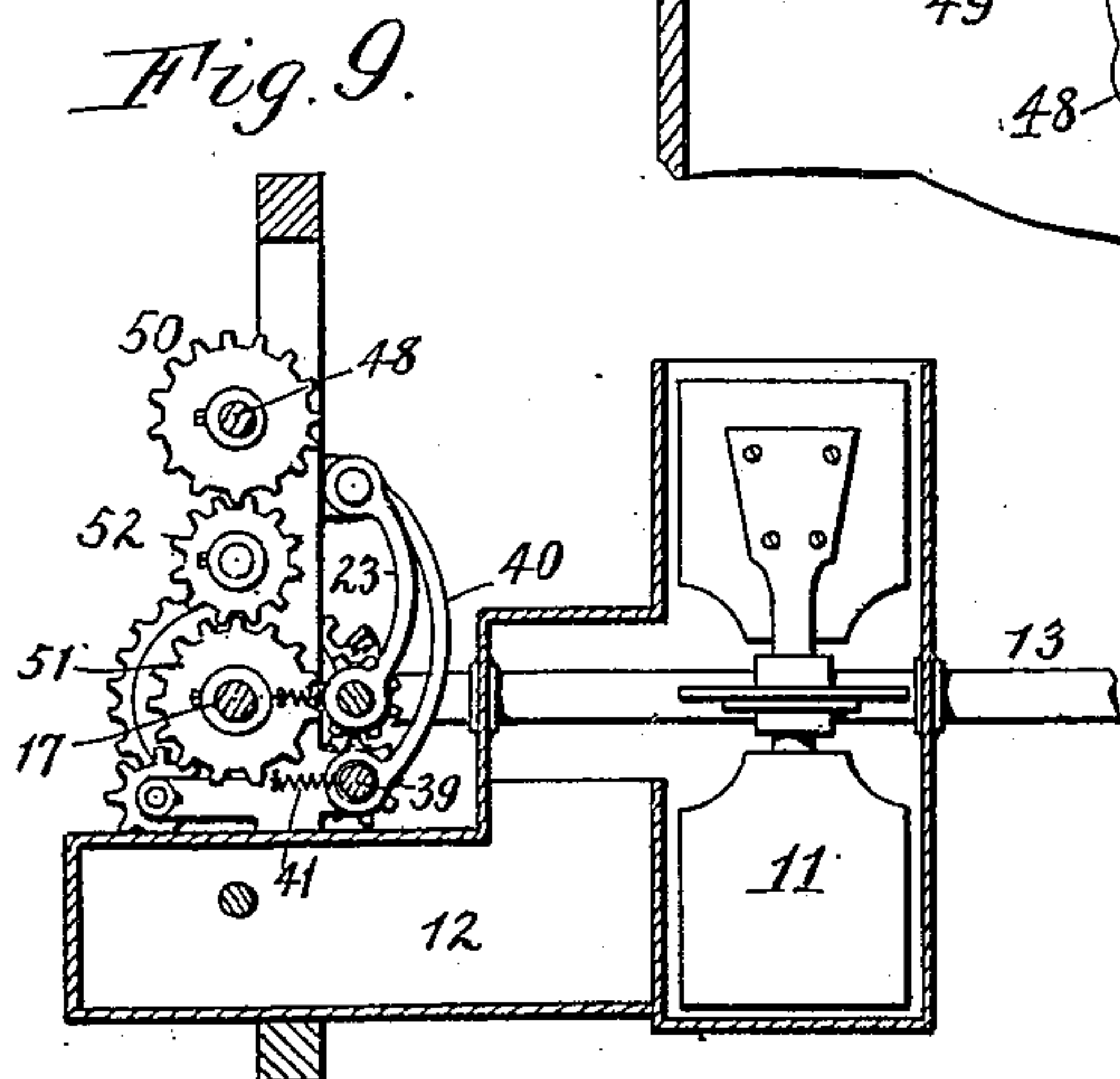
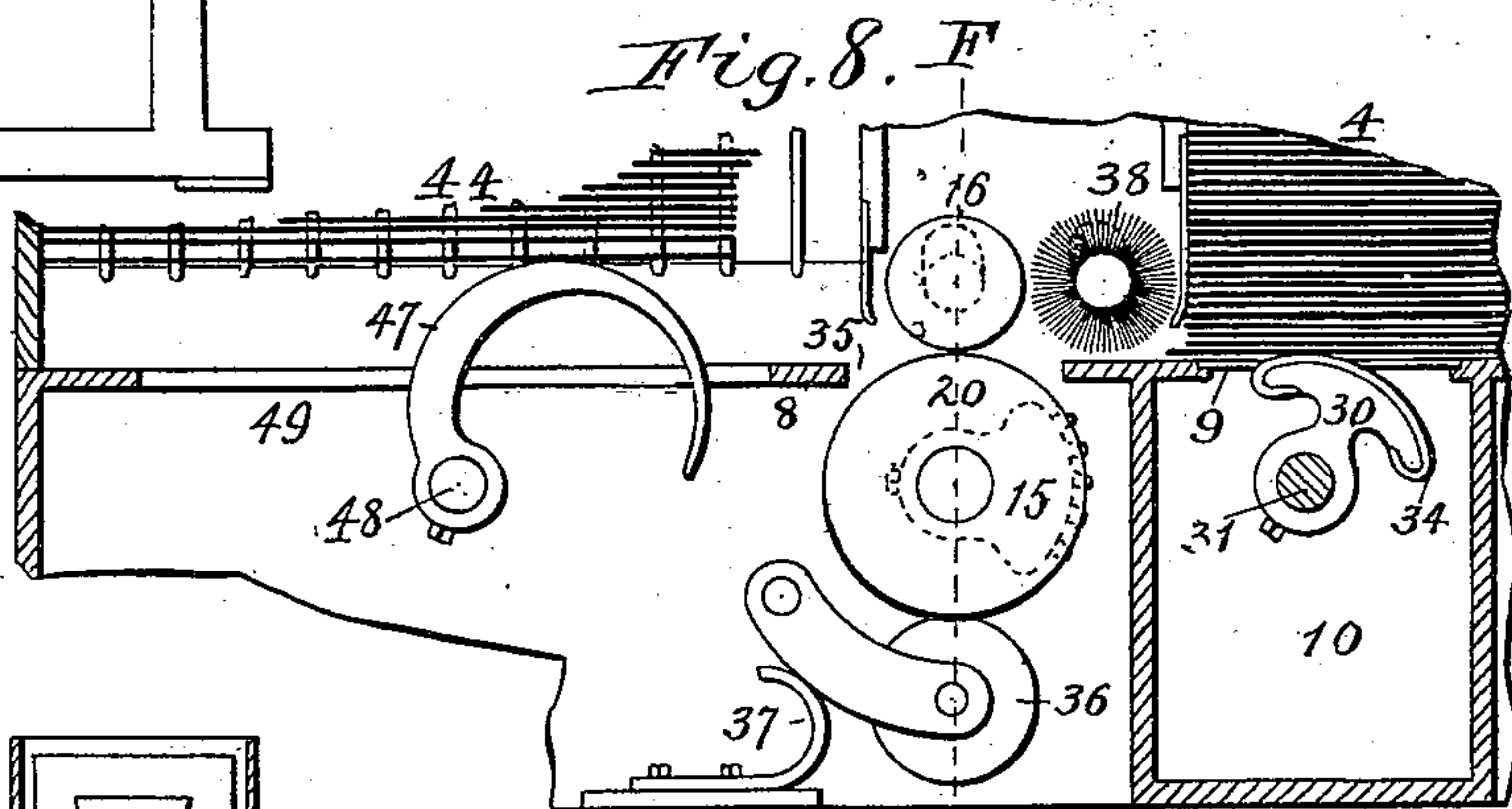
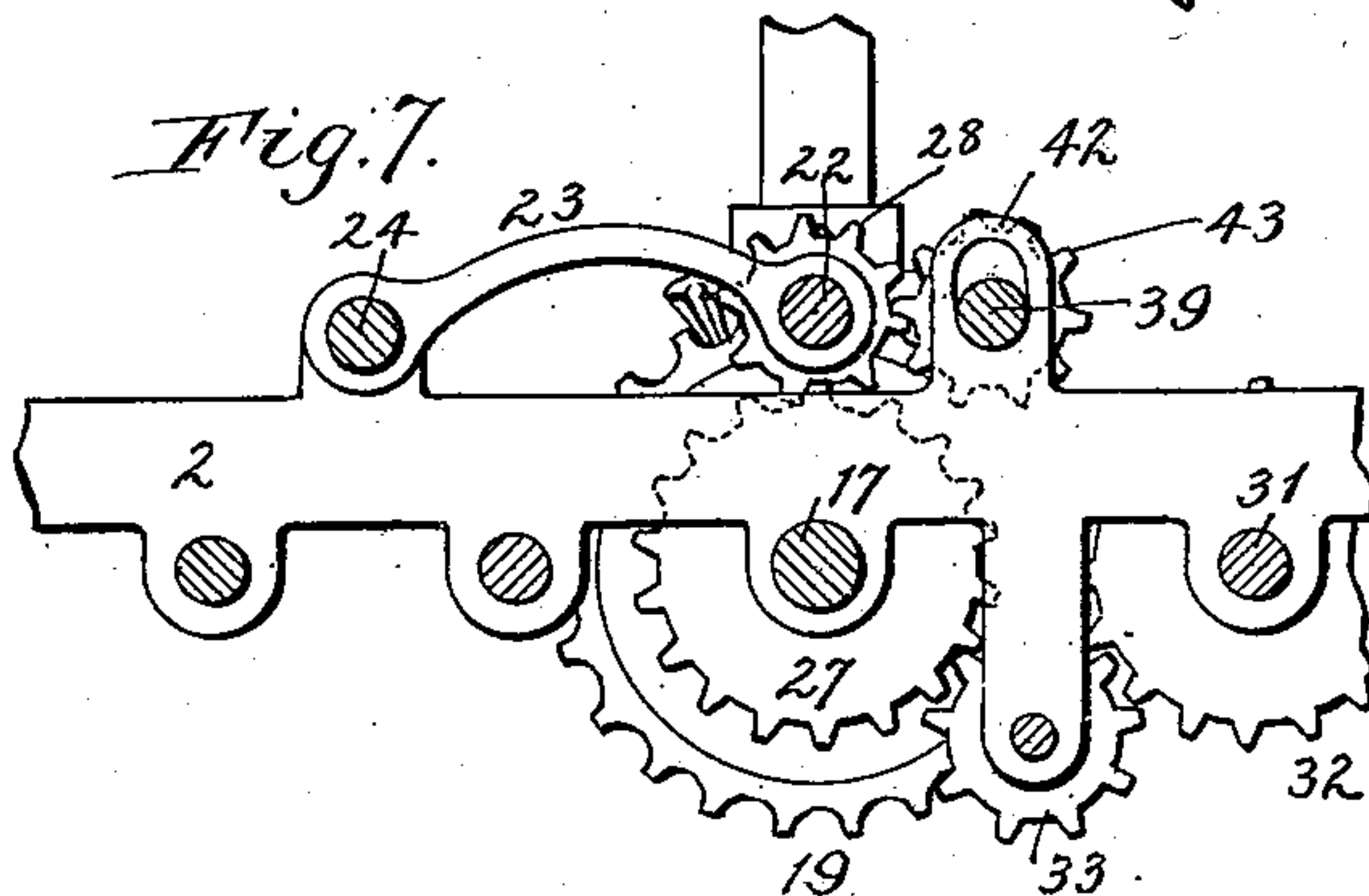
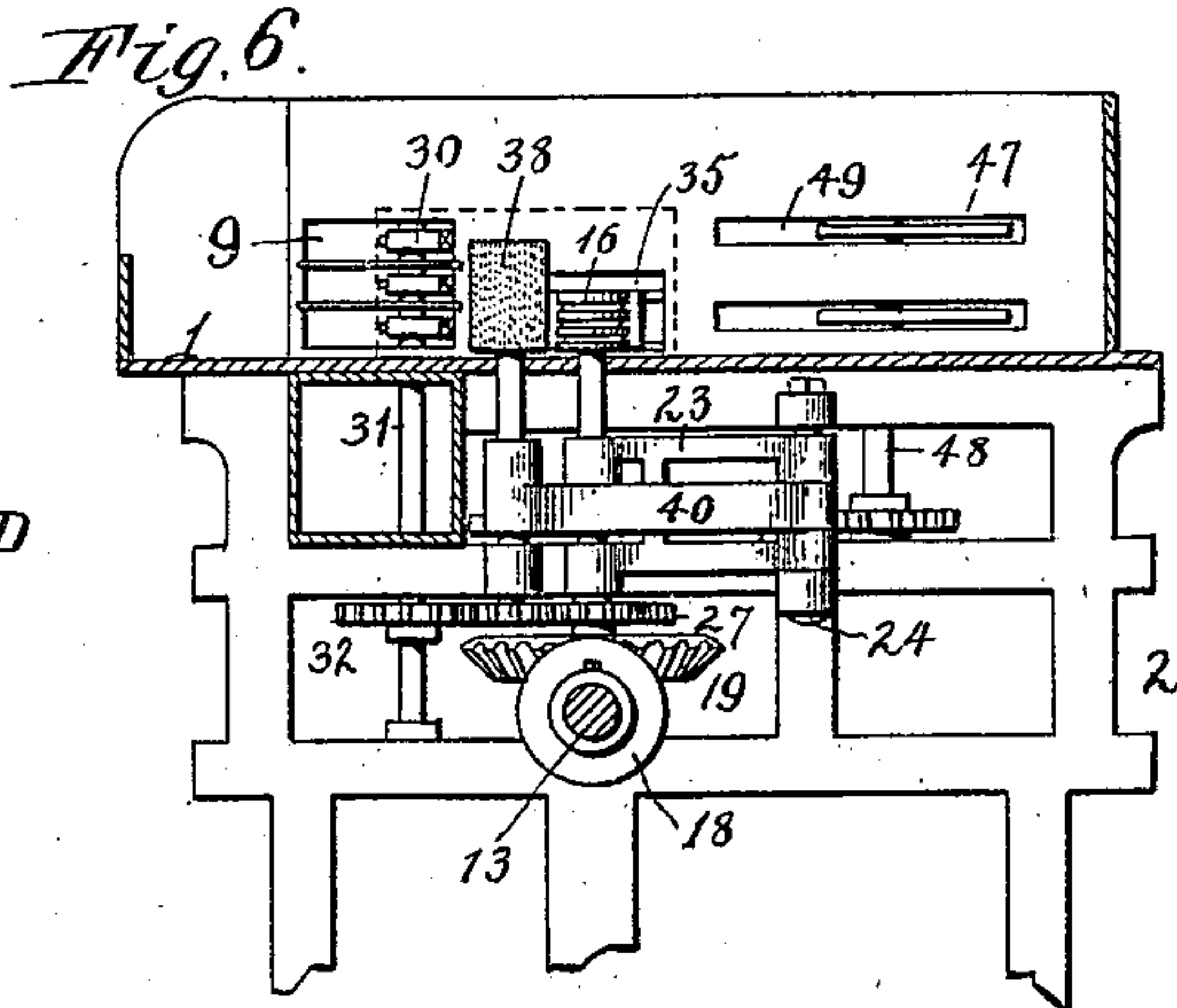
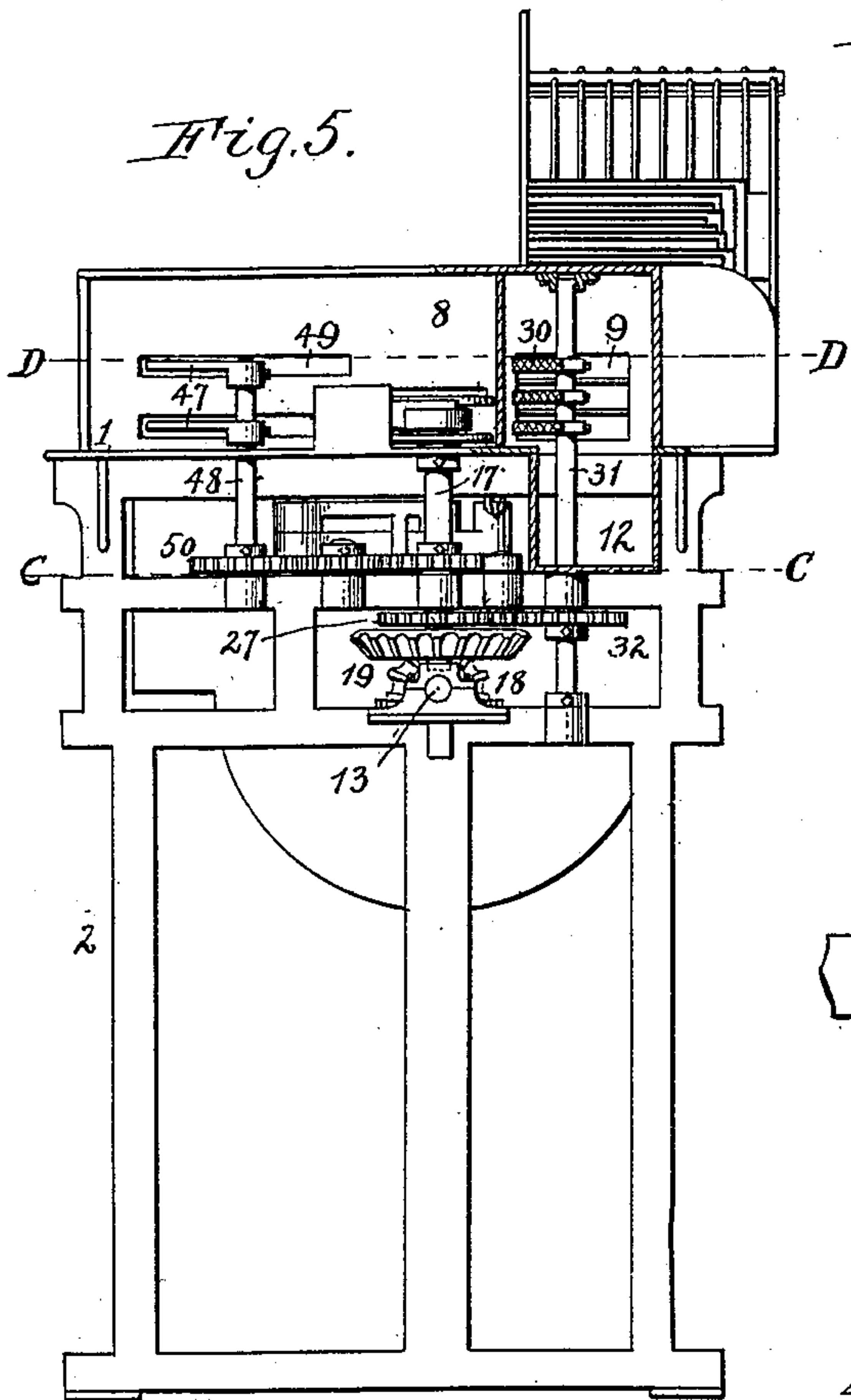
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2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

FRED C. IELFIELD, OF SILVER CREEK, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE COLUMBIA POSTAL SUPPLY COMPANY.

## MAIL CANCELING AND POSTMARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 667,395, dated February 5, 1901.

Application filed October 21, 1899. Serial No. 734,281. (No model.)

*To all whom it may concern:*

Be it known that I, FRED C. IELFIELD, a citizen of the United States, residing at Silver Creek, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Mail Canceling and Postmarking Machines, of which the following is a specification.

This invention relates to a mail canceling and postmarking machine in which an air-separator is employed which draws the pieces of mail-matter successively from the front of a stack against the face-plate of a suction-head, from which the separated pieces are removed by a carrier or feeder, while the air-pressure presses them against the face of the head. A machine of this kind is shown and described in an application for patent filed by me January 9, 1899, Serial No. 701,560.

One object of my present invention is to improve the carrier or feeder so as to cause the same to remove and propel the separated pieces expeditiously and without injury to the same irrespective of the size and bulk of the pieces.

Another object of my invention is to provide the machine with means for preventing two or more very thin pieces of mail-matter—for instance, postal cards—from being fed at a time to the marking devices.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of my improved machine with a portion of the feed-chute broken away. Fig. 2 is a sectional top plan view of the machine. Fig. 3 is an enlarged side elevation of the printing and impression rollers. Fig. 4 is a horizontal section in line A A, Fig. 3. Fig. 5 is an end elevation of the machine, partly in section. Fig. 6 is a transverse section of the machine in line B B, Fig. 2, looking toward the left. Figs. 7 and 8 are fragmentary horizontal sections, on an enlarged scale, in lines C C and D D, Fig. 5. Fig. 9 is a fragmentary horizontal section, on an enlarged scale, in line E E, Fig. 1. Fig. 10 is a longitudinal section in line F F, Fig. 8.

Like numerals of reference refer to like parts in the several figures.

1 is the table of the machine, which is mounted on a stationary frame composed of upright end frames 2 and a longitudinal tie-bar 3.

4 is an inclined feed-chute for the mail to be canceled and postmarked. This chute is arranged lengthwise of the table, at the front side thereof, and its bottom is preferably composed of parallel longitudinal rods or wires 5, upon which the mail rests loosely with one of its long edges and whereby the movement of the mail along the bottom of the chute is facilitated.

6 is a back support or follower for the stack of mail-matter in the feed-chute, which follower rests loosely on the bottom of the chute, so as to automatically follow the mail-matter as it slides down the chute by gravity. The follower 6 does not exert a forward pressure against the stack of mail except of its own weight, which is insignificant, and serves simply as a movable support for holding the mail in a substantially upright position, so as to allow the pieces to rest loosely against one another. The follower shown in the drawings consists of an upright board having a leg or brace 7, and the same is made comparatively light to reduce the pressure against the back of the stack of mail-matter to a minimum.

8 is an upright stationary guide or face-plate, which is arranged transversely at the foot or front end of the feed-chute and against which the pieces of mail-matter are successively drawn from the front end of the stack by an air-current, which acts upon the foremost piece through an opening 9, formed in the guide-plate 8, as shown in Figs. 2, 5, 6, and 8. This guide-plate forms the front wall of an air-chamber 10, through which a suction-current is induced by any suitable air-propelling device, such as a fan 11. This fan is preferably arranged transversely under the table 1, and its spout 12 is connected with the air-chamber 10, as shown in Figs. 1, 5, and 9.

13 is the main driving-shaft of the machine, arranged lengthwise below the table 1 and supported in bearings on the stationary end frames 2, and 14 is a driving-pulley mounted on said shaft. The fan 11 is mounted on the driving-shaft 13, as shown in Figs. 1 and 9.

The canceling and postmarking devices receive the pieces of mail-matter from the guide-plate 8 and are arranged above the table 1, beyond the inner or rear side of the feed-chute



4. They consist of a horizontal printing roller or segment 15, having suitable canceling and postmarking dies on its periphery, and an impression-roller 16. The printing-roller 15 is mounted at the upper end of a vertical shaft 17, journaled in bearings on the adjacent end frame 2 and driven from the main shaft 13 by bevel-gears 18 and 19, secured to said shafts. As shown in Figs. 3 and 4, the body or main portion of the printing-roller, which carries the dating and canceling dies, is segmental in form, so that only said dies are inked, and the roller is provided at its upper and lower ends with horizontal disks or annular flanges 20 and 21, which in conjunction with the opposing impression-roller 16 serve to feed the pieces of mail-matter onward to the stacking devices. By providing the feeding-roller with an upper feeding-flange 20 in addition to the lower flange 21 the pieces of mail-matter are reliably fed onward by the upper flange in case the pieces should mount or ride up on the lower flange.

As shown in Figs. 6, 7, and 10, the impression-roller 16 is mounted at the upper end of a vertical shaft 22, which is supported in the free ends of horizontally-swinging arms 23. These arms are pivoted upon a vertical pin or shaft 24, which is supported in lugs projecting from the inner side of the end frame 2. The impression-roller is constantly drawn toward the printing-roller by a spring 25, attached at one end to the shaft of said roller and at its opposite end to the table or other stationary part of the machine, as shown in Fig. 10. The shaft 22 of the impression-roller passes through a slot 26, formed in the table and curved concentrically with the pivot-pin 24 to permit the impression-roller to move toward and from the printing-roller. This construction permits the impression-roller to adapt itself to the varying thicknesses of the pieces of mail-matter. The impression-roller is driven from the shaft 17 of the printing-roller by spur-gears 27 and 28, secured to said shafts, as shown in Fig. 7.

In order to avoid smutting of the impression-roller and soiling of the back of the mail-matter, said roller is provided in its periphery with grooves or depressions 29, which are arranged in line with or directly opposite the dating and canceling characters of the printing-roller 15, so that said characters at no time come in contact with the impression-roller. The impression-roller has as many of such grooves as there are lines of type or characters on the printing-roller.

30 is a feeder or carrier which removes the pieces of mail-matter from the suction-opening 9 of the air-chamber 10 and delivers the same between the printing and impression rollers 15 and 16. This feeder preferably consists of one or more rotary horizontal segments arranged in the suction-head and secured one above the other to a vertical shaft 31. This shaft is journaled in bearings on the adjacent end frame 2 and is driven in the

proper direction from the shaft 17 of the printing-roller by the spur-gear 27, a gear-wheel 32, and an intermediate idler-gear 33, as shown in Figs. 5 and 7. The feed-segments 30 are projected through the suction-opening 9 once during every revolution, so as to engage against the face of the foremost piece of mail-matter and carry the same onwardly between the printing and impression rollers 15 and 16, as shown in Figs. 2 and 8. Each of the feed-segments is provided with a facing 34, of soft rubber or other suitable material, to form a reliable gripping-surface. The rubber facing 34 is preferably corrugated or formed with numerous projections, as shown in Fig. 5, to increase its gripping action.

As shown in Figs. 2 and 8, the inner or rear wall of the feed-chute 4 terminates at a short distance from the guide-plate 8 to leave an intervening transverse passage for the mail-matter, and the guide-plate extends across the width of the table to form a guide for the mail-matter. The printing and impression rollers 15 and 16 are arranged on opposite sides of this guide-plate, and the latter is provided opposite the printing-roller with an opening 35, through which said roller projects.

36 is an inking-roller of any suitable construction, which is yieldingly held in the path of the printing-roller by a spring 37.

38 is a yielding retarding device arranged between the rear side of the feed-chute 4 and the printing and impression rollers 15 and 16 and projecting into the path through which the pieces of mail-matter pass on their way to said rollers. This retarding device allows but a single piece to pass between said rollers at a time and holds back any additional piece or pieces in case more than one piece should be separated from the stack in the feed-chute by the air-current and fed forwardly by the feeder, which is liable to occur at times in operating upon postal cards or similar thin matter. The retarding device shown in the drawings consists of a rotary horizontal brush of cylindrical form, which is arranged in close proximity to the opposing face of the guide-plate 8 and is preferably driven to travel in the opposite direction to that of the mail-matter to increase its retarding action. The brush is secured to the upper end of a vertical shaft 39, which is journaled in a horizontally-swinging arm 40. This arm is pivoted upon the pin 24. The brush is constantly drawn toward the guide-plate 8 by a spring 41, secured at one end to the brush-shaft and at its other end to a stationary part of the machine, similar to the spring 25 of the impression-roller shaft 22. By this construction the brush is free to yield bodily and adapt itself to pieces of mail-matter of different thicknesses. The lower portion of the brush-shaft passes through a slotted lug 42, formed on the end frame 2, as shown in Fig. 7, and the table 1 is provided with a corresponding slot for the passage of the upper portion of said shaft. This shaft is driven from the



shaft 22 of the impression-roller 16 by the spur-gear 28 and a spur-gear 43 on the brush-shaft.

44 is a longitudinal receiving-chute which is arranged on the rear portion of the table 1, on the delivery side of the canceling and postmarking devices 15 and 16, and which receives the marked letters. The guide-plate extends across the front end of the receiving-chute 44, and the outer wall of this chute extends forwardly to said plate, while its inner wall terminates at a distance therefrom to leave a passage for the mail-matter, as shown in Figs. 2 and 8. The mail-matter is stacked against a sliding abutment 45, which rests loosely on the bottom of the receiving-chute. The bottom of the latter is preferably composed of longitudinal wires 46, similar to those of the supply-chute 4. As the pieces of mail-matter successively arrive opposite the front end of the receiving-chute, they are pressed backward in the same by any suitable stacking device, which pushes the stack of letters backwardly immediately after a piece is delivered to the front end of the chute and which recedes out of the way before the delivery of the next piece. The device which is preferably employed for this purpose consists of one or more volute or scroll-shaped cams 47, mounted horizontally on an upright shaft 48, which is arranged on the outer or rear side of the guide-plate 8 and journaled in bearings in the table 1 and the end frame 2. These stacker-cams are secured to the portion of the shaft 48 which projects above the table and terminate in horns, as shown. During the rotation of these cams they are projected through horizontal slots 49, formed in the adjacent portion of the guide-plate 8 and bear with their outer or face sides against the front end of the stack of mail-matter in the receiving-chute, as shown in Figs. 2 and 8. The stacking-cams project through said slots and press the stack of mail-matter backwardly during about one half of their rotation, and recede to the rear side of the guide-plate during the other half of their rotation. These cams are so timed relatively to the printing and impression rollers 15 and 16 that the horns of the cams are projected through the slots and caused to act upon the front end of the stack immediately after a piece of mail-matter is delivered to the receiving-chute by the printing and impression rollers and so that the cams are retracted out of the way while the next piece of mail-matter is being delivered in front of the stack. The shaft of the stacking-cams is driven from the shaft of the printing-roller 15 by spur-gears 50 and 51, mounted on said shafts, and an intermediate idler-gear 52, as shown in Figs. 5 and 9.

The operation of my improved machine is as follows: The follower 6 of the feed-chute 4 is drawn back to the upper end of the chute and a stack of mail-matter is placed in the chute in front of the follower. The matter

is placed on edge in an inverted position, with the stamp toward the rear wall of the chute and the stamped ends of the pieces squared against said wall, in which position the stamped side of the matter faces that side of its course through the machine on which the printing-roller 15 is located. The sliding abutment 45 of the receiving-chute 44 is shifted to the front portion of the chute and the machine is set in motion. The stack of mail-matter slides down the inclined feed-chute by gravity, and the foremost piece of mail-matter rests against the face-plate 8 and entirely or partly covers the suction-opening 9 thereof. The current acting upon the foremost piece of mail-matter holds the same against the face-plate 8, and said piece remains against the face-plate until the feeder 30 is projected through the suction-opening and removes the piece and drives it past the retarding-brush 38 and delivers it to the printing and impression rollers 15 and 16, whereby it is canceled and postmarked. These rollers then deliver the piece to the front end of the receiving-chute 44, after which it is pressed backward in said chute by the stacking-cams 47, as hereinbefore described. The frictional contact between the gripping-faces of the feeder 30 and the face of the foremost piece of mail-matter is greater than that between the retarding-brush 38 and the mail-matter, and the feeder therefore overcomes the resistance of the brush and carries the piece of matter past the brush and delivers it to the canceling and postmarking rollers. The frictional contact between the foremost piece of mail-matter and the next piece is not so great as the friction between the foremost piece and the feeder, and hence the resistance of the retarding-brush overcomes the comparatively small amount of friction between the foremost piece and said second piece and prevents the latter from advancing toward the marking devices with the foremost piece, thereby allowing only the single piece in contact with the feeder to pass between the printing and impression rollers. This retarding action upon the second piece of mail-matter is further increased by the action of the air-current, which begins to act upon said second piece and draws its rear portion against the face-plate 8 as soon as the first piece partly uncovers the suction-opening 9, as shown in Fig. 2, thereby holding the second piece back while the foremost piece is being fed to the marking devices by the feeder. This retarding action of the air-current is satisfactorily obtained by making the suction-opening about five inches long and three inches wide and locating the opening so that its inner or rear end is about in line with the inner or rear wall of the feed-chute 4, as shown in Figs. 2 and 8.

When a rotary retarding-brush is employed and the same is turned reversely to the direction of travel of the mail-matter, the brush constantly sweeps any surplus pieces of matter backwardly, or toward the front portion



of the letter-path, thus effectually holding back the surplus pieces until the foremost piece clears the feeder and insuring the feeding of but a single piece at a time.

5 While I have herein shown and described a rotary brush as the retarding device, a stationary or non-rotary brush may be used in some cases, if desired.

10 As the pieces of mail-matter are removed from the front of the stack the latter descends by gravity, bringing the pieces successively against the face-plate 8 until the stack is exhausted.

The feeder 30 and the printing and impression rollers 15 and 16 are arranged so closely together that the mail-matter is fed between said rollers without the employment of intermediate feeding or conveying devices and the receiving-chute 44 is arranged so closely to 20 the printing and impression rollers that the mail-matter is delivered to the chute by said rollers without an intermediate carrier or conveyor. By this arrangement of the parts the machine is simplified and rendered compact, 25 the letter-path through the machine is shortened, and the speed of the machine increased correspondingly, while the liability of the mail-matter becoming buckled in its passage through the machine is obviated.

30 I claim as my invention—

1. The combination with a support for the stack of pieces to be separated, of a suction-head which faces said stack and which is provided with a suction-opening, means for inducing an air-current through said opening, 35 and a feeder which is arranged to project into said opening and adapted to impinge against the piece which has been drawn by the air-current against the suction-head, substantially as set forth. 40

2. The combination with a support for the stack of pieces to be separated, of a suction-head which faces said stack and which is provided with a suction-opening, means for inducing an air-current through said opening, 45 a segmental feeder arranged in said suction-head and adapted to project into said opening and impinge against the piece which has been drawn by the air-current against the suction-head, and means for rotating said feeder, substantially as set forth. 50

3. The combination with a mail chute or receptacle, of a suction head or chamber arranged opposite the front end of said chute 55 and having a suction-opening which faces the chute, means for inducing an inward air-current through said head or chamber, a canceling or marking device arranged beyond said suction head or chamber, and a feeder arranged to project into the opening of said suction head or chamber and adapted to impinge 60 against the face of the foremost piece of mail-matter, substantially as set forth.

4. The combination with an inclined mail-

chute, of an abutment or back-support for 65 the mail-matter arranged loosely in said chute, a suction head or chamber arranged opposite the foot of said chute and provided in its front wall with an opening through which an air-current is induced for drawing the mail- 70 matter toward said wall, a canceling or marking device arranged beyond said suction head or chamber, and a feed device arranged to project into the opening of said suction-chamber and adapted to impinge against the face 75 of the foremost piece of mail-matter in said chute, substantially as set forth.

5. The combination with a mail chute or support, of a suction head or chamber which is arranged to face the stack of mail-matter 80 in said chute and against which the foremost piece of mail-matter bears, a canceling or marking device arranged beyond said suction head or chamber, a feed device arranged to project into the opening of said suction-head 85 and adapted to impinge against the face of the foremost piece of the stack, and a retarding device arranged between said feed device and said canceling and marking device, substantially as set forth. 90

6. The combination with a mail chute or support, of a face-plate extending across the front end of said chute and having an air passage or opening, an air-propelling device connected with said opening, a canceling or 95 marking device arranged adjacent to said face-plate and beyond said chute, a feeder arranged to project through the opening of said face-plate and adapted to impinge against the foremost piece of mail-matter in the chute, 100 and a retarding-brush arranged between said feeder and said canceling or marking device and projecting into the path of the mail-matter, substantially as set forth.

7. The combination with a mail chute or 105 support, of a face-plate extending across the front end of said chute and having an air passage or opening, an air-propelling device connected with said opening, a canceling or marking device arranged adjacent to said 110 face-plate and beyond said chute, a feeder arranged to project through the opening of said face-plate and adapted to impinge against the foremost piece of mail-matter in the chute, a rotary retarding-brush arranged between said 115 feeder and said canceling or marking device and projecting into the path of the mail-matter, and driving mechanism arranged to drive said brush in a direction opposite to that in which the mail-matter travels, substantially 120 as set forth.

Witness my hand this 14th day of October, 1899.

FRED C. IELFIELD.

Witnesses:

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JNO. J. BONNER.