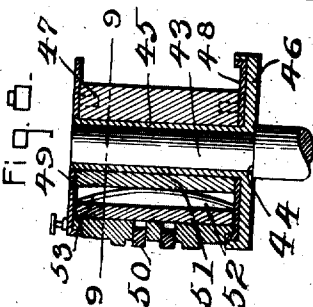
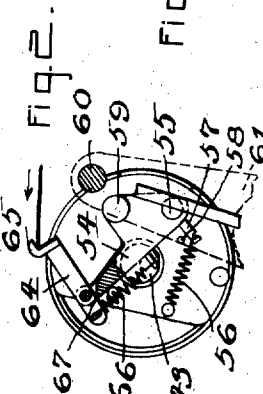
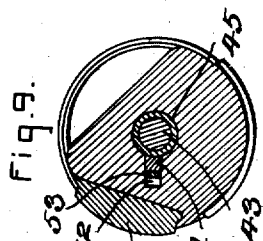
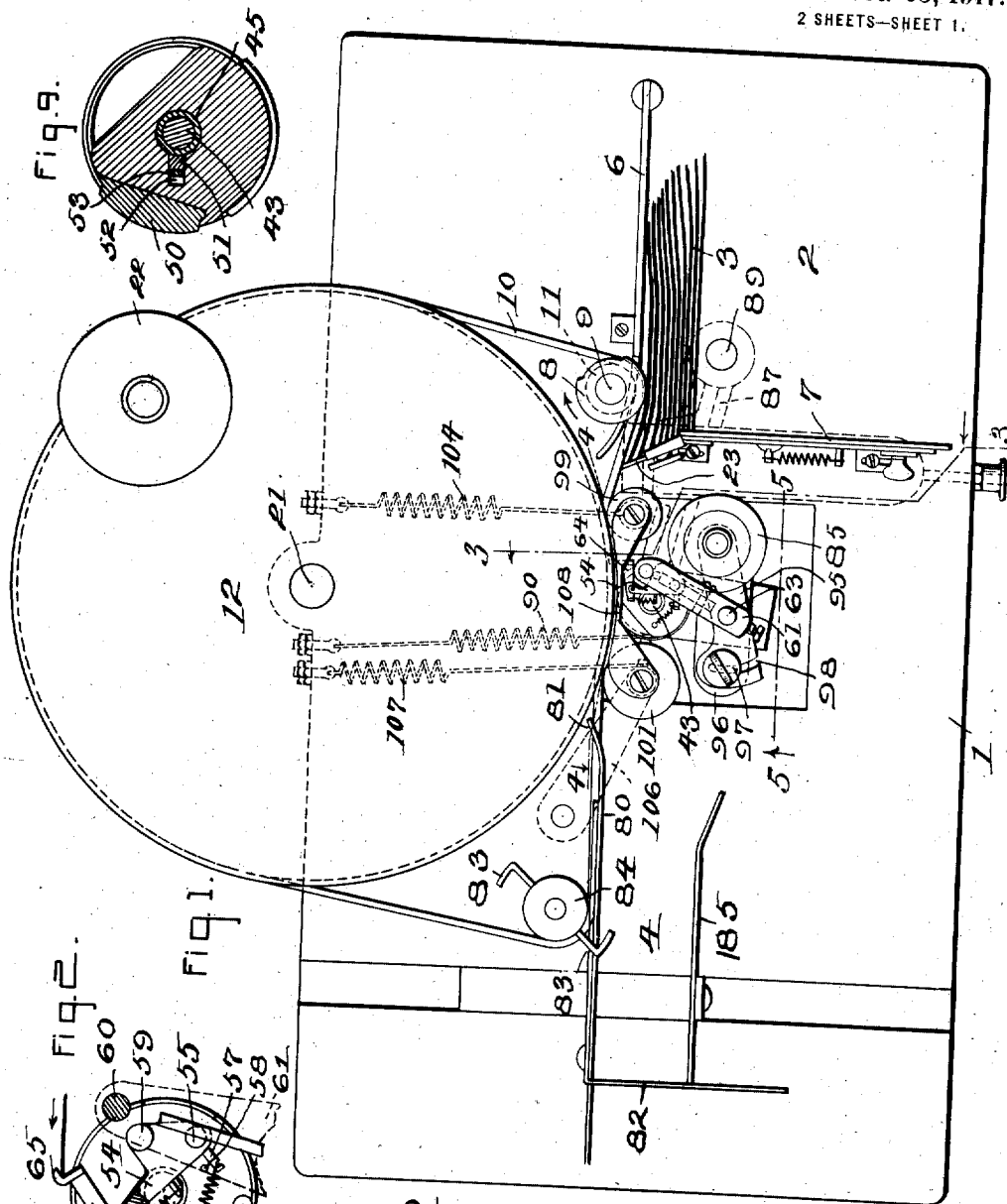


A. IELFIELD.
MAIL MARKING MACHINE.
APPLICATION FILED MAR. 19, 1915.

1,243,740.

Patented Oct. 23, 1917.
2 SHEETS—SHEET 1.

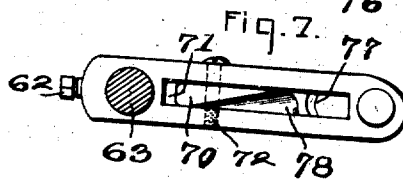
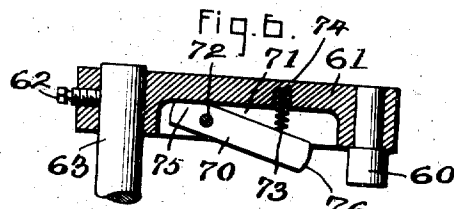
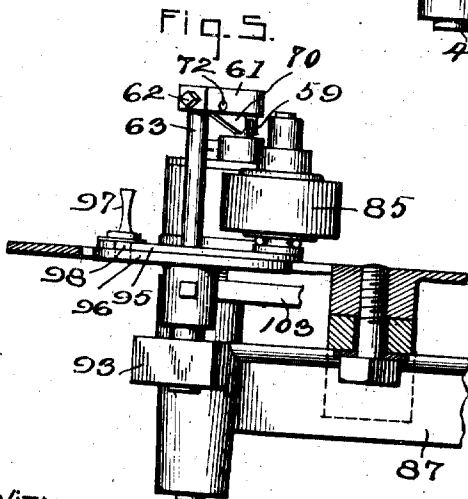
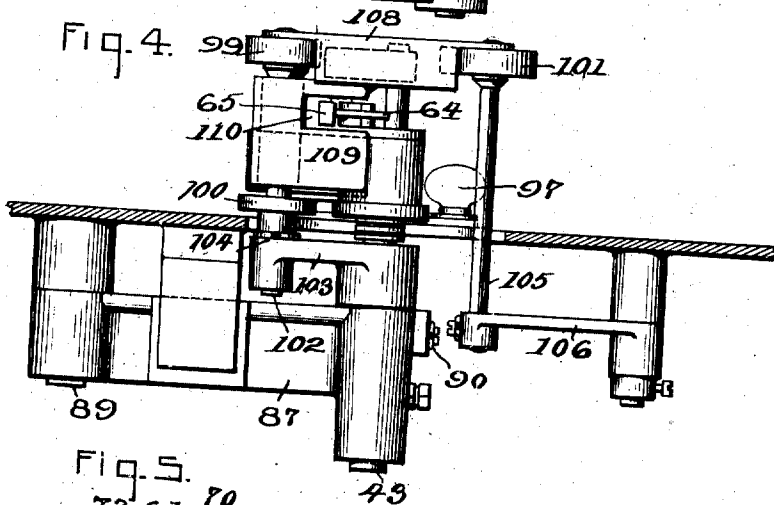
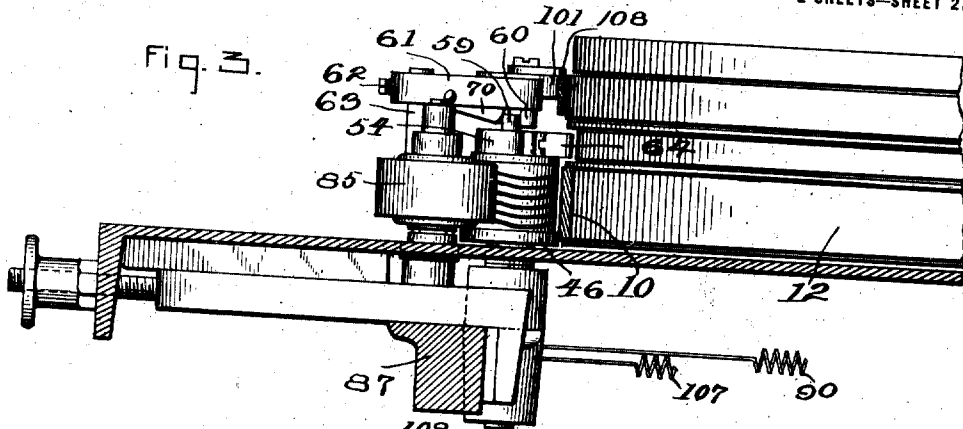


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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

AUGUST IELFIELD, OF SILVER CREEK, NEW YORK, ASSIGNOR TO COLUMBIA POSTAL SUPPLY COMPANY, OF SILVER CREEK, NEW YORK, A CORPORATION OF NEW YORK.

MAIL-MARKING MACHINE.

1,243,740.

Specification of Letters Patent.

Patented Oct. 23, 1917.

Division in part of application Serial No. 828,499, filed March 31, 1914. This application filed March 19, 1915. Serial No. 15,450.

To all whom it may concern:

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

This invention relates to a mail marking machine and is partly a division of an application for patent filed March 31, 1914, Serial #828,499.

The object of this invention is to provide simple and efficient means for preventing rebound or back lash of the printing wheel or head when the movement of the same is arrested at the end of a rotation and thereby not only permitting of using less friction for driving the head so that the same may be started easier but also decreasing the liability of mutilating or bending the letters at the front edge thereof which engages the trip mechanism as well as permitting the machine to be turned backward while getting the same ready without liability of getting ink on the impression member which opposes the printing wheel.

A further object of this invention is to improve the means for mounting the printing mechanism and also to improve the means for guiding the letters as they pass the printing mechanism.

In the accompanying drawings:

Figure 1 is a top plan view of a mail marking machine embodying my improvements. Fig. 2 is a fragmentary top plan view on an enlarged scale and partly in section, of the printing wheel and the stop mechanism associated therewith. Fig. 3 is a fragmentary transverse section, on an enlarged scale, taken in line 3—3, Fig. 1. Figs. 4 and 5 are fragmentary vertical longitudinal sections, on an enlarged scale, taken in the correspondingly numbered lines in Fig. 1 and looking in the direction of the arrows associated with these lines. Fig. 6 is a fragmentary vertical section, on an enlarged scale, of the stop device forming part of the mechanism whereby the backward and forward rotation of the printing wheel or die head is arrested at the completion of a rotation of the same.

Fig. 7 is a bottom plan view thereof, partly in section. Fig. 8 is a vertical section of the die head or printing wheel and the pivotal support of the same. Fig. 9 is a horizontal section of the same taken in line 9—9, Fig. 8.

Similar characters of reference indicate corresponding parts throughout the several views.

1 represents the supporting table provided at one end with a delivery portion or section 2 upon which the letters 3 to be canceled are placed side by side with their lower edges resting thereon, and a receiving portion 4 arranged at the other end of the table and adapted to receive the letters after they have been marked or canceled. The inner side of the stack of unmarked letters is adapted to rest partly against a longitudinal guide wall 6 which is mounted on the table and the front edges of these letters are adapted to engage with a transverse abutment wall 7 also mounted on the table. The inner end of this transverse wall and the front end of the longitudinal wall are separated from each other by an intervening throat, passage or space through which the letters are delivered one at a time from the inner end of the supply stack.

The mechanism whereby the letters are fed forwardly from the stack, to the printing mechanism and to the receiving section of the table preferably comprises a cam-shaped feeding wheel 8 projecting with the inner part of its peripheral portion beyond the inner side of the longitudinal wall 6 and mounted on the upper end of an upright spindle or arbor 9 which is journaled in a suitable bearing on an adjacent part of the machine. Upon rotating the feeding wheel in the direction of the arrow associated with the same in Fig. 1 the salient part of its face engages successively with the foremost letters of the stack on the delivery section of the table and moves the same forwardly from the stack and through the throat between the longitudinal guide walls 6 and the transverse wall 7. The feeding off of the letters from the stack is assisted and the propulsion of the same from the supply stack past the printing mechanism and to the receiving section is

effected by a feeding belt 10 which passes forwardly around the inner side of a rear supporting pulley 11 which turns with the feeding wheel 8, thence lengthwise past the printing mechanism and in engagement with the inner side of the periphery of a comparatively large impression and driving wheel 12, thence around a front supporting pulley 84 which is arranged adjacent to the receiving section of the table and mounted on an upright pivot pin arranged on the adjacent part of the table, thence laterally and around the outer side of the driving and impression wheel 12 and thence back to the rear supporting pulley at the place of beginning. The driving and impression wheel 12 is mounted on an upright shaft 21 which is journaled in a suitable bearing on the adjacent part of the main frame and may be turned by any suitable means, for instance by a hand or crank 22 secured to the upper side of this wheel.

Only one letter at a time is permitted to pass forward from the supply stack through the feed throat by means of a separator 23 which is arranged with its free edge close to the face of the feeding belt 10 in front of the feeding wheel 8 and rear supporting pulley and yieldingly supported in any suitable manner, so that but one letter at a time can pass this separator while the remaining letters of the supply stack are held back.

As each letter issues from the throat the same is operated upon by a printing mechanism which produces a post mark or cancellation thereon and which is preferably constructed as follows:

43 represents a fixed upright pivot pin, spindle or arbor arranged on the left hand side of the path of the letters and provided with a reduced upper portion forming an upwardly facing shoulder 44, as shown in Fig. 8. Mounted upon this reduced upper part of the spindle 43 and resting on the shoulder 44 thereof is a driving sleeve 45 which is provided at its lower end which rests on the shoulder 44 with an annular driving flange or disk 46 which engages its periphery with the face of the feeding belt adjacent to the lower edge of the latter, as shown in Fig. 3.

The printing wheel or die head forming one member of the printing couple of the printing mechanism comprises a body 47 having a cylindrical opening whereby the same is mounted upon the periphery of the driving sleeve 45, a lower friction disk 48 secured to the lower end of the body and engaging frictionally with the upper side of the driving disk 46, an upper supporting disk 49 secured to the upper end of the body, and type 50 arranged on the periphery of the body and adapted to impress the letter with the name of a post office, the date of mailing, canceling lines or other matter.

The driving sleeve and disk are rotated continuously by the feeding belt, and the printing wheel, when free also rotates in the same direction as the driving sleeve and disk, this movement being imparted to the printing wheel by connecting the same with the driving sleeve. The preferred means for effecting this connection between the printing wheel and the driving sleeve comprises a radially movable friction bar or key 51 guided in a radial guide-way or slot 52 formed lengthwise in the body of the printing wheel and opening into the bore thereof, and a spring 53 interposed between the outside of the friction bar and the outside of the guideway 52 and operating to press the friction bar inwardly so that its inner side engages frictionally with the periphery of the driving sleeve. The frictional contact or engagement of this bar 51 with the driving sleeve is sufficient to cause the printing wheel to rotate with the sleeve 45 the instant that the printing wheel is released by a letter controlled stop device.

This time stop mechanism is preferably constructed as follows:

54 represents a stop lever pivoted to turn horizontally upon a pin 55 mounted on the upper side of the printing wheel on one side of the axis thereof. This stop lever is yieldingly held in its operative position by means of a spring 56 connected at one end with the upper side of the printing wheel and at its other end with the stop lever, the extent of the rearward movement of this lever under the action of this spring being limited by means of a stop pin or shoulder 57 on the stop lever engaging with a stop pin or shoulder 58 on top of the printing wheel, as shown in Fig. 2. On one arm of the stop lever the same is provided with a rotatable stop or shoulder 59 which is preferably constructed in the form of a pin projecting upwardly from this arm, as shown in Figs. 2, 3 and 5. In the rearmost position of this stop lever its stop 59 is moved radially outward relative to the axis of the printing wheel and into a position in which it engages with a fixed stop 60 which is constructed in the form of a pin depending from the underside of a horizontal supporting arm 61. The latter is capable of horizontal adjustment by providing the same with a sleeve which is secured by means of a set screw 62 to the upper end of a post 63. By this means the fixed stop 60 may be accurately adjusted for arresting the stop lever and printing wheel connected therewith at the proper time and it also permits of removing the fixed stop from above the printing wheel and associated mechanism to afford more convenient access to these parts when inspection, adjustment or repairs of the same becomes necessary.

On the other arm of the stop lever is piv-

totally mounted a horizontally swinging trip lever 64 the rear arm of which is provided with a laterally projected shifting finger 65 which is adapted to project across the letter path and to be engaged by the front edges of successive letters. This trip lever is yieldingly held in this position by means of a spring 66 connecting the front arm of the trip lever with the stop lever, the movement of the trip lever under the action of this spring being limited by means of a stop shoulder 67 formed on the stop lever and adapted to be engaged by the front arm of the trip lever, as shown in Fig. 2.

When the shifting finger of the trip lever is not engaged by the front edge of a forwardly moving letter this finger projects inwardly across the letter path and the stop lever is moved into its outward position so that its stop shoulder 59 engages with the stationary stop 60 on the arm 61, as shown in Fig. 1, thereby arresting the forward rotation of the printing wheel in a position in which the low receding or blank part of the printing wheel body having no die or type face is presented to the feeding belt. Whenever a letter issues from the throat and strikes the shifting finger the latter will be moved forwardly under the impact of the letter, whereby the stop lever will be turned inwardly and its shoulder 59 will be disengaged from the fixed shoulder 60, as shown in Fig. 2, thereby liberating the printing wheel and permitting the same to turn with the driving friction disk by reason of the frictional contact between these parts and causing the die or type face of the printing wheel or die head to be brought into engagement with the letter as the same passes forwardly between the printing wheel and the feeding belt for producing a post mark or canceling impression thereon. When the printing wheel after making an impression on a letter has completed one rotation the same is again arrested by the stop lever which latter has in the meantime been again moved into its outward position so that its movable stop shoulder 59 engages with the fixed shoulder 60 of the stop arm 61. This arrest of the rotary movement of the printing wheel after making one complete rotation occurs regardless of whether or not the letter which has just been canceled has fully cleared the path of the shifting finger. If the letter just operated upon has cleared the path of the shifting finger the latter will be carried across the letter path into its operative position preparatory to being engaged by the next following letter for again releasing the printing wheel and performing another cycle of canceling or mail marking operations. But if the previous letter has not yet cleared the path of the shifting finger the same will simply press yieldingly against the adjacent face of

the letter then passing and cause the trip lever to be held backwardly relatively to the stop lever, but the spring 66 will turn the trip lever and move the shifting finger across the path of the letters the instant the end of the previous letter clears the path of the shifting finger.

The inking of the die or type face of the printing wheel is preferably accomplished by means of an ink roller 85 which is supported so that its periphery is engaged by the die or type face of the printing wheel during each rotation. The pivot pin 43 supporting the printing wheel and associated parts is mounted on the free end of a horizontally swinging supporting arm 87 which is arranged underneath the table 1 and is pivotally secured to the under side thereof by means of a depending pin or arbor 89 carried by the table, as shown in Figs. 3, 4 and 5. This arm is yieldingly turned in a direction which will move the printing wheel toward the feeding belt and impression and driving wheel, this being preferably accomplished by means of a spring 90 connecting this arm with a suitable stationary part of the machine. The post 63 carrying the supporting arm 61 is mounted at its lower end on a lug 93 formed on the supporting arm 87. The ink roller 85 is mounted on one arm of a lever 95 which turns about the upright post 63 and rests upon a shelf 96 which is secured to this post, as shown in Fig. 5. This inking roller is held in its adjusted position relatively to the printing wheel by means of a clamping screw 97 secured to said shelf and passing through a slot 98 in the other arm of the ink roller lever, as shown in Figs. 1 and 5. The letters are guided as they approach the printing position and leave the same by means which preferably comprise upper and lower front guide rollers 99, engaging with the periphery of the impression and driving wheel in rear of the printing wheel, and a front guide roller 101 engaging with the impression and driving wheel in front of the printing wheel. The rear guide rollers 99, 100 are mounted on an upright pin 102 which is carried at its lower end on the free end of a horizontally swinging supporting arm 103 pivoted on the pin 43 upon which the printing wheel is mounted, this arm being yieldingly turned by means of a spring 104 for holding the rear guide rollers in engagement with the impression and driving wheel. The front guide roller 101 is mounted on the upper end of an upright pin 105 which latter is carried at its lower end by a horizontally swinging arm 106 which is pivoted on the underside of the table. This front supporting arm is turned by means of a spring 107 in a direction for yieldingly holding the front guide roller in engagement with the periphery of

the impression and driving wheel. The space between the front and rear guide rollers above the printing wheel is bridged so as to hold the letters in proper engagement with the periphery of the impression and feeding wheel on the latter past the printing position. This bridging is preferably produced by means of a guide bar 108 arranged adjacent to the upper part of the periphery of the impression and driving wheel and pivotally supported at its front and rear ends on the upper ends of the pivot pins 102, 105 upon which the front and rear guide rollers are mounted. In addition to this the central parts of the letters are guided as they approach the printing position by means of a guide plate 109 mounted on the central part of the front pivot pin 102 and projecting forwardly toward the printing wheel and provided with a notch 110 at its front edge through which the trip lever can project for bringing its shifting finger across the path of the letters.

It has been found in practice that when no provision is made to prevent it the impact of the movable stop 59 on the stop lever against the stationary stop 60 for arresting the rotation of the printing wheel or die head will cause the latter to rebound or back lash more or less at times and thereby cause the post mark or cancellation to be imperfectly applied to the letters which are being handled. To prevent this means are provided whereby the printing wheel upon being arrested at the end of a rotation is prevented from kicking back or rebounding in the manner described but is held positively in place so that perfect post marking of the letters is assured. While various means may be provided for accomplishing this purpose those shown in the drawings have been found suitable in practice and as there shown these means preferably comprise a locking dog 70 which has its front end arranged in rear of the fixed stop 60 and in the path of the movable stop 59 of the stop lever. This dog is arranged in a guide groove 71 formed on the underside of the supporting arm 61 and is pivoted adjacent to its rear end on this arm by means of a horizontal pin 72. The dog is held yieldingly with its free front end in a depressed position by a spring 73 interposed between the upper side of the free front end of the dog and a pocket 74 formed in the bottom of the guide groove 71. The extent of the downward movement of the front end of this locking dog under the action of this spring 73 is limited by forming a stop shoulder or tail 75 on this dog in rear of its pivot in position to engage the bottom of the guide groove 71 in the supporting arm 61, as shown in Fig. 6.

As the stop lever 54 approaches the end of its forward rotation with the printing wheel

upon completing a cycle of operations, the stop pin 59 of this lever engages against the underside of the locking dog 70 and lifts the same into the guide groove 71 but the instant this movable stop 59 engages the fixed stop 60 it also clears the front end of the locking dog at which time the spring 73 depresses the locking dog so that the front end of the latter engages with the rear side of the movable stop 59, and thereby prevents the stop lever from backing away or rebounding from the fixed stop 60. As a result of this the printing wheel is also held against rebounding or back lashing so that the same when beginning its next cycle of operations is in the proper position for producing an imprint of its die or type face at the proper place on the letter which is presented to the same. In order to enable the locking dog to descend promptly in rear of the stop pin of the stop lever and to engage with the same without permitting any undue play between these parts the front end of this dog is curved vertically, as shown at 76 in Fig. 7. For the purpose of increasing the bearing surface of the front end of the locking dog the same is constructed of concave form to fit the cylindrical contour of the stop 59, as shown at 77 in Fig. 7, and thereby increase the wear of these parts.

Inasmuch as the supporting arm 61 is arranged tangentially relatively to the printing wheel and the stop pin 59 of the stop lever 54 sweeps the underside of the locking dog on a curve which is concentric with the axis of the printing wheel the underside of the locking dog is provided with an oblique bevel face 78 which is substantially concentric with the axis of the printing wheel. By this means the movable stop pin 59 is enabled to engage the locking dog easily and to raise the same gradually without undue jar, noise or wear.

By the use of this locking dog less friction is required between the die head or printing wheel and the driving friction disk for properly turning the printing wheel and less power is required for driving the mail marking machine. By reason of this reduced frictional contact between these parts it is possible to start the turning movement of the printing wheel much easier, thereby decreasing the liability of mutilating or bending the front edges of the letters as they engage with the trip finger. Furthermore, by means of this locking dog it is possible to hold the printing wheel or die head reliably against backward movement and this permits of turning the machine backward while getting the same ready or adjusting some of its parts without liability of getting ink on the impression wheel or feeding belt which otherwise would be liable to occur if there were relative disar-

range of the parts and therefore cause some of the letters which are subsequently canceled to be smeared on the back.

As the letters issue from the printing mechanism they are directed against the front side of a longitudinal guide wall 80 arranged adjacent to the face of the front discharge portion of the feeding belt by means of an inclined guide 81 projecting laterally from the rear end of this guide wall across the path of the letters. The forward movement of these letters is arrested by engagement of their front ends with a transverse abutment wall 82 arranged on the adjacent part of the table. As each letter reaches the receiving part of the table the same is pushed laterally away from the longitudinal wall 80 so as to clear the path for the next following letters by means of a stacker which preferably comprises two stacker arms or cams 83 mounted on diametrically opposite sides of the upper portion of the front belt pulley 84 and adapted to engage successively with the letters. The stack of letters on the receiving portion of the table is piled up against the follower 185 which is capable of transverse sliding movement on the adjacent part of the table.

I claim as my invention:

1. A mail marking machine comprising a rotatable printing wheel, a fixed stop, a stop lever pivoted on said wheel and provided with a rotatable stop adapted to engage said fixed stop, a trip arm pivoted on said stop lever and provided with a finger adapted to be engaged by a letter moving in the letter path for disengaging said rotatable stop from said fixed stop, and means for preventing backward rotation of said wheel and associated parts when said movable stop engages said fixed stop.

2. A mail marking machine comprising a rotatable printing wheel, a fixed stop, a stop lever pivoted on said wheel and provided with a rotatable stop adapted to engage said fixed stop, a trip arm pivoted on said stop lever and provided with a finger adapted to be engaged by a letter moving in the letter path for disengaging said rotatable stop from said fixed stop, and a movable locking dog adapted to engage said stop lever and prevent backward movement of the same and the printing wheel when said movable stop engages said fixed stop.

3. A mail marking machine comprising a rotatable printing wheel, a fixed stop, a stop lever pivoted on said wheel and provided with a rotatable stop adapted to engage said fixed stop, a trip arm pivoted on said stop lever and provided with a finger adapted to be engaged by a letter moving in the letter path for disengaging said rotatable stop from said fixed stop, a movable locking dog adapted to engage said stop lever and pre-

vent backward movement of the same and the printing wheel when said movable stop engages said fixed stop, and a fixed supporting arm on which said fixed stop and said movable locking dog are mounted.

4. A mail marking machine comprising a rotatable printing wheel, a stop lever pivoted on the printing wheel and provided on its upper side with a rotatable stop, a trip arm pivoted on the stop lever and provided with a finger adapted to project into the letter path and to be engaged and shifted by a letter moving therein, a supporting arm arranged above the path of said stop lever and provided on its underside with a depending fixed stop which is adapted to be engaged by the front side of said rotatable stop and said arm also provided with a guide groove which opens downwardly, and a locking dog arranged in said groove and pivoted on said supporting arm to swing vertically and adapted to engage its front end with the rear side of said rotatable stop.

5. A mail marking machine comprising a rotatable printing wheel, a stop lever pivoted on the printing wheel and provided on its upper side with a rotatable stop, a trip arm pivoted on the stop lever and provided with a finger adapted to project into the letter path and to be engaged and shifted by a letter moving therein, a supporting arm arranged above the path of said stop lever and provided on its underside with a depending fixed stop which is adapted to be engaged by the front side of said rotatable stop and said arm also provided with a guide groove which opens downwardly, and a locking dog arranged in said groove and pivoted on said supporting arm to swing vertically and adapted to engage its front end with the rear side of said rotatable stop, a spring for yieldingly holding said dog in its operative depressed position, and a stop tail arranged on said dog and adapted to engage said supporting arm to limit the descent of said locking dog.

6. A mail marking machine comprising a pivoted printing wheel, a stop lever pivoted on said wheel on one side of the axis of the same and having a stop shoulder, a trip lever pivoted on the stop lever and adapted to be shifted by a letter, and a stationary stop arranged above said wheel independently of the pivot thereof and adapted to be engaged by said shoulder of the stop lever.

7. A mail marking machine comprising a pivoted printing wheel, a stop lever pivoted on said wheel on one side of the axis of the same and having a stop shoulder, a trip lever pivoted on the stop lever and adapted to be shifted by a letter, a stationary stop arranged above said wheel independently of the pivot thereof and adapted to be engaged by said shoulder of the stop lever, an arm supporting said stationary stop, and

a post on which said arm is adjustably mounted.

8. A mail marking machine comprising a printing wheel, an impression wheel cooperating with said printing wheel, guide rollers arranged in front and in rear of said printing wheel and engaging said impression wheel, a swinging arm on which said printing wheel is pivoted, a swinging arm turning about the axis of said printing wheel and carrying the rear guide roller, a swinging arm carrying the front guide roller, and a guide bar connecting the pivots of said guide rollers and extending along the periphery of said impression wheel.

9. A mail marking machine comprising a printing wheel, an impression wheel cooperating

with said printing wheel, a swinging arm provided with a pin on which said printing wheel is pivoted, a letter operated stop lever pivoted on said printing wheel on one side of its axis, a supporting post mounted on said arm, a supporting arm mounted on said post and having a stop adapted to be engaged by said stop arm, a shelf mounted on said post, an inking roller engaging said printing wheel, an ink lever resting on said shelf and pivoted on said post and having one of its arms supporting said ink roller while its other arm has a slot, and a clamping screw arranged in said slot and secured to said shelf.

AUGUST IELFIELD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."