March 3, 1931. F. E. LANGDON 1,794,716

PRINTING AND REGISTERING MACHINE

Filed Jan. 14, 1926 5 Sheets-Sheet 1

Fig. 1.

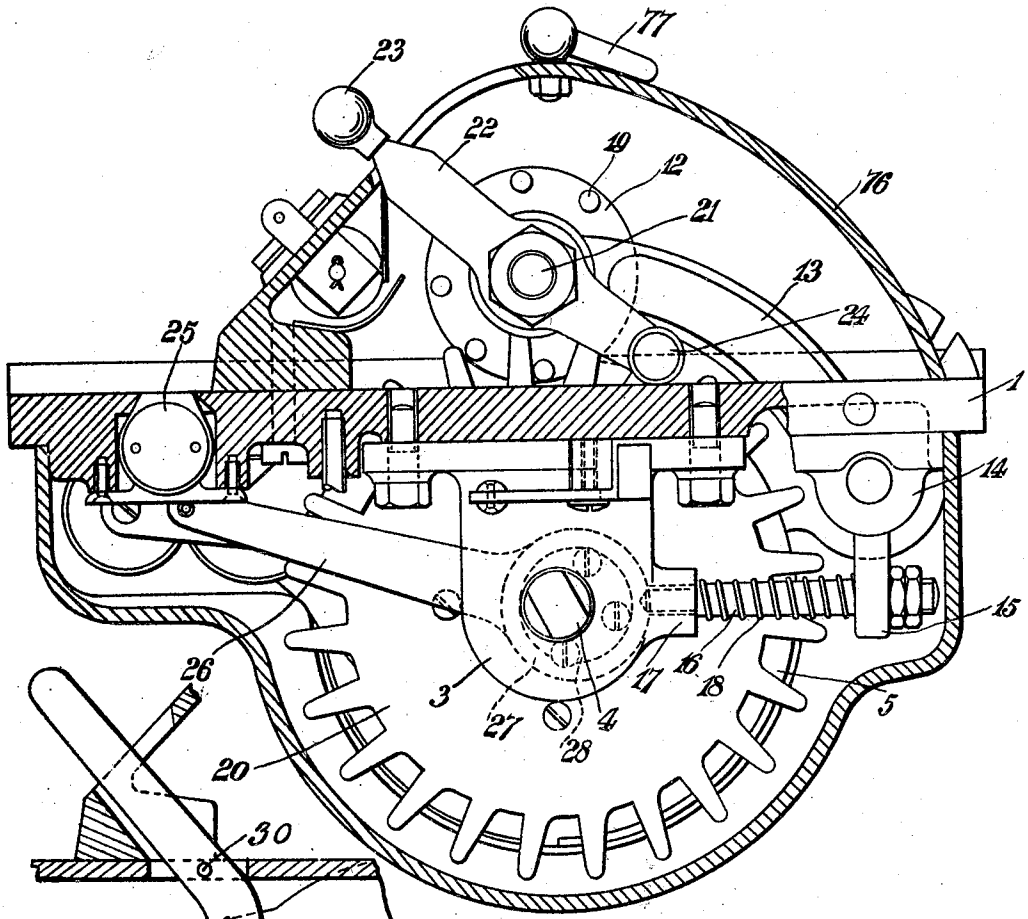


Fig. 8.

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PRINTING AND REGISTERING MACHINE

Filed Jan. 14, 1926 5 Sheets-Sheet 2

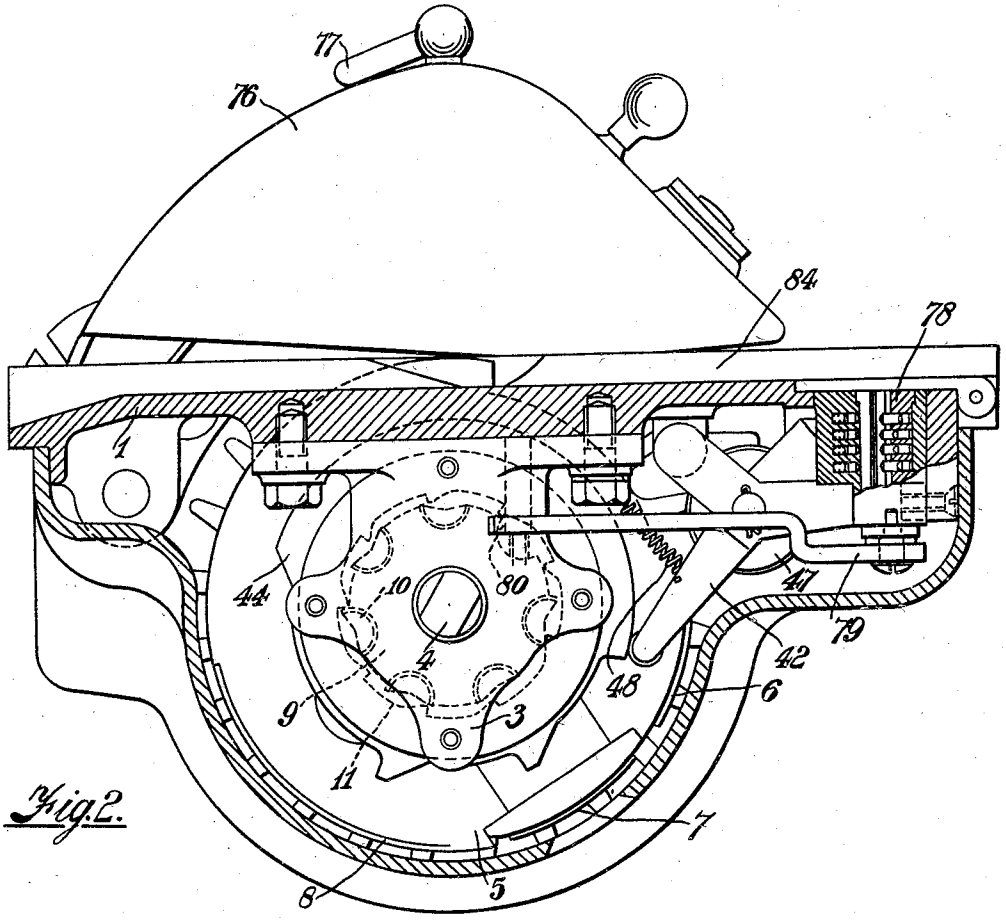


Fig. 2.

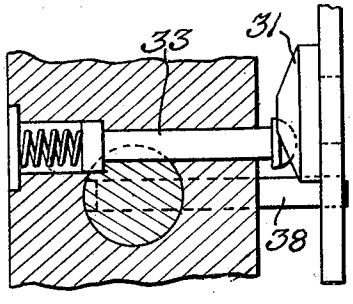


Fig. 9.

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PRINTING AND REGISTERING MACHINE

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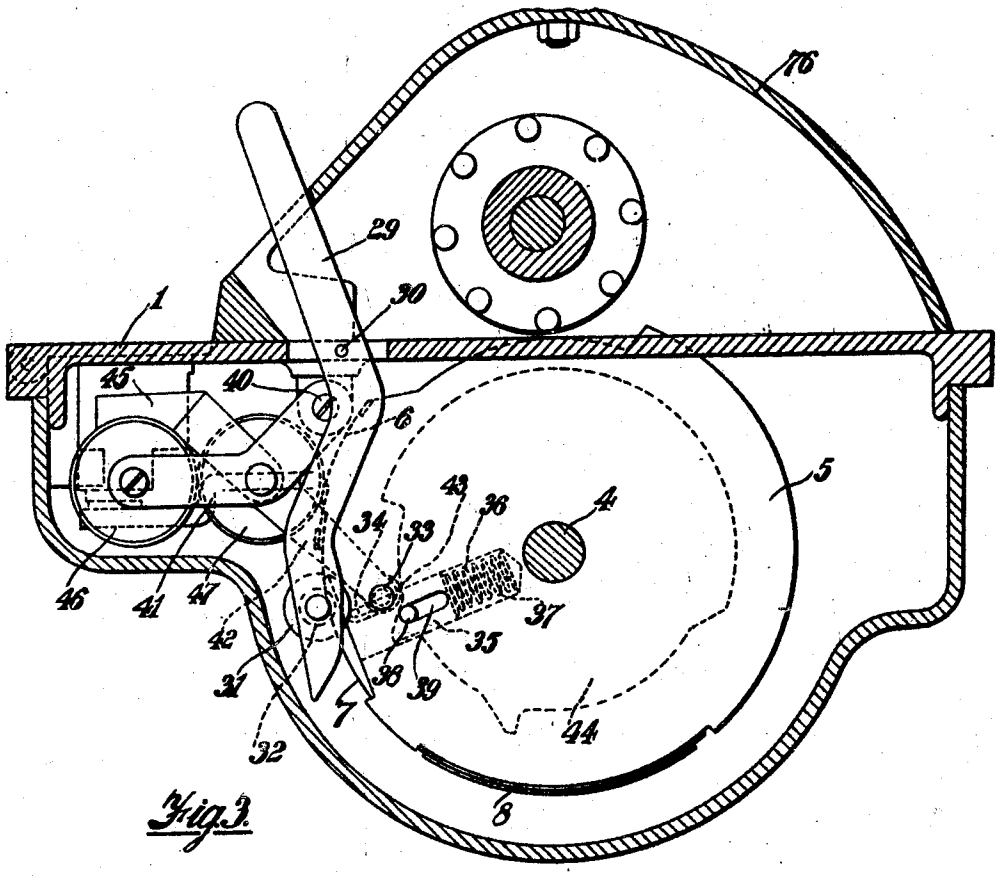


Fig. 3.

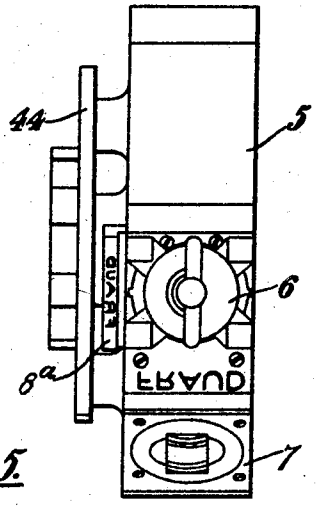


Fig. 5.

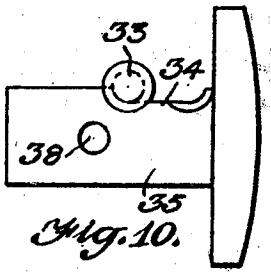


Fig. 10.

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PRINTING AND REGISTERING MACHINE

Filed Jan. 14, 1926 5 Sheets-Sheet 4

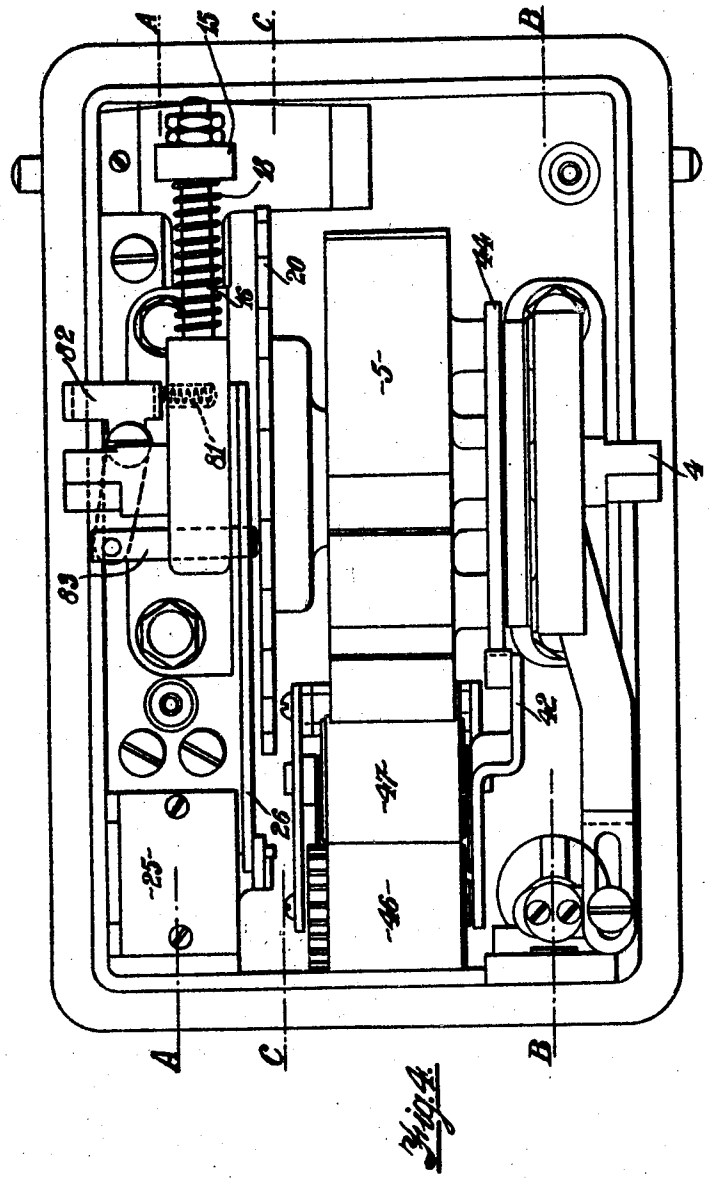


Fig. 4.

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PRINTING AND REGISTERING MACHINE

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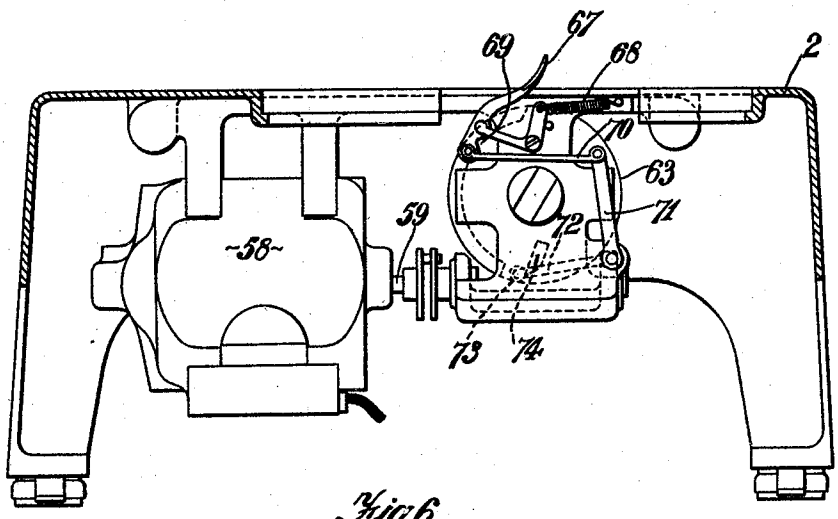


Fig. 6.

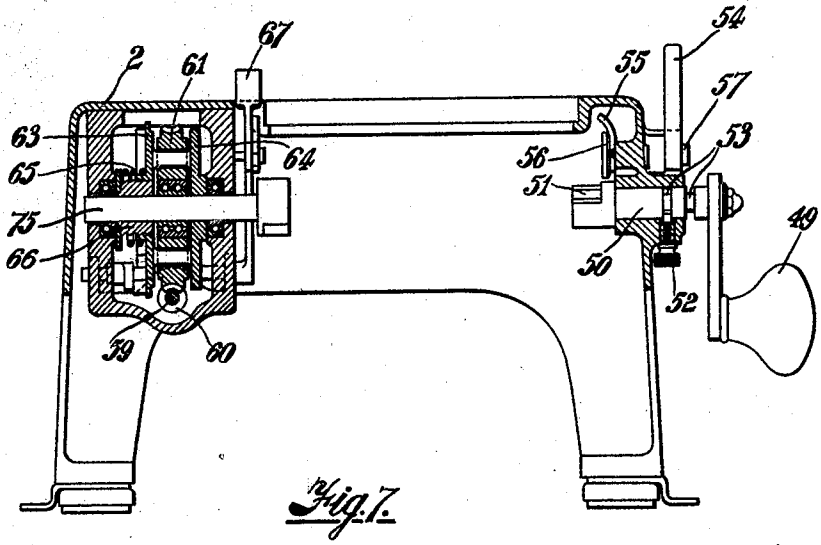


Fig. 7.

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Patented Mar. 3, 1931 1,794,716

UNITED STATES PATENT OFFICE

FRANK EDWARD LANGDON, OF LONDON, ENGLAND, ASSIGNOR TO NEOPOST LIMITED, OF LONDON, ENGLAND, A COMPANY

PRINTING AND REGISTERING MACHINE

Application filed January 14, 1926, Serial No. 81,273, and in Great Britain January 29, 1925.

This invention relates to machines intended more particularly for printing stamps and cancellation or other required markings on letters and like articles of mail matter and for registering the total number or value of stamps printed and has for its object to provide an improved construction and arrangement of such machines which is characterized by simplicity in design and compactness in size whilst providing adequate safeguards against fraud either by obtaining unregistered impressions or by tampering with the motoring or registering device.

According to the invention a machine is provided for stamping and cancelling mail matter which comprises a rotary printing element over which an article to be printed is passed, said printing element operating in conjunction with inking mechanism and a registering device all of which are removable for resetting and like purposes as a unit from a supporting framework.

Reference will now be made to the accompanying drawings which illustrate by way of example a construction according to the invention and in which:—

Figure 1 is a longitudinal section taken on the line A—A of Figure 4.

Figure 2 is a longitudinal section looking at the machine from the opposite side to Figure 1 and taken on the line B—B of Figure 4.

Figure 3 is a longitudinal section taken on the lines C—C of Figure 4,

Figure 4 is an inverted plan of the machine shown in Figures 1–3,

Figure 5 is an elevation of the printing drum,

Figure 6 is a longitudinal section of the framework of the machine,

Figure 7 is a cross section of the framework shown in Figure 6,

Figure 8 is a detail elevation partly in section, showing the positions which the parts assume when the lever 29 is rocked.

Figure 9 is a similar view on a somewhat enlarged scale through the printing drum showing the construction and mounting of the plunger 33, and

Figure 10 is a detail elevation, on an enlarged scale, showing the engagement of the flange of the plunger 33 with lateral recesses at the ends of the grooves 34.

In the construction illustrated printing, inking and registering devices are mounted in a plate 1 adapted when operatively positioned to rest in a supporting framework 2 which carries hand and automatic operating means and is more fully described hereinafter.

Mounted in brackets 3 fixed below the plate 1 is a main driving shaft 4 which carries a printing drum 5 having therein a stamp impressing die 6 and a cancellation and dating die 7 and if desired a third die 8 for the purpose of printing matter in the nature of advertisements or public notices. The drum 5 is fast on the shaft 4 which also carries the movable member 9 of a ratchet clutch device co-operating through the medium of a series of floating pawls 10 with a fixed clutch member 11 carried by one of the brackets 3, the purpose of this clutch being to prevent backward rotation of the drum 5. The disposition of the printing drum 5 is such that articles to be printed are fed across the upper surface of the plate 1 face downwards being maintained in contact with the printing dies 6, 7 and 8 the surfaces of which become level with the upper surface of the plate 1 at the moment of printing. The pressure is maintained on articles being printed by a roller 12 carried by an arm 13 pivotally mounted in a bracket 14 on plate 1 and having a downwardly extending lug 15 perforated to pass around a rod 16 the inner end of which is supported in a boss 17 on one of the brackets 3. A spring 18 is interposed between the boss 17 and the lug 15 and by urging the arm 13 in a counterclockwise direction around its pivot in the bracket 14 maintains the roller in contact with an article being printed, the spring 18 allowing the roller to rise if an article of abnormal thickness is fed into the machine. The roller 12 is provided with pins 19 extending from one of its ends which are engaged by the teeth of a spur wheel 20 fast on the shaft 4, the roller 12 being thus rotated with the printing drum to facilitate feeding of articles through the machine and the teeth of the wheel 20 are of sufficient

length to maintain engagement with the roller should the latter be caused to rise as above described.

The projection of the printing dies above the surface of the drum also ensures that irrespective of the thickness of an article being printed the stamp impression will always appear at a uniform distance from the end of an article.

Mounted on the spindle 21 of the pressure roller 12 is a lever 22 having an operating handle 23 at one end and a roller 24 at the other end bearing on the plate 1, the purpose of this lever being to enable the roller 12 to be raised by hand should an abnormally thick article cause the machine to be stopped.

Each rotation of the printing drum 5 is registered on a counting device 25 of any suitable type mounted in the plate 1 so that the total registered is always visible to the operator. The movements of the printing drum are communicated to the device 25 by means of a connecting rod 26 terminating at one end in a strap 27 surrounding an eccentric disc 28 fast on the shaft 4, the opposite end of the rod 26 being connected to a reciprocable member of the registering device 25. The motor may be arranged so that it can be set to a prepaid total by a postal authority and provided with means so that when the motor has reached the zero position it automatically locks the printing drum shaft against further movement.

The cancellation and dating die 7 of the printing drum 5 is mounted so as to be slidable radially to an inner inoperative position when it is desired to print more than one stamp on a single article of mail matter. To move the die 7 inwardly a lever 29 is provided pivoted in the plate 1 at 30 and extending downwardly at one side of the drum 5, the lower end of this lever having a boss 31 formed thereon, the inner face 32 of which is inclined towards the drum. When the lever 29 is rocked, the boss 31 engages a spring loaded plunger 33 mounted to slide laterally in the side of the drum and provided at its inner end with a flange or enlargement which engages in either of two lateral recesses at the end of a groove 34 in the stem 35 of the die 7, this stem being slidable in a socket 36 formed in the drum 5, its inward movement being opposed by a spring 37 and its movement in either direction being limited by a pin 38 fixed to the stem 35 and projecting through a slot 39 in the drum 5. The plunger 33 is moved against the action of its spring by the boss 31 so that the flange or extension leaves the recess at one end of the groove 34 and immediately thereafter the end of the lever engages the projecting end of the pin 38 and moves the stem 35 inwardly against the action of the spring 37 when the stem reaches its extreme inward position the flange or extension on the plunger 33 snaps into the recess at the other end of the groove 34 (the boss 31 having in the meantime cleared the plunger 33) and locks the stem 35 in the inward position. The die 7 remains retracted until the plunger 33 is again actuated by moving the lever 29 or alternatively until the end of the plunger strikes a fixed ramp which may be mounted on the casing for the purpose of releasing the stem 35 automatically if the stamp impression has been made. A mechanism of similar construction may be provided to render the advertisement die (if such be employed) inoperative when stamp impressions are to be repeated.

To indicate when stamp impressions have been obtained fraudulently there is formed at the side of the stamp die 6 a block 8a bearing the word "Fraud" or some other indication having a similar effect. This block is not inked during the normal operation of the machine and consequently produces no impression but must necessarily be rendered operative by coloring means such as carbon papers inserted from the exterior of the machine so that fraudulently obtained impressions are clearly identified. The die 6 also bears the word "Fraud". At one end the inking mechanism is lifted by a projection on the cam 44 as it passes this part of the die 6 so that the word "Fraud" on the die 6 is not inked during normal operation of the machine.

The printing dies are inked during each revolution of the drum 5 by mechanism which is pivotally mounted at 40 beneath the plate 1 (Fig. 3) this inking mechanism comprising a pair of side frame members 41 one of which is extended to form an arm 42 carrying a roller 43 engaging a cam 44 mounted on the shaft 4 and rotated with the printing drum 5. Between the frame members 41 is mounted an ink trough 45 the base of which is formed by the surface of a roller 46 which operates to remove ink from the trough 45 and feed it to a second roller 47 which applies ink to the dies 6, 7 and 8 when the cam 44 permits a spring 48 to draw the inking device towards the printing drum, the shape of the said cam being such that ink is applied only to those portions of the drum surface in which dies are mounted.

In one side of the supporting framework 2 is disposed an operating handle 49 mounted on a spindle 50 the inner end of which is provided with flattened portions 51 adapted to engage a similarly shaped recess in the end of the shaft 4. The spindle 50 is longitudinally slidable in its bearings being capable of being secured in an operative or an inoperative position by means of a set screw 52 adapted to engage in either of two annular grooves 53 formed in the spindle. The operating handle 49 is released for movement by depressing a trip lever 54 mounted on a short

spindle extending through the framework 2 and having at its inner end a cam 55 adapted to bear against a flange 56 on a slidable stud 57 the outer end of which is caused normally to engage the handle 49 under the influence of a spring (not shown). When the trip lever 54 is depressed the cam 55 withdraws the stud 57 thus freeing the handle 49 for operation.

To enable the machine to be driven electrically when desired the end of the shaft 4 is adapted to be coupled to mechanism now to be described. Mounted within the framework 2 is an electric motor 58 the spindle 59 of which carries a worm 60 meshing with a worm wheel 61, the said worm wheel having on its sides clutch surfaces adapted to engage frictionally with clutch members 63 and 64 mounted independently of the worm wheel being carried by a spindle 75 on which the worm wheel is freely mounted. The clutch member 63 is urged into operative position by a spring 65. This clutch member 63 has a quick pitch screw threaded connection with sleeve 66. Pivotally mounted so as to project above the framework 2 is a lever 67 normally urged into the position shown in Fig. 6 by a spring 68 fixed to the framework at one end and at the other end to a pivoted bell crank lever 69 whose other end is pivoted to the lever 67. The lever 67 is connected by a series of pivoted links 70, 71 and 72 with a roller 73 adapted normally to engage a stop 74 carried by the clutch member 63. Normally the worm wheel 61 rotates idly as the roller 73 engages the stop 74 and by holding the clutch member 63 against rotation moves it away from the worm wheel owing to the screw threaded connection with the sleeve 66. When a letter or the like is fed against the lever 67 it is moved slightly in a clockwise direction (Fig. 6) sufficiently to move the roller 73 from engagement with the stop 74 thus freeing the clutch member 63 to rotate and allowing the spring 68 to force it into engagement with the worm wheel 61 to rotate spindle 75 and the printing drum, to the shaft of which the spindle 75 is coupled.

The operation of the electric motor 58 is preferably controlled by a treadle actuated switch.

In practice a unit such as that illustrated is provided for each value in which it is desired to impress stamps, any one of such units being capable of replacing another in the framework 2 and of being driven by the hand or power operated means carried therein.

The printing mechanism is enclosed by a cover 76 having a handle 77 to facilitate removal and transport and this cover may carry a window adapted to be sealed in position and behind which appears an indication of the amount to which the user of the machine has been credited by a postal authority and comparison of this amount with the amount indicated by the metering device 25 will show at any time how much the user is in credit or otherwise. At one side of the cover a clearance space 84 (Fig. 2) is formed between the lower edge of the cover and the plate 1 to allow articles of mail matter to pass through the machine freely irrespective of their surface area.

The machine may be locked against use by insertion of a key in a lock 78, turning of the key in the lock moving a link 79 to cause a stud 80 to engage a slot in the printing drum 5 to prevent further rotation thereof.

When a printing unit is moved from the framework 2 a spring 81 (Fig. 4) is free to move one end of a member 82 outwards, such member being pushed inwards to compress the spring upon insertion of the unit in the framework. When the spring is free to expand it forces the opposite end of the member 82 inwards to move an arm 83 into engagement with the spur wheel 20 and thus prevent movement of the spur wheel and printing drum.

I claim:—

1. A machine for stamping and cancelling mail matter comprising a casing, a printing drum mounted in said casing, a pressure roller cooperating with said printing drum, a printing die arranged in said printing drum, a die displaceable radially of said drum, a pin secured to said die, a pivoted lever mounted in said casing and a conical roller carried by said pivoted lever and adapted to act on said pin.

2. A machine for stamping and cancelling mail matter comprising a table plate having an opening therein, a casing mounted below said plate, a printing drum mounted rotatably in said casing opposite said opening, an inking device cooperating with said printing drum, means for guiding mail matter over said plate, a pressure roller driven by said printing drum mounted above said plate and cooperating with said printing drum, a spring-pressed lever pivoted to said table, said pressure roller being carried by said lever, and a lever arm pivoted to said lever, said lever arm having a handle and being provided with a roller contacting with said table.

3. A machine for stamping and canceling mail matter, comprising a rotary printing element having cancellation and dating dies mounted thereon for movement radially thereof from an operative to an inoperative position, means for moving said dies to an inoperative position when a stamp impression is to be repeated on one article of mail matter, means for feeding an article to be printed over said printing element, a pressure roller driven by said printing element, means permitting said pressure roller to rise and fall automatically according to the thickness of

an article to be printed and means to enable mail matter to be printed by the machine irrespective of its surface area.

4. A machine for stamping and canceling mail matter comprising a table plate having an opening therein, means for guiding mail matter over said plate, a printing drum rotatably mounted on fixed bearings below said plate, opposite said opening, and projecting into said opening, for engaging said mail matter and a yieldable pressure roller driven by said printing drum, said pressure roller being mounted above said plate and cooperating with said printing drum.

In witness whereof I affix my signature.

FRANK EDWARD LANGDON.