Feb. 29, 1944. C. H. SAND, JR 2,342,699

PRINTING MACHINE

Original Filed Oct. 10, 1940 2 Sheets-Sheet 1

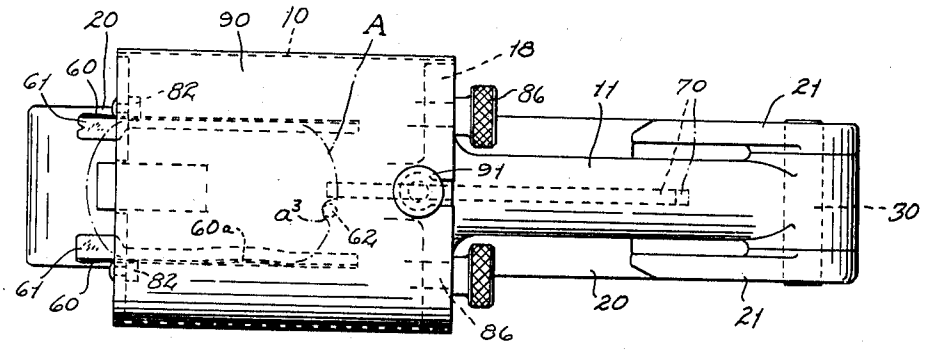


Fig. 1

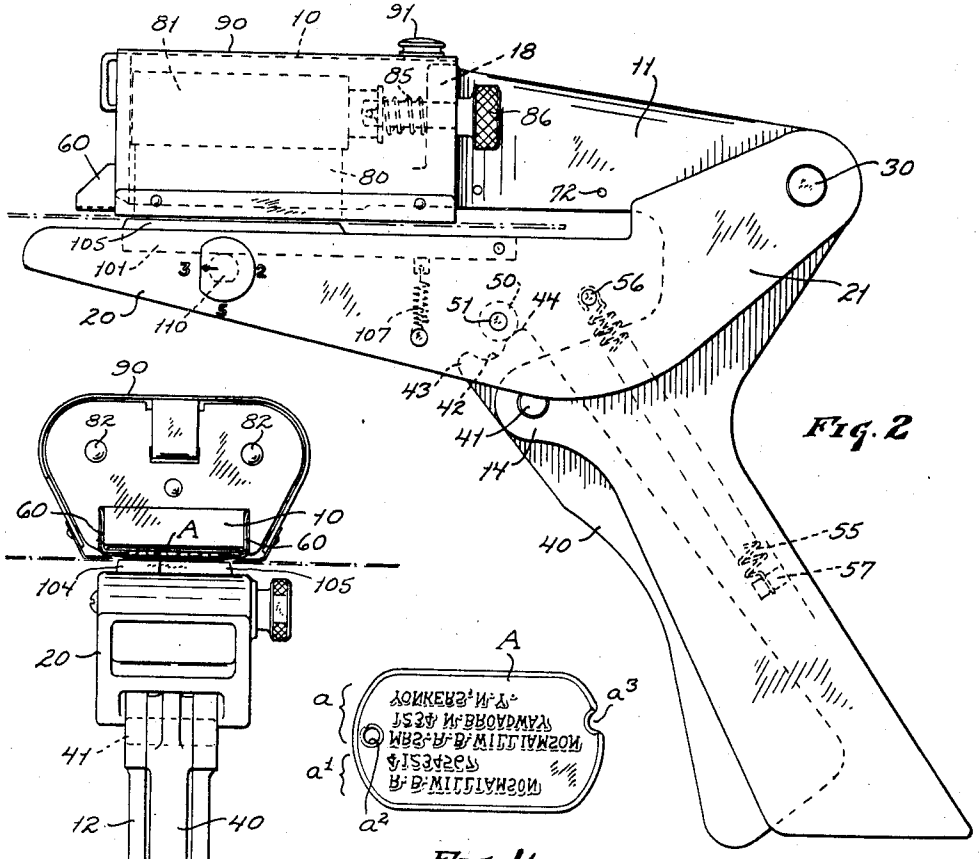


Fig. 2

Fig. 3

Fig. 4

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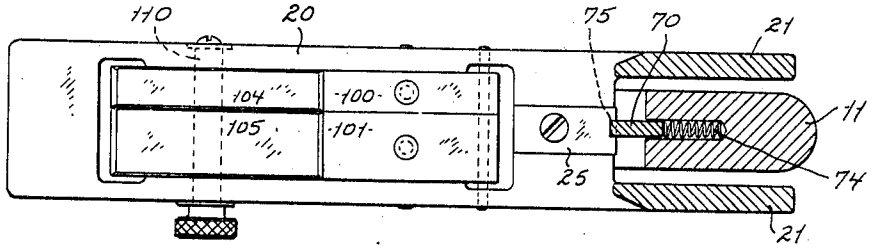


FIG. 5

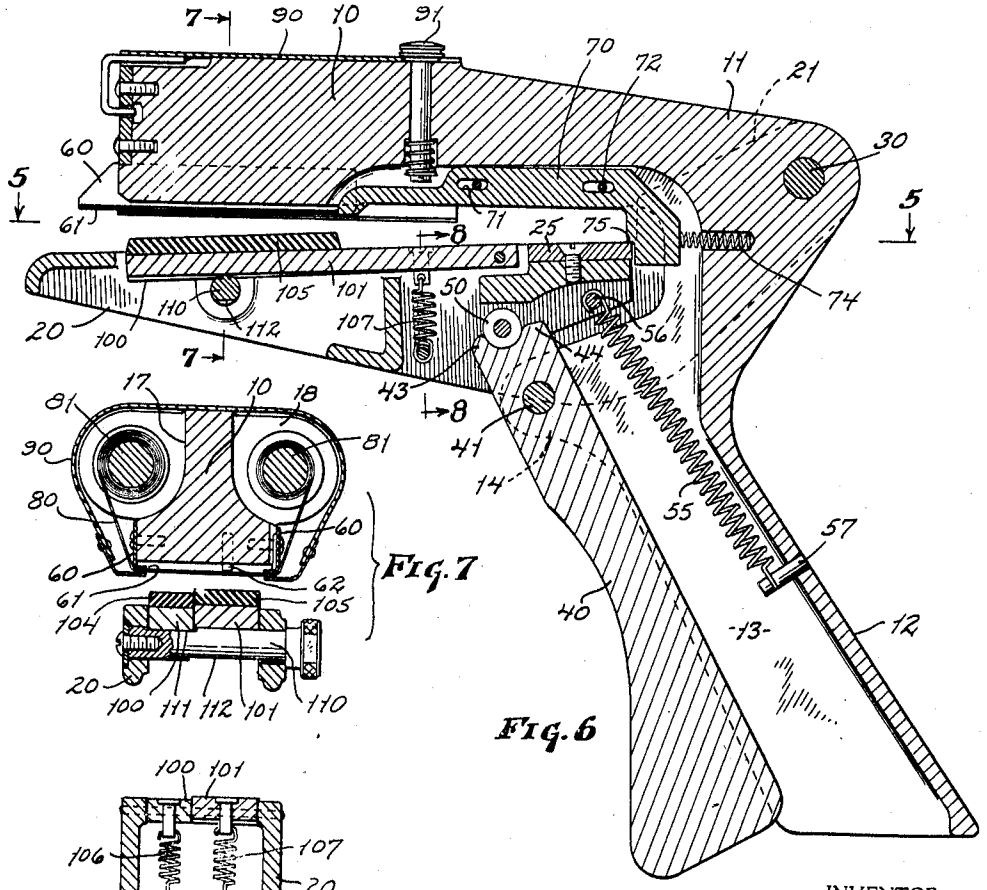


FIG. 6

FIG. 7

FIG. 8

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UNITED STATES PATENT OFFICE

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PRINTING MACHINE

Charles H. Sand, Jr., Willoughby, Ohio, assignor to Addressograph - Multigraph Corporation, Cleveland, Ohio, a corporation of Delaware

Original application October 10, 1940, Serial No. 360,573. Divided and this application April 7, 1941, Serial No. 387,159

8 Claims. (Cl. 101—306)

This invention relates to a portable manually-operable printing or addressing machine and particularly to a comparatively small device adapted to be carried from place to place and manipulated by one hand of the operator to impress characters on a suitable record sheet. This application is a division of my copending application No. 360,573, filed October 10, 1940.

Like the parent case above mentioned, the device of this patent in its preferred form comprises a head adapted to carry a removable embossed plate with an inking ribbon extending across it and a platen adapted to force the record material against the ribbon to receive an impression from the plate. The head is provided with a handle, preferably in the form of a pistol-grip, and the platen is operated by a finger lever adjacent the handle, so that the operator can carry the device and effect the impression with one hand. This division is concerned especially with the means for preventing the operation of the impressive device, except when the plate is properly inserted in the head; that is to say, with the proper face toward the platen and each end extending in the right direction.

My invention is illustrated in the drawings hereof, and the preferred embodiment there shown is hereinafter more fully explained, including features which only indirectly coact with the prevention mechanism of this application.

In the drawings, Fig. 1 is a plan of the printing device; Fig. 2 is a side elevation thereof; Fig. 3 is a front view, with the handle partly broken away; Fig. 4 is a plan of an illustrative embossed plate which may be employed in the printing device; Fig. 5 is a horizontal section through the device in a plane indicated by the line 5—5 on Fig. 6; Fig. 6 is a vertical section through the entire device; Fig. 7 is a detail in vertical section in a plane indicated by the line 7—7 on Fig. 6; Fig. 8 is a vertical section in the plane indicated by the line 8—8 on Fig. 6.

The main frame of the printing device is preferably one integral member comprising a head 10, a shank 11 extending rearwardly therefrom and a handle 12 extending downwardly from the shank and formed with a forwardly upwardly extending open groove 13 into which the operating handle may extend. The head carries on its under face the embossed plate, and on its opposite sides ribbon spools from which an inked ribbon extends beneath the plate, as hereinafter explained.

The platen carrying frame of this device comprises a hollow arm 20 bifurcated to provide two rearwardly extending spaced wings 21 which extend onto opposite sides of the shank of the main member to which it is pivoted by a transverse pin 30. This platen arm carries special platens as hereinafter described to coact with the ribbon and plate.

The operating lever 40 of the device lies in the front portion of the handle groove 13 and is pivoted by a pin 41 extending into ears 14 which project forwardly from the handle member at opposite sides of the groove. At its upper end the lever 40 is provided with a recess 42 bounded by a lug 43 in front thereof and a lug 44 of less height at the rear. The recess is normally occupied by a roller 50 which lies within the hollow platen member 20 and is journalled on a pin 51 mounted in the downwardly extending side portion of such member. A tension spring 55 is anchored at its upper end to a pin 56 carried by the platen member and at its lower end to the pin 57 carried by the back of the handle member. This spring lies within the groove of the handle member, as shown particularly in Fig. 6, and tends to maintain the roller 50 down in the recess at the upper end of the operating handle 40 and such spring action normally holds the operating handle in the position shown in Fig. 6. The lug 43 in front of the roller 50 prevents rearward movement of the upper end of the handle but the lug 44 is low enough and gradual enough so that it can move beneath the roller. The result is that if the operator, grasping the handle 12, pulls the lever, by his fingers, into the groove 13, the lug 44 rides beneath the roller 50 stretching the spring 55 and forcing the platen carried by the arm 20 into coaction with the ribbon and plate to effect the printing.

Referring now to the plate and the means by which it is carried by the head, a specimen plate is indicated at A in Fig. 4. My machine is adapted for printing either or both of two sets of embossed data on the plate, as for instance, two related addresses as indicated at *a* and *a*—1 on Fig. 4. Such plate may conveniently be a tag provided with an opening *a*—2 by which it may be carried by a cord or hook, for instance. The plate also may have a recess *a*—3, eccentrically placed at the end, cooperating with a suitable stop on the printing device to insure the plate being inserted right side up and right end foremost.

Secured to opposite sides of the head 10 are two strips 60 extending below the underface of the head 10, which underface is flat in the region between the strips and above the flanges.

An embossed plate, such as illustrated in Fig. 4, for instance, may be slid into place from the end of the device above the flanges 61 with the type facing downwardly. A suitable pin 62 carried by the head is adapted to coact with the notch a—3 in the plate and allow it to reach final position, shown in Fig. 1, only when the plate is inserted that end foremost and with the type on the plate facing downwardly.

The platen member is normally locked in an inactive position by a slidable latch bar 70 which is mounted on the underside of the shank 11 and has a limited movement along such shank, the latch having slots 71 through which pins 72 pass into the shank. A suitable compression spring 74 mounted in a recess in the shank at the rear of the latch tends to force it forward and normally holds a shoulder 75 of the latch in engagement with a plate 25 rigidly secured to the platen arm. This is the position of the parts indicated in Fig. 6, where it will be seen that the latch locks the platen arm against operation.

When a properly positioned plate is inserted to the limit of its inward movement, so that the notch a—3 comes about the stop pin 62, the end of the plate abuts the front end of the latch 70 and forces it rearwardly, thus causing the shoulder 75 to clear the plate 25 to release the platen arm, and then the operating lever 40 may be actuated to swing the platen arm upwardly to effect the printing. If, however, the plate should be inserted the wrong end foremost, the convex end thereof would strike the pin 62 before the end of the plate abutted the front end of the latch 70 and accordingly the latch would not be released and no operation of the platen could be effected.

The same result takes place if the plate is inserted wrong side up, because in this case the notch a—3, which is at one side of the axis of the plate would be distant from the pin 62 so that the plate could not be inserted sufficiently to release the latch.

It will be seen, therefore, that the device is only released for operation of the platen when a plate is inserted in the proper position for printing, and this is one of the features of the present application.

The strips 60 preferably extend forwardly of the head 10, as shown in Figs. 1, 2 and 6, to provide guides for the plate. This makes it a simple matter, when the operator holds the device in one hand grasping the handle 12 and with his fingers about the lever 40, for him to use his other hand to place the plate in this guideway and then shove it rearwardly into place beneath the head to release the latch 70. The side of one of the guide strips 60 may be bent inwardly as at 60—a to furnish friction sufficient to overcome the force of the light spring 74, so that a fully inserted plate will remain in position.

Suitable means is provided for inking the underside of the address plate. As shown, this means comprises inking ribbon 80 wound up on two spools 81. These spools lie in recesses 17 formed in opposite sides of the head 10, the forward ends of the spools being mounted on fixed pins 82 and the rear ends carried by slidable pins 86 normally pressed by springs 85 into engaging position. This enables either spool to be rotated by the knurled head of its pin 86 to bring a fresh portion of the ribbon into coaction with the plate.

The spools are normally encased by a removable sheet metal hood 90 which extends lengthwise over the head and is clamped in place by a spring controlled pin 91. The lower edges of the hood extend inwardly to act as a mask to define the printing area.

I have referred to the plate A of Fig. 4 as carrying two related legends and to the machine as being able to print either or both of them as desired. The embodiment shown in the drawings has this operation, but the same is not claimed herein but in another divisional application of mine filed contemporaneously herewith. Briefly, the mechanism shown is as follows.

Two platen bars 100 and 101 are shown as pivotally mounted on the platen arm 20, each bar carries on its upper face a rubber block adapted to coact with a printing plate, the two bars 100 and 101 rest on a pin 110 mounted in the platen arm 20 and are maintained in engagement of such pin by suitable means as, for instance, the springs 106 and 107.

The control pin 110 is formed with two flat faces diametrically opposite each other. That is to say a flat face 111, Fig. 7, which is shown as in engagement with the bar 100 and a flat face 112 which is shown as on the underside of the pin and distant from the bar 101. With the control pin in this position the bar 101 is at a sufficient elevation so that when the platen arm is operated by the lever 40 an impression will be made between the platen 105 and that portion of the embossed plate which is directly above it.

If the control pin 110 were turned 180° then the platen 104 would be raised to active position and the platen 105 released and drawn by its spring 107 to idle position. With that setting the handle 40 would print from the portion of the plate corresponding to the platen 104. If the control pin 110 were turned 90° from the position shown in Fig. 7 the cylindrical portion of the pin would engage both bars 100 and 101 and both platents 104 and 105 would effect an impression.

It will be seen that my printing machine is a comparatively small, simple device, which may be readily carried about and conveniently manipulated by the hand of the operator. The formation of the handle into the form of a pistol grip and the forming of the operating lever to be readily forced into the hollow of that grip by the fingers of the hand engaging the grip provide very convenient means for carrying the device and operating it. The operating parts are compactly arranged within the instrument itself and are carried primarily by the two main members, namely, the head frame and the platen frame. The controlling latch prevents operation by an improperly positioned plate very simply and effectively.

Such a device as herein shown and described has a wide variety of uses. For instance, in store tokens it is very convenient to carry several lines of type. For instance, it might be desired to have a man's name with his office address and his wife's name with the house address for rendering accounts at either place or for making a proper entry for delivery to the house and the bill sent to the office. In keeping track of payrolls in some operations, it is desirable to have the workmen carry a tag and present it to an attendant of certain stations. In some large hospitals each patient is supplied with a tag and imprint is made from one region thereof by the nurse on the permanent hospital record from time to time in connection with operations or medicines supplied or other items of which a

record is to be kept in association with the particular patient. These uses are cited merely as examples to indicate the variety of uses to which the device may be put.

I claim:

1. In a printing device, the combination of a frame comprising a head adapted to carry a printing plate, a handle and a connecting portion, a movable platen arm adapted to coact with the plate, a slidable latch mounted on said connecting portion and normally preventing operation of the platen arm under spring pressure, a printing plate adapted upon insertion to abut the latch and release the platen arm by constraining said spring, and means to hold the printing plate in its active position whereby the latch is maintained inactive and the platen arm released.

2. In a printing device, the combination of a frame comprising a head, a handle and a connecting portion, means for slidably supporting a printing plate on the head, a platen arm pivotally connected to the connecting portion and adapted to coact with the plate, a slidable latch under spring pressure and having a portion normally lying in the path of a portion of the platen arm, the inserted plate being adapted to abut the latch and release the platen arm by moving the latch portion out of the path of the platen arm and constraining said spring, means for establishing sufficient friction with the plate to enable it to hold the spring constrained and the platen arm released, and an operating lever for moving the platen arm.

3. The combination of a head adapted to carry a printing plate, a platen movable toward and from the head, an operating lever for causing an impressing operation, a spring-pressed latch slidably carried by the head and having a portion normally in the path of a portion of the platen and lying in the path of an inserted plate and normally preventing the operation, whereby the insertion of a proper plate in proper position operates the latch to release the normally locked parts, and means engaging the plate to hold it in latch-releasing position.

4. The combination of a head provided with fixed means for carrying a removalbe printing plate, a shank leading from the head, a pistol grip connected to the shank, a platen arm pivoted to the shank, mechanism for operating the platen arm, including a lever depending in front of the pistol grip, a latch carried by said shank and lying in the path of the inserted plate and in the path of the platen arm and normally preventing operation, a spring tending to maintain the latch in locking position, and a friction device engaging the plate and adapted to overcome the action of said spring.

5. The combination of a head formed to carry on its underside an embossed plate, a rigid shank extending rearwardly from the head, a rigid handle extending downwardly from the shank, a lever arm pivoted to the shank and carrying a platen adapted to coact with the plate, a lever pivotally mounted on the shank adjacent the handle, an operating connection between the lever and arm, a latch bar slidably mounted on the underside of the shank and spring pressed forwardly, said bar having a downward extension to normally over-hang the arm and prevent its operation, the latch bar being adapted to be abutted by an inserted plate and thereby shoved rearwardly sufficiently to release the arm by the insertion of the plate, and means to restrain the plate in its inserted position.

6. The combination of a printing head having means for holding an address plate, an address plate slidably mounted on the head and having a notch in one end, at one side of the central region of that end, a pin positioned to coact with the notch when the notched plate is positioned on the head right side up and notched-end foremost and to be out of registration with the pin when the plate is up-side-down or wrong end foremost, a movable platen, a latch normally preventing operation of the platen, said latch being adapted to be engaged and operated by a proper plate in proper position for printing, a handle carrying the parts mentioned, and an operating mechanism including a lever adjacent the handle so that the handle and lever may be grasped by one hand of the operator.

7. The combination of a head formed to carry on its underside an embossed plate, a rigid shank extending rearwardly from the head, a rigid handle extending downwardly from the shank, a lever arm pivoted to the shank and carrying a platen adapted to coact with the plate, a latch bar slidably mounted on the underside of the shank and normally overhanging the arm from the rear and engaging the arm to prevent its operation, the latch bar being adapted to be shoved rearwardly by the insertion of a properly positioned plate having a non-central notch in its forward end, a pin in the path of the notch to stop the insertion if the plate is not properly positioned, and mechanism for operating the arm having a manually engageable actuating portion adjacent the handle.

8. The combination of a head provided with guiding means for carrying on its underside a slidably removable printing plate, a shank leading rearwardly from the head, a platen arm pivoted to the shank, means for operating said arm, a latch slidably mounted on the shank and having its rear end normally engaging said arm to prevent operation thereof, a spring acting on the latch to hold it normally in locking position, whereby a proper plate properly inserted in the guiding means engages the front end of the latch to release the normally locked platen, and a frictional device to engage the edge of the inserted plate and restrain it to hold the latch in unlocking position.

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