H. G. POPHAM.

PORTABLE CARD PLATE PRINTING MACHINE.

APPLICATION FILED SEPT. 7, 1920.

1,375,800.

Patented Apr. 26, 1921.

2 SHEETS—SHEET 1.

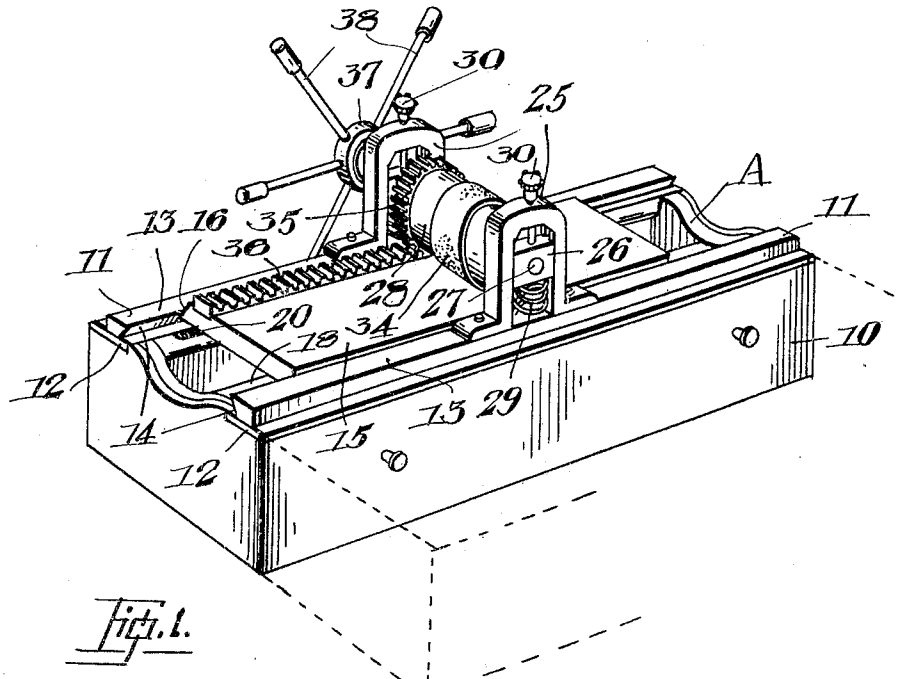


Fig. 1.

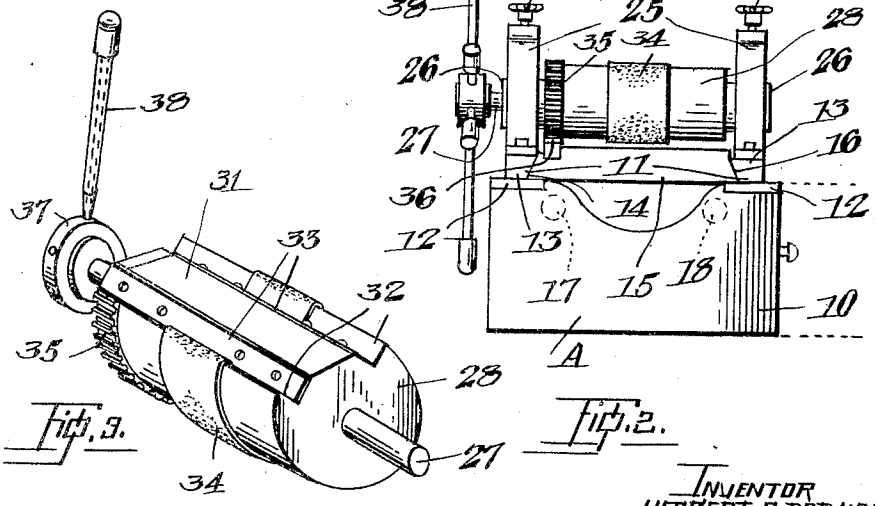


Fig. 3.

Fig. 2.

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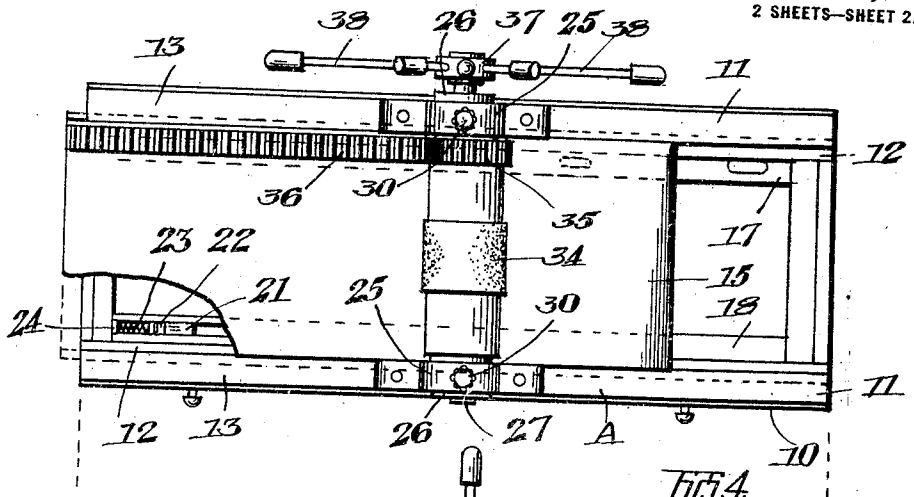


Fig. 4.

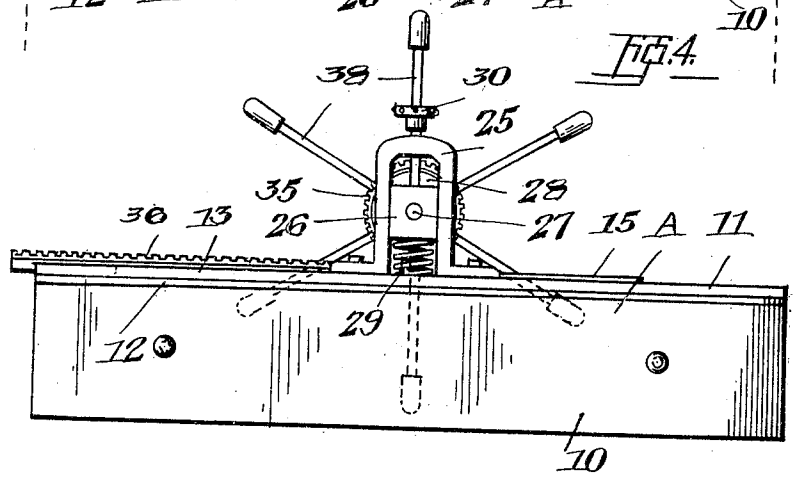


Fig. 5.

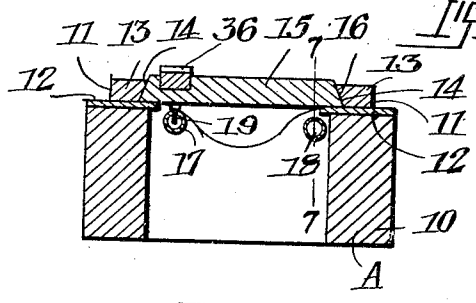


Fig. 6.

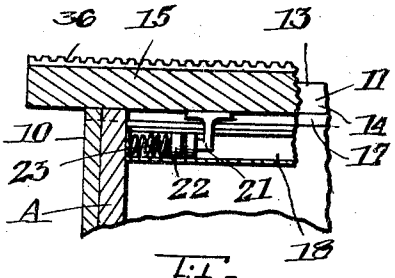


Fig. 7.

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UNITED STATES PATENT OFFICE.

HERBERT GEORGE POPHAM, OF TORONTO, ONTARIO, CANADA.

PORTABLE CARD PLATE-PRINTING MACHINE.

1,375,800. Specification of Letters Patent. Patented Apr. 26, 1921.

Application filed September 7, 1920. Serial No. 408,596.

To all whom it may concern:

Be it known that I, HERBERT GEORGE POPHAM, a subject of the King of Great Britain, a resident of the city of Toronto, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Portable Card Plate-Printing Machines, of which the following is a specification.

This invention relates to improvements in a portable card plate printing machine, and the objects of the invention are to render the machine capable of being hand actuated, to permit of the carriage of the machine automatically adjusting itself relatively to the roller after a card has been printed, so that the carriage and roller will be in a position to perform the next operation of printing a successive card, and to permit of the roller being adjusted relatively to the carriage so that the required pressure will be exerted during the process of printing the cards.

Further objects are to eliminate shock in returning the carriage to its normal position, to simplify the construction of the machine and render the same readily accessible for inspection or repair.

Further objects will be made clear as the specification develops.

For a better understanding of my invention reference is made to the accompanying drawings in which an embodiment of the invention is illustrated.

In the drawings:

Figure 1 is a perspective view of the improved machine.

Fig. 2 is an end view of the same.

Fig. 3 is a perspective view of the roller and showing a weighted handle mounted on the spindle thereof.

Fig. 4 is a plan view of the improved machine.

Fig. 5 is a side elevation of the improved machine.

Fig. 6 is a transverse section of the machine showing the tubular guides below the carriage.

Fig. 7 is a section on the line 7—7 of Fig. 6.

Like characters of reference refer to like parts in the several figures.

Referring to the drawings; A represents the improved card printing machine comprising a frame or bed 10 constructed of any suitable material and preferably of box or hollow formation. On the upper side of this frame 10 and along the longitudinal walls thereof a pair of slides 11 are arranged, these slides comprising a member 12 in the form of a rectangular bar on top of which the member 13 is mounted.

The member 13 is in the form of a bar having its inner lateral wall 14 beveled and these slides are preferably made of roll steel which are sufficiently hard to give good working results without excessive wear.

A carriage 15 is provided with beveled lateral walls 16 which engage with the beveled walls 14 of the member 13 so that the carriage is thus a dove-tailed fit between the slides but is capable of moving longitudinally relatively thereto.

Below the carriage 15 a pair of tubes 17 and 18 are arranged and suitably supported on the frame or bed 10 and the carriage carries a downwardly extending lug 19 which extends through a slot into the tube 17, the said lug being attached to one end of a spring 20, the other end of which is anchored to the end of the tube 17 or to the frame 10.

It will thus be clear that should the carriage 15 be moved longitudinally on the slides 11 under force, then it will be returned under the action of the spring 20 to its normal position when the said force has been removed.

The carriage 15 carries on its under face a plunger support 21 on which the plunger 22 is operatively mounted, and this plunger coacts with the spring 23 located at the blind reinforced end 24 of the tube 17, and the spring 23 is designed to act as a cushioning member and eliminate jar to the carriage when it is being returned to a normal position under the action of the spring 20.

As will be seen by reference to the drawings, the tubes 17 and 18 are slotted to accommodate the lug 19 and plunger support 21.

On top of the slides 11 bearings 25 are mounted and these bearings slidably support the blocks 26 in which the spindle 27

of the roller 23 is journaled. A spring 29 is located between the bearing blocks 26 and the lower end of the bearing 25 and a tensioning screw 30 is threaded through the upper end of each bearing so that on adjustment of this screw the tension between the roller 28 and the carriage 15 may be regulated.

The roller 28 is provided with a flattened face 31 located between a pair of V-shaped recesses 32 and these recesses receive locked plates 33 which clamp a strip of flexible material 34 around the drum. One end of the drum 25 is provided with peripheral teeth 35 which mesh with a rack 36 provided along one of the longitudinal edges of the carriage 15.

One end of the spindle 27 overhangs the bearing 25 and is provided with a boss 37 suitably secured thereon and having a plurality of radial arms or handles 38, one of which is weighted.

In Fig. 3 the location of the weighted handle relatively to the flat face 31 of the roller 28 is illustrated.

The construction of the machine is extremely simple and the operation is as follows:

When the machine is to be used, the copper plate from which the card is to be printed is secured by an adhesive to the upper face of the carriage 15.

The tensioning screws 30 are now adjusted so that the curved face of the roller 28 will exert the desired pressure on a card which is superposed on the copper plate. The copper plate is now inked and wiped off and a card placed thereon. The operator now grips the handle 38 and transmits a rotary motion to the roller 28 and the teeth 35 of the roller engage with the rack 36, so that the linear movement of the circumference of the roller and the deck 15 will be the same.

The strip 34 of flexible material engages the card and presses it firmly into contact with the inked plate and so completes the printing process.

When the roller 28 has been rotated through the major arc of a revolution then the rack 36 is disengaged from the teeth 35 of the roller and the flat face 31 of the roller is then in parallel relation to the carriage 15 but spaced therefrom, thus allowing the carriage to be returned to its normal position under the action of the spring 20.

All shock is eliminated on the carriage by the use of the plunger 22 and spring 23.

The printed card is now removed and a fresh card placed on the copper plate and the above operation of printing is repeated.

As one of the handles 38 is weighted it will be clear that the roller 28 will when the teeth 35 have become disengaged from the rack 36 be rotated and maintained finally in a position with the flat face 31 spaced from the carriage.

The machine is extremely simple and does not require skilled labor to operate the same and the several parts are easily accessible for inspection and repair, and the machine is portable, and extremely strong and durable.

As many changes could be made in the above construction and many widely different embodiments of my invention within the scope of the claims, constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification and drawings shall be interpreted as illustrative and not in a limiting sense.

What I claim as my invention is:

1. A portable copper card plate printing machine comprising a carriage, a roller rotatably mounted above the carriage and adjustable thereto, said roller having a flattened face, handles for rotating the roller in one direction, one of the handles being loaded and arranged at right angles to the flattened face of the roller, means whereby the rotation of the roller transmits a uniform movement to the carriage, and means for automatically returning the carriage to a normal position when the last said means is inoperative.

2. In a printing machine, the combination of a reciprocating table, a guide extending longitudinally of the table therebeneath, a projection from the table operating in said guide, and resilient means contained within the guide and secured to said projection to yieldably maintain the table in a definite position.

3. In a printing machine, the combination of a frame, spaced guide members extending longitudinally of the frame and having the opposing sides thereof undercut, a movable table having beveled side edges engaging the undercut portion of said side members and guided thereby, tubular guide members extending longitudinally of the frame beneath said table, projections depending from the table and operating in said tubular guide members, springs contained within said guide members, one of said springs being fastened to one of the projections to resist table movement in one direction and to return the table to initial position after such movement, and the other of said springs forming a shock absorber adapted to be engaged by the remaining projection upon return movement of the table.

4. In a printing machine, the combination of a frame, a movable table supported thereby, longitudinal guides extending beneath the table and contained within the frame, springs contained within said guides, a projection depending from the table operating

in one of said guides and secured to the spring contained therein whereby resistance is offered to table movement in one direction and the table is adapted to be automatically returned to initial position after such movement, and a plunger supported by the table and operating in the remaining guide member to co-act with the spring contained therein for cushioning the table upon the return movement.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

HERBERT GEORGE POPHAM.

Witnesses:

F. A. BOHME,

T. M. DAVIS.