

No. 690,697.

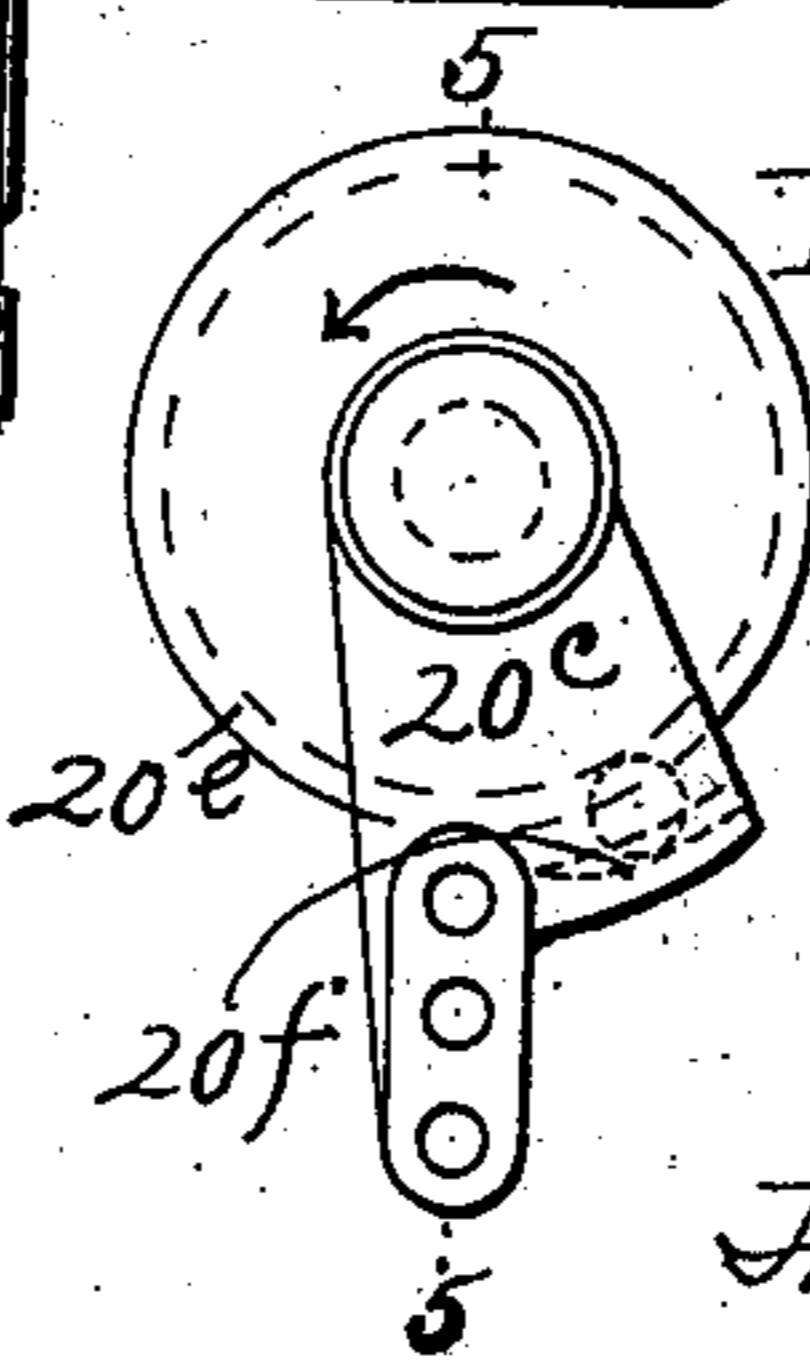
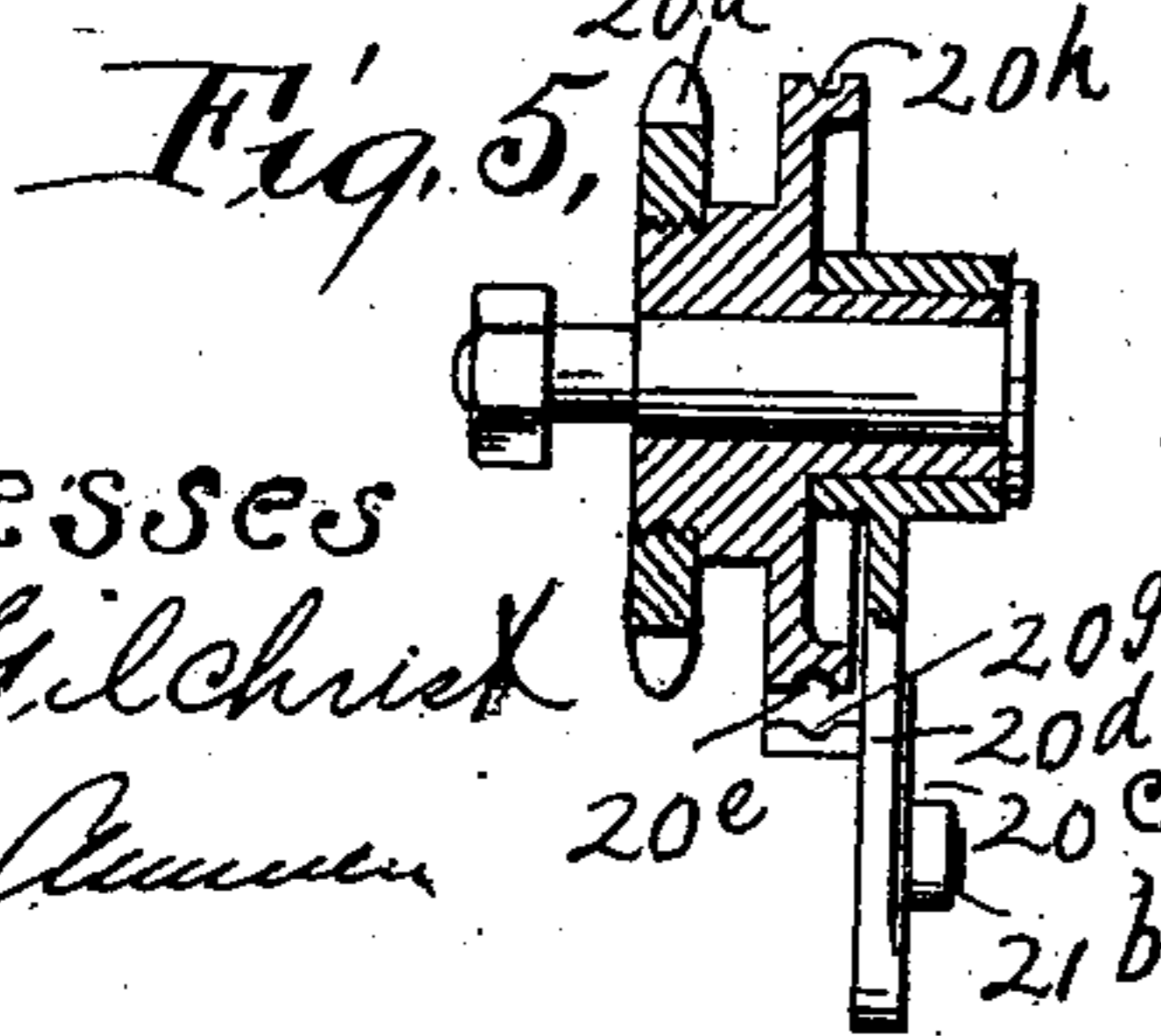
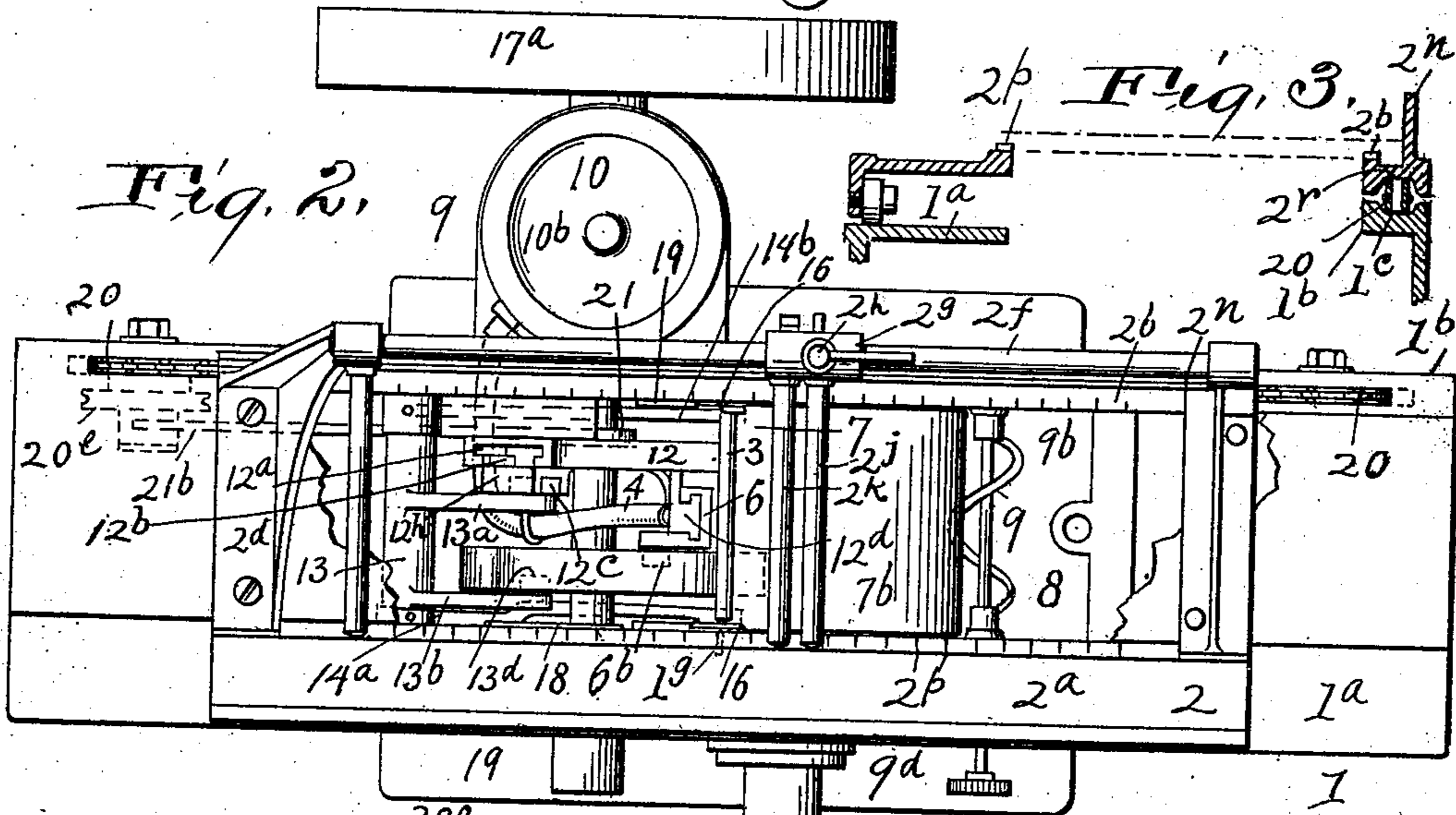
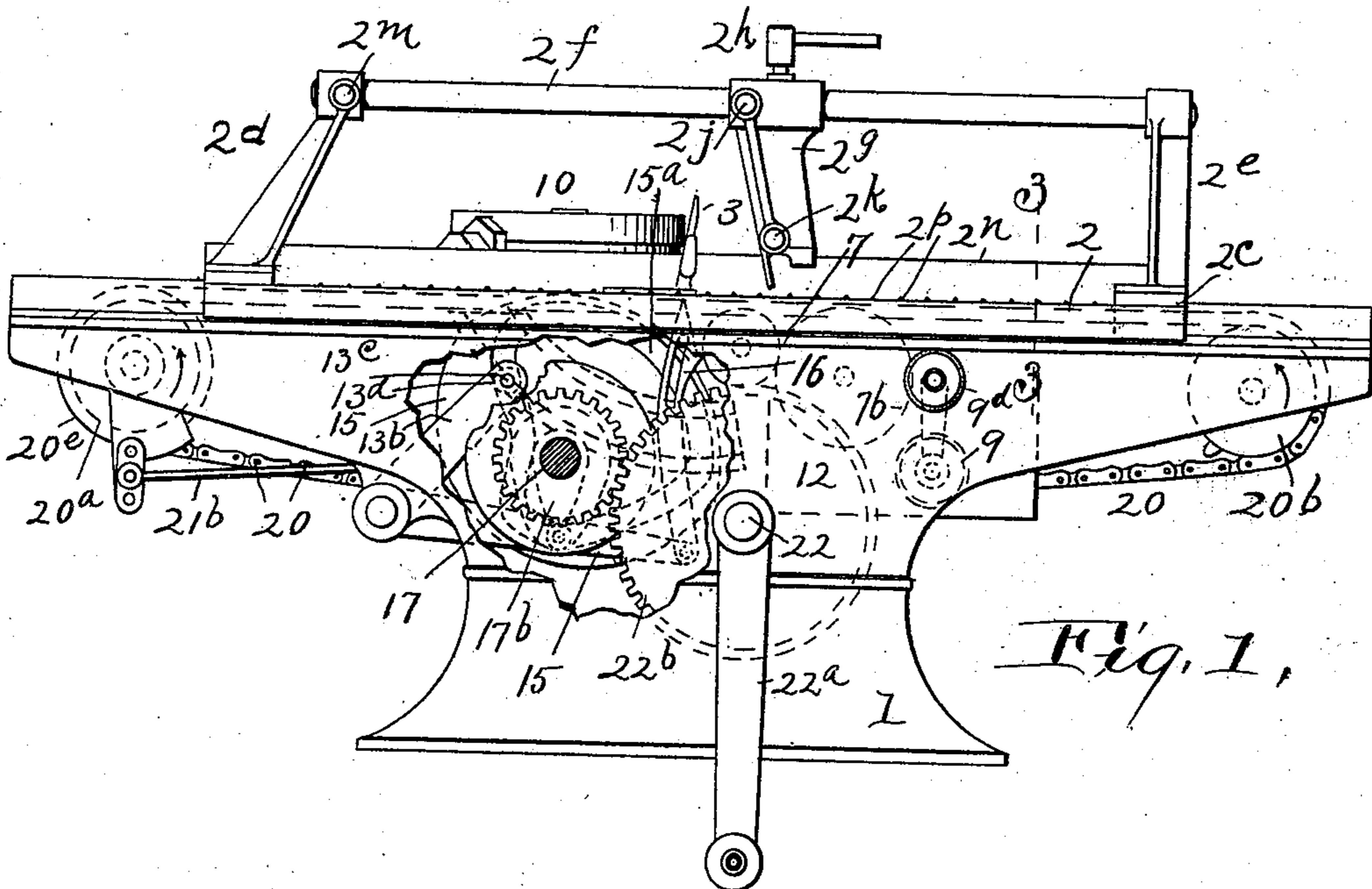
Patented Jan. 7, 1902.

E. CHESHIRE.
MAIL MARKING MACHINE.

(Application filed Mar. 31, 1900.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
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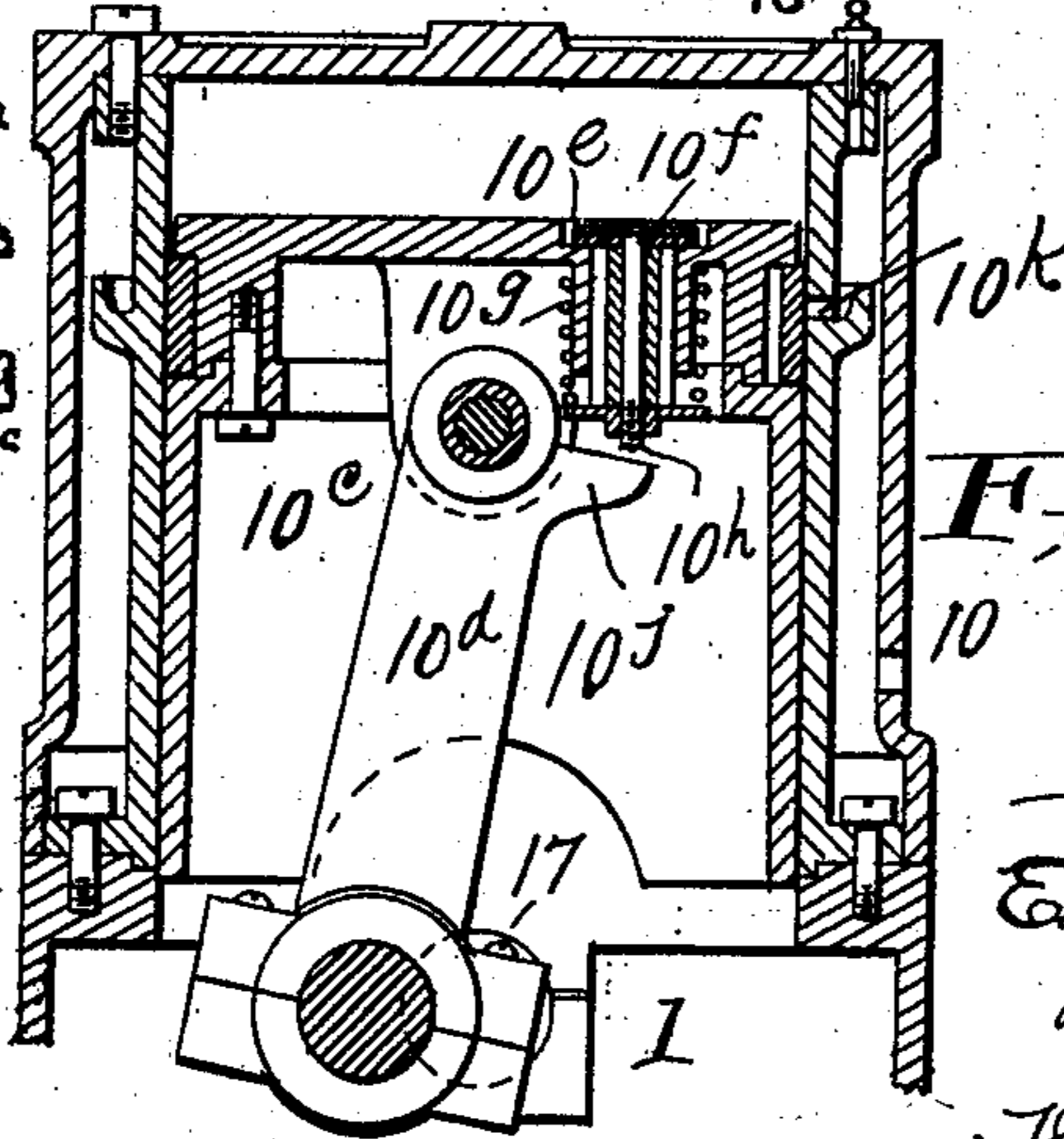
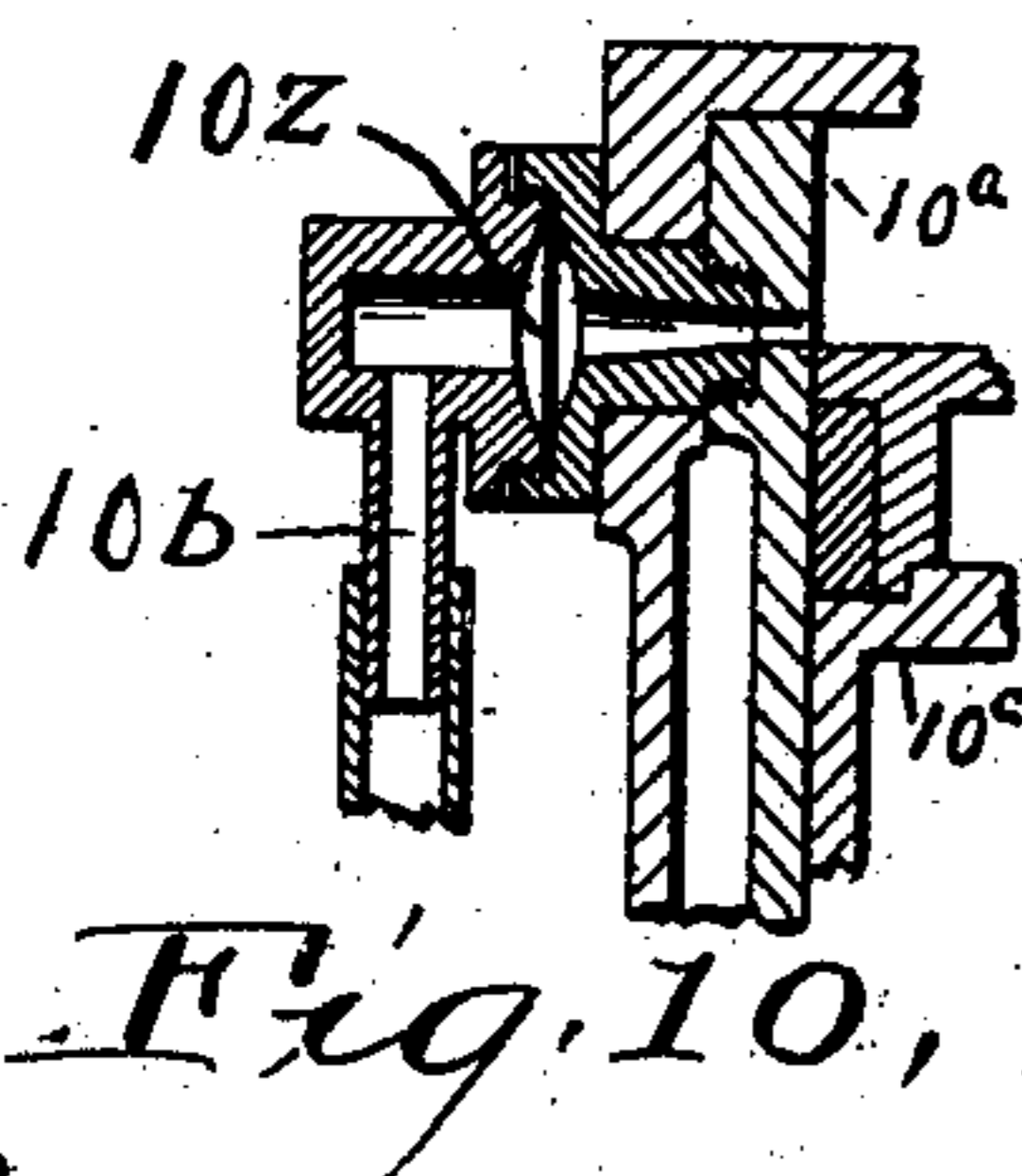
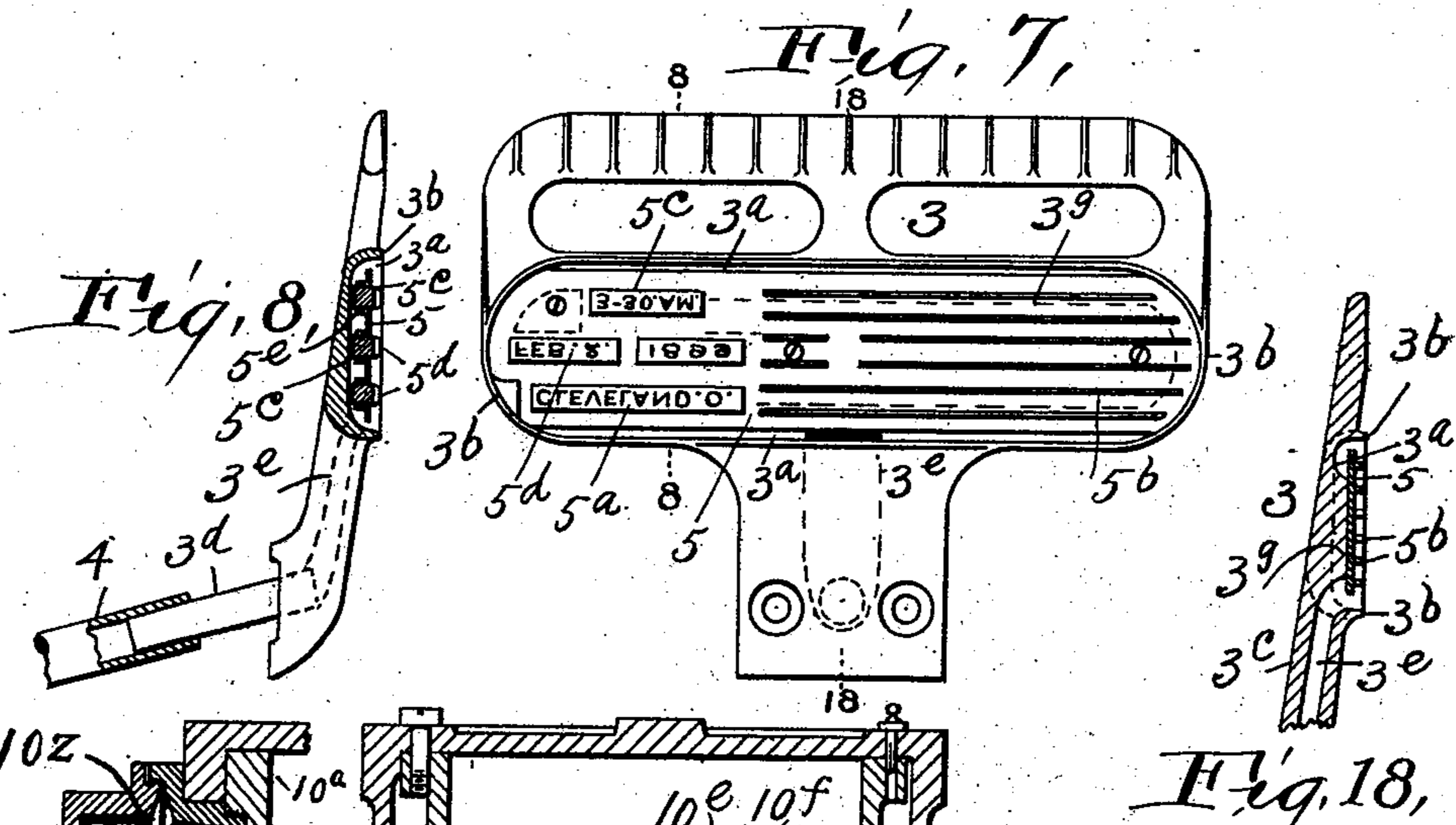
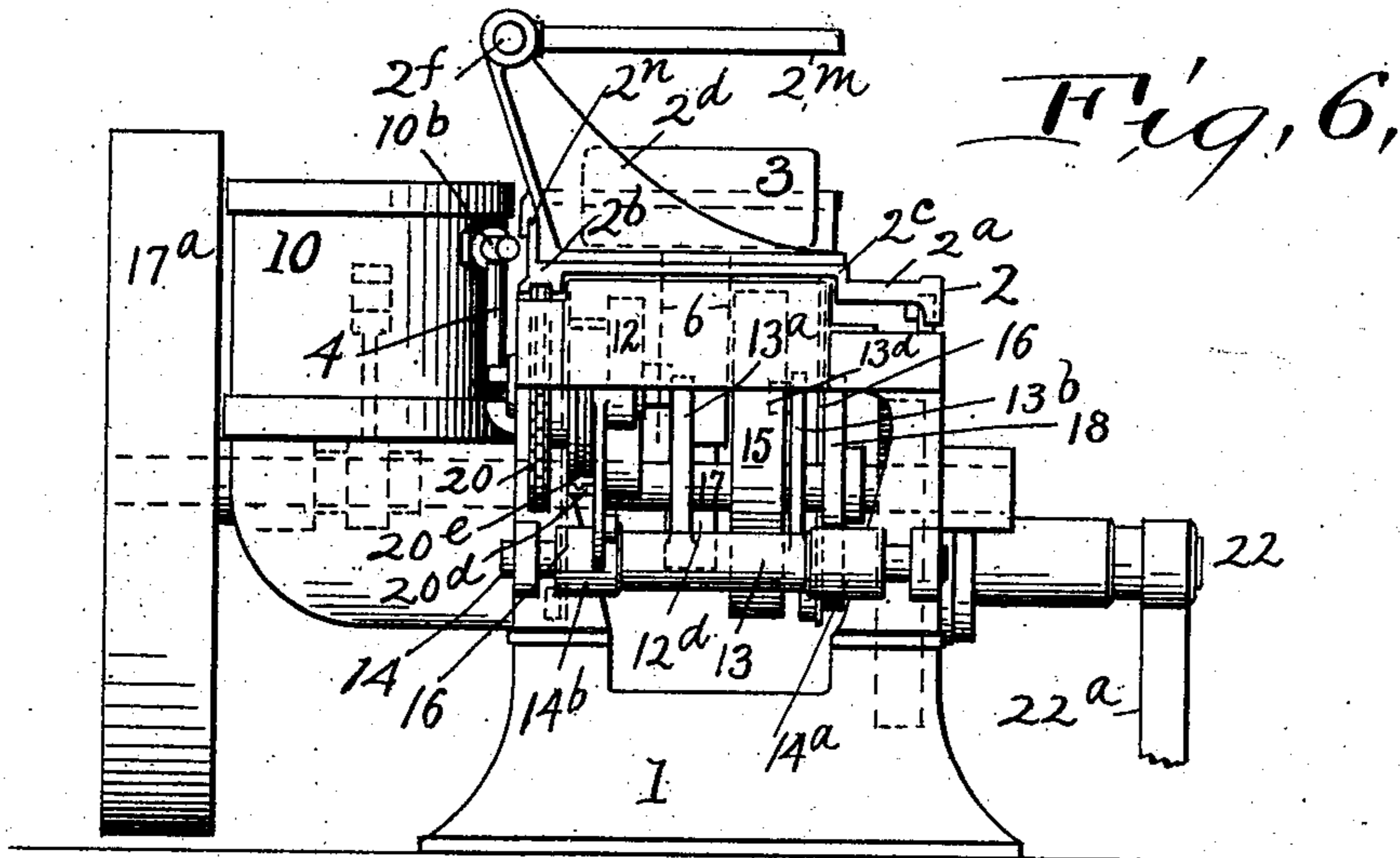
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4 Sheets—Sheet 2.



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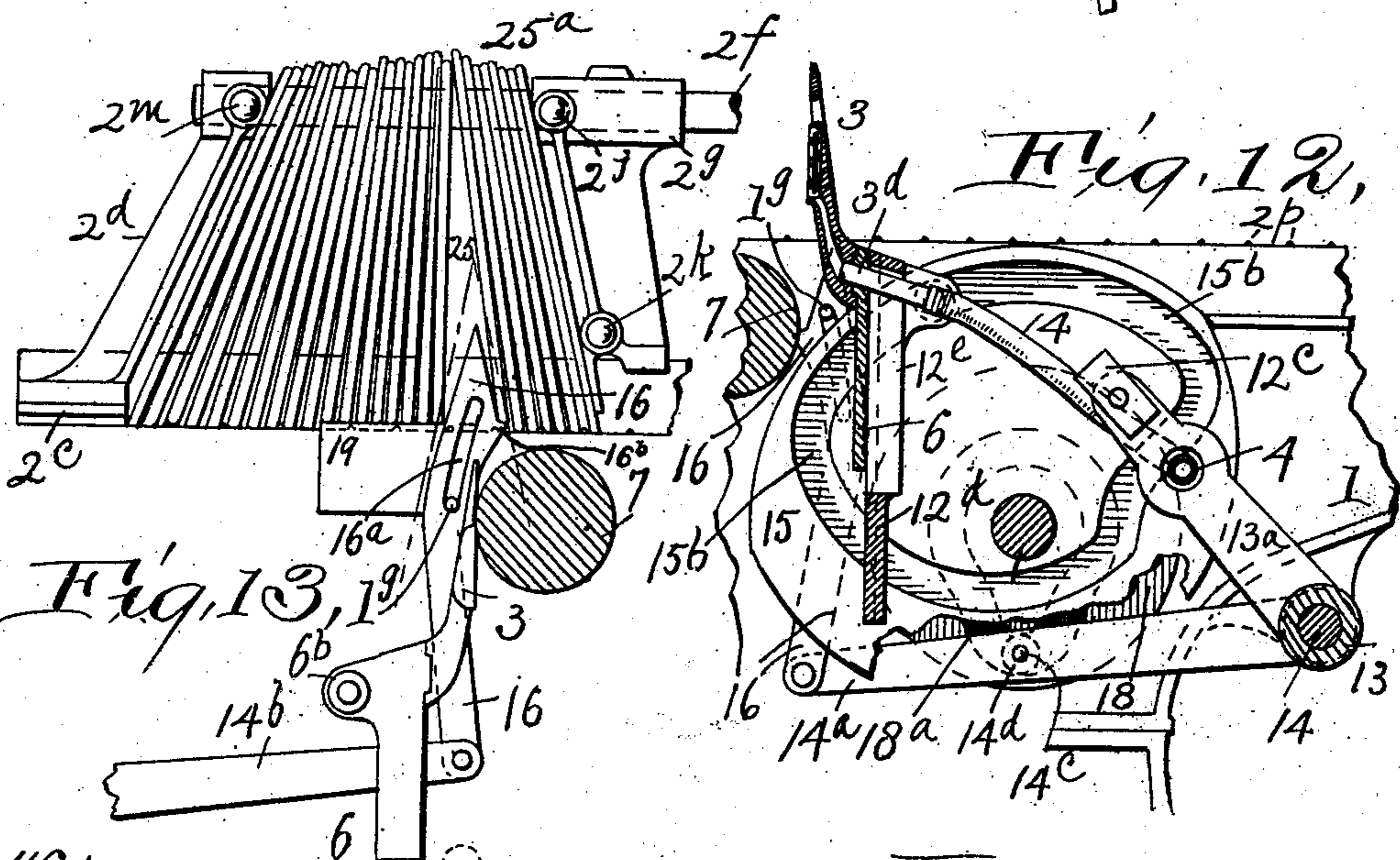
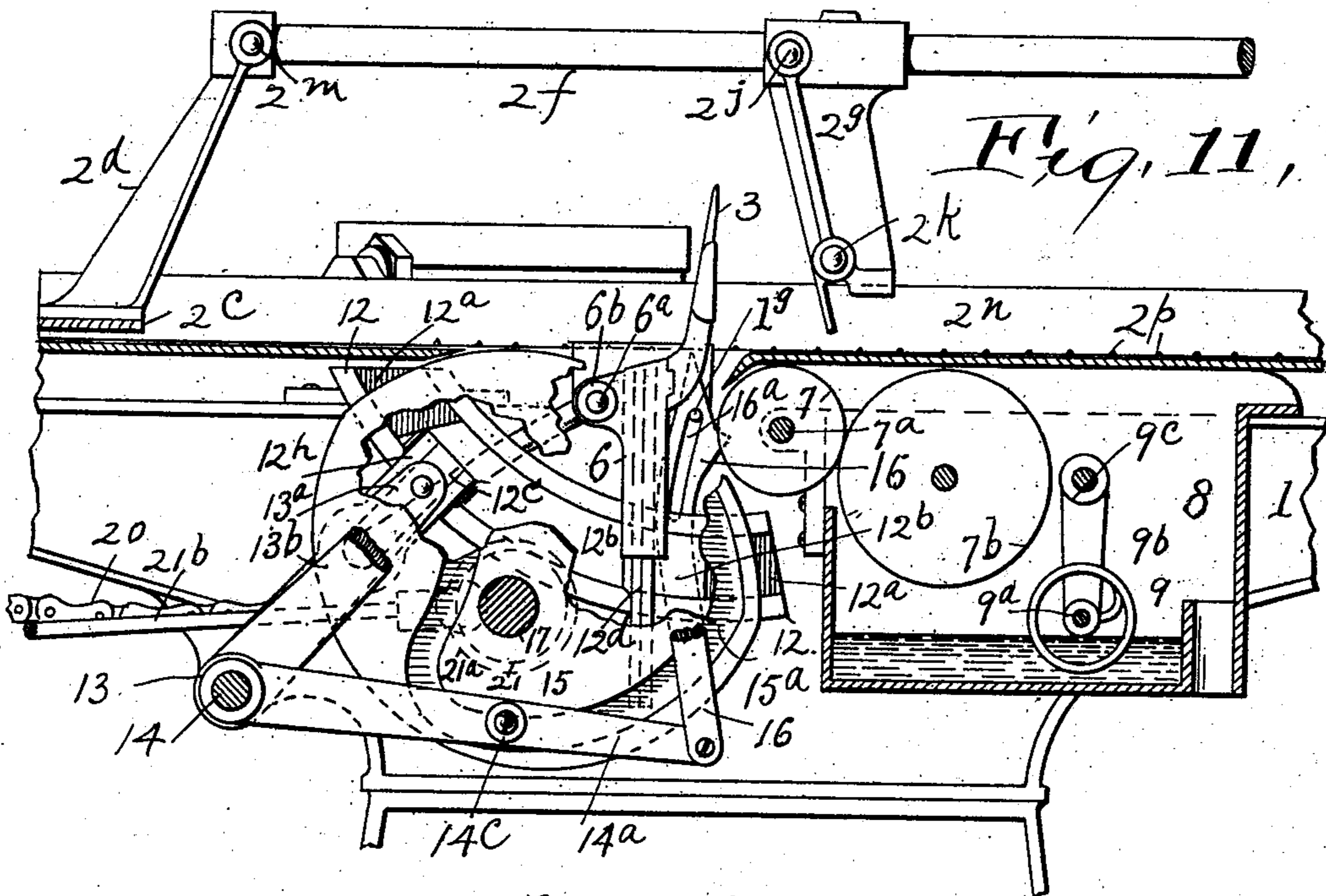
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4 Sheets—Sheet 3.



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4 Sheets—Sheet 4.

Fig. 14,

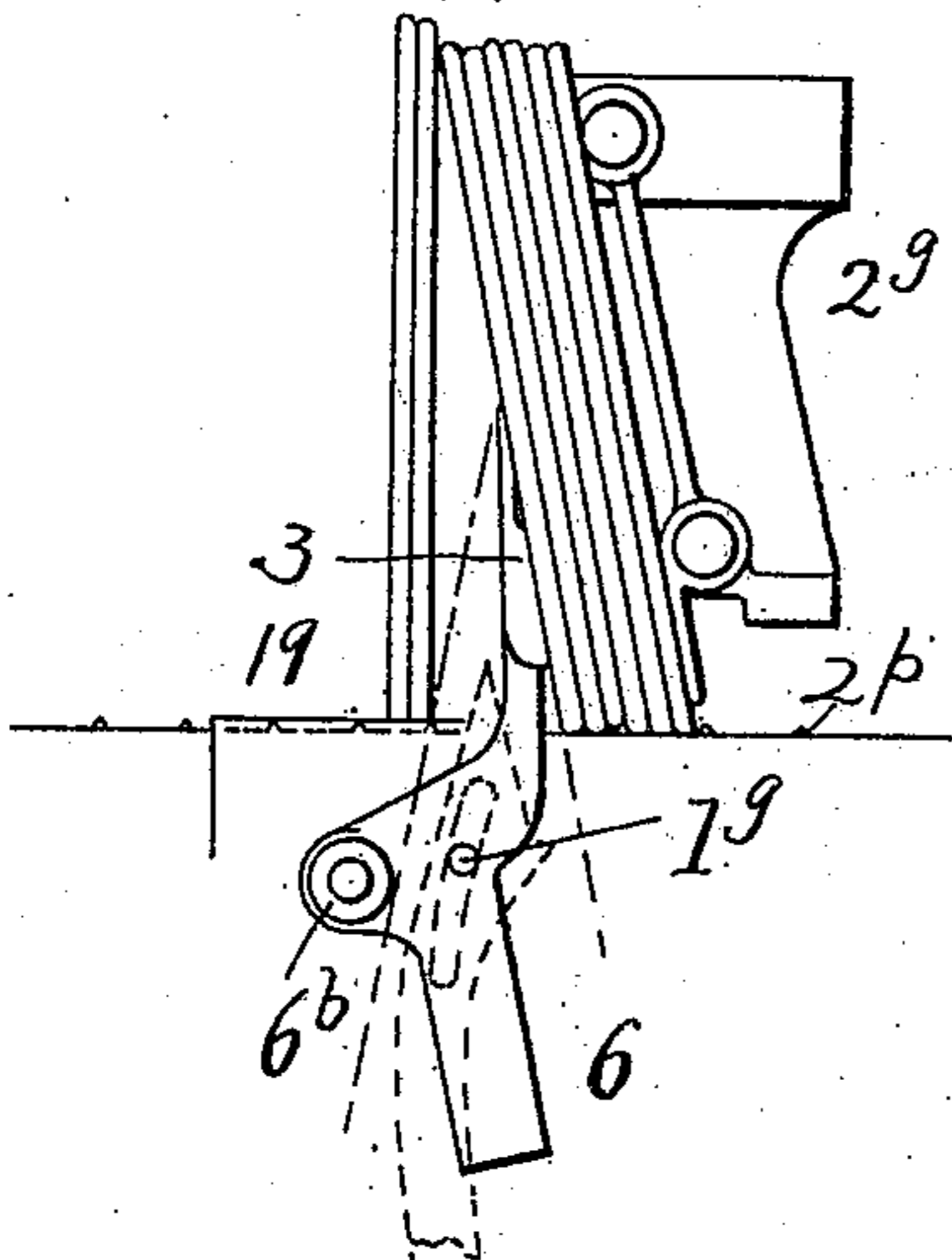


Fig. 15,

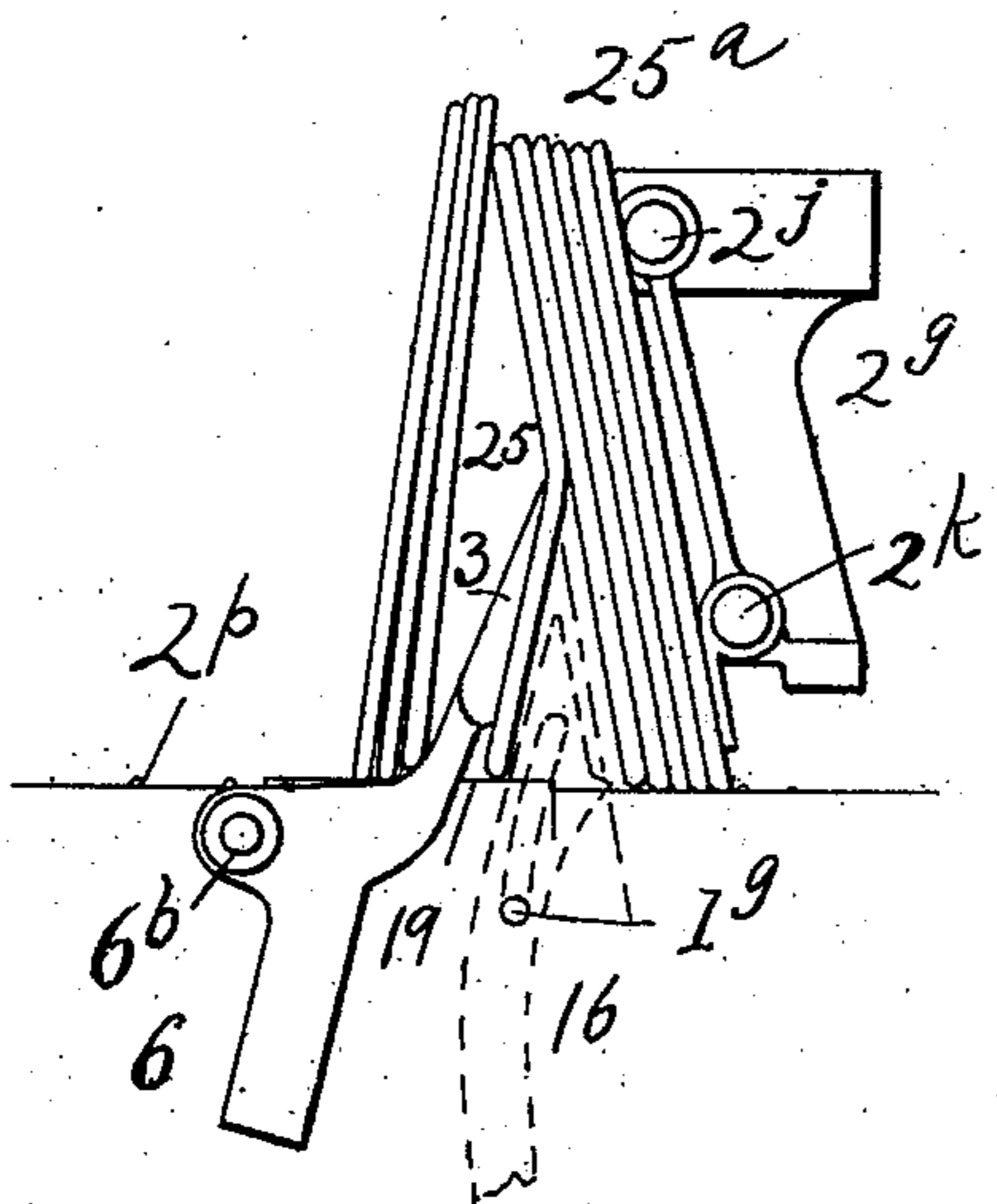
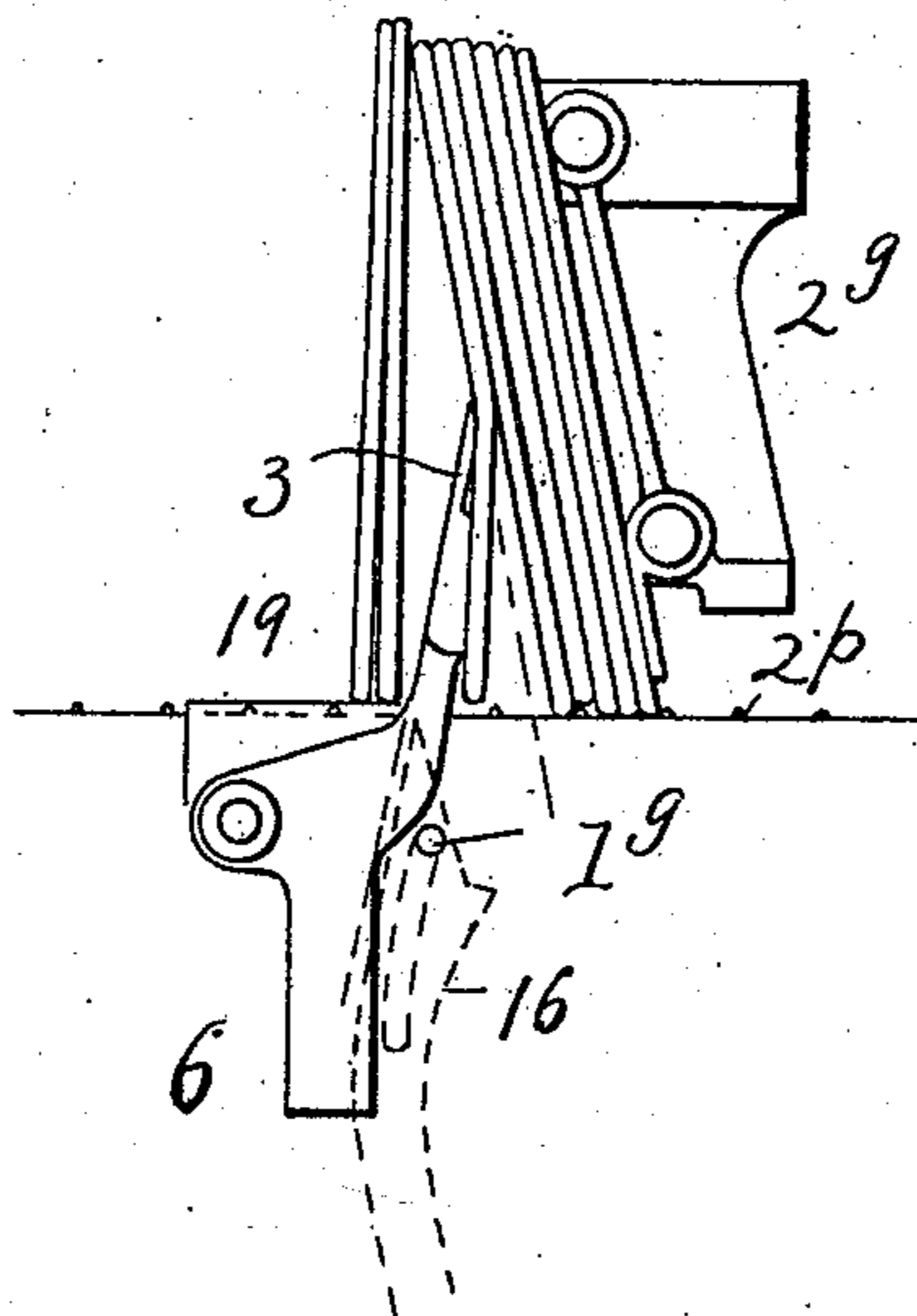
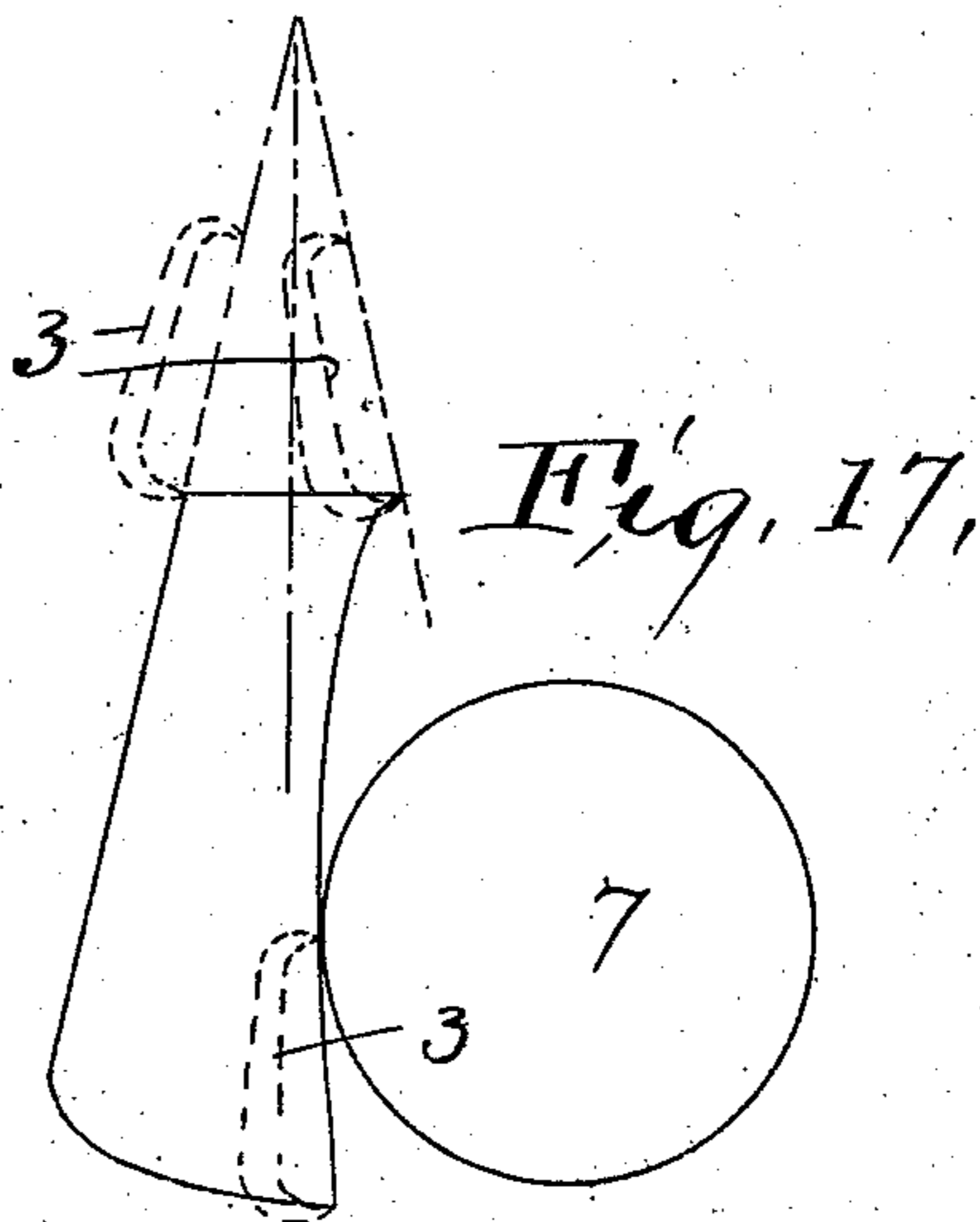


Fig. 16,



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UNITED STATES PATENT OFFICE.

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PORATION OF OHIO.

MAIL-MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 690,697, dated January 7, 1902.

Application filed March 31, 1900. Serial No. 10,914. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CHESHIRE, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Improvement in Mail-Marking Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to a machine adapted especially for postmarking letters, postal cards, and analogous mail-matter and canceling the stamps thereon.

The object of the invention is to provide a machine of a simple and inexpensive character which shall be capable of rapidly and efficiently applying postmarks to letters and analogous mail-matter and canceling the stamps thereon without danger of injury to the mail-matter being worked and of delivering the letters which are thus marked in a conveniently-handled pack. To accomplish this result, a pack of unmarked letters resting on their upper edges are supported and moved so as to present the foremost letter in the pack to the action of the marking and segregating instrumentalities. The marking device employed is a recessed plate secured to a movable arm and having in its recess a plate, upon the outer face of which will be found the marks and printing characters to be marked upon the letter. A vacuum-producing device creates a partial vacuum in this recess when the marking device is close to the letter, wherefore the letter is forced against the printing-plate in this recess with a pressure sufficient to print said marks and characters upon the letter. Then the lower edge of the letter is bent away from the unmarked pack, the upper edges of the letters in said pack being clamped with a moderate pressure. By thus bending the lower edge of the marked letter said letter is partially segregated from the unmarked pack, and then other means operate to render this segregation permanent. In the construction shown the pneumatic marking device is utilized after it has marked a letter to bend its lower edge, as described, and it so acts because it is moved through a suitable path,

and the partial vacuum in the recess in said plate is maintained for a sufficient time during such movement. It is not my intention, however, to limit the scope of all of the claims herein to a machine in which the marking device is made to serve this double purpose or to exclude a machine which employs substantially the same mechanism merely to mark the letters, but which relies upon other added mechanism to effect the segregation of the marked letters from the unmarked pack.

The invention consists in the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

In the drawings, Figure 1 is an elevation of the machine, a part of the hollow base being broken away. Fig. 2 is a plan view of the same. Fig. 3 is a transverse sectional view on line 3 3 of Fig. 1 through the carriage and upper part of the base. Fig. 4 is a detached view of the ratchet mechanism which is a part of the carriage-feeding mechanism. Fig. 5 is a sectional view on line 5 5 of Fig. 4. Fig. 6 is an end view of the machine. Fig. 7 is a front view of the combined marking and segregating plate. Fig. 8 is a transverse sectional view on line 8 8 of Fig. 7. Fig. 9 is a vertical central sectional view on line 9 9 of Fig. 2 through the vacuum-pump. Fig. 10 is a sectional view through the intaking-port of the pump-cylinder. Fig. 11 is a sectional elevation of the machine. Fig. 12 is a sectional view of part of the machine from the opposite side of the machine to that shown in Fig. 11. Figs. 13, 14, 15, and 16 show, respectively, various positions assumed by the combined marking and segregating device with respect to the marked and unmarked letters and of the separators which maintain the segregation. Fig. 17 is a diagrammatic view which shows in full lines the path in which the lower end of the combined marking and segregating device moves during the operation of the machine. Fig. 18 is a sectional view on line 18 18 of Fig. 7.

The following is a description of the particular machine shown which embodies my invention:

The various working parts of the machine, as shown, are supported upon a hollow base 1, which is of suitable size and dimensions for the purpose. The top of this base consists, essentially, of two parallel rails 1^a 1^b, which support the carriage 2. This carriage is an open rectangular frame having a front rail 2^a and a back rail 2^b and the connecting end rails 2^c. This construction leaves what may be called a "longitudinal slot" through the base of the carriage, and this is the result which this particular construction is designed to attain, because the combined segregating and marking device, which will be presently explained, moves up and down through the base of the carriage and must so move in this particular machine whatever be the position of the carriage. The upwardly-extended brackets 2^d 2^e are respectively secured to the forward and rear ends of this carriage. The front bracket 2^d is set at an angle—that is to say, it overhangs the carriage slightly, as shown in Fig. 1 or Fig. 11. To the top of these brackets and vertically over the rear rail of the carriage is a substantially horizontal rail 2^f. An arm 2^g, which hangs down from this rod, is adjustably supported thereby and may be secured thereto at any point in its length by the set-screw 2^h. Two horizontal fingers 2^j and 2^k project forward from the arm 2^g and serve as a back-rest for the pack of unmarked letters on the carriage. It will be noticed that a plane passing through the axis of these two fingers 2^j 2^k is not vertical, but is inclined slightly, as shown in Fig. 1. Another finger 2^m projects horizontally forward from the upper end of the brackets 2^d and co-operates with the upper finger of the back-rest to clamp the upper ends of the letters on the carriage. Along the rear edge of the carriage is a substantially vertical flange 2ⁿ, against which the rear ends of the letters abut, whereby they are kept in line. On the top surface of the two side rails 2^a 2^b of the carriage are the projections 2^p, which are preferably in the form of transverse angular ribs, as shown. A pack of letters to be marked are placed upon the carriage resting upon said rails with their rear edges in line and in contact with the rear flange 2ⁿ. They are clamped near their upper edges with a moderate pressure between the two clamping-fingers 2^m 2^j, and they assume an inclined position corresponding substantially with the inclination of the described back-rest. The raised ribs 2^p on the top of the carriage engage with the bottom of the letters and prevent them from spreading out fanwise, as they otherwise would in the absence of a clamping-rod opposed to the clamping-rod 2^k. The natural resiliency of a pack of letters which are clamped at their upper ends only, as shown, creates the tendency to spread apart at their lower ends; but this movement is, as before stated, prevented by the action of these transverse ribs 2^p. It will be noticed, however, particularly in Fig. 13, that after the

letters have been marked and segregated from the unmarked pack their lower ends do spread out fanwise, which action is due in part to the action of the combined marking and segregating device and the separators and in part to the natural resiliency of a pack of letters clamped at its top only.

The marking device, which, as previously stated, acts in this specific machine as a segregating device, consists in plate 3, having in its front face near its lower end a recess 3^a, having a marginal 3^b. This plate is formed with a stem 3^c, by means of which the plate is secured to its operating-arm. A hole or port 3^e passes through this stem and opens into the recess 3^a. A metal tube 3^d is screwed into this stem in communication with this port, and a flexible tube 4 connects this pipe with the vacuum-pump 10, to be presently described. This vacuum-pump, it may be said here, acts periodically to draw the air out of the recess 3^a, whereby a partial vacuum will be produced in the recess. In this recess a marking-plate 5 is secured to lugs 3^g, (indicated by dotted lines in Fig. 7.) This plate is not so large as the recess in which it is secured, and hence air may enter the recess and pass around the plate to the exit-port 3^e. This plate has upon its front face suitable marking devices, which may be of any desired character. If it is desired that this plate shall print upon the letters the place where and the day and time when marked, the marking devices may consist in part of printing-type 5^a, arranged for this purpose. A series of lines will, however, be quite sufficient for canceling the stamps, and these lines may be printed by the raised ribs 5^b. Preferably this marking-plate is made of sheet metal having slots 5^c, adapted to receive removable type 5^d, these slots being formed by bending the metal backward, as shown in Fig. 8. These bent-backward flanges 5^e form clamping-fingers, which impinge against the type and hold them in the slots. This combined segregating and marking device is secured by means of its stem 3^c to an operating-arm 6, and means are provided which will be presently explained for moving this device in two general directions—viz., backward and forward lengthwise of the machine and up and down through the slot in the base of the carriage. The combination of these two movements causes said marking device to be moved practically into contact with the foremost letter in the unmarked pack and then in the contrary direction to segregate this letter from the pack, then down so as to pass under the letter so segregated, then toward and into contact with an inking-roller 7, and then up through the carriage into position to repeat these operations. The inking-roller 7 is mounted on a transverse shaft 7^a in the base 1, and it may be made of felt. An ink-distributing roller 7^b is mounted on a parallel axis over an ink-well 8, which is secured to the base. A device for applying ink to this

distributing-roller consists of a helical wire 9, which is secured to a shaft 9^a, said shaft being mounted in the lower ends of arms 9^b, which form a part of a pendulous frame, the upper member 9^c of which is mounted in the sides of the ink-well, and its end projects out through the front side of the base of the machine. It is provided with a knob 9^d by means of which the operator may swing the frame, so as to carry the helical wire, which normally projects into the ink, against the distributing-roller 7^b.

In Fig. 17 the full lines show the path through which the front lower edge of the combined marking and segregating device is caused to move by the operating mechanism with which the machine is provided. It will be understood, however, that this particular path of motion is not in all respects essential to the operation of a machine containing the invention. The mechanism whereby the operating-arm 6 of the combined segregating and marking plate 3 is moved through the path substantially as shown will now be described.

A plate 12 is secured within the base, and in it is formed an arc-shaped groove 12^a, the general direction of which is lengthwise of the machine. A correspondingly-shaped plate 12^b is movable in this groove, the plate and groove being dovetailed together, whereby the plate is held in the groove. Secured to or preferably formed upon what may be termed the "front" side of the plate 12^b is an arm 12^c, having a dovetailed groove which extends crosswise of the path of the plate and in which a slide-block 12^e fits and is movable. This block is pivotally connected with an arm 13^a, which is rigidly fastened to a sleeve 13, and this sleeve is loosely mounted on a rock-shaft 14. A second arm 13^b, secured to the same sleeve 13, has a laterally-projecting pin 13^c, on which a friction-roller 13^d is mounted, and this roller enters a cam-groove 15^a in one face of a disk 15, which is secured to the main driving-shaft 17 of the machine, this driving-shaft being mounted in suitable bearings in the base. The plate 12^b has likewise formed upon its front side and projecting some distance in front thereof a guide-bar 12^d, which extends in a direction transverse to the path of plate 12. This guide-bar is embraced by the operating-arm 6, which is capable of sliding along this guide-bar. Projecting from the front side of the operating-arm 6 is a stud 6^a, upon which a friction-roller 6^b is mounted, and this friction-roller enters a cam-groove 15^b on the opposite side of the disk 15. This guide-bar 12^d has a longitudinal slot 12^e, through which passes the tube 3^d, to which the flexible tube 4 is connected. Now as the shaft 17 and the cam-disk 15 revolve the operating-arm 6 will receive a complicated movement, due to the sliding of the arc-shaped plate 12^b in its guide-groove 12^a and the sliding of the arm 6 on the guide-bar 12^d. The plate 12^b is moved by the action of the cam-

groove 15^a upon the arm 13^b, the movement of said arm being transmitted to plate 12^b through the sleeve 13, arm 13^a, and block 12^e. The movement of the arm 6 along the guide-bar 12^d is produced by the action of the cam-groove 15^b on arm 6. This resulting movement of plate 13 is that which is substantially represented diagrammatically in Fig. 17. The vacuum-pump 10 acts to produce a vacuum in the recess 3^a when the plate 3 has reached the position substantially as shown in Fig. 14. Then through the action of the described mechanism the plate 3 is moved to the left of said position, moving substantially as if upon an axis coincident with the top edge 3^b of said plate—that is to say, the top of said plate remains substantially stationary for the time being, while the lower end of said plate moves to the left, as shown. The partial vacuum produced in said recess has drawn the foremost letter 25 in the unmarked pack of letters 25^a tightly against the face of the recess 3^a, thereby sealing it for the time being, wherefore as said plate is moved, as described, into the position shown in Fig. 16 the letter is bent more or less, as shown in the two views, Figs. 15 and 16. When the plate 3 reaches the position shown in Fig. 16, the partial vacuum is relieved by the admission of air to the vacuum-producing device, and thereupon the letter is released from the plate 3. In the meantime, however, two tapered separators 16 have been moved up between the letter and the foremost letter in the unmarked pack, and therefore the letter just segregated and marked when it straightens out will assume the position substantially as shown in Fig. 13 and the separators 16 maintain the segregation thus effected. These separators are bars which are wedge-shaped on their upper ends and they move substantially vertically up through the base of the carriage and they have slots 16^a, into which project pins 15, whereby they are guided. The lower ends of these separator-bars are pivotally connected with the two arms 14^a 14^b, which are secured to the rock-shaft 14. One of these arms 14^a is provided with a transversely-extended pin 14^c, carrying a friction-roller 14^d, which enters a cam-groove 18^a in a cam-disk 18, which is secured to the main driving-shaft, and this cam-groove is so shaped that as the combined printing and segregating device 3 is moved toward the foremost letter in the unmarked pack these separators are moved downward below the surface of the carriage upon which the letters rest, so as to permit the letter to be bent as described, and then the separators are moved up, substantially as hereinbefore described, between this letter and the unmarked pack to preserve the segregation. The relative movements of the separators and the segregating and marking device will be clearly understood from Figs. 13, 14, 15, and 16.

The partial vacuum in the recess in the plate 3 by which said plate is able to grasp and temporarily hold the letters may be pro-

duced by a vacuum-pump, substantially as shown in the drawings. The pump consists of a cylinder 10^a, having an intake-port 10^b, with which the flexible pipe 4 is connected, as shown in Fig. 10, the air being drawn through a diaphragm 10^c, of light wire-gauze. The piston 10^e of this pump is connected by the connecting-rod 10^d to a crank on the main shaft. A hole 10^e is made vertically through the piston-head, and a vertically-movable valve 10^f is provided for closing this hole. This valve is normally closed by the action of a spring 10^g. The valve-stem 10^h, however, projects some distance below the piston-head and is in a position where it will be engaged by a toe 10ⁱ on the connecting-rod. In the cylinder is a relief-port 10^k. When the piston begins its downward movement, the plate 3 is being moved toward the foremost letter in the unmarked pack, and when said plate is nearest to that letter the piston passes below the intake-opening 10^b, whereupon the air is suddenly drawn through said opening and pipe 4 out of the recess in the plate 3, thereby creating a partial vacuum therein of sufficient strength to cause the letter to be drawn against the marginal wall of said recess, so as to practically seal the same. When the letter has been carried by the plate 3 to the position shown in Fig. 16, this piston has descended, so as to open up the relief-port 10^k, whereupon the air rushes into the cylinder, the vacuum is relieved both in the cylinder and in the recess in plate 3, and the letter is released. When the crank on the shaft 17 passes the center preparatory to beginning its upward stroke, the toe 10ⁱ on the connecting-rod strikes the valve-stem and forces the valve upward, thereby making a perfect communication between the space above and that below the piston, so that the piston in moving up does not compress any air above it. This vacuum-pump is capable of operating in the described manner to perform the functions just described; but any other means for producing a partial vacuum in the recess in the plate 3 and for maintaining that vacuum for a sufficient length of time may be substituted for said described vacuum-pump.

As has before been stated, the projections 2^p on the carriage serve a useful purpose in preventing the pack of unmarked letters from spreading out fanwise at their lower edges, and therefore unless means were provided to prevent them from so acting they would obstruct the movement of the letters when they are in the grasp of plate 3 in moving from the position shown in Figs. 14 to 16. The means provided consist of the shoulders 16^b, carried by the separators 16, and when said separators pass up between the marked and the unmarked letters to the position shown in Fig. 13 these shoulders pass under the foremost letter in the unmarked pack and lift it above said projections. It is desirable that the letters shall spread themselves out fanwise at

their bottom after they have been marked and segregated from the unmarked pack, or rather it is desirable that there shall be a certain amount of freedom of motion for the lower part of said letters close to the separators, which freedom of motion would be prevented by the same projections 2^p on the carriage if they were permitted to touch such letters. The letters, however, are prevented from coming into contact with these ribs by means of the plates 19, which are secured to the base and project upward therefrom above the tops of said ribs. These plates are only about an inch, more or less, long and are placed so that they will engage only with the last ten or a dozen letters which have been marked.

Heretofore the means for feeding the carriage so as to bring the letters progressively into proper relation with the segregating and marking device have not been described. It will be noticed from Fig. 3 that the top edge 1^b of the frame 1 has a longitudinal groove 1^c and that on the under side of the corresponding rail 2^b of the carriage 2 is a corresponding groove 2^c. In these two grooves lies the upper leg of a sprocket-chain 20, which chain rests upon the base, and the carriage rests upon it. This sprocket-chain passes over the two sprocket-wheels 20^a 20^b, which are mounted, respectively, at opposite ends of the base, and means are provided by which one of said sprocket-wheels is given a step-by-step rotary movement in the direction shown by the arrow in Fig. 1. The friction between the chain and the carriage resting upon it is sufficient to cause the carriage to move with the chain unless such motion is resisted. It therefore moves the carriage after each letter has been segregated from the unmarked pack forward until the next letter in the unmarked pack comes into contact with the separators 16, and this causes the carriage to be stopped, while the chain completes its short advancing movement. It will be seen, therefore, that the carriage is given a differential feed movement—that is to say, after each letter is segregated from the unmarked pack the carriage is moved forward a distance substantially equal to the thickness of the letter so segregated. The step-by-step rotary movement is imparted to the sprocket-wheel by means of an eccentric 21, secured to the driving-shaft, the eccentric-strap 21^a, which embraces it, and a rod 21^b, secured to said strap, the rear end of which is pivotally connected with an arm or plate 20^c, which is loosely mounted upon the same axis as the sprocket-wheel 20^a. A ratchet contrivance is provided by means of which the movement of this plate in the direction of the arrow causes the sprocket-wheel to move with it, but does not cause any movement of the sprocket-wheel when it moves in the contrary direction. In the specific construction shown this arm carries a substantially arc-shaped flange 20^d, which lies just outside of a

circular disk 20^c, which is secured to the sprocket-wheel. In the face of this disk is a groove 20^b, which is secured to the sprocket-wheel. In the face of this flange is a groove 20^a, which is not concentric with the sprocket, and in this groove lies a ball 20^d. When the arm moves in one direction, this ball is wedged between its flange and the disk, and consequently compels the disk to move with it, and when it is moved in the other direction no such action takes place.

Particular attention is called to one very valuable characteristic of the machine shown and described—to wit, the orderly arrangement of the letters on the carriage in an easily-handled pack is not disturbed during the segregating and marking operation. In fact, the pack of unmarked letters is placed in the machine between the clamping-fingers 21 2^m, and the letters remain in the grasp of said fingers until the letters are all marked, when the pack as a whole may be removed.

The main shaft 17 may be driven by a belt, which engages with pulley 17^a, or it may be driven by a crank 22^a, secured to shaft 22, which shaft is connected with shaft 17 by two gears 17^b 22^b.

Having described my invention, I claim—

1. In a mail-marking machine, the combination of a support whereon a pack of unmarked letters may stand on edge, means for clamping together the upper ends of the letters in said pack, a marking device for marking the foremost letter in said pack near its lower edge, and means for bending the lower edge of said letter away from the next letter in the unmarked pack whereby to effect a partial segregation of the marked letter, and means for rendering said segregation permanent, substantially as specified.

2. In a mail-marking machine, in combination, means for supporting on edge a pack of unmarked letters and for moving them forward to properly present the foremost letter in the pack to the action of the marking and segregating instrumentalities, means for clamping together the upper ends of the letters in said pack, a marking device, and means for bending the lower edge of the foremost letter away from the unmarked pack without withdrawing the said upper edge from the grasp of said clamping device, substantially as specified.

3. In a mail-marking machine, a support whereby a pack of unmarked letters may stand on edge, combined with means for marking each individual letter without destroying the integrity of said pack, substantially as described.

4. In a mail-marking machine, a combined segregating and marking device consisting of a plate having a recess in its face, a printing-plate in said recess, and a movable arm to which said recessed plate is secured, combined with a vacuum device, a flexible connection between said vacuum device and said

recess, means for presenting mail-matter to the action of said segregating and marking device, and means for moving said device, substantially as specified.

5. In a mail-marking machine, the combination of a carriage movable longitudinally and having a longitudinal opening through its base, and means for clamping the upper end of a pack of letters resting upon said base, with a marking device movable up and down through the slot in said carriage toward and from the pack of unmarked letters, and means for segregating the marked letters one by one from the unmarked pack, substantially as specified.

6. In a mail-marking machine, the combination of a movable carriage for supporting letters, a marking device for marking the foremost letter in the unmarked pack, and means for moving the lower edges of the letters one by one as they are marked along said carriage whereby to segregate the marked from the unmarked letters without removing them from said carriage, substantially as specified.

7. In a mail-marking machine, in combination, means for supporting a pack of unmarked letters and for presenting the foremost letter in said pack to the action of the marking device, an inking device, a marking device, mechanism for moving it toward and from the foremost letter in said pack and into contact with said inking device, and means for bending the lower edge of each marked letter away from the unmarked pack to effect its partial segregation therefrom, substantially as specified.

8. The combination of a moving carriage, means for holding a pack of letters thereon for presentation to the marking device, and an inking device below said table, with a combined segregating and marking device, and mechanism for moving the same toward the foremost letter in the unmarked pack whereby the same is seized and marked, then away from said pack whereby said letter is segregated therefrom, then below the table and into contact with the inking device and then up between the segregated letter and the unmarked pack whereby to repeat said movements, substantially as specified.

9. In a mail-marking machine, the combination of a moving carriage adapted to hold a pack of letters for presentation to the marking and segregating device, an inking device below the carriage, with a combined segregating and marking device consisting of a plate with a recess in its face and a marking device secured in said recess, a vacuum device, and a flexible connection between it and the recess in the marking and segregating device, and mechanism for moving said segregating and marking device from the inking device up through the carriage to a position in front of the unmarked pack, then toward the foremost letter in said pack, then away

from said pack, then down below the table, and then into contact with the inking device, substantially as specified.

10. In a mail-marking machine, the combination of a moving carriage for holding a pack of unmarked letters, means for clamping together the upper ends of the letters in said pack, a marking device and means for moving the lower ends of the marked letters along the carriage and away from the pack of unmarked letters, with a separating device which is movable into a position in front of the unmarked pack and between it and the segregated letters (whereby to preserve the segregation) and then below the unmarked pack to permit the segregation of another letter, substantially as specified.

11. In a mail-marking machine, the combination of a carriage having an adjustable back-rest for a pack of letters resting upon edge upon said carriage, a fixed clamping-finger for coöperation with the upper end of said back-rest to clamp the upper end of said pack of letters, with a marking device, and means adapted to seize the foremost letter in said pack and to move its lower edge away from the unmarked pack without removing the upper edge of said letter from the grasp of said clamping members, substantially as specified.

12. In a mail-marking machine, the combination of a carriage having an adjustable back-rest for a pack of letters resting upon edge upon said carriage and a fixed clamping-finger for coöperation with the upper end of said back-rest to clamp the upper end of said pack of letters, with a combined segregating and marking device adapted to seize the lower part of the foremost letter in the unmarked pack and to mark the same, and to move its lower edge away from the unmarked pack, and means for making and breaking a vacuum in said segregating and marking device to seize and release said letters, substantially as specified.

13. In a mail-marking machine, the combination of a moving carriage for holding a pack of unmarked letters, and a clamping device for the upper ends of said letters, with a combined segregating and marking device adapted to seize the letters singly and to mark them and to bend them so as to carry their lower ends away from the pack of unmarked letters, means for preserving the segregation thus effected, means for making and breaking a partial vacuum within said device to cause it to seize and release the letters, and mechanism for moving said device, substantially as specified.

14. In a mail-marking machine, a moving carriage for holding a pack of letters, a clamping device for the upper ends of said letters, a combined segregating and marking device adapted to seize the letters singly and to mark them and to bend their lower ends away from the pack, and means for moving said segregating and marking device, after it has thus segregated a letter, below the letter so segre-

gated, and then up between it and the foremost letter in the unmarked pack, then toward the last-named letter whereby it may repeat said operations, and a separator device which moves into a position in between the unmarked pack and the segregated letters during the time the letter is being segregated, and then moves below such position as the combined segregating and marking device moves into that position preparatory to repeating its described movements, substantially as specified.

15. In a mail-marking machine, a movable carriage for holding the pack of letters, the clamping device for the upper ends of said letters, a combined segregating and marking device adapted to seize upon the letters singly and mark them, mechanism for moving said device toward the foremost letter in the unmarked pack whereby said letter may be seized, and then away from said pack as upon an axis substantially coincident with the upper edge of said plate, whereby the letter so seized is bent at its lower edge away from the unmarked pack, substantially as specified.

16. In a mail-marking machine, a carriage having projections on its upper surface, a device for clamping the upper ends of a pack of letters resting on edge on said surface, combined with a marking device, and means for bending the lower edge of the marked letter away from the unmarked pack, and means for lifting said letter above said projections, substantially as specified.

17. The combination of a table having projections on its top surface, means for holding on said table a pack of letters for presentation to a marking and segregating device, combined with said marking and segregating device which is adapted to mark the foremost letter in the unmarked pack and to move its lower end away from said pack, and vertically-movable separators having rearwardly-projecting fingers which are adapted to engage with the foremost letter in the unmarked pack and to lift it above the projections on said table, substantially as specified.

18. In a mail-marking machine, a carriage having projections on its upper surface, a device for clamping the upper ends of a pack of letters resting on edge on said surface, combined with a combined segregating and marking device adapted to seize the foremost letter in the unmarked pack and to mark the same and to move the lower end of said letter away from the unmarked pack, and means for lifting said letter, before it is seized by said device, above said projections, and fixed plates which extend above the projections on said table and upon which the latter is deposited when released by said segregating and marking device, substantially as specified.

19. In a mail-marking machine, a carriage having projections on its upper surface, a device for clamping the upper ends of a pack of letters resting on edge on said carriage, combined with a combined segregating and mark-

ing device adapted to seize the foremost letter in the unmarked pack and to mark the same and to move the lower end of said letter away from the unmarked pack, and means for lifting said letter before it is seized by said device above said projections, and separators movable up between the letter so segregated and the unmarked pack whereby to preserve the segregation and then down below the path of the lower edge of the letters whereby another letter may be segregated, substantially as specified.

20. A marking device consisting of a plate having a recess in its front face, and a stem containing a port which communicates with said recess, a marking-plate secured in said recess, and means connected with said port for producing a vacuum therein, substantially as specified.

21. In a mail-marking machine, a marking device consisting of a plate having a recess in the lower end of its front face, and a stem in which is formed a port which communicates with said recess, a tube connected with said stem and projecting rearwardly therefrom, a printing-plate secured in said recess, a vacuum device, a flexible connection between the same and said tube, an arm to which said stem is attached, and mechanism for operating said arm, substantially as specified.

22. A marking device, consisting of the following parts in combination, a plate having a recess in its face, lugs in said recess, and a port communicating with said recess, a printing-plate secured to said lugs and having slots and rearwardly-projecting resilient flanges along the edges of said slots, a removable type held in said slots by said flanges, substantially as specified.

23. A marking device consisting of a plate having a recess in its front face, and a printing-plate secured therein, a vacuum device and a flexible connection between said device and the recess in said plate, combined with a plate movable lengthwise of the machine, an arm to which the marking device is secured, which arm is mounted on the plate referred to and is movable thereon in a direction transverse to its movement, and mechanism for simultaneously moving said plate and arm, substantially as specified.

24. A marking device consisting of a plate having a recess in its front face, and a printing-plate secured therein, a vacuum device, and a flexible connection between said device and the recess in said plate, a plate movable lengthwise of the machine, an arm to which the combined marking device is secured,

which arm is mounted on the plate referred to and is movable in a direction transverse to its movement, and two rotating cam-grooves adapted to independently move said arm and plate, substantially as specified.

25. A marking-plate having a recess in its front face and a printing-plate secured in said recess, a vacuum device, a flexible connection between the same and said recess, combined with a plate movable in an arc-shaped path having a guide-arm which lies in a direction substantially transverse to its path of movement, an arm movably mounted upon said guide-arm and secured to the marking device, mechanism for independently moving said plate and arm, a carriage movable transversely with respect to the vertical movement of said device, and means for holding a pack of letters thereon for presentation to the action of said marking device, substantially as specified.

26. In a mail-marking machine, the combination of the marking device 3 having the stem and a port through said stem to the recess in said marking device, and an operating-arm 6 to which said stem is secured; a vacuum device, and a flexible connection between it and said port, with the plate 12 having a curved groove, a curved plate 12^b movable therein having the arm 12^a which supports and guides the arm 6, and the grooved arm 12^b, a slide-block 12^c in the groove, a rocking sleeve having two arms 13^a 13^b of which the former is pivotally connected with said slide-block, a rotating disk having two cam-grooves and pins projecting respectively from the arms 13^b and 6 into said grooves, substantially as specified.

27. In a mail-marking machine, the combination of a vacuum-pump having an intake-port a short distance below its head, and a relief-port at a greater distance from said head, a piston movable past both ports, and its operating mechanism, with a pneumatic marking device consisting of a plate having a recess in its face, and a printing-plate in said recess, a flexible connection between said recess and the said intake-port, a carriage for supporting a pack of letters for presentation to said marking device, and mechanism for moving said device, substantially as specified.

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

EDWARD CHESHIRE.

Witnesses:

A. G. GARDNER,
FRANK H. JOHNSTON.