No. 654,144. Patented July 24, 1900.

S. J. EVANS.

STAMP CANCELING AND POSTMARKING MACHINE.

(Application filed June 15, 1899.)

(No Model.) 5 Sheets—Sheet 1.

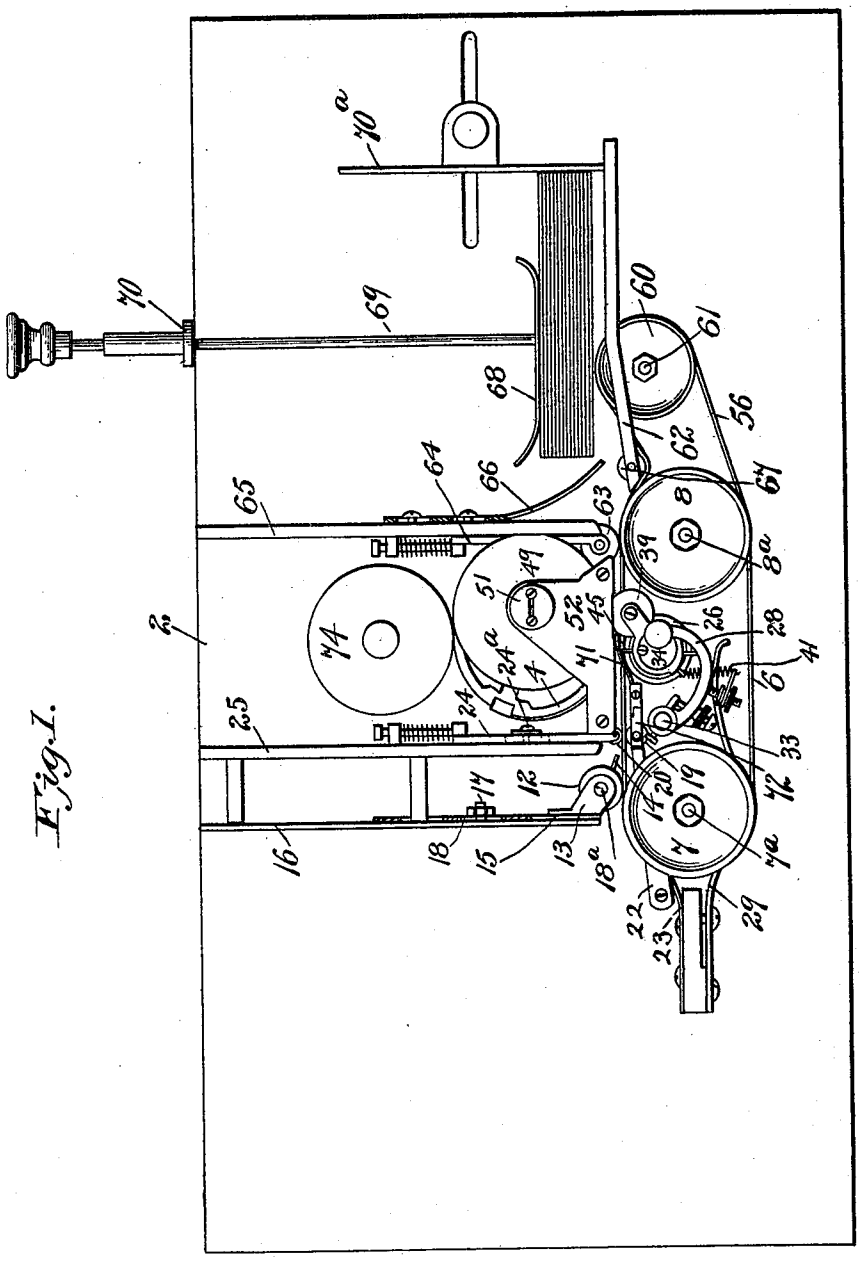


Fig. 1.

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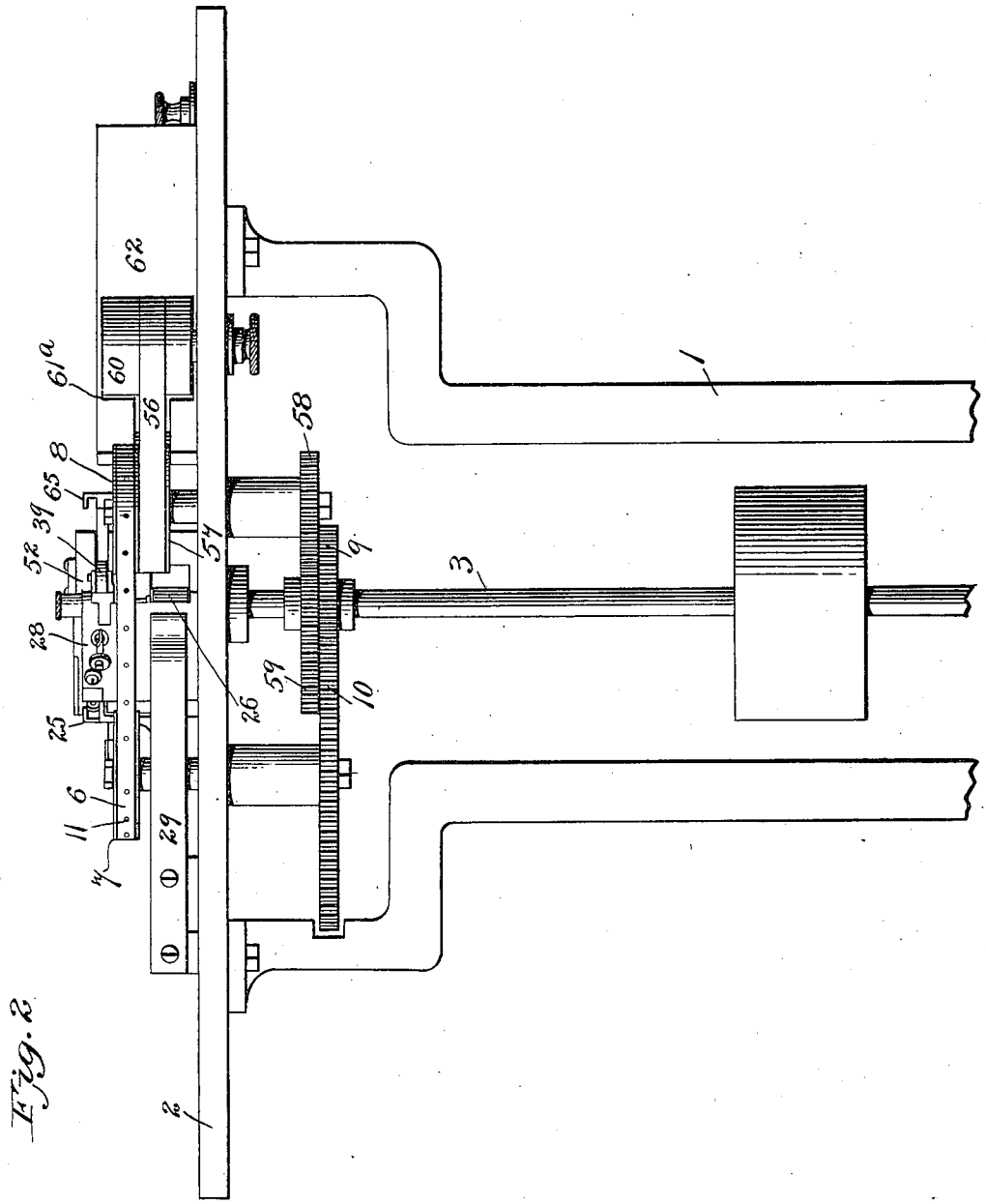


Fig. 2.

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(No Model.) 5 Sheets—Sheet 3.

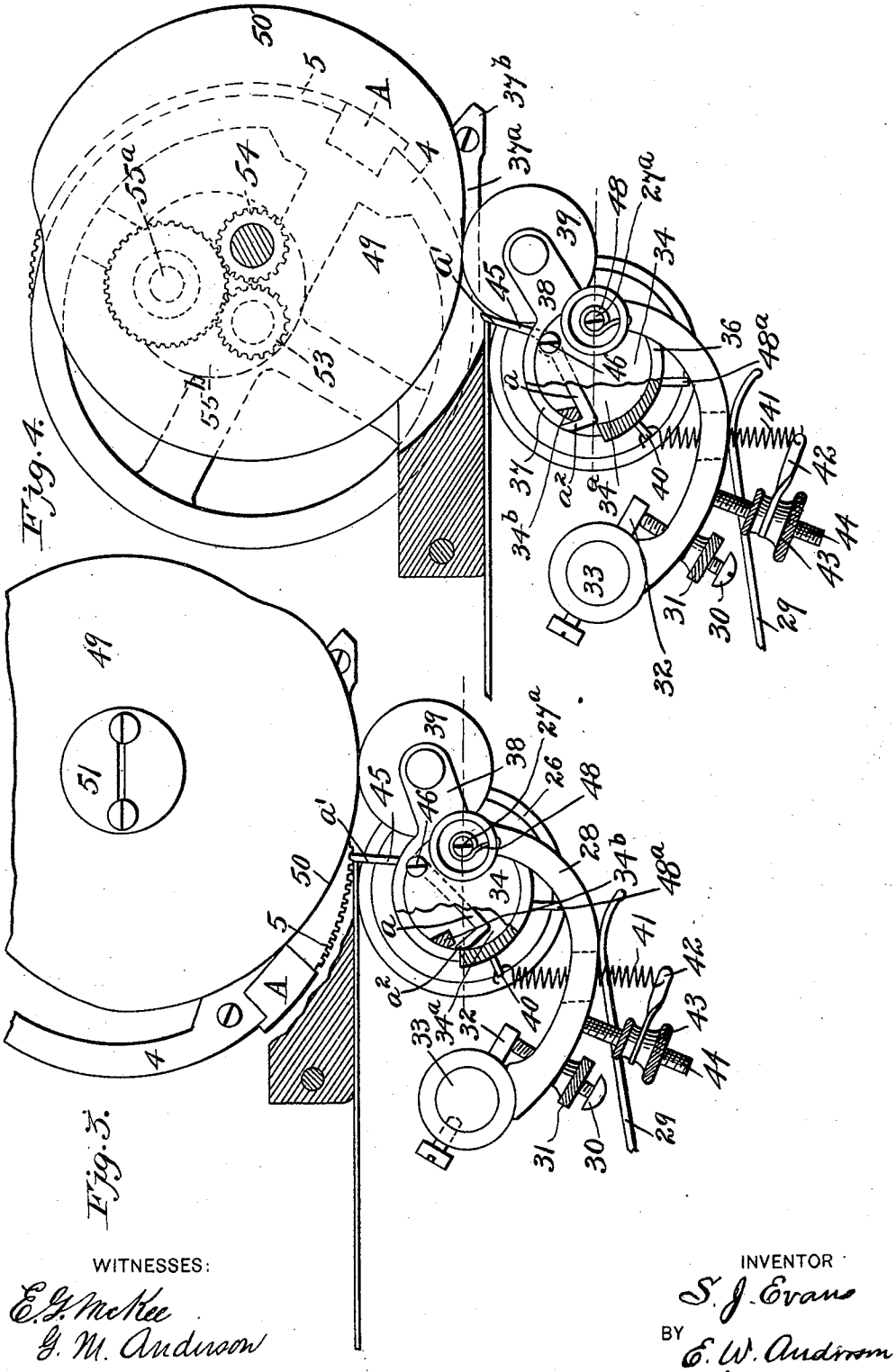


Fig. 4.

Fig. 5.

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(No Model.) 5 Sheets—Sheet 4.

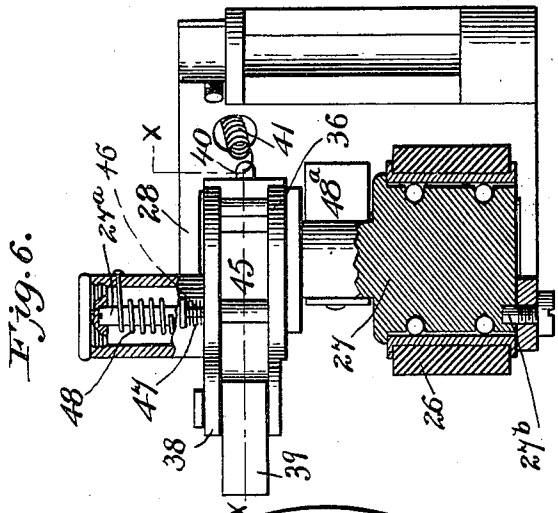


Fig. 6.

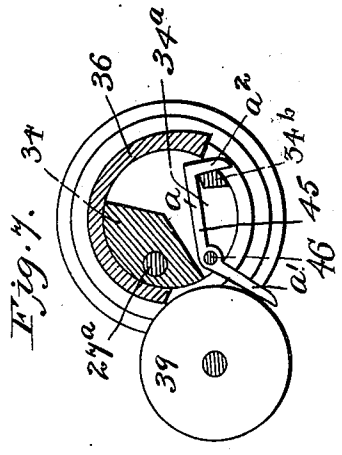


Fig. 4.

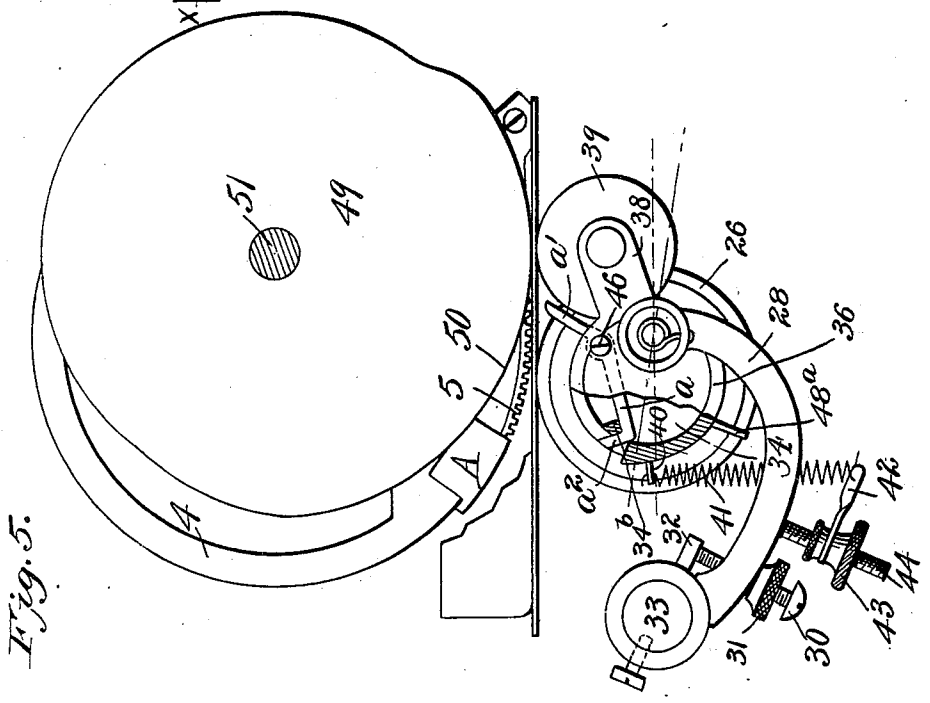


Fig. 5.

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STAMP CANCELING AND POSTMARKING MACHINE.

(No Model.) (Application filed June 15, 1899.) 5 Sheets—Sheet 5.

Fig. 11.

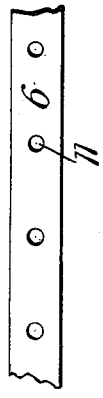


Fig. 9.

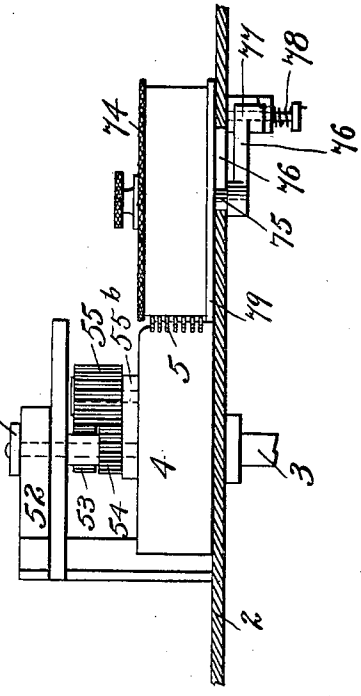


Fig. 8.

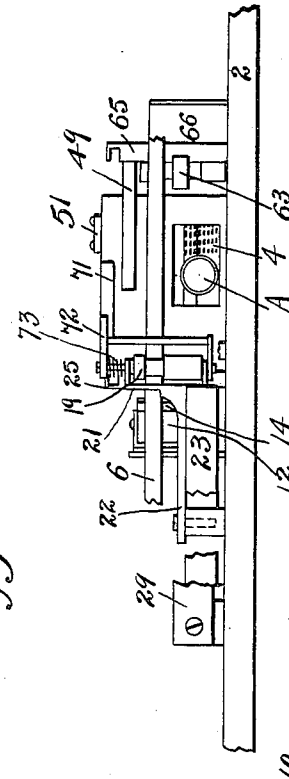
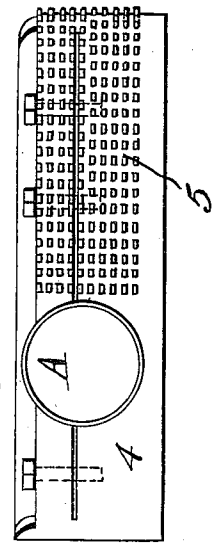


Fig. 10.



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UNITED STATES PATENT OFFICE.

SAMUEL J. EVANS, OF ROANOKE, VIRGINIA.

STAMP-CANCELING AND POSTMARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,144, dated July 24, 1900.

Application filed June 15, 1899. Serial No. 720,647. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. EVANS, a citizen of the United States, and a resident of Roanoke, in the county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Stamp-Canceling and Postmarking Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a side elevation of the same. Figs. 3, 4, and 5 are detail views showing successive steps in the operation of the letter-timing stop and locking-key, the clutch, the controlling-cam, and adjuncts. Fig. 6 is a detail view, partly in section, of the impression member and its adjuncts. Fig. 7 is a section on the line X X of Fig. 6. Fig. 8 is a detail view showing the belt and letter guiding devices, the die-wheel, and adjuncts. Fig. 9 is a detail view showing the die-wheel, the inking-roller, the controller-cam, and the driving-gear for the cam. Fig. 10 is a side view of the die-wheel. Fig. 11 is a detail view showing a fragment of one form of feed-belt.

This invention has relation to stamp-canceling and postmarking machines, and is designed to provide a machine of this character whereby letters, circulars, &c., may be postmarked and stamp-canceled in a rapid and accurate manner and without injury thereto in any way; which will operate with equal precision and accuracy upon letters of varying thickness and length; which is comparatively simple in its construction and principle of operation, and which is durable and not liable to become deranged or out of order.

The invention relates more particularly to the means employed for separating, feeding, and guiding the letters to the marking and canceling die, to the means employed for preventing a letter from passing to the action of the die until such time as the latter is in position to operate upon the proper portion of the letter, and to the devices by means of which the marked and canceled letters are delivered and properly stacked upon the table of the machine.

The invention also consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

Referring to the accompanying drawings, the numeral 1 designates a suitable pedestal or support which carries the table 2 and the operative parts.

3 designates the main driving-shaft, operated from any suitable source of power and which is journaled in suitable bearings in the pedestal and table, its upper end being extended through the table and carrying rigidly secured thereto a die wheel or head 4. Said wheel or head has seated therein an interchangeable marking-die A and upon its periphery the usual canceling-mark ribs 5.

6 designates a letter-feeding belt which is carried by a driving wheel or pulley 7 and an idle pulley 8, carried, respectively, upon the shafts 7^a and 8^a, journaled in the table. The wheel or pulley 7 is driven at a slower rate of speed than the head 4 by means of any suitable gear connection with the shaft 3. In the present instance I have shown this connection as consisting of spur-gears 9 and 10. The belt 6 may be an ordinary plain friction-belt; but I prefer to employ the peculiar belt shown, which is provided at intervals with perforations 11, the effect of which under rapid movement of the belt and in connection with rollers hereinafter described, which act to press the letters to the belt, is to create an exhaust in said perforations and draw the letter closely to the belt, portions of its surface being partly drawn into such perforations. In this manner the belt secures a hold upon the letters of such nature as to effectually prevent slippage.

12 designates a separating device, which consists of a cylindrical block of rubber or other material having a somewhat-yielding frictional surface. This block of rubber is non-rotatably held in a bracket 13, with its peripheral surface opposite the belt-driving wheel 7 at a point slightly forward of the center of said wheel and up to, but not actually touching, the surface of the belt 6. Secured to the bracket 13 and extending along the

said block 12 is a vertical metallic guard-blade 14, extending obliquely forward toward the belt 6, with its vertical edge standing a short distance from the belt. The bracket 13 is secured to a flat spring-plate 15, which is adjustably secured to a support 16 by means of a screw-bolt 17, which passes through a slot 18 in said plate 15, whereby said plate, with its bracket, may be moved toward and away from the belt 6. By loosening the screw 18^a, which secures the block 12 in the bracket 13, the said block may be rotated to bring a fresh portion of its surface into operative position.

19 and 20 designate two oppositely-placed vertically-journaled letter and belt guiding rollers situated a short distance in front of the block 12. The roller 19, which is behind the belt 6, is journaled in a bracket 21, carried by a pivoted arm 22, pressed by a spring 23. The opposite roller 20 is journaled to the end portion of a spring-pressed plate 24, mounted on guides 24^a on a support 25, secured to the table.

26 designates the impression wheel or member, which is loosely mounted on a vertical shaft 27, opposite to, but out of contact with, the die wheel or head, both said die and impression wheel being located below and out of contact with the feeding-belt 6. Said shaft is eccentrically journaled at 27^a 27^b in the free end portion of a pivoted arm or plate 28, which is pressed toward the belt 6 and the die wheel or head by means of a strong plate-spring 29. The adjustment of said arm or plate 28 under the action of the spring 29 is controlled by a screw 30 and lock-nut 31, said screw bearing against a lug 32 on the stud 33, to which the arm or plate 28 is pivoted. Above the impression member the shaft 27 has an enlarged partially-hollow eccentric portion or piece 34, open at its rear side, as shown at 34^a, Fig. 7. Loosely surrounding this eccentric piece or portion is a locking-shell 36, slotted at 37 and having a projecting arm 38, to which is journaled a small wheel 39. In a lug 40 on the opposite side of said shell is connected one end of a spring 41, whose opposite end is connected to an arm 42 of an adjusting-nut 43, seated on a screw 44, which is secured in the arm or plate 28.

45 is an angular combined letter-timing stop and locking-key which is pivoted at 46 in one side of the eccentric 34, with its longer arm a normally lying within the same. Said arm terminates in a hooked end a^2, curved on its outer face in order to permit its movement in the shell 36. The other arm a' of said lever projects out through the slot 37 by the shell over the inner branch of the belt 6 into a recess 37^a of a plate 37^b and across the path of the letter as it comes to position to pass between the die-wheel and the platen. Within the eccentric 34 is a fixed portion or post 34^b, in connection with which the locking-key operates, as hereinafter described.

47 (see Fig. 6) is a small spring which acts to normally hold the arm a' of the locking-key across the path of the letter.

48 is a spring which acts to return the eccentric 34 to normal position after operation.

48^a is an arm on the shaft 27, arranged to contact with the arm or plate 28, and thereby limit the return movement of its shaft 27 and its eccentric 34.

49 is a large cam having a high portion 50 and journaled on a stud 51, which depends from the overhanging arm of a bracket 52, secured to the plate 37^b. This cam is so placed relatively to the die head or wheel that its high portion corresponds to or coincides with the eccentric die-faces of the head. Its major diameter is equal to the major diameter of the die-head, and it is also necessary that it be driven at the same rate of speed as the said head. The center of said cam, however, must be quite a little forward of the center of the die-head in order to effect the operation hereinafter described. For this reason it cannot be placed upon the same shaft as the die-head, and intermediate gear connections are necessary. This connection consists of the two spur-pinions 53 and 54, the former being on the shaft 3 and the latter on the under side of the cam and secured thereto, with an intermediate spur-wheel 55 journaled at 55^a upon a block 55^b, resting upon the die-head, and in which the die-head shaft has loose bearings and in which the shaft upon which gear-wheel 54 turns is secured at the bottom, and transmitting motion from one pinion to the other, whereby the cam is driven in the same direction and at the same rate of speed as the die-head.

56 is a friction stacking-belt which is carried by a driving wheel or pulley 57, secured on the shaft 8^a, before referred to, below the wheel or pulley 8, which is loose on said shaft. The shaft 8^a is suitably geared to the main shaft 3 to run at a considerably-higher rate of speed than the cam 49 and the die-head, as by means of the spur-gear wheels 58 and 59. The stacking-belt also passes around the intermediately grooved or reduced portion of a wheel or roller 60, journaled on a stud 61. A portion of the periphery of said wheel or roller 60 projects through a slot 61^a in a fixed guard-plate 62 to a position in front of the line of feed or path of movement of the letters through the machine.

63 is a small frictional-surfaced grip-wheel which is placed opposite the wheel 8. The wheel 63 is journaled to a spring-pressed plate 64, mounted to move on guides on a support 65, fixed to the table.

66 is a spring-guard-plate finger which is secured to the opposite side of the support 65.

67 is a small idle pulley which deflects the belt 66 away from the letter intermediate of its driving and carrying wheels.

68 is a laterally-yielding stacker-plate against which the letters are stacked, said plate being carried by the rod 69, moving in a guide 70.

70[a] is an adjustable end gage for the stacked letters.

71 is a spring-finger carried by an arm 72 and held by a spring 73 to steady the upper portion of the letter as it passes to the die. The arm 72 is pivoted to the bracket 21, before described.

74 designates the ink-wheel, which is loosely mounted on a stud 75, projecting up through a slot 76 in the table and carried by a swinging arm or bracket 76, pivoted at 77 and acted upon by a spring 78 to normally hold the ink-wheel up to the die-wheel. Said ink-wheel has a base-flange 79, which is in frictional contact with the die-wheel, whereby it is driven at the same rate of speed as the latter.

The operation of the machine is as follows: The letters are stacked upon the receiving end portion of the table in the usual manner, the stack extending at right angles to the line of feed, and are held against the feeding-belt on the wheel 7. The friction of said belt, combined with its suction action, (when a perforated belt of the character above described is employed,) acts upon the foremost letter to enter it between the wheel 7 and the rubber block 12. At the same time the next succeeding letter will also attempt to enter between the said block and the first letter and is able to do so to a slight extent only, but sufficiently far to form a surface upon which the first letter slips as it is carried forward by the belt, thereby relieving such letter of the friction of the said block. The second letter cannot enter until the first letter has passed, for the reason that it is not in contact with the feed-belt, and the friction of the block 12 is considerably greater than the friction of the moving letter with which it is in contact. At the same time, however, the manner in which said block is mounted permits it to yield readily to admit letters of varying thickness. The letter passes forward between the guide-rollers 19 and 20, which also yield readily to suit the thickness of the particular letter, the blade 14 acting as a guard to prevent the end of the letter from turning to one side. Moving forward, its advance end portion being steadied by the belt 6 and finger 71 upon one side and guided by the bracket 52 upon the other side, the end of the letter comes in contact with the arm a' of the combined letter-stop and locking-key 45, which serves as a guard to prevent the letter from passing between the die and platen until the die is in position to place the canceling-marks and date-stamp upon the letter at the proper place. The manner in which this device and its adjuncts operate will now be explained in detail. Let it be supposed that when the particular letter reaches this stop and locking-key the high portion of the cam 49 is in contact with the small wheel 39, which, as before described, is carried by the arm 38 of the shell 36. (See Fig. 3.) As the die portion of the die-wheel is coincident with the high portion of this cam, it follows that if the letter could pass to the die at this time it would not be properly marked, as the die, if it struck at all, would only make a partial impression upon its extreme forward end portion, or if the letter were long enough the die might catch its extreme rear portion on its next revolution. The letter, however, comes in contact with the stop and locking-key and moves the latter on its pivot until its shorter curved end comes in contact with the inner wall of the shell 36, as clearly shown in said figure, and thereby holds the device against further movement. The device remains in this position, with the letter stopped and pressing against it, until the continued revolution of the cam 49 causes its high portion to leave the wheel 39. When this occurs, the wheel 39 moves in toward the cam 49, thereby slightly rotating the shell 36 backward on the eccentric 34 to the position shown in Fig. 4, permitting the arm a under the pressure of the letter to project through the open side of the eccentric behind the post 34^b and between said post and the rear wall of the slot 37 of the shell 36. The other arm a' of said stop, however, still remains in position to bar the advance of the letter, and it continues in this position until the further revolution of the cam brings its high portion 50 again into contact with the wheel 39. When this occurs, the said wheel is forced backward, thereby rotating the shell 36 forwardly on the eccentric 34 into the position shown. This causes the rear wall of the slot 37 of said shell to impinge with the hooked portion a^2 of the projecting arm a, and by reason of such impingement the shell is prevented from further independent rotation on the eccentric and the shell and eccentric are locked to each other. Consequently as the cam continues to press the wheel 39 backward the shaft 27 and eccentric 34 are rotated or rather swung forwardly toward the letter, and by this movement the arm a' is carried backward out of the path of the letter, and at the same time the platen or impression member is swung forward into proper operative relation to the die wheel or head. The letter is now free to advance and is immediately seized between the die and platen and receives its impression at the proper place. By reason of some defect or irregularity in feeding a letter may enter the machine when the die head or wheel and the cam 49 are in the position shown in Fig. 4 or in some other intermediate position instead of at the time above supposed. In all such cases, however, the arm a forms a stop in the manner described, whereby the letter is held until such time as the die is in proper relative position. In no case can the letter pass this arm until the shell 36 and the eccentric have been locked in the manner described, and this lock can only be effected when the low portion of the cam 49 is in contact with the wheel 48. Therefore if a letter reaches said

arm a' at any time after the high portion of the cam has reached the wheel 38 it must wait until the further revolution has effected the lock and brought the die into proper position. It is therefore not only impossible for a letter to receive the impression at a wrong place, but the impression member can never come into contact with the die, as it never moves up to operative position until the letter is interposed. Owing to the light degree of pressure which is required to move the stop and locking-key into locking position there is no tendency of the letter to double or buckle, and during the time it is checked the belt 6 slips idly upon its surface. In ordinary operation, however, the letters follow each other in regular succession and each successively operates said device and effects the lock, there being no appreciable delay or check in the passage of the letter, and it is only in starting the machine or occasionally upon some failure of the operator or of the feeding devices that a letter is held in the manner above supposed. After each operation the springs described return the stop and locking device, the shell, and the eccentric to their normal positions. It will also be observed that as soon as the letter is caught by the die and platen it is taken away from the feed-belt by reason of the higher speed of rotation of the die and is shot forward between said members and the rolling peripheral faces of the cam and the wheel 39. Passing out the letter is caught between the frictional-surfaced grip-wheel 63 and the high-speed belt 56 on the wheel 57 and is shot forward and out, its forward end portion coming against the periphery of the wheel or roller 60, which by reason of its lateral projection into the paths of the letter acts to deflect the letter laterally against the stacking-plate. The guard plate or finger 66 operates to prevent a succeeding letter from entering behind a preceding one after the latter has been thrown over against the receding stacking-plate, as it might otherwise occasionally do.

It will be noted that I place my rotary die-head and impression-roller below and out of contact with the main feeding-belt 6, whereby the operation of said die and roller are rendered independent of the letter-feeding mechanism, and the rapid intermittent operations of the impression-roller are facilitated. It will also be noted that the rollers 7 and 8, carrying the main feeding-belt, have stationary bearings in the frame of the machine, the impression member being located intermediately of said rollers.

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

1. In a machine of the class described, the combination with the main feeding-belt and the rollers carrying the same having stationary bearings in the frame of the machine, of a rotary die head or wheel, and an impression member located intermediately of said rollers, independent thereof, and normally held away from said die, and means for moving said member toward and away from said die at predetermined times, substantially as specified.

2. In a machine of the class described, the combination of the main feeding-belt, and means operating in connection therewith to feed the letters through the machine, of a rotary die head or wheel located out of the plane of said belt, an impression member also located out of the plane of said belt out of contact therewith, and normally held away from said die, and unlocked from its actuating mechanism, means for locking said member to its actuating mechanism by pressure of the letter, and means for subsequently moving said member toward said die, substantially as specified.

3. In a machine of the character described, the combination of a rotary die, an impression member normally held away therefrom, and unlocked from its actuating mechanism, a combined letter-stop and locking-key for locking said member to its actuating mechanism, and means for subsequently moving said member toward said die, and for moving said stop out of the path of the letter, substantially as specified.

4. In a machine of the class described, the combination of a rotary die, an impression member movable toward and away from the die and normally held away from the die and unlocked from its actuating mechanism, a letter-timing stop and locking-key, means in conjunction with said key for locking the said member to its actuating mechanism, and cam-operated mechanism for actuating said member when locked and for moving said stop out of the path of the letter, substantially as specified.

5. In a machine of the class described, the combination of a rotary die, a cam rotating in unison therewith and having a relative arrangement thereto, an impression member movable toward and away from the die and normally held away from the die and unlocked from its actuating mechanism, and a combined letter-stop and key for timing the passage of the letter to the die and for effecting, under the pressure of the letter, a lock between said member and its actuating devices, and means operated by said cam for actuating said member when locked, and for moving the letter-stop out of the path of the letter substantially as specified.

6. In a machine of the class described, the combination of a rotary die, a swinging or oscillating impression member, normally held away from the die and unlocked from its actuating mechanism, a combined letter-timing stop and locking-key whereby the passage of the letter to the die is timed and a lock is effected between the said member and its actuating mechanism, and a cam arranged relatively to the die and controlling the lock-

ing and releasing of the said stop and key and also actuating said member to move it toward the die, substantially as specified.

7. In a machine of the class described, the combination of a rotary die, a swinging or oscillating impression member normally held away from the die and unlocked from its actuating mechanism, a letter-timing stop and locking device, normally lying across the path of the letter, and actuated by the letter to lock the said member to its actuating mechanism, means whereby such lock can be effected only when the die is in a predetermined position, and means for actuating said impression member when locked thereto, substantially as specified.

8. In a machine of the class described, the combination of a rotary die, a cam arranged relatively thereto and rotating in unison therewith, an impression member normally held away from said die, and pivoted to swing toward and away from the same, actuating mechanism for said impression member normally disconnected therefrom, a combined letter-timing stop and locking-lever arranged to stop the letter and under the pressure thereof to be moved to position to form a locking engagement with the actuating mechanism, and a cam forming part of the said actuating mechanism and controlling the operation of said stop and locking-lever, substantially as specified.

9. In a machine of the class described, a rotary die, a cam arranged relatively thereto to rotate in unison therewith, an impression member, a pivoted spring-pressed arm in which said member is eccentrically pivoted, an eccentric carried by said member, a combined letter-timing stop and locking-key pivoted to said eccentric, a slotted shell loosely mounted on said eccentric, an arm connected to said eccentric and carrying a wheel which is in rolling contact with said cam and means whereby said stop and locking-key is caused to lock said eccentric and shell together under the combined action of the letter and the cam, substantially as specified.

10. In a machine of the class described, a rotary die, a cam arranged relatively thereto to rotate in unison therewith, an impression member pivoted eccentrically to swing toward and away from the said die, an eccentric carried by said member, a combined letter-timing stop and locking-key pivoted to said eccentric, and a slotted shell loosely mounted on said eccentric and having an arm in contact with said cam, said eccentric having means whereby it is locked to the shell by the said key under the combined action of the letter and cam, substantially as specified.

11. In a machine of the class described, the combination of a rotary die, an impression member, a spring-pressed arm in which said member is eccentrically pivoted, an eccentric carried by the said member, a shell loosely mounted to have a limited rotary movement on said eccentric, springs for holding said shell and eccentric in normal positions, a combined letter-timing stop and locking-key pivoted in said eccentric and having one of its arms arranged normally across the path of the letter and its other arm arranged to act as a clutch to lock the shell and eccentric together when the first-named arm is pressed by a letter—a spring connected to said key, and a controlling and actuating cam arranged relatively to the die and rotating in unison therewith, said cam contacting with an arm of said shell and operating in conjunction with the letter to control the operation of the said stop and locking device, substantially as specified.

12. In a machine of the class described, the combination of a rotary die, a cam arranged relatively thereto and rotating in unison therewith, an impression member, a spring-pressed adjustable arm in which said impression member is eccentrically pivoted, an eccentric portion carried by the said impression member, a slotted shell loosely mounted on said eccentric portion, a combined letter-timing stop and locking-key pivoted in said eccentric and having the arms a, a' arranged substantially as described to form respectively a lock for the said eccentric and shell, and a stop for the letter, a spring arranged to act upon said key in opposition to the letter, independent springs for returning said shell and eccentric to normal positions after operation, and a wheel or roller carried by the said shell and engaged by the said cam whereby the operation of the said key under pressure of a letter is controlled substantially as specified.

13. In a machine, of the class described, the combination of a rotary die, an impression member pivoted to swing toward and away from the said die and normally held away from the same and unlocked from its actuating devices, a combined letter-stop and key for arresting the passage of the letter to the machine, and for effecting a lock between the impression member and its actuating devices, a controlling and actuating cam controlling the operation of said stop and key and a spring acting upon said impression member in opposition to the action of said cam, substantially as specified.

14. In a machine of the class described, the combination with a friction feeding-belt, of an adjustable spring-plate, a separating-block of frictional material carried by said plate, and a guard-strip extending along said block and moving therewith, substantially as specified.

15. In a machine of the class described, a feeding-belt having a series of perforations or apertures therein, communicating upon both sides of said belt with the atmosphere, rollers for pressing the letter to said belt, and means for driving said belt at a high rate of speed, substantially as specified.

16. In a machine of the class described, the combination with the die and impression members, of the friction stacking-belt driven

at a higher rate of speed than said members, the roller driven by said belt and having its periphery projected into the path of the letter, the laterally-movable stacking-plate opposite said roller and belt, and the guard-finger intermediate the said roller and the said members for the purpose of preventing a succeeding letter from attempting to stack behind a preceding one, substantially as specified.

17. In a machine of the class described, the combination of a letter-feeding belt, a frictional separating device opposite to the receiving portion of said belt, guiding-rollers in advance of said separating device, a constantly-driven rotary die, an impression member pivoted to move toward and away from the die and normally held away from the same and unlocked from its actuating devices, a combined letter-timing stop and locking-key for arresting the letter and locking the impression member to its actuating devices, a cam for controlling the operation of the said key under the pressure of the letter, means for driving said cam in unison with the die, and guiding, delivering and stacking devices in advance of the die, substantially as specified.

18. In a machine of the class described, the combination of a rotary die, a cam arranged relatively thereto and rotating in unison therewith, an impression member normally held away from said die and unlocked from its actuating devices, a combined letter-timing stop and locking-key actuated by the pressure of a letter and controlled in its operation by the said cam, devices operated by said cam when the impression member is locked to said devices for moving the same to the die, a feed-belt and guiding devices for feeding the letters to the die, said belt being driven at a lower rate of speed than the die, and a delivering and stacking belt driven at a higher rate of speed than the die, substantially as specified.

19. In a machine of the class described, the combination with a rotary die, an impression member movable toward and away from the die, a combined letter-timing stop and clutch for said impression member, a cam placed relatively to the die and which actuates said impression member to move it to the die and also controls the operation of said stop and clutch under the pressure of a letter, and intermediate gear connections between the die-driving shaft and said cam whereby the cam and die are rotated in unison, substantially as specified.

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

SAMUEL J. EVANS.

Witnesses:
HERBERT C. EMERY,
GEORGE M. ANDERSON.