

F. C. IELFIELD.
MAIL MARKING MACHINE.
APPLICATION FILED MAR. 9, 1912.

1,087,121.

Patented Feb. 17, 1914.

2 SHEETS—SHEET 1.

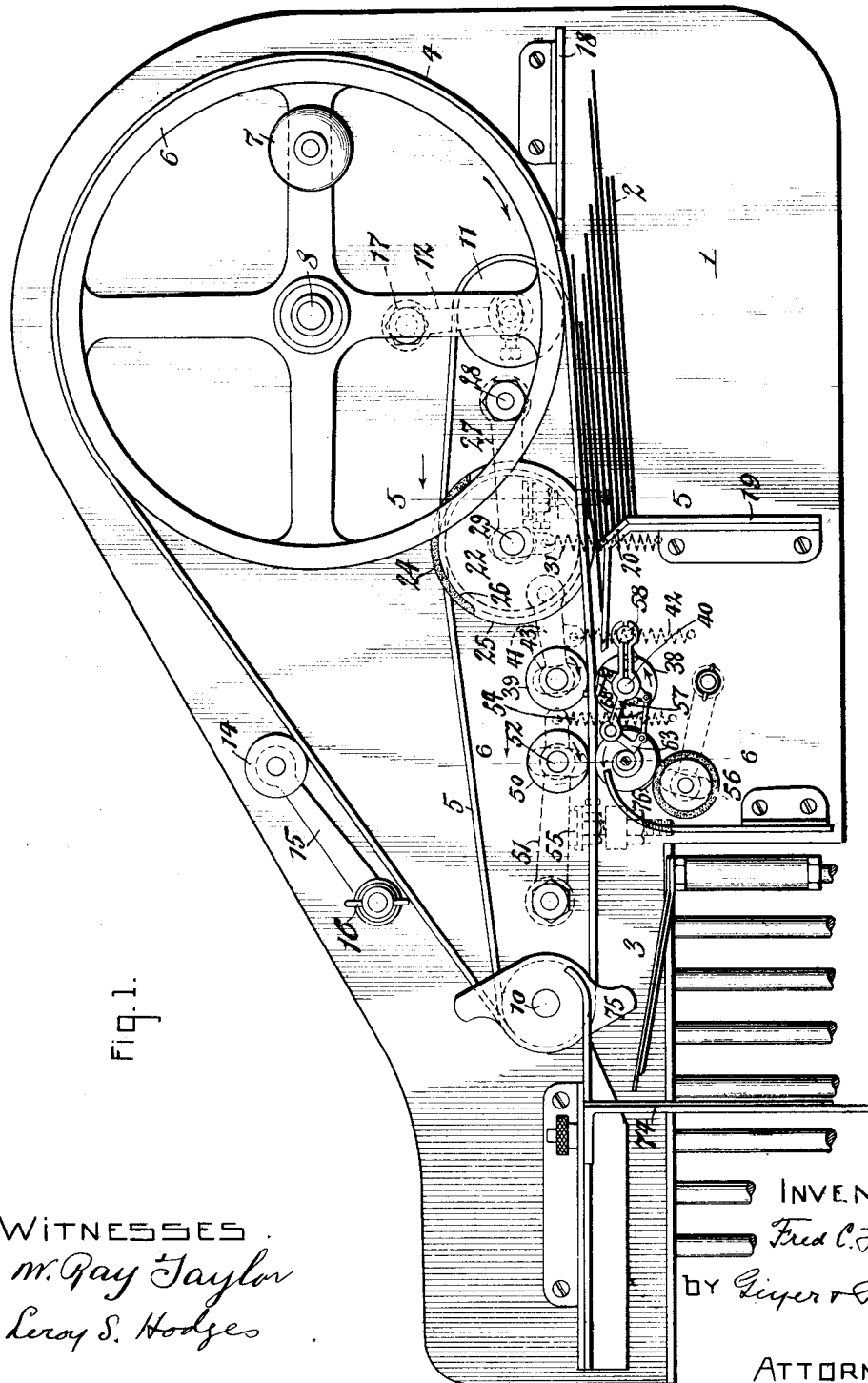


Fig. 1.

WITNESSES.
Mr. Ray Taylor
Leroy S. Hodges

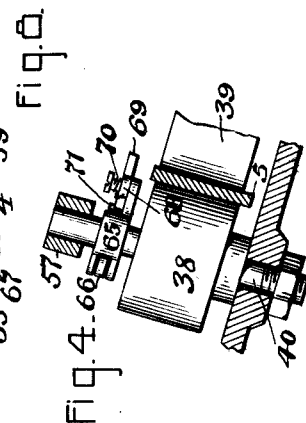
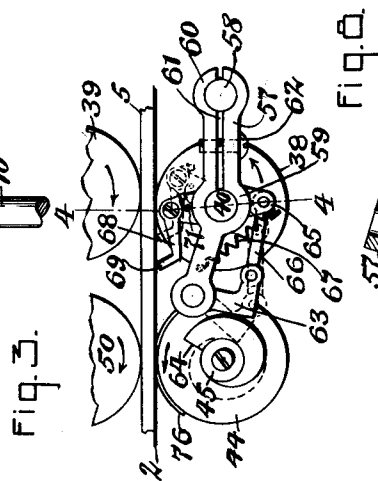
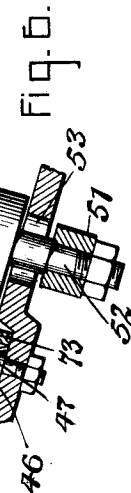
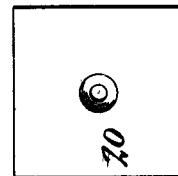
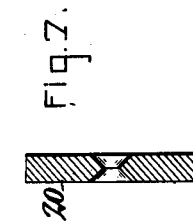
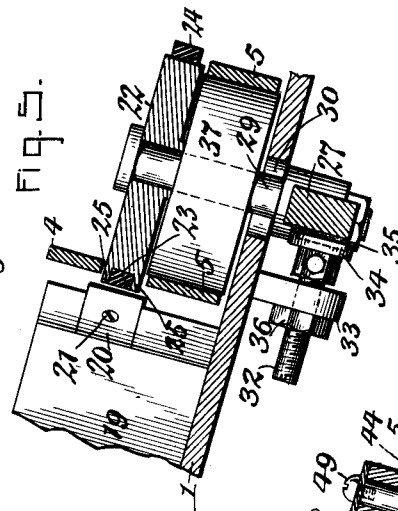
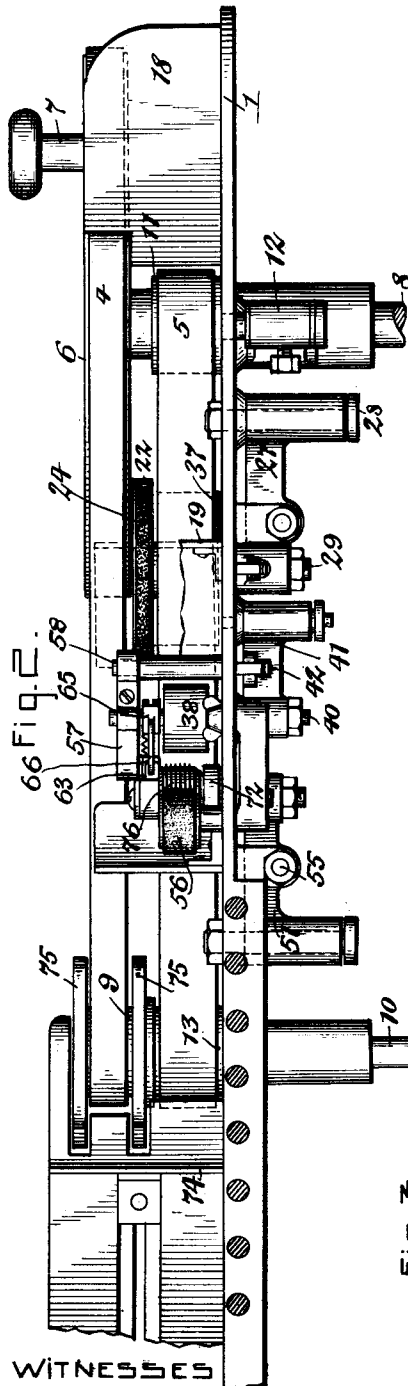
INVENTOR
Fred C. Ielfield
BY *Geyer & Papp*
ATTORNEYS

F. C. IELFIELD.
MAIL MARKING MACHINE.
APPLICATION FILED MAR. 9, 1912.

1,087,121.

Patented Feb. 17, 1914.

2 SHEETS—SHEET 2.



WITNESSES
M. Ray Taylor
Leroy S. Hodges

INVENTOR
Fred C. Ielfield
BY *Geyer & Popp*
ATTORNEYS

UNITED STATES PATENT OFFICE.

FRED C. IELFIELD, OF SILVER CREEK, NEW YORK.

MAIL-MARKING MACHINE.

1,087,121.

Specification of Letters Patent.

Patented Feb. 17, 1914.

Application filed March 9, 1912. Serial No. 682,594.

To all whom it may concern:

Be it known that I, FRED C. 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 machine for marking or canceling letters, post cards or other mail matter and has the object to provide a machine for this purpose which contains no gearing and is therefore comparatively noiseless, which can be readily adapted either for operation by hand power or motor power, which permits of readily renewing the letter separating means when the same become worn unduly, and which operates to arrest the printing mechanism at the end of each printing operation without displacing or unduly jarring, or wearing the same unduly.

In the accompanying drawings consisting of 2 sheets: Figure 1 is a top plan view of a mail marking machine embodying my improvements. Fig. 2 is a side elevation thereof, partly in section. Fig. 3 is a fragmentary top plan view, on an enlarged scale, of the printing mechanism showing the parts in a position different from that indicated in Fig. 1. Fig. 4 is a vertical transverse section taken in line 4—4, Fig. 3. Figs. 5 and 6 are vertical transverse sections, on an enlarged scale, taken in the correspondingly numbered lines in Fig. 1. Fig. 7 is a detached sectional view of the separator plate. Fig. 8 is an elevation of the same.

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

The table of this machine is provided with a rear delivery part 1 upon which is stacked the pile of letters 2 or other mail matter to be canceled, and a front receiving part 3 upon which is stacked the pile of letters after the same have been canceled or post marked. The letters are carried from the delivery part to the receiving part of the table by a carrying mechanism which comprises an upper carrying belt 4 and a lower carrying belt 5 which belts have their operative stretches arranged lengthwise on the right hand side of the path of movement of the letters. The upper carrying belt passes at its rear turn around a large pulley 6 which is utilized as the driving wheel when

the machine is manually operated and for that purpose is provided with a handle or crank 7 whereby the same may be turned by hand. This wheel is mounted on the upper end of a shaft 8 which is journaled in a suitable bearing on the adjacent part of the table. The front turn of the upper carrying belt passes around a front pulley 9 which is mounted on the upper end of an upright shaft 10 journaled in a bearing on the adjacent part of the table. When the machine is to be driven by power the motor for this purpose is operatively connected with the lower end of the shaft 10 in any suitable manner and the handle 7 is removed from the pulley 6. It is thus possible to operate this machine either manually or by power without any material alteration in its construction.

The lower carrying belt passes at its rear turn around a rear pulley 11 of small diameter compared with the upper rear pulley 6. The pulley 11 is arranged transversely in line with the shaft 8 and mounted on the inner end of a horizontally swinging rock arm 12 which is pivoted at its outer end on the underside of the table. The front turn of the lower carrying belt passes around a front pulley 13 mounted on the front shaft 10 below the pulley 9. The upper carrying belt is kept taut by means of a take up roller 14 engaging with the idle stretch of this belt and mounted on a horizontally swinging take-up arm 15 which is pivoted on the upper side of the table and held in its adjusted position by means of a clamping nut 16. The slack in the lower carrying belt is taken up by moving the lower take-up arm 12 rearwardly and holding the same in its adjusted position by means of a clamping nut 17 applied to the pivot of this arm.

The inner or right hand side of the stack of letters resting upon the delivery part of the table engages with the receiving portions of the upper and lower carrying belts and also with a longitudinal guide wall 18 arranged on the delivery part of the table in line with the operative stretches of these belts.

In order to avoid the use of any pressing devices for moving the letters in the pile on the delivery part of the table toward the carrying belts the table is inclined from the left hand edge toward the right hand edge thereof, whereby the stack of uncanceled letters constantly slides by gravity toward

the carrying belts and always maintains the foremost letter of this stack automatically in contact with these belts without the aid of the hand of the operator or any mechanical pressing device. Greater regularity in the feed of the letters from the stack of uncanceled letters to the printing mechanism is by this means assured and the letters are also prevented from falling in a direction away from the carrying belts. In order to permit the various parts which operate upon the letters to adapt themselves to this inclined position of the table the pivots of the rotatable parts operating upon the letter are arranged perpendicular to the top of the table or parallel to the plane of the letters.

19 represents an upright separator wall arranged transversely on the table opposite the operative stretches of the carrying belts but separated therefrom at its inner end by an intervening space or throat through which the letters pass successively as they are fed from the stack of uncanceled letters. On the inner part of this separator wall is arranged a separator plate 20 which is arranged at an angle so that its rear face and the opposing faces of the carrier belts converge forwardly. This plate is preferably square and all of its corners are comparatively sharp and the same is secured centrally by means of a screw 21 or other fastening to the adjacent part of the separator wall. The innermost corner of this separator plate is arranged transversely in line with a feed wheel 22, the space between this plate and wheel being of a width to permit but a single letter to pass between the plate and wheel while the remaining letters are held back. When the operative corner of the separating plate becomes worn the same may be turned on its fastening bolt or screw for shifting another one of its corners to the operative position and when all of the corners on one side of the plate have become worn or rounded so that they no longer effect a perfect separation of the letters then the plate may be reversed and the four corners on its opposite side utilized successively for separating purposes. By this means the separator plate provides a plurality of separating corners on its opposite sides which may be used in succession and enables the same plate to be used a comparatively long time before the same requires sharpening or replacing by a new plate.

The feed wheel is arranged with its operative portion between the upper and lower carrying belts and is provided in its periphery with an annular groove 23 which receives a ring or band 24 of rubber or similar material. The depth of this groove by preference is equal to the thickness of the rubber ring so that the periphery of this ring and

the flanges 25 formed by the groove on opposite sides of the ring are flush. For a suitable distance these flanges of the feed wheel are omitted, as shown at 26, in Figs. 1 and 5, so that only the periphery of the rubber ring is presented to the letters adjacent to the unflanged part of the feed wheel. Owing to this construction the feed wheel which rotates continuously in the direction of the arrow arranged adjacent to the lower part of this wheel in Fig. 1, presents its flanged and unflanged parts of its periphery successively to the letters adjacent to the receiving parts of the carrying belts. When the unflanged portion of the feed wheel is presented to the letters that portion of the periphery of the rubber ring between the flanges has little or no feeding effect upon the letters inasmuch as the flanges prevent the adjacent part of the rubber ring from obtaining a firm grip upon the letter but when the unflanged part of the feed wheel is presented to the letters the rubber ring on this part of the wheel is permitted to engage firmly with the foremost letter in the supply stack and feed the same forwardly past the separating plate and to the printing mechanism. The length of the unflanged part of the feed wheel is preferably equal to the distance from the separating plate to the printing mechanism so that the feed wheel upon engaging a letter will only feed the same from the separating plate to the printing mechanism and then let go of the letter. This construction of feed wheel is very simple in construction and can be produced at comparatively small cost and also permits of readily renewing the wearing surface of the wheel inasmuch as this can be easily done by merely shifting the rubber ring circumferentially on the feed wheel so as to bring an unworn part of the same between the flanged part of the wheel to the unflanged part thereof.

In order to permit the feed wheel to adapt itself to letters varying in thickness the same is so mounted that it is capable of moving toward and from the separator plate and is yieldingly held in the position nearest to this plate so as to feed the thinnest pieces of mail matter as well as the thickest which are likely to be operated upon by the machine. The preferred means for thus mounting the feed wheel are shown in the drawings and comprise a horizontally swinging rock or supporting arm 27 arranged lengthwise under the table and pivoted at its rear end by means of a bolt 28 or otherwise to the table while its front end is provided with a pivot 29 projecting upwardly through a slot 30 in the table and carrying the feed wheel. The latter is yieldingly moved toward the separator plate by means of a spring 31 connecting the sup-

porting arm 27 with the underside of the table. The movement of the feed wheel toward the separator plate is limited by means of a stop which is preferably adjustable for
 5 adapting the wheel to the desired thickness of letters which are to be fed. This stop preferably, though not necessarily, comprises a screw 32 arranged in a depending
 10 lug 33 on the table, a head 34 arranged on the right hand end of the screw and provided with a facing 35 of leather or similar material which operates to deaden or cushion the blow of the supporting arm upon
 15 engaging this facing, and a clamping nut 36 arranged on the screw and engaging with the lug 33 for holding the screw and its head in position after adjustment.

Various means may be provided for turning the feed wheel but it is preferable to
 20 turn the same by means of a driving wheel or pulley 37 arranged below the feed wheel and turning therewith and engaging on its diametrically opposite sides with the operative and inoperative stretches of the lower
 25 carrying belt. While the driving wheel is in its position nearest to the separator plate the same is engaged frictionally on its opposite sides by the two stretches of the lower carrying belt and is turned thereby for feeding
 30 comparatively thin letters or pieces of mail matter. When, however, the feed wheel is deflected laterally away from the normal letter-path by a letter or piece of mail matter which exceeds the normal thickness
 35 of said matter the inner side of the driving pulley 37 is carried away from the inner stretch of the lower carrying belts and loses its frictional engagement on this side thereof with the lower carrying belt, but its opposite
 40 or outer side at this time deflects the outer stretch of the lower carrying belt to a greater extent, thereby increasing the frictional contact between the outer side of the driving wheel and the last mentioned
 45 stretch of the belt, whereby a reliable driving connection is maintained at all times between the lower carrying belt and the driving pulley 37 so as to always rotate the feed wheel properly regardless of its position
 50 relative to the separator plate.

As the letters or other pieces of mail matter are discharged from the stack of uncancelled letters the same are received by the
 55 printing mechanism which operates to produce a mail mark on the same. This printing mechanism is located on the table between the feed wheel and the front rollers of the carrying belts and in its preferred form is constructed as follows:

38, 39 represent two preliminary guide
 60 rollers arranged on opposite sides of the letter path; the roller 38 engaging with the outer side or face of the operative stretch of the lower carrying belt while the roller
 65 39 engages with the rear side of this stretch.

The outer roller 38 is preferably journaled on a fixed upright main pivot or post 40 secured to the adjacent part of the table while the other roller 39 is pivoted on the free end
 70 of the horizontally swinging supporting arm 41 which is pivoted to the underside of the table and shifted by a spring 42 so as to hold the roller 39 yieldingly in engagement with the inner side of the lower belt and enable
 75 the same to adapt itself to letters varying in thickness. The pivot connecting the inner roller 39 with the supporting arm 41 passes through a slot 43 in the table.

The printing mechanism comprises a
 80 printing wheel which is arranged opposite the outer face of the operative stretch of the lower belt in front of the guide roller 38 and is provided with an enlarged central part or body 44 and reduced hubs 45, 46 at the upper
 85 and lower ends of the body. The latter is provided on its periphery with a suitable die, type, stamp or other printing surface 76 for producing a mail mark of the desired character upon the latter or other piece of
 90 mail matter passing forwardly between the printing wheel and the lower carrying belt. The printing wheel is journaled on a fixed pivot or pin 47 secured at its lower end to the adjacent part of the table, as shown in
 95 Fig. 6, and rests with the lower end of its lower hub on top of the table. Vertical displacement of the printing wheel on its pivot pin is prevented by means of a retaining disk 48 secured to the upper end of the pivot pin by a screw 49 and overhanging the upper
 100 end of the upper hub of the printing wheel.

50 represents an impression roller which
 105 engages with the inner side of the operative stretch of the lower carrying belt transversely in line with the printing wheel and which is yieldingly supported in this position by means of a supporting rock arm 51 pivoted to the underside of the table and provided with a pivot pin 52 projecting upwardly through a slot 53 in the table and
 110 carrying the impression roller, and a spring 54 connecting the supporting arm 51 with the table.

The movement of the impression roller toward the printing wheel is limited by means
 115 of an adjustable stop 55 mounted on the under side of the table in position to be engaged by the supporting arm 51 of this roller. This stop is constructed substantially like the stop associated with the feed
 120 wheel heretofore referred to.

Inking of the type face of the printing wheel is effected by means of an ink roller 56 arranged above the table in position to be engaged by the type of the printing wheel
 125 during each rotation of the latter.

Means are provided for holding the printing wheel against rotation excepting when a letter is in the proper position relatively to the printing mechanism to receive an im- 130

pression or mark therefrom, this controlling mechanism embodying my invention and being so organized that but one impression is produced on each letter and the rotation of the printing wheel is arrested after each printing operation without undue shock, noise or wear on the machine. In its preferred form this letter operated controlling mechanism for the printing wheel is constructed as follows:—Arranged above the guide rollers and the body of the printing wheel is a supporting bar 57 which is mounted with its central part on the upper end of the main supporting post 40 and is secured at its rear end to an auxiliary supporting post 58 fixed to the upper side of the table in rear of the guide roller 38 while its front end is free or unsupported, as shown in Figs. 1, 2 and 3. This supporting bar is thus mounted on the main and auxiliary posts by providing the same with an eye 59 on the central part, an eye 60 at its rear end and a longitudinal slit 61 extending from the central eye through the rear part of the bar and the rear eye, and securing the central and rear eyes to the upper ends of the main and auxiliary posts by means of a clamping screw 62 connecting the parts of the supporting bar on opposite sides of the longitudinal slit and between the eyes thereof, as best shown in Fig. 3. This manner of supporting the bar causes the front end of the bar to be reliably held against displacement under the blows to which the same is subjected during the operation of the machine and yet permits the same to yield slightly so as to cushion such blows and thereby prevent undue wear and noise.

On the free front end of the supporting bar is arranged an outwardly projecting horizontally swinging stop arm 63 which is adapted to move forwardly into the path of a stop shoulder 64 formed on the periphery of the upper hub of the printing wheel and to be engaged by this shoulder for arresting the printing wheel at the end of each printing operation.

65 represents an intermediate shifting rock lever pivoted on a stationary support so as to swing horizontally but by preference on the main post 40 between the guide roller 38 and the supporting bar so that its inner arm projects toward the letter path and its outer arm projects outwardly in the same direction as the stop arm. The outer arm of the intermediate lever and the stop arm are connected by a link 66 and these parts are turned in the direction for holding the stop arm yieldingly in the path of the stop shoulder, the means for this purpose consisting preferably of a spring 67 connecting the outer arm of the intermediate shifting lever with the front part of the supporting bar, as shown in Fig. 3.

On the inner arm of the intermediate

shifting lever is pivoted a horizontally swinging trip arm 68 which is provided at its front end with a laterally projecting finger 69 adapted normally to project across the letter path between the operative stretches of the upper and lower carrying belts. This trip arm is yieldingly held in this position by means of a spring 70 surrounding the pivot pin which connects the same with the shifting lever, as shown in Fig. 4.

When no letter has been fed to the printing mechanism in proper position to be post marked the parts of the printing mechanism are in the position represented in Fig. 1 in which the stop arm is in its foremost position and is engaged by the shoulder of the printing wheel so as to arrest the rotation of the latter, and the trip arm is in its rearmost position and turned in a direction in which its finger projects across the letter path. Whenever a letter is fed forward from the supply stack by the feed wheel and against the finger of the trip arm the latter is moved forwardly together with the inner arm of the shifting lever and during this movement the trip arm is substantially rigid on the shifting lever so that the forward movement of the trip arm does not cease until the finger of the same has swung forwardly through an arc of sufficient length to permit the finger of the trip arm to clear the path of the letter, the position of the trip arm at this time being substantially that shown in Fig. 3. As the trip arm is moved in this manner by the impact of a letter the rearwardly moving outer arm of the shifting lever withdraws the stop arm rearwardly from the stop shoulder of the printing wheel so as to permit the latter to rotate in the direction of the arrow indicated in Fig. 3, the position which these parts assume at this time being indicated by full lines in this figure.

The periphery of the upper hub of the printing wheel is constructed in the form of a volute which extends from the outer end of the shoulder 64 to the inner end thereof so as to resemble the formation of a cam. Immediately after the stop arm has been disengaged from the shoulder of the printing wheel by the impact of the letter against the trip arm this shoulder has been carried away from the outer end of the stop arm by the initial portion of the rotary movement of the printing wheel, the stop arm is moved forwardly by the spring 67 into engagement with the cam-shaped periphery of the upper hub of the printing wheel, so that when the latter completes one rotation and has produced an impression on the letter the shoulder of the printing wheel will again engage the outer end of the stop arm and be arrested thereby, preparatory to being again released by the action of the next following

letter. While the stop arm is thus returning forwardly to its normal position the shifting lever also turns with the same so that the trip arm is carried rearwardly.

5 During this rearward movement of the trip arm the same slides along the outer side of the letter which is being printed and the same is turned inwardly about its axis toward the axis of the shifting lever, whereby
10 the spring 70 is strained, the position of the parts at this time being represented by dotted lines in Fig. 3. The instant the rear edge of the letter clears the finger of the trip arm the latter is carried inwardly
15 across the letter path by the spring 70 in position to be engaged by the next following letter for again releasing the printing wheel so as to produce an impression of the same on the letter. The movement of the
20 trip arm on the rock arm under the action of the spring 70 is limited by a stop 71.

As the printing wheel at the end of its rotation engages its shoulder with the stop arm the blow against the latter is cushioned
25 by reason of the resilience of the supporting bar which carries the stop arm, thereby preventing displacement of the controlling mechanism and avoiding undue wear of the parts as well as reducing noise.

30 The rotation of the printing wheel is effected frictionally so that when this wheel is free the same will be rotated in the direction of the arrow in Fig. 3 but when the same is held against rotation the means for
35 driving the same will slip relatively to the printing wheel. The preferred means for thus frictionally driving the printing wheel comprises a driving wheel 72 which engages its periphery with the lower portion of the
40 outer face of the operative stretch of the lower carrying belt and which is provided with a tubular hub 73 which receives the lower contracted or reduced hub of the printing wheel and is confined between the
45 upper side of the table and the enlarged body of this wheel, as shown in Fig. 6. By means of this construction the hub of the driving wheel is constantly pressed laterally against the lower hub of the printing wheel
50 by the lower carrying belt and the spring pressed impression roller engaging with the inner side of the same transversely in line with the printing wheel and driving wheel. The effect of this is that a constant
55 frictional engagement is produced between the hub of the driving wheel and the hub of the printing wheel in a direction transverse of the axes of these parts which operates to turn the printing wheel by the driv-
60 ing wheel the instant that the printing wheel is released by the stop arm. A frictional drive is thus provided for the printing wheel which is very effective and reliable and insures a prompt starting of the
65 printing wheel when the latter is released

and a uniform printing or marking of the letters which pass between the driving wheel 72 and the lower carrying belt. As the letters issue from the printing mechanism the front ends thereof engage with a
70 front abutment wall 74 arranged transversely over the receiving part of the table, and the letters are caused to stack side by side on this part of the table by means of
75 two stacker wheels 75 mounted upon the front shaft which carries the front pulleys of the carrying belts.

I claim as my invention:

1. A mail marking machine comprising a rotatable printing wheel having a stop shoulder, a stop arm adapted to engage said shoulder for arresting the rotation of said wheel, a rock lever connected with said stop arm and adapted to be moved by a letter for disengaging said stop arm from said shoulder, and a yielding support on which said stop arm is pivoted.

2. A mail marking machine comprising a rotatable printing wheel having a stop shoulder, a stop arm adapted to engage said shoulder for arresting the rotation of said wheel, a rock lever connected with said stop arm, a trip lever pivoted on the rock lever and adapted to be engaged by a letter for disengaging the stop arm from said shoulder, a spring for yieldingly holding the stop arm in engagement with said shoulder, and a spring for yieldingly holding said trip lever in the letter path, a main post on which said rock lever is pivoted, an auxiliary post arranged adjacent to the main post, and a supporting bar mounted at its central part on the main post and connected at one end with the auxiliary post while its other end has said stop arm pivotally mounted thereon.

3. A mail marking machine comprising a rotatable printing wheel having a stop shoulder, a stop arm adapted to engage said shoulder for arresting the rotation of said wheel, a rock lever connected with said stop arm, a trip lever pivoted on the rock lever and adapted to be engaged by a letter for disengaging the stop arm from said shoulder, a spring for yieldingly holding the stop arm in engagement with said shoulder, and a spring for yieldingly holding said trip lever in the letter path, a main post on which said rock lever is pivoted, an auxiliary post arranged adjacent to the main post, and a supporting bar mounted at its central part on the main post and having one of its ends split and engaging opposite sides of the auxiliary post while its other arm is whole and has the stop arm pivoted thereon.

4. A mail marking machine comprising a stationary pivot, a printing wheel journaled on said pivot and having a hub, a driving wheel journaled on the hub of the printing wheel, and a carrying belt engaging the periphery of the driving wheel and adapted to

press the same laterally against the hub of the printing wheel for causing frictional coupling of the driving wheel and printing wheel.

- 5 5. A mail marking machine comprising a stationary pivot, a printing wheel journaled on said pivot and having a hub, a driving wheel journaled on the hub of the printing wheel, a carrying belt engaging the periph-
10 ery of the driving wheel and adapted to press the same laterally against the hub of

the printing wheel for causing frictional coupling of the driving wheel and printing wheel, and letter operated means for controlling the rotation of the printing wheel. 15

Witness my hand this 8th day of March, 1912.

FRED C. IELFIELD.

Witnesses:

THEO. L. POPP,
ANNA HEIGIS.