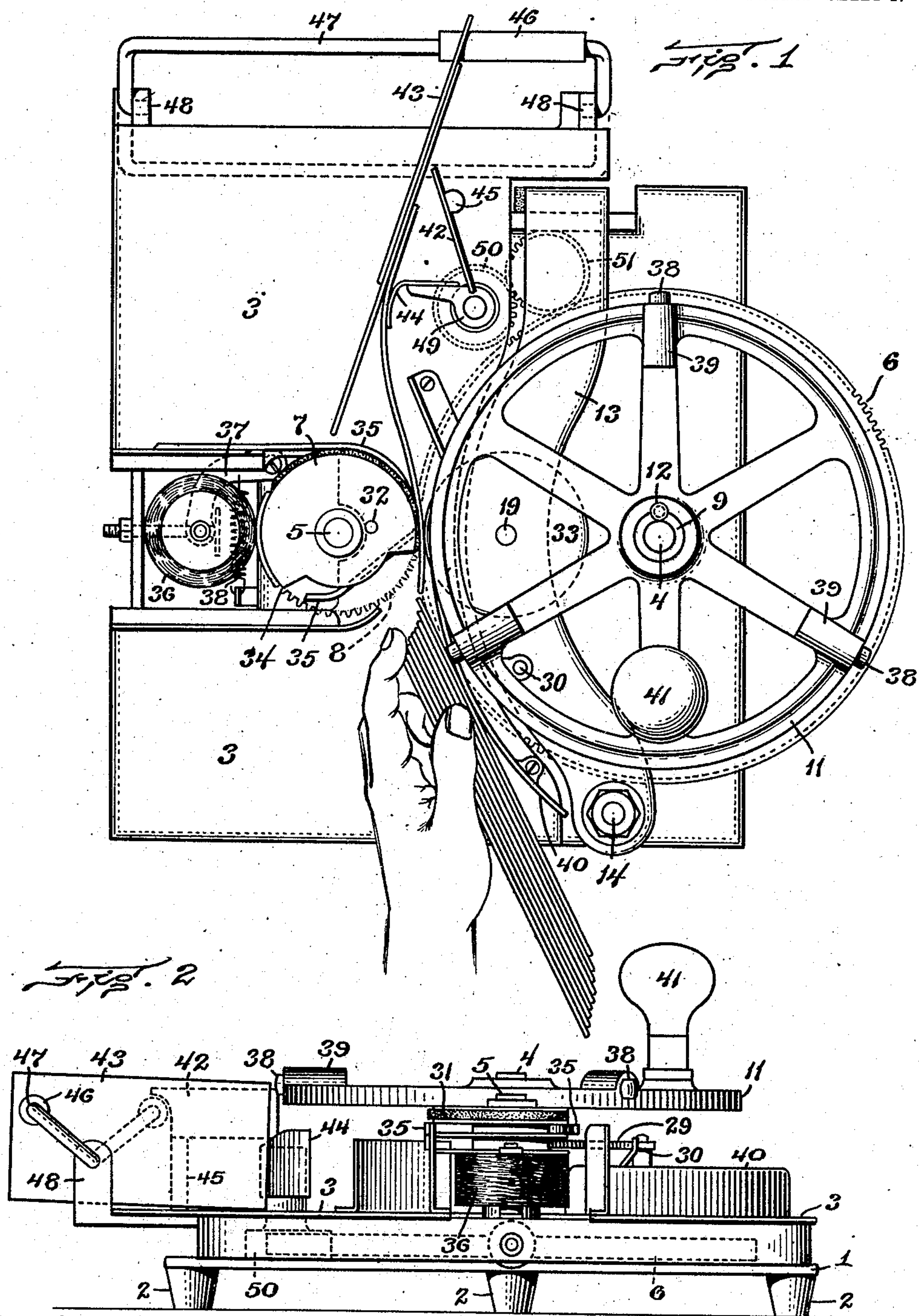


H. E. WAITE.
MAIL MARKING MACHINE.
APPLICATION FILED JULY 2, 1908.

907,922.

Patented Dec. 29, 1908.
2 SHEETS—SHEET 1.



Witnesses:
W. P. Abell
P. H. Pezzette

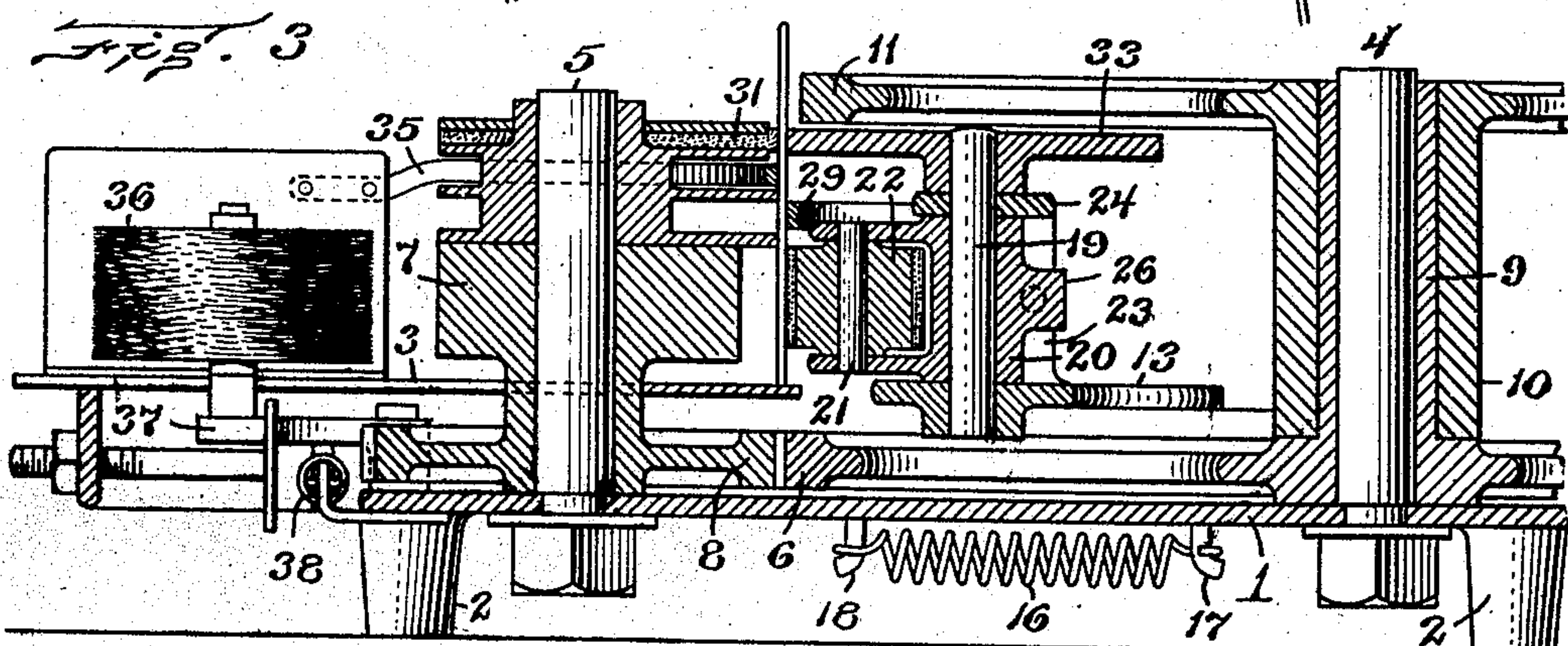
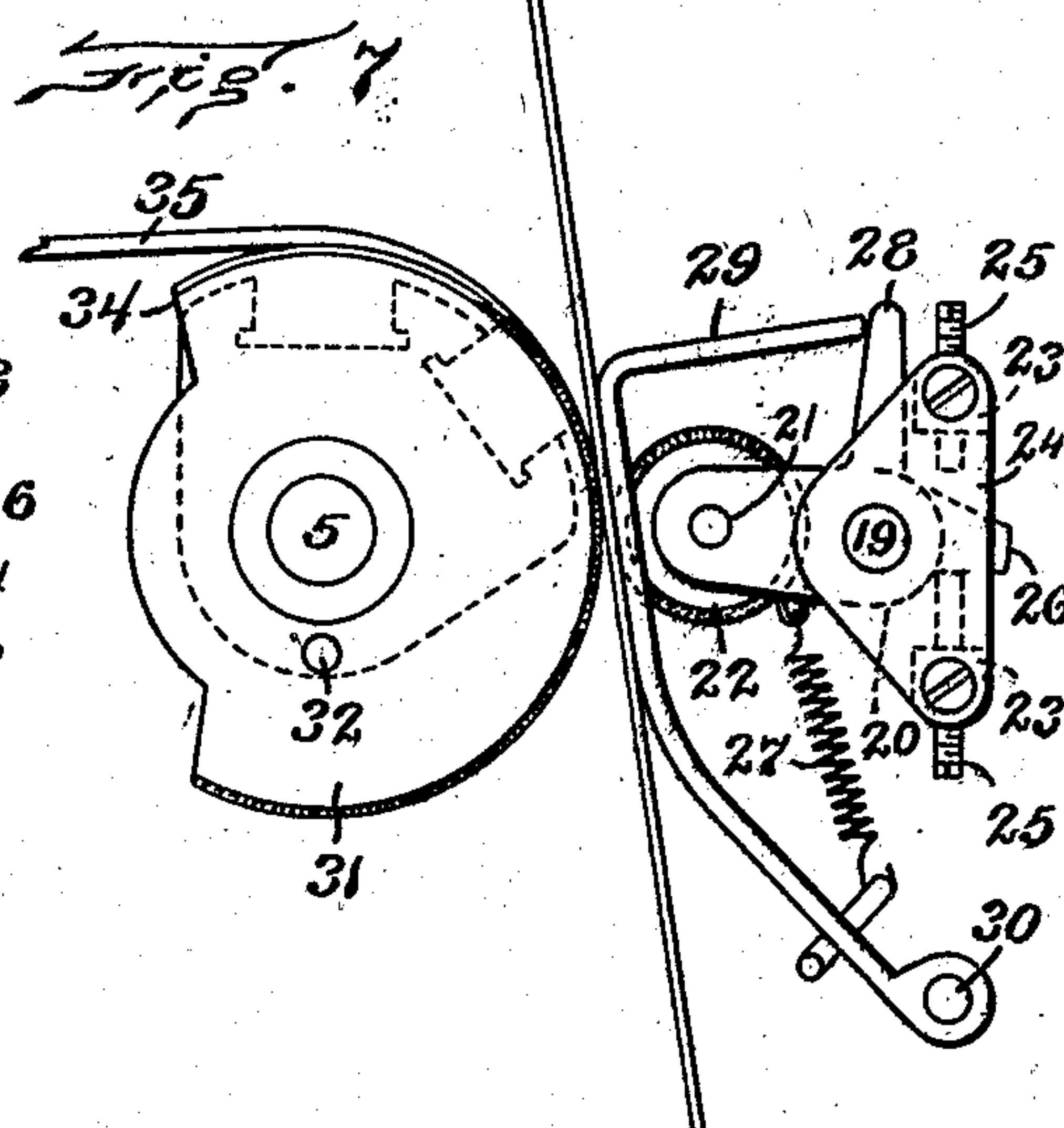
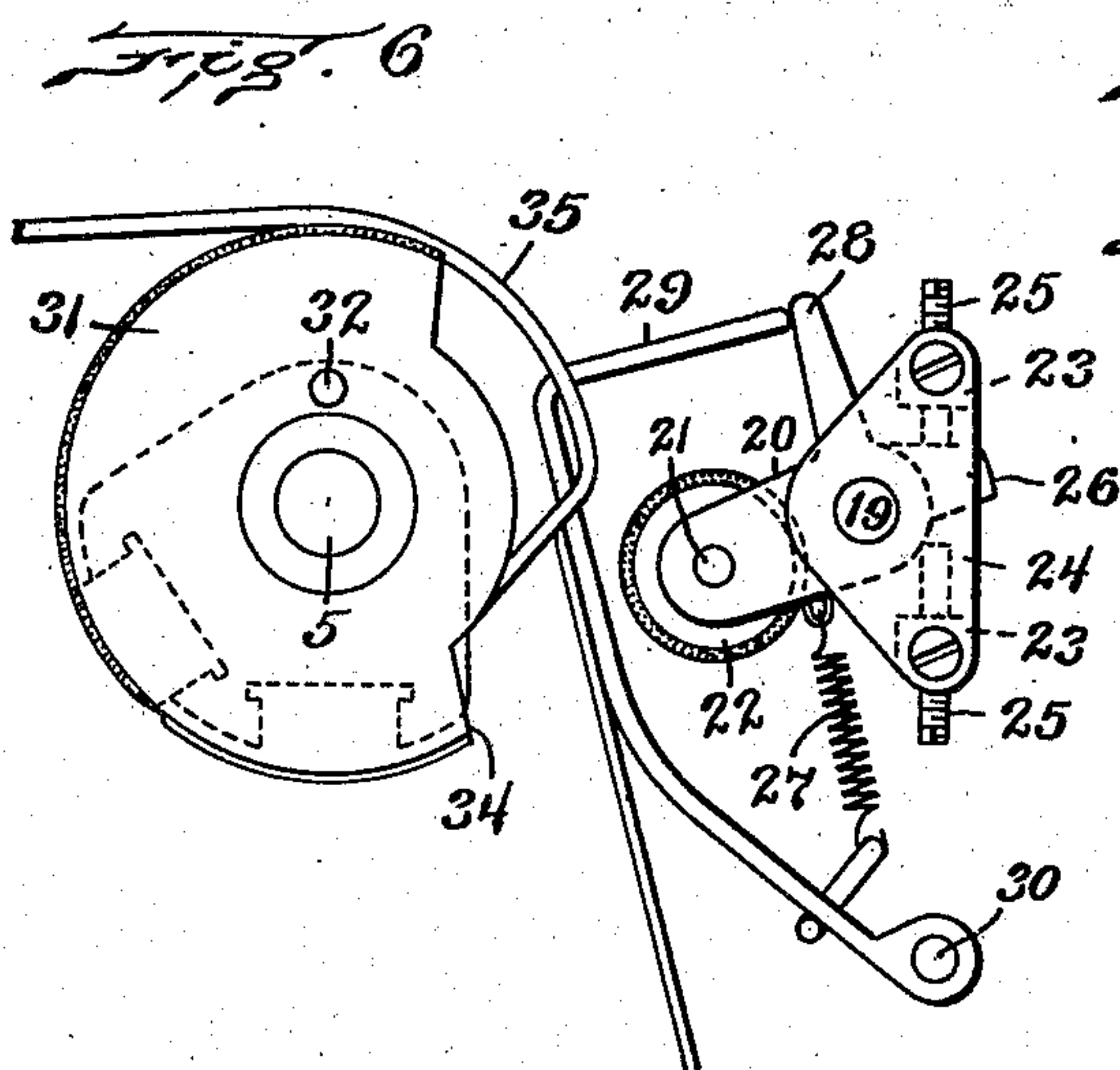
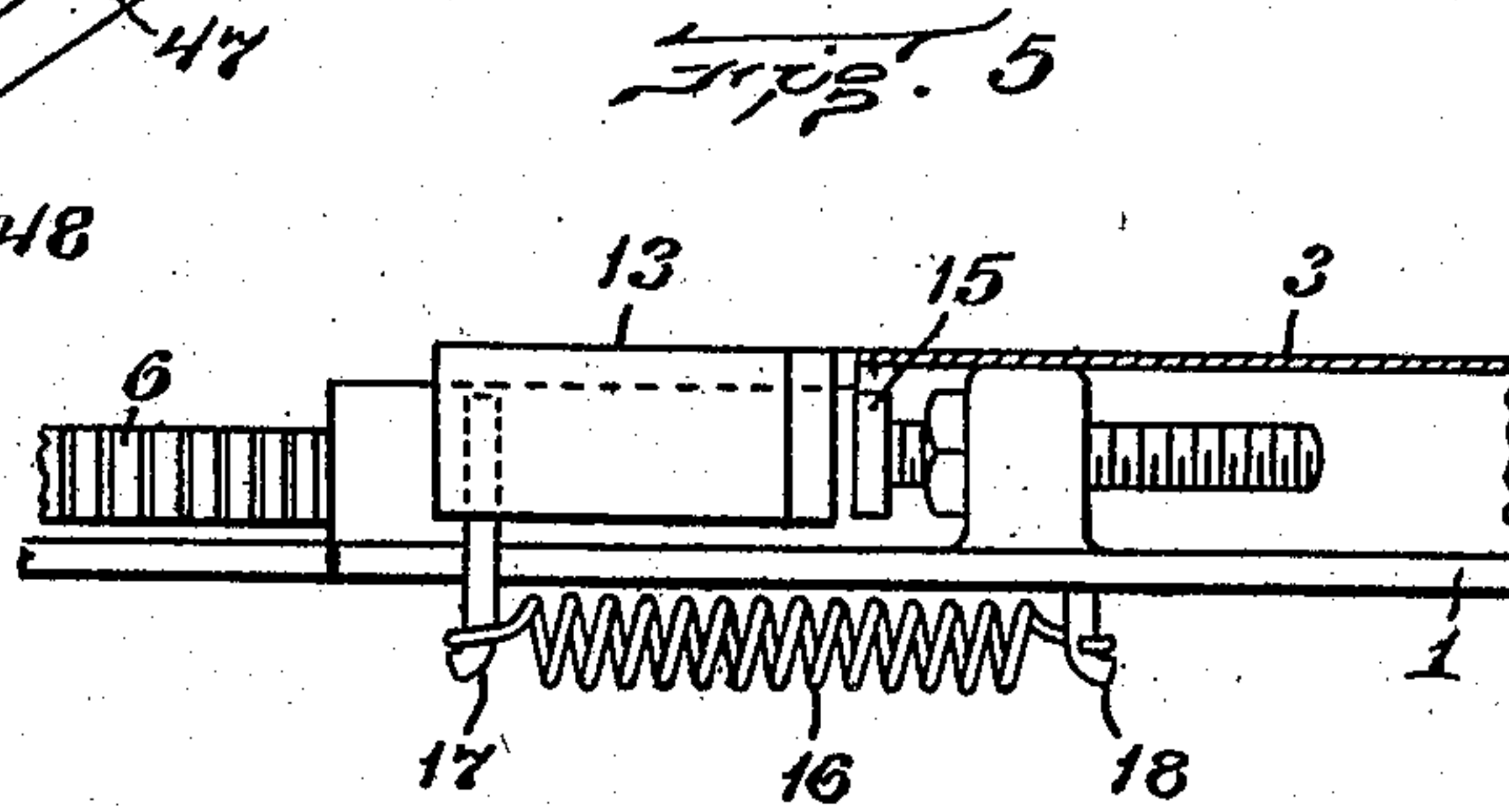
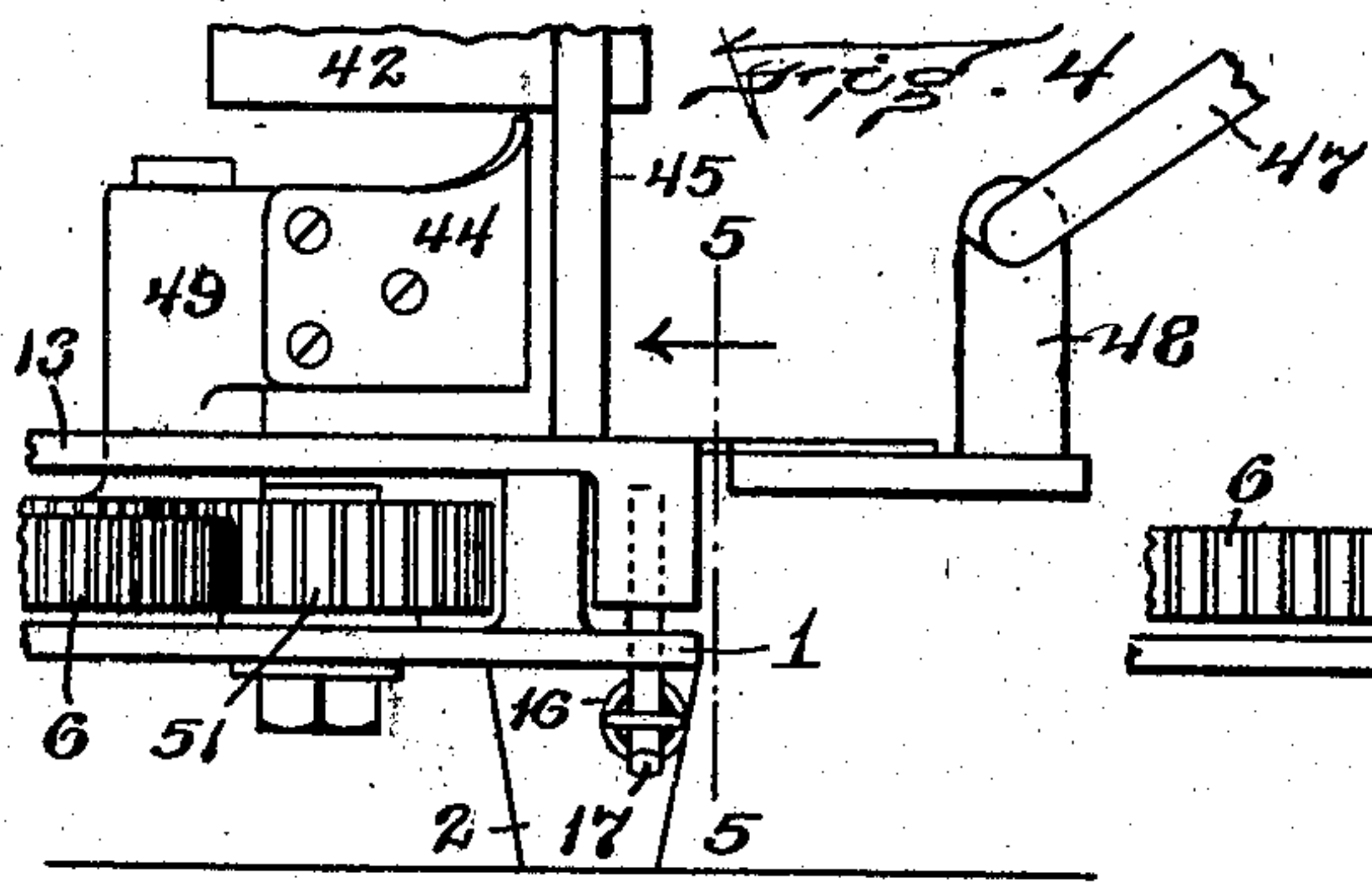
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2 SHEETS—SHEET 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY E. WAITE, OF NEWTON, MASSACHUSETTS.

MAIL-MARKING MACHINE.

No. 907,922.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed July 2, 1908. Serial No. 441,691.

To all whom it may concern:

Be it known that I, HENRY E. WAITE, of Newton, in the county of Middlesex and 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 a mail-marking machine, and has for its object to provide a hand-operated machine of this character which will be accurate and economical, and in particular will not ink the backs of the letters.

In mail-marking machines an impression member must be provided for holding the letters against the printing die while being marked, and one of the defects of the machines hitherto made is that in case of a failure of the feeding means or devices to carry a letter properly between the impression member and die, the former becomes inked and will then make a deposit on the back of the letter.

The principal object of the present invention is to arrange an impression member so that it will adequately support the letter while the marking is being done, but will not under any circumstances become blackened so as to soil the back of the letter, even though the feed may fail to work properly.

A secondary object is the provision in connection with the printing couple and feeding elements for carrying the same through the printing couple of a preliminary feed associated with the driving gear for carrying the letters up to the timing stop.

A still further object is to provide a yielding support for the impression member and feed gripper so that the same will give way for letters of excessive thickness.

Of the accompanying drawings,—Figure 1 represents a plan view of a machine constructed in accordance with my present invention. Fig. 2 represents an elevation of the same. Fig. 3 represents a cross section of the same through the axes of the printing, impression and driving members. Fig. 4 represents a fragmentary elevation of that part of the machine which appears at the top of Fig. 1, as seen from the right of said figure. Fig. 5 represents an elevation as seen looking toward the left on line 5—5 of Fig. 4. Fig. 6 represents a plan view of the printing couple just before a letter passes through the same. Fig. 7 represents a plan view of the

same parts with the letter passing between them.

The same reference characters indicate the same parts in all the figures.

The machine has a base plate 1 which is supported upon feet 2 so as to be at only a slight height above the table or bench on which the machine may be placed. Above the base 1 is a plate 3 on which the letters are placed. Rising from and fixed to the base plate 1 are stud shafts or spindles 4 5 which are rigid and stationary. The former supports the driving gear 6 which turns upon it, while upon the latter is journaled the printing segment or die-holder 7. Made in one piece with this die-holder is a gear 8 which meshes with the driving gear 6. The latter has a hub 9 extending nearly to the top of stud 4, and upon this hub is slipped the hub 10 of a conveying disk 11. Between the two hubs is a hole formed partly in each, into which slips a pin or key 12 so as to hold the disk and gear in invariable relation. Between the driving gear spindle and the printing die is an arm 13 pivoted to the base 1 by the pin 14 and held at its other end against an adjustable stop 15 (see Fig. 5) by means of a spring 16 reacting between the pins 17 and 18 on the lever and base plate, respectively. A stud 19 is set into this arm 13 and upon the stud is journaled a two-armed holder 20 which carries between its arms a pin 21 on which is journaled the impression roll 22. This stud rises between two standards 23 upon the arm 13, and is supported at its upper end by a yoke plate 24. Threaded through the standards 23 are adjustable stops 25 between which is a lug 26 extending from the impression roll holder, this lug limiting the swinging movement of the holder, which is normally held in the position shown in Fig. 6, by a spring 27. Also extending from the impression roll holder is an arm 28 against which bears one end of a bent bar or trigger 29 which is pivoted at 30 upon a pin rising from the arm 13.

Loosely mounted upon the printing segment 7 is a feeding disk 31 which is secured to the segment by means of a pin passing through a hole 32 in both the disk and segment. The feeding disk carries a layer of frictional material, such as leather, which is adapted to engage a letter and draw it onward. Cooperating with the feeding disk 31 is a disk 33 which is loosely mounted upon

the stud 19, and against which the edge of the feeding disk 31 bears. The latter disk is cut away at one side and has a gripping shoulder 34 which serves to engage the letter at the proper time. A guide 35 extends partly around the feeding disk in a peripheral groove of the latter, and overlaps the trigger 29, being bent so as to extend at an abrupt angle across the latter, and serve as a timing stop for the letter. An inking roll 36 is mounted upon a pivoted holder 37 and is drawn by a spring 38 so as to bear against the surface of the dies carried by the printing segment.

Preferably the gear 6 is larger than the gear 8 so as to turn the latter a number of times and mark a number of letters during one revolution. The disk 11 associated therewith carries a number of feeding elements 38, the number of which is the same as the gear ratio. That is, in the present form of the machine where the printing element is rotated three times for each rotation of the gear 6, there are three of these feeding members 38. These members which may be called "preliminary feeders", are preferably pieces of rubber set into sockets 39 so as to project radially from the rim of the disk.

In using the machine, the letters are held loosely by hand in a pack so as to rest against a guide rail 40. As the gear 6 and disk 11 are turned by the handle 41, the innermost letters of the pack are engaged by the preliminary feeders 38 and advanced into the angle between the guide 35 and trigger 29, the former of which serves as a timing stop. The preliminary feeders are so spaced that they engage the letter and carry it forward while the cut-away portion of the feeding disk 31 is toward the letter. As soon as the feeding shoulder 34 engages the letter, it carries it toward the right, as seen in Figs. 1 and 6, and moves the trigger 29 in the same direction, thus acting upon the arm 28 and swinging the impression roll holder. This carries the impression roll into and slightly beyond the line of centers, so that it comes up against the letter when the latter is pressed upon by the printing dies. As the impression roll is carried slightly beyond the line of centers, the thrust applied to it by the printing die is transmitted directly and positively to the stud 19, and none of this thrust need be borne by the spring 27. Consequently the latter may be made very light so as to enable the roll to be carried into operating position by the letter without danger of tearing the same. Furthermore, the arrangement of the trigger lever 29 and the arm 28 is such as to make a leverage of increasing power, so that a slight pressure applied to the trigger 29 by the letter will carry the impression roll into operating position. The timing stop is placed so that the forward edge of the letter extends well within the path of

the gripping shoulder 34. Consequently the letter will be sure to engage the latter and operate the impression roll by it, subsequently pressing it against the base disk 32. The positive movement of the disk 11 and the passive cooperation of the disk 32, carry the letter into a stacking receptacle formed between the plates 42 43 and the rotary packer 44. The first of these plates is fastened to a post 45 which is rigidly set into the horizontal plate 3, while the second of the plates, which forms the boundary of the stacking receptacle, is fastened to a lever 46 which slides upon a rod 47, the latter having its ends bent over and journaled in lugs 48 secured to the plate 3. The rod 47 may swing from the position shown in full lines to that in dotted lines, so as to vary the width of the receptacle and enable short or long letters to be accommodated. In the full line position, the letter space is of the greatest width so that long letters may be contained in it.

The packer is a curved strip of sheet metal secured to an arm projecting from the hub 49 of a pinion 50 which meshes with and is driven by an idle pinion 51 that in turn meshes with and is driven by the gear 6. This stacking receptacle and packer form part of the subject matter and are claimed in a co-pending application of mine, Serial No. 447,727, filed August 10, 1909.

It will be noted that the location of the impression roll is ordinarily so far from the path of the printing dies that it will not be touched by the letter in their rotation when a letter is not present, and that it will only be brought up into that position where it can press a letter against the printing dies when a letter is passing between it and the printing member. Consequently, the ordinary operation of the machine will never bring the impression member against the printing dies, and it cannot therefore become smeared with ink so as to blacken the rear side of a letter.

One of the defects of the mail marking machines hitherto used is that in case the letter feed fails to operate, and a letter is not carried by the printing and impression members at the proper time, the impression member will receive a deposit of ink, which it will apply to the next letter passing it, and thereby an objectionable black mark is made on the back of the letter. This undesirable result may occur in certain cases even in those machines which are designed to avoid it. Mail-marking machines have been made in which the impression member is normally held away from the marking member when letters are not passing between the members. Such machines contain means for causing the impression member to be moved up into operative position when a letter is present. Such movement of the impression member, however, is not produced directly, positively

and solely by the letter itself, but by some positive means which is rendered operative by the displacement of a trip, the trip alone being controlled directly by the letter. In case the letter should fail to pass through the printing couple after having actuated the trip, the impression member will nevertheless be moved against the printing member and be inked. There is no way to arrest this action of the impression member after its movement toward the printing member has commenced. In the present machine the movement of the impression member toward the printing member is produced solely by the letter itself and continues only as long as a letter is present between the impression and printing members. If the letter should fail to pass through the printing couple or should be withdrawn after having started the impression member toward the printing member, the impression member will be automatically retracted, because of the withdrawal of the letter, which is the real actuator thereof. It is to be noted also that the guide bar 35 extends slightly outside of the periphery of the marking segment in rear of the point of tangency between the same and the impression member. This form of the guide is given so as to carry the letter away from the printing member as soon as the same has been marked, and prevent the mark from being blurred in case the letter should stick and fail to travel as fast as the peripheral speed of the die.

It has been already stated that the stud 19 which carries the impression member and the loose feeding disk 33 is mounted on the arm 13 which is yielding. This manner of mounting the stud is provided for the purpose of allowing the impression member and feeding disk to yield when abnormally thick letters pass through the printing couple. The pressure applied by the printing couple is limited to the stiffness of the spring 16, and this may be made light enough so that thick letters will not be held or unduly compressed.

The segment 7 which carries the printing dies is rigidly connected with the gear 8 and cannot be removed except by taking the machine all apart and removing the plate 3. It is possible, however, to remove and replace the printing dies by shifting the feeding disk 31. It is for this purpose that the disk is made separate from the segment 7 and arranged so that it can turn loosely about the stud 5. The cut-away part of the disk also is of sufficient depth and extent to allow the dies to be slipped past its edge. As appears in Figs. 6 and 7, the dies are dovetailed and slide into vertical grooves in the segment 7. By removing the holding pin 32 from the segment 7, the disk can be turned relatively to the segment until its cut-away part is above the die which is to be

changed. The latter can then be slipped up, the figures altered, and replaced.

In the ordinary mail-marking machine, the timing stop is in advance of the printing couple, and feeding grippers are used to convey letters from the stop forward into the printing couple. In certain conditions of mail matter the grippers sometimes slip and fail to feed, and the printing and impression members cooperate with no letter between them, thereby depositing ink upon the impression member to smear the backs of succeeding letters.

It will be seen in Fig. 6, that the radius of the feeding disk 31 and the printing segment 7 is the same, and that the gripping shoulder 34 and the forward end of said printing segment are in a vertical line and will engage a letter simultaneously. Consequently, a letter must be interposed between the printing and impression members before it can be acted upon to bring the impression member into supporting relation to it and the pressure of the printing member. If not so interposed, the impression member will remain normally out of contact with the printing member.

I claim:—

1. A mail-marking machine including a printing member and an impression member, constituting a printing couple, a holder for said impression member, yielding means acting directly upon said holder normally holding said impression member away from said printing member, and means operated by a letter when engaged by the printing member, for swinging said holder in opposition to said yielding means, and thereby bringing the impression member up to the printing member, the letter constituting the sole actuator for said means, whereby the said yielding means may continue operative to hold the impression member away from the printing member except when the letter is in printing relation with the printing couple.

2. A mail-marking machine including a printing member and an impression member, constituting a printing couple, an abutment for said impression member, means operated by a letter interposed between said members for moving the impression member into place between said abutment and printing member where it will hold the letter firmly against the printing member and the entire thrust will be sustained by the abutment, and means automatically operative to hold the impression member away from the printing member at all times except when a letter passes through the printing couple.

3. A mail-marking machine including a printing member and an impression member, constituting a printing couple, an abutment with which said impression member is engaged, means whereby a letter inter-

posed between said members moves the impression member between said abutment and printing member where the abutment may sustain the letter while being marked, and means for holding the impression member out of contact with the printing member, thereby avoiding a deposit of ink upon it, said abutment being yieldingly mounted so as to give way when thick letters pass through the printing couple.

4. A mail-marking machine, comprising marking and impression members constituting a printing couple, a driver for positively actuating said couple, a feed member connected with the printing member of the couple, a cooperating feed member separate from said driver between which and said first feed member the letters are gripped, and a preliminary feed member connected to said driver for carrying letters from a pack to the grip of the first feed members and between the members of the printing couple.

5. A mail-marking machine, comprising marking and impression members constituting a printing couple, a driver for positively actuating said couple, a feeding disk rigidly connected with the printing member and having a part cut away to leave a gripping shoulder, a cooperating disk beside said feeding disk, between which and the latter the mail matter is gripped, and a preliminary feeder fastened to the driver and having frictional projections to engage letters held in a pack and carry them singly to the disks and between the members of the printing couple.

6. In a mail-marking machine including a rotary printing member cut away in advance of its ink-depositing surface, a driving gear therefor, an impression member, a timing stop at or beyond the line of centers of said members, and a preliminary feeder independent of the impression member connected to said driving gear and having frictional projections adapted to engage letters held in the pack and advance them, the cut-away portion of the printing member permitting the forward ends of the letters to be carried within the path of rotation of the printing member and up to said timing stop and line of centers of the members.

7. In a mail-marking machine, a stationary stud shaft, a driving gear pivotally mounted upon said stud shaft and having a projecting hub, and a feeding disk having also a projecting hub fitting telescopically over the hub of said driving gear and rigidly secured thereto.

8. A mail-marking machine comprising a rotary printing member, a feeding disk secured thereto and having a gripping shoulder, a driving gear arranged to actuate said printing member and feeding disk positively, and a preliminary feeding member having a frictional element to engage letters held in a

pack and carry them to the gripping shoulder, said preliminary feeding member being rigidly connected to said driving gear in invariable relation thereto so as to time the preliminary feed of the letters to the travel of the feeding disk.

9. A mail-marking machine comprising a rotary printing member, a driving member geared thereto so as to turn the same a number of times during each revolution, a feeding disk connected to said printing member and having a gripping shoulder, and a preliminary feeding disk having frictional elements, the number of which is the same as the gear ratio, said disk being secured to the driving gear in such relation that the feeding elements will advance letters in time to be gripped by the shoulder of said feeding disk at each revolution thereof.

10. In a mail-marking machine, printing and impression members, constituting a printing couple, an abutment on which the impression member is mounted, a positive feed disk secured to said printing member, a loose cooperating feed disk mounted pivotally upon the said abutment, and a yielding support by which said abutment is held, said support being adapted to give way and allow the impression member and loose disk to yield when thick letters pass through the printing couple.

11. In a mail-marking machine, a printing member and an impression member, constituting a printing couple, a positively driven feed disk secured to said printing member, a loosely-mounted cooperating disk between which and the positively-driven disk the letters are gripped, and by which they are carried through the printing couple, said loosely-mounted disk being carried yieldingly so that it may give way when letters of extra thickness pass through the printing couple.

12. In a mail-marking machine, a rotary printing member having channels in its periphery parallel to its axis, printing dies arranged in said channels and removable therefrom in a direction parallel with the axis of the printing member, and a feed disk mounted loosely on the pivot of said printing member, and rigidly, but detachably, united with the printing member so as to be driven positively when the latter is actuated, said feeding disk being cut away at one side, thereby providing a gripping shoulder, and being movable when its connection with the printing member is disengaged so as to bring the cut-away portion above a printing die to permit the removal and replacement of the die.

13. In a mail-marking machine, a base, a printing member rotatably mounted on said base, an arm pivotally mounted on the base, an impression member and means for moving said impression member toward and from said printing member mounted upon said arm, and a spring engaged with said arm and

tending to draw the same, and, with it, said impression member toward said printing member, but being adapted to yield and permit recession of the impression member when thick letters pass between the printing and impression members.

14. In a mail-marking machine, a rotary printing member, a feeding disk attached thereto and driven thereby, said disk being cut away at one side to provide a shoulder for engaging the letters, an impression member, and a guard member partially surrounding said feeding disk and bent to provide a timing stop for arresting letters to be marked in position where they will be engaged by said shoulder, said guard being carried away from the periphery of the disk beyond the stop portion so as to guide letters after being marked away from the printing member to prevent blurring of the impression.

15. In a mail-marking machine, a printing member and an impression member, together constituting a printing couple, a pivotally-mounted holder for said impression member, a spring acting upon said holder and normally tending to move the impression member out of contact with the printing member, a feeding disk having a letter-engaging shoulder,

a guard rail, and a trigger member overlapping said guard rail and, together with the latter, providing a stop to hold the letters to be marked in the path of said shoulder, said trigger being also engaged with the impression member holder and actuated by pressure of said shoulder upon a letter to swing the holder into position where the impression member will hold the letter against the printing member.

16. In a mail-marking machine, a pivotally-mounted printing member, a pivotally-mounted impression member holder, an impression roll pivoted to said holder, means tending to move said holder into position where the impression roll is out of engagement with the printing member, and a trigger engaged with said holder and arranged to be actuated by a letter passing between the printing and impression members so as to swing said holder and bring the impression roll into the line of centers of the printing member and impression roll holder.

In testimony whereof I have affixed my signature, in presence of two witnesses.

HENRY E. WAITE.

Witnesses:

A. C. RATIGAN,
P. W. PEZZETTI.