

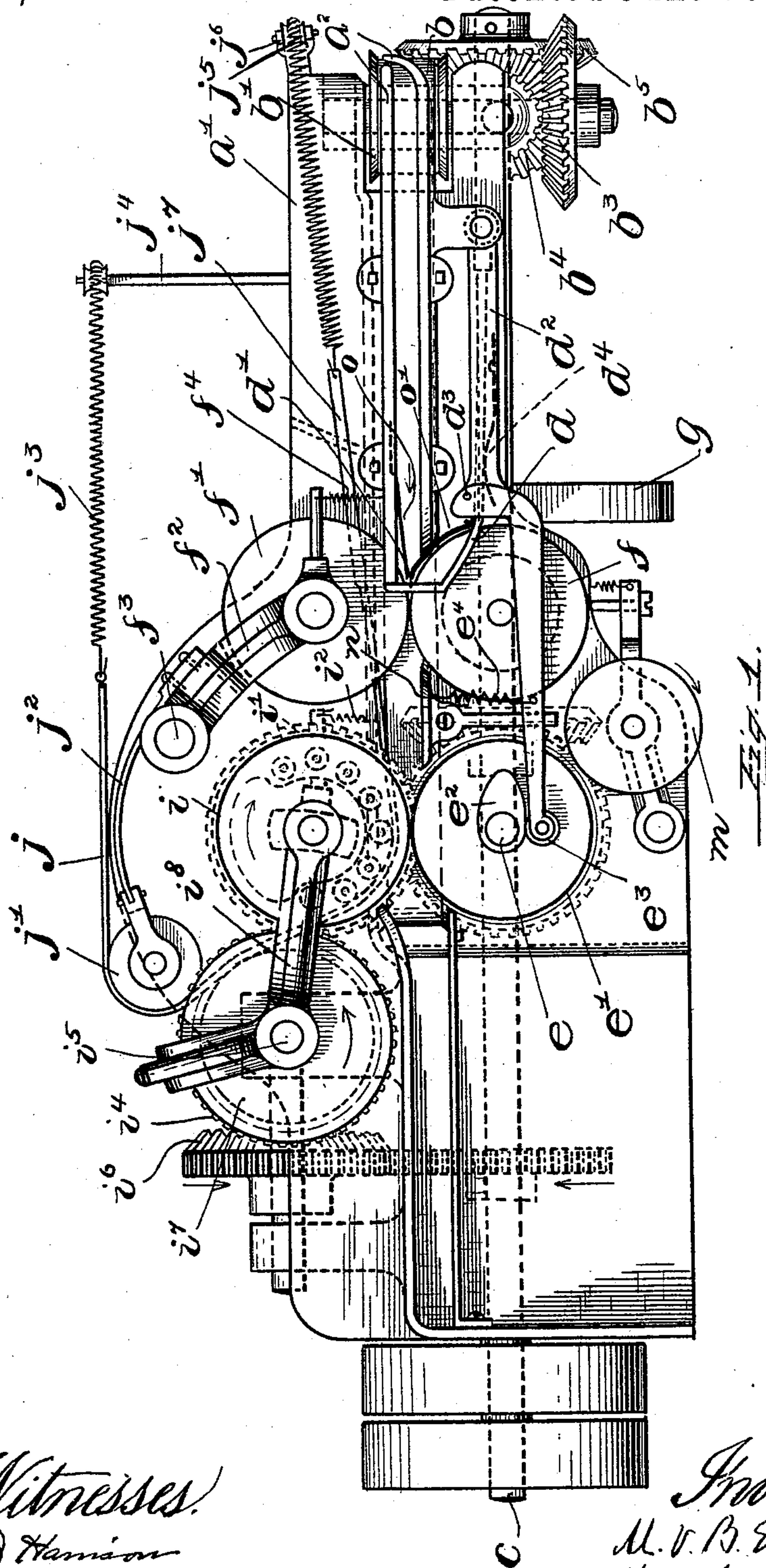
(No Model.)

3 Sheets—Sheet 1.

M. V. B. ETHRIDGE & H. E. WAITE.  
MAIL MARKING MACHINE.

No. 521,764.

Patented June 19, 1894.



Witnesses.  
A. D. Harrison  
J. P. Davis

Inventors.  
M. V. B. Ethridge  
H. E. Waite  
by Night & Son, Counselors  
at Law.

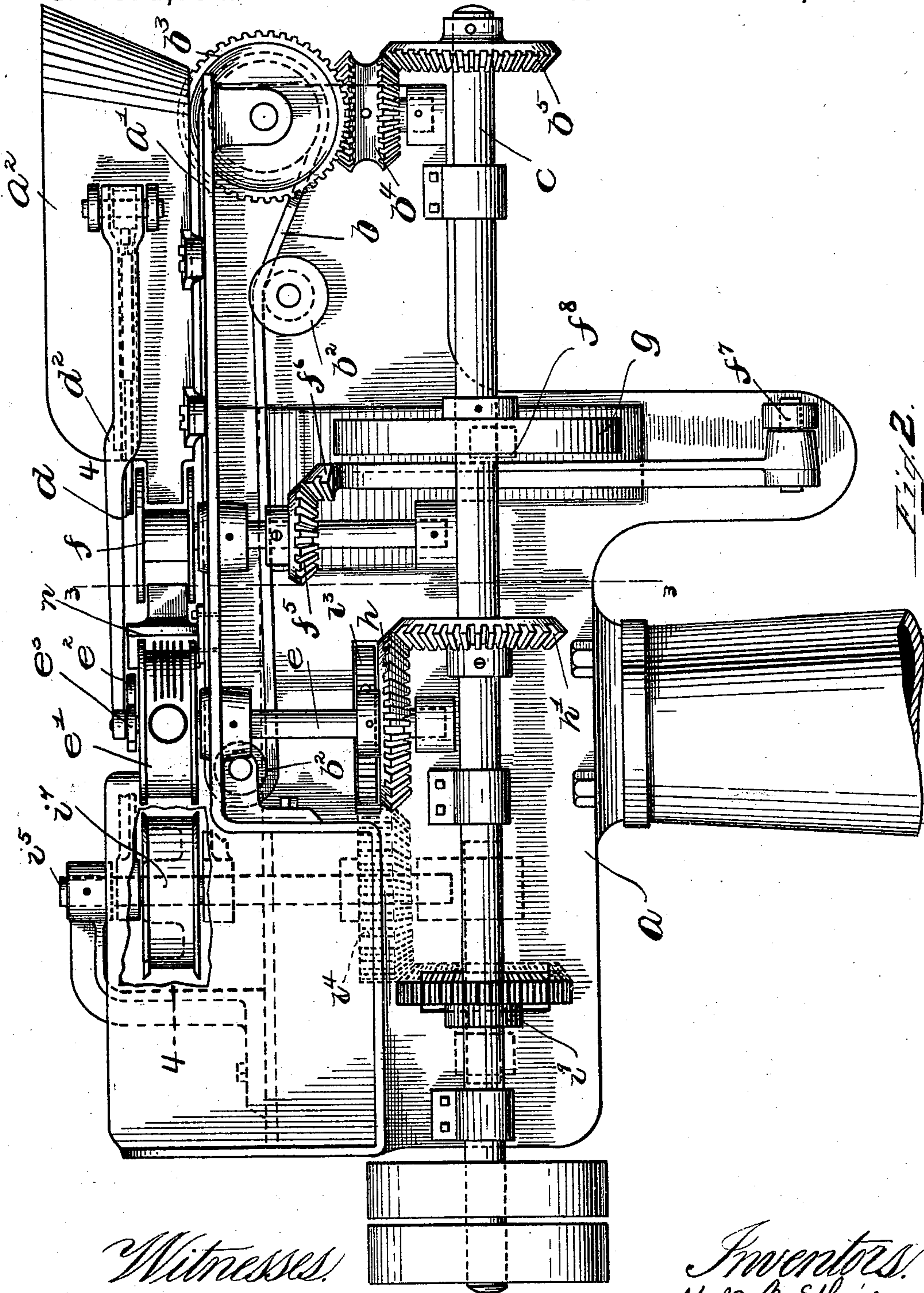
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*by Knight Brown Crossley*

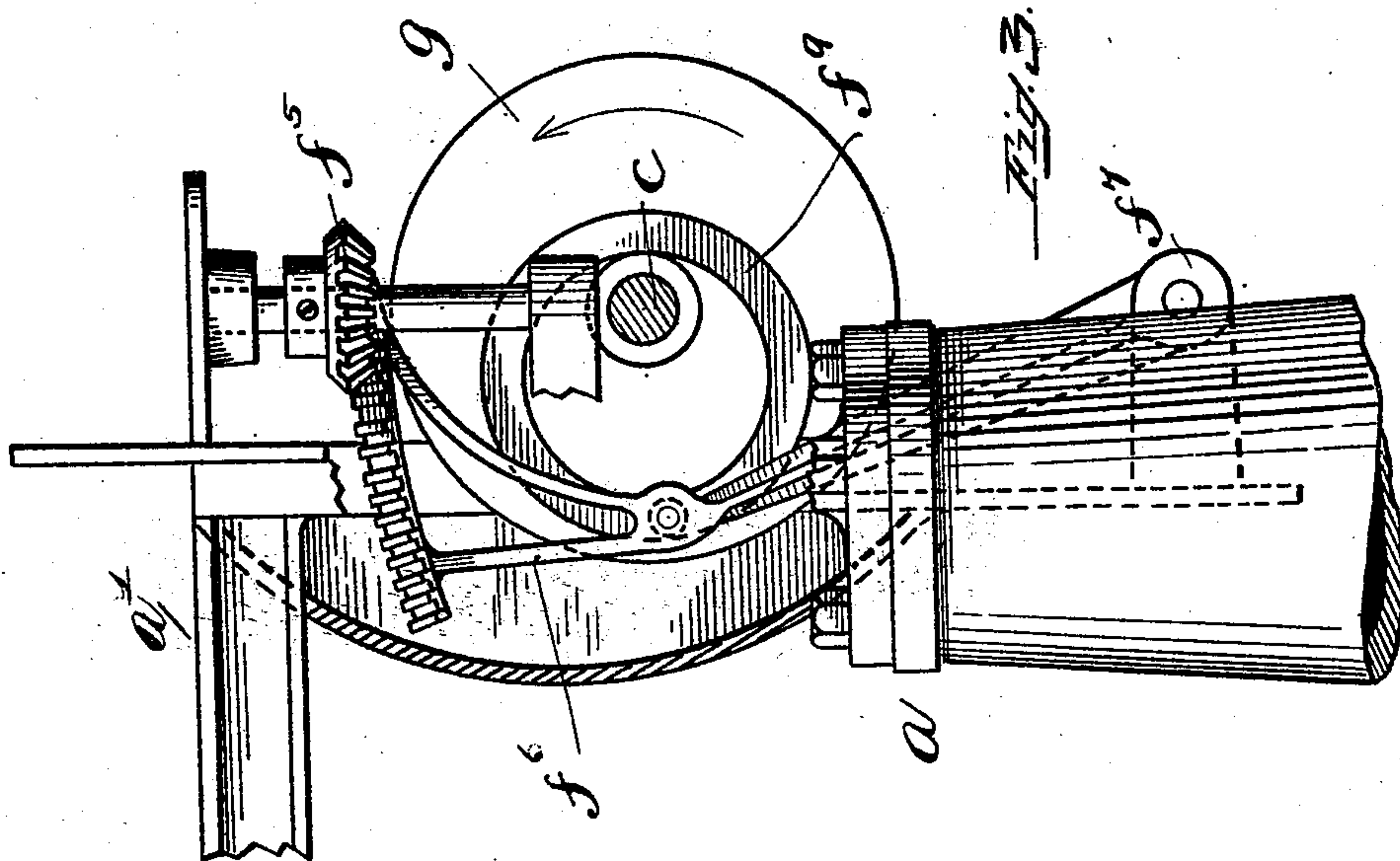
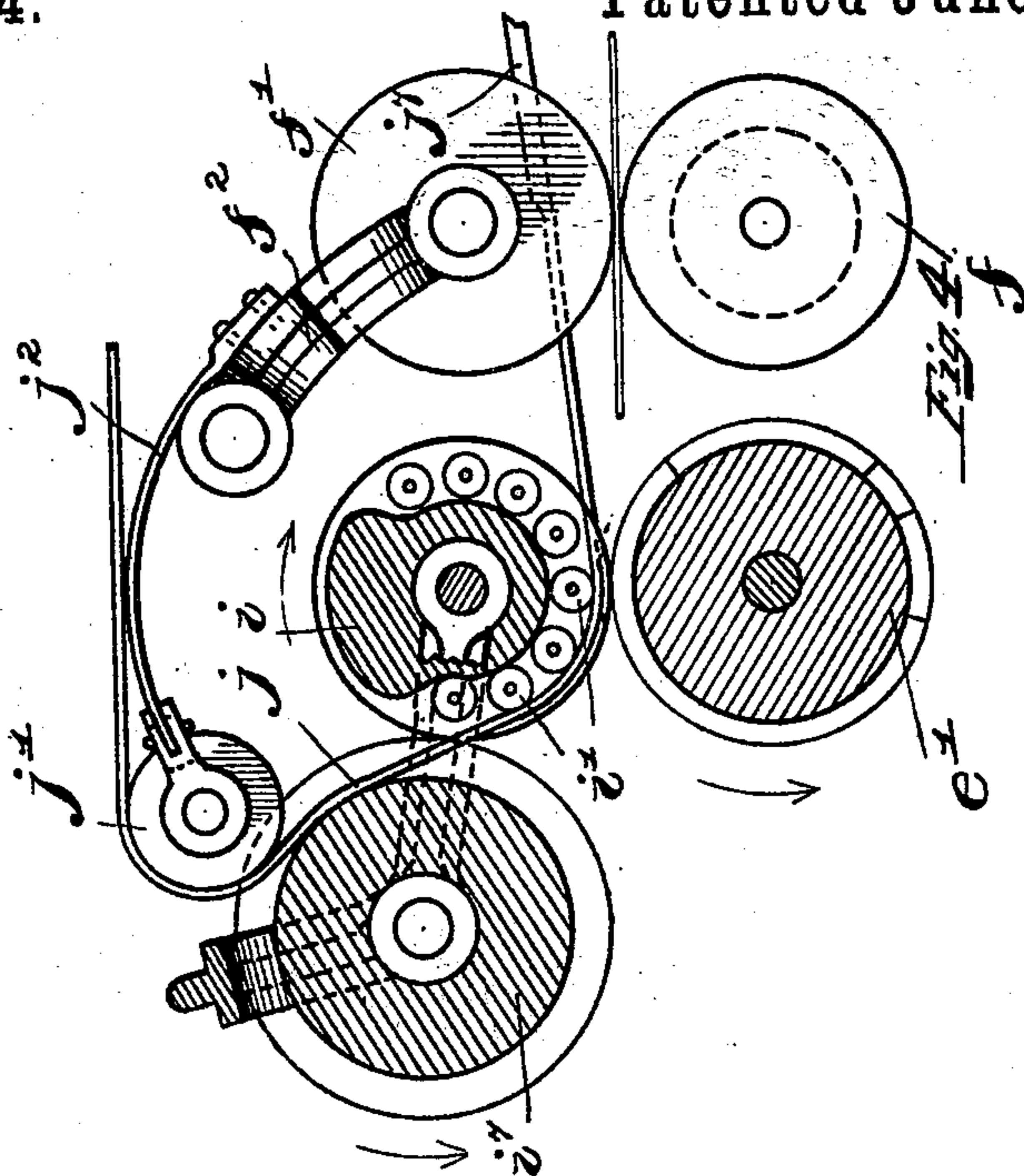
*Attys.*



**3 Sheets—Sheet 3.**

## MAIL MARKING MACHINE.

Patented June 19, 1894.



J. P. Davis.

Inventors  
M. V. B. Ethridge  
H. E. Maite  
by night Brown Crossley  
Atty.



# UNITED STATES PATENT OFFICE.

MARTIN V. B. ETHRIDGE, OF EVERETT, AND HENRY E. WAITE, OF NEWTON,  
ASSIGNORS TO CHARLES F. BROWN, OF READING, MASSACHUSETTS.

## MAIL-MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 521,764, dated June 19, 1894.

Application filed March 12, 1894. Serial No. 503,278. (No model.)

*To all whom it may concern:*

Be it known that we, MARTIN V. B. ETHRIDGE, of Everett, and HENRY E. WAITE, of Newton, in the county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Mail-Marking Machines, of which the following is a specification.

This invention relates to machines for post-marking and stamp-canceling mail-matter, and is specially directed, for one thing, toward providing new and improved means for controlling operative adjustment of parts for marking by employing the agency of the passing mail-piece, so as to prevent transfer of ink to any other surface than that presented by the mail-piece, with the object of doing away with vibration of the die or impression cylinders to accomplish this prevention, as has heretofore been customary, and which is objectionable for the reason that the machine suffers from the constant jarring incident to such action.

The invention is also directed toward providing new and improved means for insuring proper successive presentation of the mail-pieces to the marking devices, so that they shall receive the marks at the proper places, the aim being to dispense with the deflection of the mail-pieces against a stop and subsequent crowding of the pieces past the stop, as at present practiced, and which has been found to be objectionable in that the mail-pieces are apt to become crumpled and clog the machine.

With the above ends in view, the invention may be said to consist broadly in the following combinations of parts: First, the combination with a rotary marker, and a suitable opposed backing of a normally disconnected impression pad adapted to co-operate therewith in marking the mail-pieces and normally retracted from operative position, a driver, and letter-controlled means for operatively connecting said pad and driver to bring the latter into operative relation with the marker, in which relation it remains during the marking of the letter. Second, the combination of an oscillating feed roller and a movable stop adapted to stand in the letter-path in ad-

vance of said feed-roller and to be retracted therefrom when the roller is traveling in a direction reverse to that of the feed.

The invention further consists in certain minor combinations of elements, and in certain details of construction, all of which are pointed out in the claims hereinafter.

A machine embodying the invention is illustrated in the accompanying drawings, which form part of the specification.

Figure 1 shows a plan view of the machine. Fig. 2 shows a side elevation as viewed from the lower side of Fig. 1. Fig. 3 shows a vertical section on line 3—3 of Fig. 2. Fig. 4 shows a horizontal section on line 4—4 of Fig. 2.

The letter *a* designates the supporting frame of the machine, formed with a horizontally extending table *a'* on which are mounted the sides *a<sup>2</sup>* of a hopper for receiving the deposit of mail. The bottom of this hopper is formed by the upper stretch of a feeding belt *b*, which is supported on pulleys *b'* *b<sup>2</sup>* journaled below the table, and is driven in the direction of the arrow in Fig. 1 by means of a gear *b<sup>3</sup>* on the journal of the pulley *b'*, a double bevel-gear *b<sup>4</sup>* on a vertical stud, and a gear *b<sup>5</sup>* on the driving shaft *c*. An arm *d* pivoted to a bearing on one side of the hopper is formed with a bent end *d'* adapted to project across the forward end of the hopper and form a stop for the mail-pieces to abut. A lever *d<sup>2</sup>* pivoted concentrically with said arm partially embraces the same and carries a pin *d<sup>3</sup>* bearing against the inner side of the arm and a flat spring *d<sup>4</sup>* bearing against the other side thereof. The journal *e* of a marking cylinder *e'* carries affixed to it a cam *e<sup>2</sup>* which is designed to act against a roller *e<sup>3</sup>* on the end of the lever *d<sup>2</sup>* and thereby periodically retract the stop *d'*. A spring *e<sup>4</sup>* returns said stop, said spring connecting the lever with a fixed support. At the forward or outlet end of the hopper, is a pair of opposed flanged feed-rollers *f* and *f'*, one of which, *f*, is supported in stationary bearings, and the other, *f'*, in bearings on a horizontally swinging arm *f<sup>2</sup>*, pivoted at *f<sup>3</sup>*; and said roller *f'* is pressed into engagement with the roller *f* by a spring *f<sup>4</sup>* connecting the arm *f<sup>2</sup>* with a fixed support. The roller



$f'$  is an idler, whereas the roller  $f$  is oscillated positively through approximately three-quarters of a revolution by means of the following agencies: A bevel-gear  $f^5$  is affixed to the journal of the roller  $f$ , and is engaged by a beveled segment  $f^6$  pivoted at its lower end to a bearing  $f^7$  on the frame  $a$ , and carrying a roll  $f^8$  in engagement with an eccentric groove  $f^9$  in a disk  $g$  on the driving-shaft  $c$ .

The feeding action of the parts above described is as follows: The belt  $b$  by frictional engagement with the edges of the letters advances the same against the stop  $d'$ . When the latter is retracted by the cam  $e^2$  acting through the media described, the roller  $f$  is running backward, and a single letter advances into the throat formed between the rollers  $f$  and  $f'$ , but is retarded therein until the roller  $f$  reverses its direction of rotation and turns in a direction to take the letter to the marking cylinder. When the letter has been delivered between the marking cylinder and the impression device to be hereinafter described, the motion of the roller  $f$  reverses and retards a following letter which may have escaped the stop  $d'$ ,—the latter having been restored,—until the roller is again turned forward, when this succeeding letter is carried to the marker. The oscillating roller  $f$  is properly timed with respect to the marking cylinder, and hence the letter will be presented to the latter in correct time, and will be marked at the right places.

The marking cylinder  $e'$  is flanged, and the stamps are supported on its central portion between the flanges, and protrude therefrom so as to be even with the flanges. Said cylinder is positively driven, through a bevel-gear  $h$  affixed to its journal and a bevel-gear  $h'$  on the driving-shaft. Opposed to the marking cylinder is a backing or support for sustaining the impact accompanying the marking of a letter, in the form of a flanged disk  $i$  recessed in its central portion to receive a series of anti-friction sheaves or rollers  $i'$  having vertical axes, and said disk  $i$  supported by horizontally swinging arms  $i^8$  and actuated against the marking cylinder by a spring  $i^2$ . The flanges of the marking cylinder and of the disk  $i$  abut, and in the absence of an interposed impression bed are inoperative to mark a passing mail-piece, the anti-friction rollers  $i'$  being some distance back of the flanges of the disk  $i$ . The disk  $i$  is positively driven through connections with the driving-shaft, as follows:—A gear  $i^3$  on the journal of the disk meshes with the spur-section of a gear  $i^4$  on a vertical shaft  $i^5$ , said gear  $i^4$  having a bevel-section which meshes with a bevel-gear  $i^6$  on a counter-shaft, said gear  $i^6$  having a spur-section in mesh with a gear  $i^9$  on the driving-shaft. The shaft  $i^5$  has affixed to it in the same horizontal plane with the disk  $i$  a flanged drum  $i^7$ , which constitutes a driver, as will hereinafter appear. A band  $j$  of leather or other suitable material engages the rollers  $i'$  of the disk  $i$  and also the periphery of the

drum  $i^7$ , and passes around an idler  $j'$  which is carried by the outer end of a resilient arm  $j^2$  affixed to the arm  $f^2$ . One end of said band is connected with one end of a spiral spring  $j^3$  which passes over a pulley on a post  $j^4$  projecting from the frame of the machine and has its other end fastened to any suitable fixed support. The band extends between the flanges of the idle roller  $f'$ , and its inner end is connected with one end of a spiral spring  $j^5$  which runs over a pulley on a post  $j^6$  projecting from the frame and has its other end attached to any suitable fixed support, said spring  $j^5$  being slightly superior to the spring  $j^3$ . For a certain distance at its inner end, the band is made thicker, as shown at  $j^7$ , so as to constitute an impression bed or pad when interposed between the marking cylinder and the disk  $i$ . This band is normally dormant, not being operatively engaged with the disk  $i$  or drum  $i^7$ , and the thin portion of the band lies against the rollers  $i'$ , the flanges of the disk projecting beyond it. When a mail-piece passes between the rollers  $f$  and  $f'$ , the movement imparted to the arm  $f^2$  thereby carries the roller  $j'$  toward the drum  $i^7$  and thereby presses the band upon the periphery of the said drum  $i^7$ , and establishes an operative engagement therebetween, which causes the impression bed  $j^7$  to be drawn between the marking cylinder and disk  $i$ , with the letter so that the stamps will mark the same, said portion  $j^7$  of the band being thick enough to come flush with or project beyond the flanges of the disk. As soon as the letter passes from between the rollers  $f$  and  $f'$ , the pressure of the band on the drum  $i^7$  is relieved, and when the stamps have left the letter the impression pad flies back under impulse of the spring  $j^5$ . Thus the impression bed is only brought into operation when a letter is passing through, and the marking will be done only on the letter, so that there can be no possibility of besmoothing the backs of letters by transfer of ink from the impression bed. It is to be observed that the portion of the disk  $i$  which engages the impression pad  $j^7$  extends in the line of the acting portions of the anti-friction rolls  $i'$  and is unbroken so as to form a solid backing for the impression pad.

The letter  $m$  designates an inking roll for supplying the marking cylinder, and the letter  $n$  designates a vertically extending guard to prevent the mail-pieces from being curled up between the feed-rollers and the marking cylinder.

We do not limit ourselves to the means here shown for carrying out the invention, as it is capable of embodiment in other forms. For example, the impression bed or pad might be on an endless band arranged to be rendered operative by the mail-pieces.

In order to prevent the possibility of letters rebounding from the stop  $d'$ , we employ a novel arrangement of automatically opening jaws to grip the letters. In the construc-



tion here shown, one of these jaws *o* is a flat spring secured at one end to one side of the hopper and extending at an angle thereto toward the throat between the feed-rollers *f* and *f'* and serving as a deflector to guide the letters to said throat. The other jaw *o'* is a curved flat spring fastened at one end to the arm *d* and designed to abut the jaw *o* when said arm is projected. By the retraction of this arm, the jaw *o'* is moved out of contact with the jaw *o* to permit the free passage of the letters at the proper time. The reverse rotary motion of the roller *f* taking place at this time, as previously explained, retards the letters and prevents any one of them from passing on to the marker before its time. The oscillatory feed-roller thus permits the employment of intermittently opening jaws. By the arrangement described, the proper succession of the letters in their passage to the marker is absolutely insured.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a mail-marking machine, the combination with a rotary marker and an opposed backing or support, of a normally disconnected and retracted impression bed or pad, a driver, and letter-controlled means for operatively connecting the pad and driver to bring said pad between the marker and the opposed backing or support.

2. In a mail-marking machine, the combination of a rotary marker, a normally inactive band having an impression pad, and letter-controlled means for rendering said band active to bring its impression pad into operative relation with the rotary marker.

3. In a mail-marking machine, the combination of a rotary marker, a normally retracted band having an impression pad, a driver, and letter-controlled means for operatively connecting the band and driver to bring the pad into operative relation with the marker.

4. In a mail-marking machine, the combination of a rotary marker, a normally retracted band having an impression pad, rollers supporting said band, and letter-controlled means for establishing operative engagement between the band and rollers, for the purpose described.

5. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxtaposition thereto, a normally retracted band extending between the disk and marking cylinder and having an impression pad, a driving drum, and letter-controlled means for operatively engaging the band with said drum, for the purpose described.

6. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxtaposition thereto, a normally retracted band extending between the disk and marking cylinder and having an impression pad, feed-rollers one of which is movable toward and from the other, and means actuated by the movable feed-roller for pressing the band

into operative engagement with the driving drum, for the purpose described.

7. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxtaposition thereto, a normally retracted band extending between the disk and marking cylinder and having an impression pad, feed-rollers one of which is carried by a laterally movable support, and an idler carried by said support and adapted to press the band into operative engagement with the driving drum.

8. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxtaposition thereto and carrying a series of anti-friction rollers, a normally inactive and retracted band extending over said anti-friction rollers and having an impression pad, and letter-controlled means for bringing the said pad into operative relation with the marking cylinder.

9. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxtaposition thereto, a normally retracted band extending between said disk and the marking cylinder and having a thickened portion to constitute an impression bed, and letter-controlled means for rendering the band operative to interpose its thickened portion between the marking cylinder and opposed disk.

10. In a mail-marking machine, the combination of a marking cylinder, a rotary disk in juxtaposition thereto, a band extending between the marking cylinder and opposed disk and having an impression pad at one end, a spring tending to impel the band in a direction to draw the pad between the marking cylinder and disk, a superior spring retracting the band, a driver, and letter-controlled means for connecting the band with the driver, substantially as and for the purpose described.

11. In a mail-marking machine, the combination of an oscillating feed-roller, a stop in the letter-path in advance of said roller, and means for periodically retracting said stop.

12. In a mail-marking machine, the combination of a rotary marking cylinder, an oscillating feed-roller, a stop in the letter-path in advance of the said feed-roller, and means for periodically retracting said stop.

13. In a mail-marking machine, the combination of a rotary marking cylinder, an oscillating feed-roller, a stop in the letter path in advance of the said roller, a lever carrying said stop, and a cam on the journal of the marking cylinder and adapted to co-act with said lever to retract the stop.

14. In a mail-marking machine, the combination of a hopper, a movable stop at the outlet end thereof, normally closed jaws adjacent to said stop, and means for periodically retracting the stop and opening the jaws.

15. In a mail-marking machine, the combination of a hopper, a movable stop at the outlet end thereof and against which the let-



ters abut, normally closed jaws in advance of the said stop, one of said jaws being connected with the stop, and means for periodically retracting the stop and thereby opening  
5 the jaws.

16. In a mail-marking machine, the combination of a hopper, a movable stop at the outlet end thereof and against which the letters abut, normally closed jaws in advance  
10 of the said stop, one of said jaws being connected with the stop, means for periodically retracting the stop and thereby opening the

jaws, and an oscillatory feed-roller beyond the stop.

In testimony whereof we have signed our 15 names to this specification, in the presence of two subscribing witnesses, this 27th day of February, A. D. 1894.

MARTIN V. B. ETHRIDGE.  
HENRY E. WAITE.

Witnesses:

C. F. BROWN,  
F. P. DAVIS.