

F. C. IELFIELD.
MAIL MARKING MACHINE.
APPLICATION FILED MAR. 22, 1913.

1,095,983.

Patented May 5, 1914.

3 SHEETS—SHEET 1.

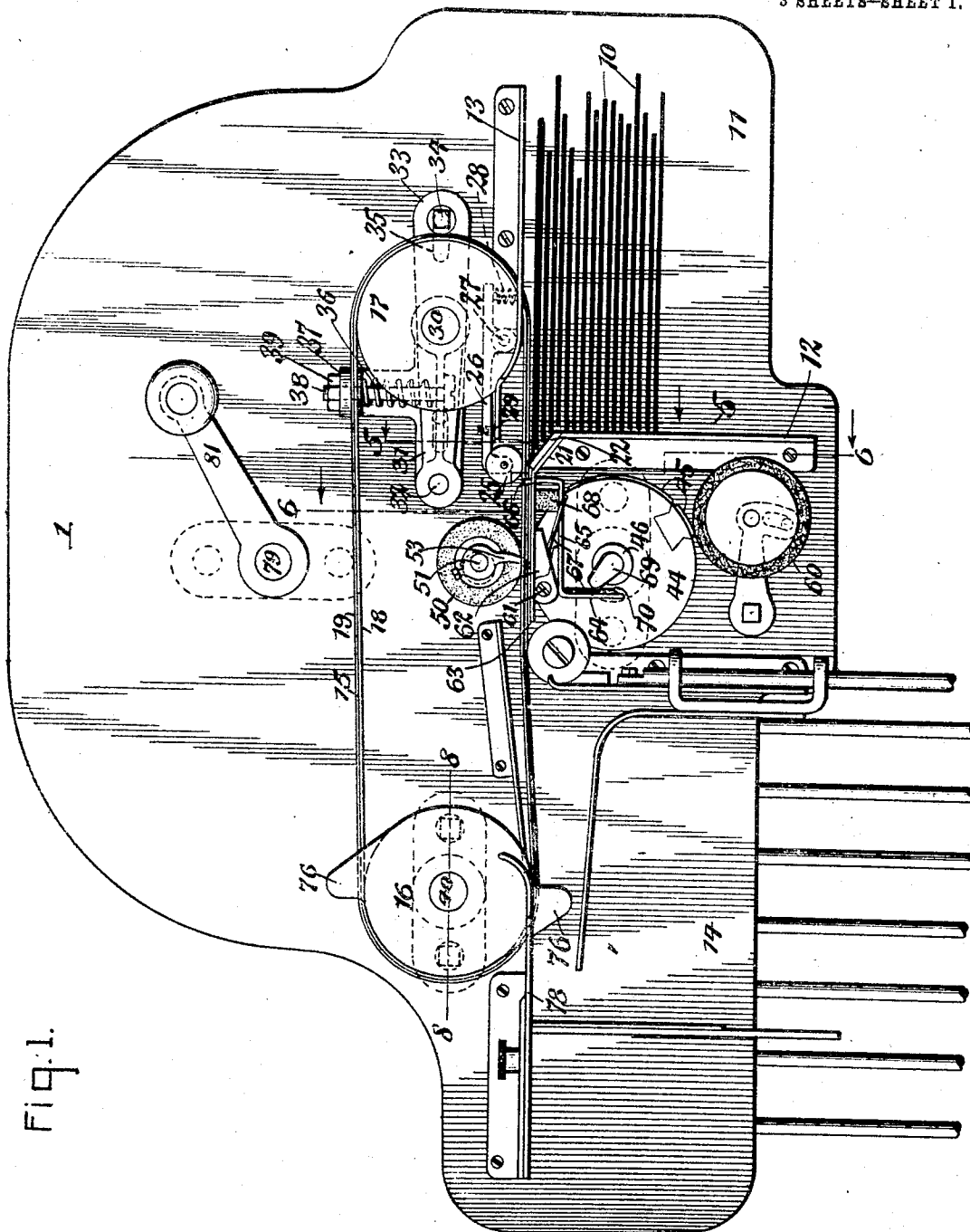


Fig. 1.

WITNESSES
Mr. Ray Taylor
Walter O. Geyer.

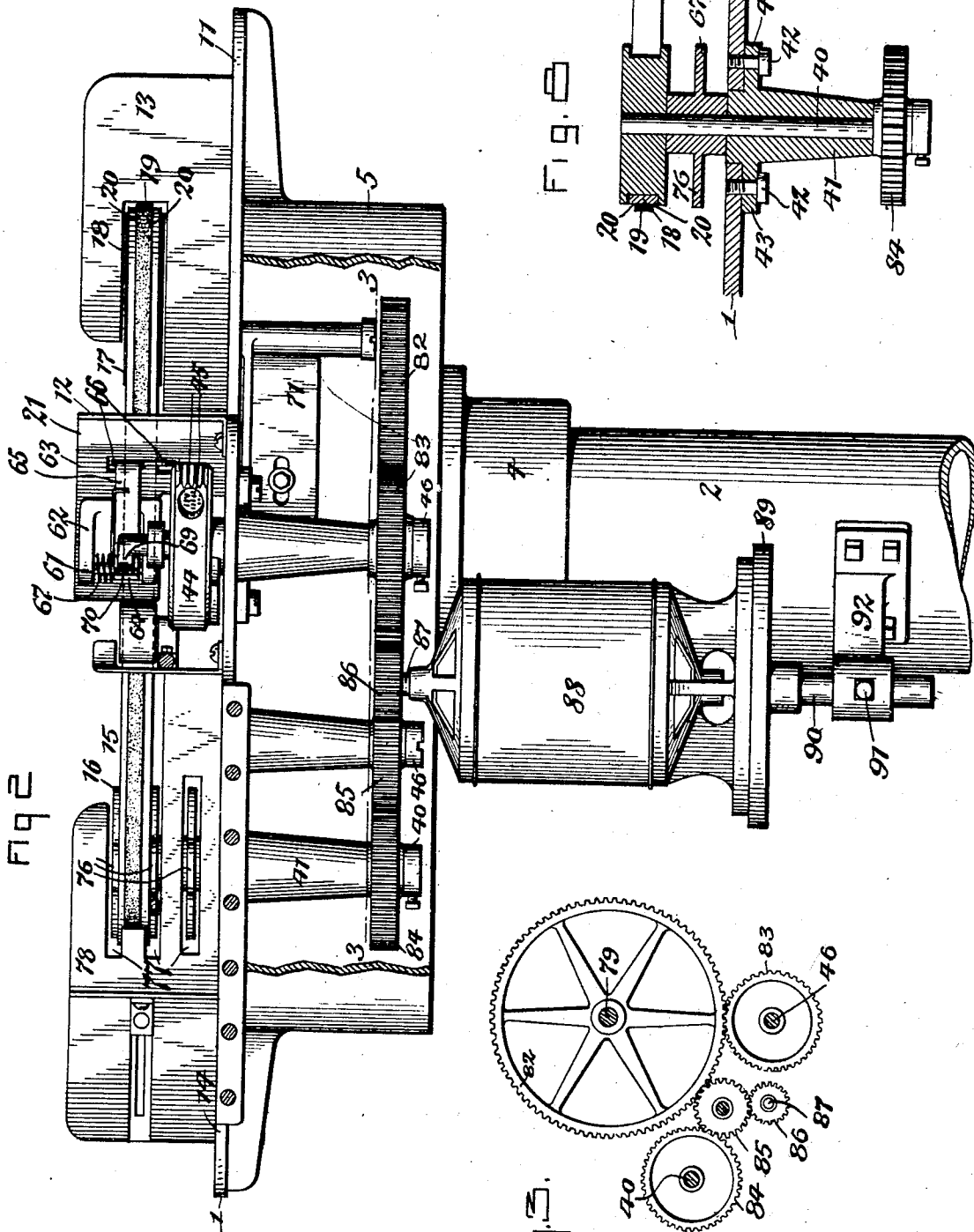
INVENTOR
Fred C. Ielfield
by Geyer & Poppe
ATTORNEYS

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3 SHEETS—SHEET 2.



WITNESSES
W. Ray Taylor
Walter P. Geyer.

Fig. 3.

INVENTOR
Fred C. Ielfield
BY Geyer & Popp
ATTORNEYS

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3 SHEETS—SHEET 3.

Fig. 4.

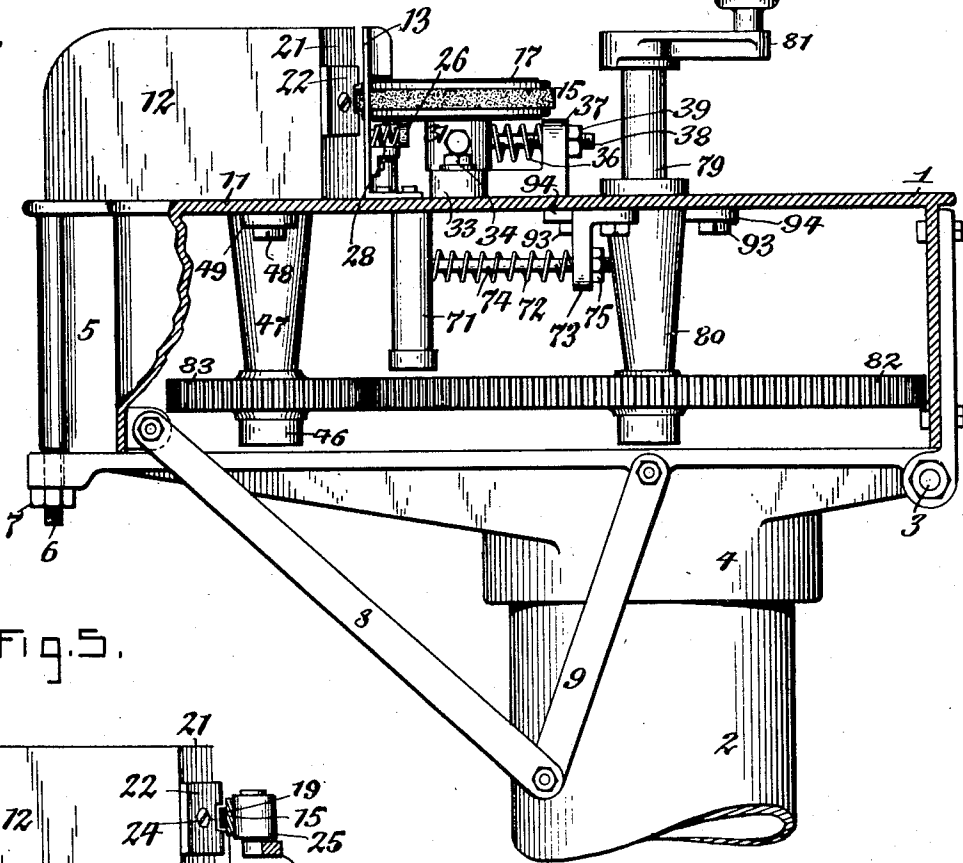


Fig. 5.

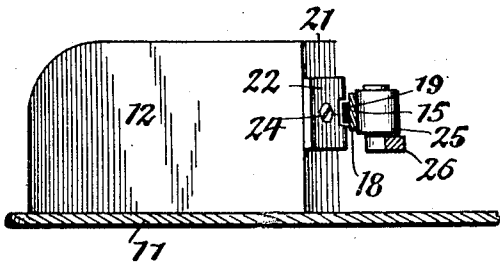


Fig. 7.

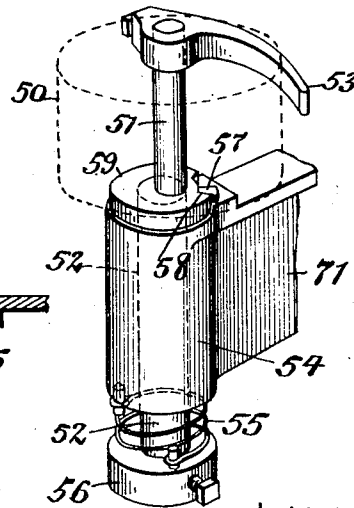
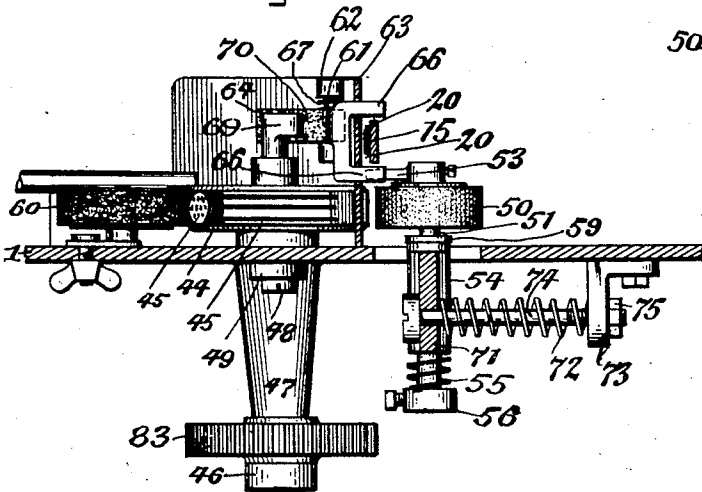


Fig. 6.



WITNESSES
Mr. Ray Taylor
Walter P. Geper.

INVENTOR
Fred C. Ielfield
BY Geyer & Popp
ATTORNEYS

UNITED STATES PATENT OFFICE.

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

MAIL-MARKING MACHINE.

1,095,983.

Specification of Letters Patent.

Patented May 5, 1914.

Application filed March 22, 1913. Serial No. 756,191.

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 canceling or post marking mail matter such as letters and post cards and has the objects to improve the means for separating one letter at a time from the supply stack of uncanceled letters and propelling the same past the printing device and to the stack of canceled letters, to improve the printing mechanism so that the deposit of ink from the printing wheel upon the impression roller is prevented and smearing of the letters is avoided, and to improve the machine in other respects.

In the accompanying drawings: Figure 1 represents a fragmentary 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 horizontal section, on a reduced scale taken in line 3—3, Fig. 2, looking downwardly and showing the gearing forming part of the driving mechanism of the machine. Fig. 4 is a rear end elevation of the machine partly in section. Fig. 5 is a fragmentary vertical transverse section taken in line 5—5, Fig. 1. Fig. 6 is a fragmentary vertical transverse section taken in line 6—6, Fig. 1. Fig. 7 is a fragmentary perspective view of the means for supporting the impression roller. Fig. 8 is a fragmentary vertical longitudinal section taken in line 8—8, Fig. 1.

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

1 represents the normally horizontal table of the machine on the upper side of which are mounted the various parts which operate upon the letters or other mail matter and on the underside of which are mounted the driving mechanism for operating the working parts of the machine.

2 represents an upright pillar or standard upon which the table is mounted. In order to permit the table to be easily raised for inspecting, repairing or adjusting the parts on the underside of the same, this table is pivotally mounted on the standard so as to be capable of swinging vertically thereon.

In its preferred form this pivotal connection preferably comprises a horizontal pivot pin or bolt 3 connecting the rear parts of a head 4 on the upper end of the standard and a depending flange 5 on the underside of the table. The table is locked in a horizontal position by means of a clamping screw 6 arranged on the front part of said flange and provided with a screw nut 7 engaging with the underside of the front end of the standard head, as shown in Fig. 4. When it is desired to reach the underside of the table the clamping screw bolt and nut are loosened and the table together with the parts mounted thereon is swung upwardly into a substantially upright position where the same is held by means which preferably consists of a folding brace composed of two sections or links 8, 9 having their opposing ends pivotally connected while their extremities are pivotally connected respectively with the standard head and the table flange.

The letters 10 to be canceled are arranged edgewise side by side on the supply portion or section 11 of the table with their lower edges resting on the table and their front vertical edges engaging with a transverse wall 12 secured to the table while the foremost letter of the supply stack engages its outer face against a longitudinal wall 13 secured to the upper side of the table adjacent to the inner end of the transverse wall. Between the inner end of the transverse wall and the front end of the longitudinal wall is formed a gap or throat through which the letters are fed successively from the stack of uncanceled letters to the printing device and the mechanism which stacks the canceled letters on the receiving portion or section 14 of the table. The mechanism for thus separating one letter at a time from the supply stack and moving the same forwardly to the printing and stacking mechanisms embodies several features of my invention and is constructed as follows: 15 represents a feed belt which passes with its front and rear turns around front and rear pulleys or rollers 16, 17 and which has its operative stretch arranged lengthwise of the table above the upper side thereof and extending from the inner or delivery portion of the supply section of the table forwardly through the throat between the inner end of the transverse wall and the front end of the longitudinal wall, thence past the printing mechanism and thence past the inner end of the

receiving section of the table. This feed belt comprises a main flat body portion 18 which is arranged vertically and a rib 19 preferably of flat form arranged centrally and lengthwise on the outer side of the body portion so as to form two longitudinal rabbets 20, 20 at opposite edges of the feed belt on the outer side thereof, as best shown in Figs. 5 and 6. The body of the feed belt and its rib may be constructed of any suitable material, the body consisting preferably of leather and the rib of rubber or similar material which will take a firm hold upon the letters when engaging therewith. At the inner end of the transverse wall the same is provided with an inwardly and forwardly inclined lip 21 the central portion 22 of which is thickened to form a separator jaw which projects beyond the inner face of the lip, as shown in Figs. 1, 4 and 5. At the inner or front end of the jaw the same is provided between its upper and lower edges with a notch or recess 24.

During the forward movement of the operative stretch of the feed belt its outer vertical side passes close to the front edge of the separator jaw while the rib of the feed belt projects into the notch or recess of this jaw. The effect of this is that while the operative stretch of the belt passes forwardly with its rib in engagement with the flat outer side of the foremost letter on the supply section of the table this letter will be carried forwardly from the pile and through the throat between the transverse and longitudinal walls, and while passing through this throat that portion of the letter engaged by the belt and the separator jaw will be crimped slightly by reason of the rib on the feed belt and the notched portion of the separating jaw forming a doubled kink in the letter or piece of mail matter. By this means the foremost letter is firmly gripped by the feed belt and materially stiffened so that the same will move forward reliably with the feed belt while the next following letter will be held back by the separating jaw and thereby insure the feeding of but one letter at a time from the supply stack to the printing and stacking mechanism. The feed belt is normally retained in position so that its operative stretch always stands with the outer face of its body close to the front edge of the separating jaw and its rib projecting into the notch of this jaw, this being preferably effected by means of a retaining roller 25 engaging with the inner or back side of the feed belt transversely in line with the separating jaw. In order, however, to permit the feed belt to recede or give way and accommodate letters or pieces of mail matter of abnormal thickness this retaining roller is yieldingly mounted. For this purpose the retaining roller is preferably mounted by means of a

vertical pivot on the front arm of a horizontally swinging retaining lever 26 which is pivoted by means of a pin 27 on the upper side of the table and this lever is constantly turned in the direction for moving the retaining roller against the inner or back side of the feed belt by means of a spring 28 interposed between the rear arm of the retaining lever and the adjacent outer side of the longitudinal wall, as shown in Figs. 1 and 4. The movement of the retaining roller toward the separating jaw is limited so as to prevent this roller from pressing the feed belt against the separating jaw and wearing the same unduly, the preferred means for thus limiting the movement of the retaining roller consisting of an adjustable stop screw 29 arranged on the front arm of the retaining lever and bearing against the outer side of the longitudinal wall, as shown in Fig. 1. The rear part of the operative stretch of the feeding belt and the rear pulley or roller around which the rear turn of the belt passes are also capable of deflection laterally out of their normal position for the purpose of accommodating pieces of mail matter which exceed the normal thickness. For this purpose the upright arbor or pin 30 upon which the rear pulley turns is mounted on a horizontally swinging rock arm 31 which is arranged lengthwise of the table and pivoted at its front end by means of a vertical pivot pin 32 to a bracket 33 mounted on the upper side of the table. This bracket is adjustably connected with the table for taking up any slack in the feeding belt, the preferred means for this purpose which are shown in the drawings consisting of a clamping screw 34 passing through a longitudinal slot 35 in the rear part of the bracket and engaging with a threaded opening in the table. The movement of the rear belt roller or pulley toward the stack of uncanceled letters is effected by means of a spring 36 interposed between the outside of the rock arm 31 and a lug 37 rising from the outer part of the bracket 33 so that the feed belt and its rear pulley are always held yieldingly in their operative position. The inward movement of the feed belt and its rear roller is limited by means of an adjustable stop device which preferably consists of a bolt 38 which is surrounded by the spring 36 and bears with its head against the inner side of the rock arm 31 while its screw nut 39 bears against the outer side of the lug 37, as shown in Figs. 1 and 4. The front or delivery pulley of the feeding belt is mounted on the upper end of an upright shaft 40 which is journaled in a bearing 41 arranged on the adjacent part of the table. Heretofore this bearing has been formed in one piece with the table so that when the same became worn

repairs of this bearing could only be effected by inserting a bushing between the bore of this bearing and the periphery of the shaft journaled therein in order to restore the parts to their proper working condition which repairs involved considerable expense. In the present construction the bearing 41 is made separate from the table and detachably secured thereto by means of bolts 42 passing through lugs 43 on this bearing and into the table, as shown in Fig. 8. This construction permits the bearing to be easily removed from the table and replaced by a new one when worn out much more quickly and at less cost as compared with the insertion of a bushing between the bore of this bearing and the shaft therein for taking up wear.

As each letter issues from the throat of the supply section of the table the same is first intercepted by a timing device which prevents the continued forward movement thereof unless the printing mechanism is in the proper position to receive the same and thereafter the printing mechanism operates upon the letter to produce a post mark or canceling stamp thereon. This printing mechanism comprises a printing couple the members of which are arranged on opposite sides of the path of the letters as they issue from the feed throat. As shown in Fig. 1, the continuously rotating printing wheel 44 forming one of the members of the printing couple is arranged on the left hand side of the path of the letters and is provided on its periphery with a suitable die or type 45 for imprinting the name of the post office, the date of cancellation, and stamp canceling lines on the letters. This printing wheel is mounted on the upper end of a shaft 46 which is journaled in a bearing 47 arranged on the table. Instead of being formed integrally with the table this bearing 47 is also formed separate from the table and detachably secured thereto by means of bolts 48 passing through lugs 49 on the bearing and into the table, in the same manner as described with reference to the bearing of the shaft 40 of the front belt pulley for facilitating the renewal of the bearing 47 without necessitating bushing the same. The impression roller 50 forming the other member of the printing couple is preferably arranged on the right hand side of the path of the letters and transversely in line with the printing wheel and is provided with letter operated means whereby this roller is only moved toward the printing wheel and into operative relation thereto when a letter is passing between the printing wheel and impression roller while at all other times the impression roller is retracted from the printing wheel so that no ink is deposited by the die or type of the printing wheel on the impression roller and smearing the backs of the letters cannot

occur. The letter controlled means whereby the impression roller is thus moved laterally into and out of its operative position embody another feature of my invention and are constructed as follows: 51 represents an upright pivot pin or spindle upon which the impression roller is journaled and which is connected with the upper end of a horizontally rocking eccentric 52, the axes of said eccentric and spindle being parallel but out of line with each other so that in effect the spindle 51 forms a crank on the eccentric. At its upper end the spindle is provided with a trip finger 53 which is arranged above the impression roller and normally projects across the path of the letters adjacent to the printing couple and is adapted to be engaged by the front edge of the letter. The eccentric is journaled in a bearing 54 arranged below the table, the latter being provided with a suitable opening to permit of the required connection between this bearing and the impression roller. When no letter is present between the printing couple the trip finger projects across the path of the letters transversely in line with the members of the printing couple and the eccentric 52 is turned in its bearing so that the spindle 51 thereof is moved laterally away from the printing wheel together with the impression roller and the periphery of the latter is out of contact with the periphery of the printing wheel. The yielding means whereby this is effected may be variously constructed but those shown in the drawings are suitable and comprise a spring 55 surrounding the lower part of the eccentric and secured at one end to the lower end of the bearing 54 while its opposite end is secured to a collar 56 on the lower end of the eccentric. This spring operates constantly to turn the eccentric backwardly so that the impression roller is moved away from the letter path, the movement of the eccentric in this direction being limited by means of a stop device consisting of a stop lug or shoulder 57 arranged on the upper end of the eccentric bearing and adapted to be engaged by a stop shoulder 58 formed on a collar 59 secured to the upper end of the eccentric, as shown in Fig. 7. As a letter moves forwardly between the members of the printing couple the front edge of this letter engages with the trip finger and moves the same forwardly out of the letter path which movement causes the eccentric to turn with its side next to the letter path forwardly, whereby the spindle on the eccentric together with the impression roller thereon are moved inwardly and forwardly toward the letter path, thereby causing the periphery of the impression roller to bear against the back of the letter opposite to the printing wheel and produce an impression of the printing wheel on the front side of the letter. So long as a part of the letter

is present between the members of the printing couple and moves forwardly between the same the forward pull of the letter on the impression roller causes the eccentric to be held in the position in which the same presses the letter against the printing wheel. The instant, however, that the rear end of the letter clears the printing couple the spring 55 instantly turns the eccentric backwardly and causes the spindle to carry the impression roller away from the printing wheel and to swing the trip finger inwardly and backwardly across the path of the letters transversely in line with the printing couple. It will thus be noted that the impression roller by this means can under no circumstances be moved toward the printing wheel unless a letter has been first fed into position between the members of the printing couple at the point where these parts cooperate for producing an impression on the letter, and that the impression roller immediately moves away from the printing wheel the instant no letter is interposed between the same. It follows from this that the deposit of ink from the printing wheel upon the periphery of the impression roller is positively prevented and soiling of letters which otherwise would occur by the transfer of ink from the impression roller to the letters is rendered impossible. The inking of the printing wheel is effected either by an ink roller 60 engaging with the die or type thereof opposite to the impression roller, as shown in Fig. 1, or by any other suitable means.

For the purpose of permitting letters of abnormal thickness to pass between the members of the printing couple the impression roller is so mounted that the same is capable of moving bodily the required distance away from the letter path. For this purpose the eccentric is arranged upon the front end of a horizontally swinging supporting arm 71 arranged below the table and pivoted thereto at its rear end. This arm is yieldingly moved inwardly or in a direction for moving the impression roller toward the printing wheel by means of a spring 72 bearing at one end against the outer side of the arm 71 and at its opposite end against a bracket 73 depending from the underside of the table, the movement of this arm under the action of this spring being limited by an adjustable stop device, consisting preferably of a horizontal bolt 74 which is surrounded by the spring 72 and which has its head bearing against the inner side of the arm 71 while its nut 75 bears against the outer side of said bracket, as shown in Fig. 6.

In order to cause the letters to be presented to the printing couple in proper time for placing the post mark or stamp thereon in the proper place a timing device is provided

which is preferably constructed as follows: Above the printing wheel is arranged a horizontally swinging stop lever which is pivoted at 61 on an adjacent stationary bracket 62 arranged alongside of the letter path and mounted on an intermediate guide wall 63. This stop lever has an operating arm 64 projecting laterally outward and a rearwardly projecting stop arm 65 which latter is provided with two stop fingers 66 forming a time stop projecting laterally inward from the stop arm through openings in the adjacent guide wall 63 and across the letter path. One of these fingers is arranged above the feed belt and the other below the same, thereby forming with the arm 65 a fork which in its operative position straddles the feed belt and extends at two places across the letter path so as to effectually arrest the letter without liability of tipping the same, which otherwise would cause the mail mark to be placed obliquely on the letter and also interfere with the proper stacking of the same. This stop lever is turned in the direction for carrying its stop fingers across the letter path by means of a spring 67 surrounding the pivot of the stop lever and engaging one end with the stop lever and at its other end with the adjacent stationary part of the machine. The movement of the stop lever under the action of the spring 67 is limited by means of a stop or buffer 68 of leather or other suitable material arranged on the outer side of the guide wall 63 in position to be engaged by the stop arm of the stop lever. 69 represents a cam arranged on the upper end of the printing wheel shaft and adapted to engage with the outwardly projecting operating arm of the stop lever, this last mentioned arm being preferably provided with a facing 70 of leather which is engaged by the cam for the purpose of avoiding noise when these parts engage with each other. When a letter is fed from the stack of uncanceled letters through the feed throat while the printing wheel is not in the proper position to produce a registering impression on the letter the cam is out of engagement with the operating arm of the stop lever and the stop fingers of the latter project across the letter path in rear of the printing device, whereby a letter issuing from the feed throat is arrested by engagement of its front edge with the stop fingers. When the printing wheel is in position to produce a registering impression on the letter the cam which rotates with the printing wheel engages with the operating arm of the stop lever and turns this lever against the resilience of the spring 67 in the direction for causing the stop fingers to be withdrawn from the path of the letters. The instant this occurs the letter previously in engagement with the stop fingers is released and

permitted to move forwardly under the action of the feeding belt and between the members of the printing couple where the same engages with the trip finger and causes the impression wheel to be shifted for producing an impression on the letter. After the cam clears the stop lever the latter is immediately turned by its spring 67 in the direction for quickly moving its fingers across the letter path but as the letter which has just been fed off from the supply stack has not yet reached the trip finger nor cleared the stop fingers the latter will merely press against the side of the letter and hold the same frictionally at two points against the base of the belt adjacent to the upper and lower edges of the latter so as to enable the letter to positively shift the trip finger and throw the impression roller against the letter. When the rear end of the letter passes beyond the stop fingers the spring 67 will complete the return movement of the stop lever and carry the stop finger across the letter path ready to intercept the next following letter. While the fingers of the time stop lever are pressing a letter against the feeding belt when the time stop cam releases this lever, the retaining roller 25 prevents the belt from being pushed away from the separator jaw 22, thereby preventing the passage of more than one letter between the belt and separator jaw which otherwise would be liable to occur. It will now be apparent that while the printing wheel rotates no letter can enter between the members of the printing couple until the printing wheel is in proper position to place the post mark in the proper place on the letter.

The time stop is arranged in close proximity to the outlet of the letter throat between the separator and the feed belt. By this location of the time stop the letter is arrested by the stop immediately after a comparatively small part of the same has been projected beyond the throat. The printing wheel and impression roller are so arranged relatively to the throat that the distance from the latter to the printing line or place is less than the diameter of the printing wheel. It follows from this that the feeding belt operates frictionally only against the first letter for moving the same toward and past the printing couple until the time stop has come back into place to arrest the next following or second letter and prevent the latter from moving any considerable distance off the pile. The second letter therefore is not permitted to acquire any speed or momentum which would tend to buckle the same nor is there liability of what is known as blocking, that is, feeding two letters so close one behind the other that the second letter is either canceled imperfectly or not at all.

By arranging the printing couple at a dis-

tance from the throat less than the diameter of the printing wheel even the shortest letter which is likely to be operated upon by the machine will bridge the space between the pile and the printing couple so that the first letter will be engaged by the belt during a considerable part of the time while the letter is partly on the pile and partly in engagement with the printing couple, thereby protecting the second letter from the feeding effect of the belt as long as possible and preventing both buckling of the same and also avoiding the blocking effect referred to.

It will now be apparent that the propelling effect of the belt is directed principally against the first letter at a time when the latter requires it and the second letter is shielded from this feeding action and prevented from acquiring a powerful velocity under the feeding action of the belt which otherwise would not only cause buckling of the letter especially if the same is very thin, but also cause blocking of the letter path by feeding two letters one closely behind another to the printing couple and thereby result in imperfect canceling of the letters. In this machine the feeding belt has not ceased to work on the first letter until after the time stop has started its action to arrest the second letter. The feeding belt is thus prevented from acting on the second letter until after the first letter has been completely separated from the pile so that blocking or feeding of two letters close behind one another and possible failure to cancel the second of these letters is avoided.

As the letters issue successively from between the members of the printing couple they are operated upon by means of a stacking device which pushes the same laterally away from the feed belt upon the receiving section of the table, this stacking device consisting preferably of a plurality of cam arms 76 arranged on the shaft 40 or a part turning therewith and sweeping through slots 77 in the adjacent front guide wall 78 on the delivery part of the table.

Any suitable means may be provided for actuating the various parts of the machine. In the construction shown in the drawings means are provided whereby this may be effected either manually or by power which means are constructed as follows: 79 represents an upright hand driving shaft which is journaled in a bearing 80 arranged on the table adjacent to the idle stretch of the feeding belt and provided at its upper end with a handle or crank 81 for turning the same while its lower end is provided with a gear wheel 82 which meshes into a gear pinion 83 at the lower end of the printing wheel shaft 46. The lower end of the shaft 40 which carries the delivery roller of the feed belt and the stacker cam arms is pro-

vided with a gear wheel 84 which is driven by means of an interposed idle gear pinion 85 which meshes with the gear wheel 82 on the hand shaft and is pivotally mounted on the underside of the table.

When the machine is to be driven by power the idle gear wheel or pinion 85 may be engaged by a gear wheel or pinion 86 which is mounted on the upper end of an upright motor shaft 87. Any suitable motor may be employed, that shown in the drawings being an electric motor 88 which is mounted on a vertically adjustable shelf 89 so that this motor may be raised or lowered for either engaging its driving gear pinion with or disengaging the same from the idle gear wheel. The adjustment for this shelf which is shown in the drawings comprises a vertical stem or rod 90 depending from the underside of the shelf and adjustably secured by means of a set screw 91 in a bracket 92 mounted on the lower part of the stand-

The bearing 80 of the hand shaft is preferably made separate from the table and secured to the latter by means of screws 93 passing through lugs 94 on this bearing and into the table, whereby this bearing when worn may be renewed without the use of bushings in the same manner as the bearings of the printing wheel shaft and of the shaft which carries the front feed belt roller and stacker cam arms.

As a whole this mail marking machine is of very simple construction, it can be produced at comparatively low cost the same has no delicate parts which are liable to get out of order and it permits of effecting the cancellation or marking of mail matter at a high rate of speed without liability of feeding more than one letter at a time and without soiling the letters with ink, thereby meeting all the standard postal requirements at the present time.

I claim as my invention:

1. A mail marking machine comprising means for feeding letters, and a printing device comprising a printing wheel arranged on one side of the letter path, an eccentric journaled in a bearing, a pivot pin arranged on the upper end of said eccentric and having its axis on one side of the axis of the eccentric, an impression roller arranged on the opposite side of the letter path transversely in line with the printing wheel and journaled on said pivot pin, a trip finger arranged on the upper end of said pivot pin and adapted to project across the letter path so as to be engaged by the front edge of the letters, a spring surrounding the lower end of the eccentric and connected at its opposite ends with said eccentric and said bearing, and a stop arranged at the upper end of the

eccentric and adapted to engage with a stop on the upper end of said bearing for limiting the turning of said eccentric under the action of said spring.

2. A mail marking machine comprising means for feeding letters, and a printing device comprising a printing wheel arranged on one side of the letter path, an eccentric journaled in a bearing, a pivot pin arranged on the upper end of said eccentric and having its axis on one side of the axis of the eccentric, an impression roller arranged on the opposite side of the letter path transversely in line with the printing wheel and journaled on said pivot pin, a trip finger arranged on the upper end of said pivot pin and adapted to project across the letter path so as to be engaged by the front edge of the letters, a spring surrounding the lower end of the eccentric and connected at its opposite ends with said eccentric and said bearing, a stop arranged at the upper end of the eccentric and adapted to engage with a stop on the upper end of said bearing for limiting the turning of said eccentric under the action of said spring, a rock arm carrying said bearing, a spring operating to swing said arm toward the letter path, and a stop for limiting the movement of said arm under the action of said last mentioned spring.

3. A mail marking machine comprising a separator, a letter feeding belt moving with its face past said separator, said belt and separator forming a throat through which the letters are moved successively by said belt, a belt support for supporting the back of said belt opposite said separator, a printing couple to which the letters are moved by said feeding belt and which has a printing wheel and an impression roller arranged on opposite sides of the letter path, the distance from said throat to the printing point between said wheel and roller being less than the diameter of said printing wheel, a time stop arranged opposite the face of said belt in close proximity to the outlet of said throat between said separator and belt and having two stop fingers which in the operative position of the time stop project across the letter path adjacent to the upper and lower edges of the feeding belt, means for moving said time stop yieldingly toward the face of the belt, and means for periodically moving said time stop away from said belt in harmony with said printing wheel.

Witness my hand this 17th day of March, 1913.

FRED C. IELFIELD.

Witnesses:

F. S. BRECKELL,

C. B. LIVERMORE.