May 10, 1960 J. H. DOHERTY ET AL 2,935,939

PRINTING DEVICE

Filed March 7, 1956 2 Sheets-Sheet 1

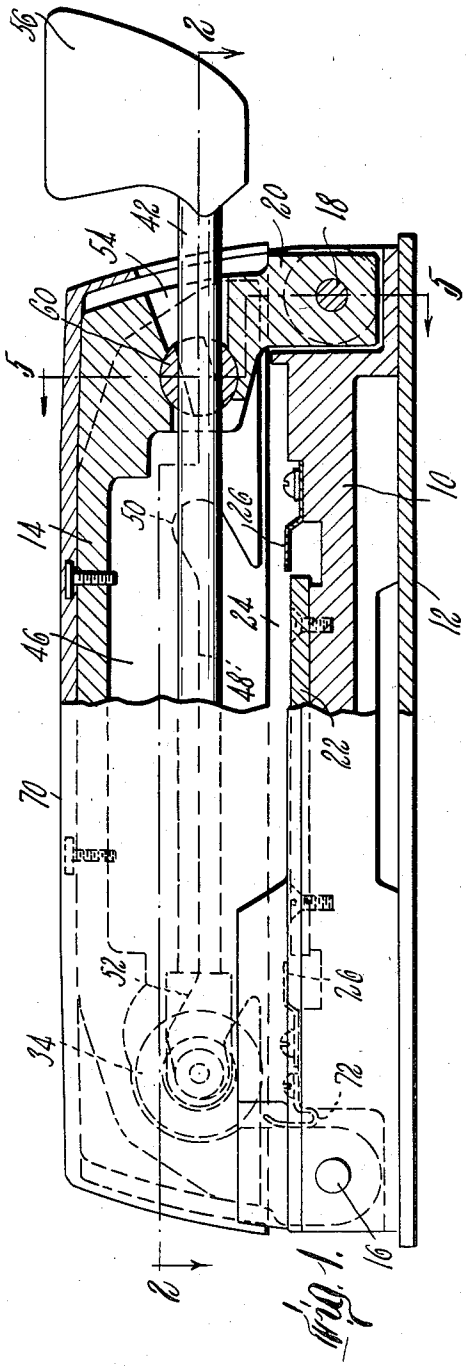


Fig. 1.

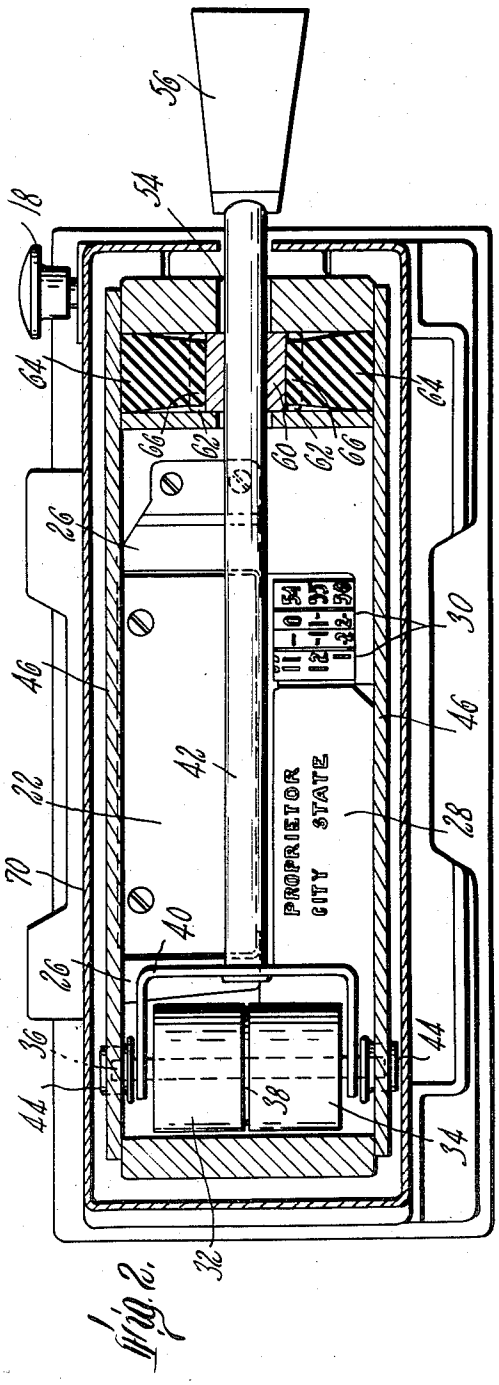



Fig. 2.

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PRINTING DEVICE

Filed March 7, 1956 2 Sheets-Sheet 2

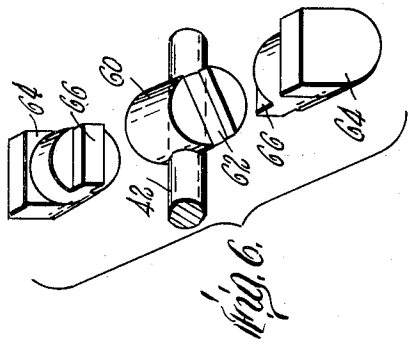



Fig. 6.

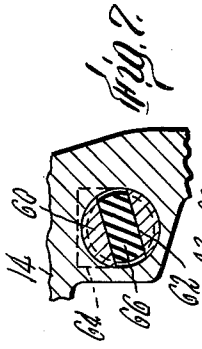



Fig. 7.

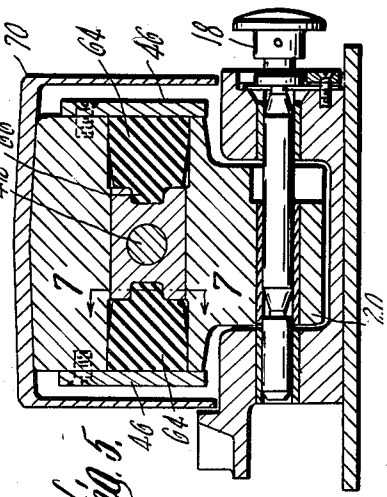



Fig. 5.

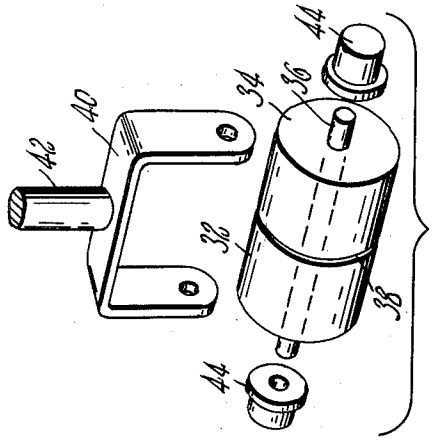



Fig. 4.

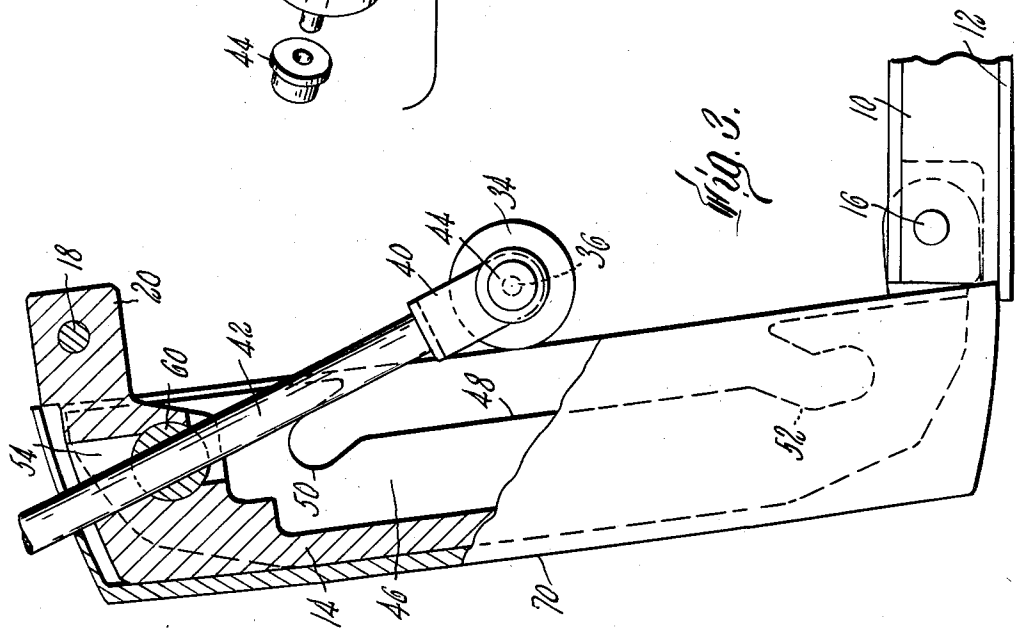



Fig. 3.

United States Patent Office 2,935,939
Patented May 10, 1960



2,935,939

# PRINTING DEVICE

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Application March 7, 1956, Serial No. 570,002

4 Claims. (Cl. 101—269)

This invention relates to a printing device and pertains more specifically to such a device of the type employing portable printing plates such as those carried by charge customers of retail outlets, such as stores, gasoline stations, and the like.

One object of the invention is to provide a device of the type described of improved and simplified construction which can readily be opened to permit access to the moving parts and removal and replacement of the printing or inking rollers.

Another object is to provide a printing device having a reciprocable printing or inking roller for pressing paper against the printing plate, the roller being readily removable and replaceable upon opening of the device.

Other and further objects will be apparent from the drawings and from the description which follows.

In the drawings:

Fig. 1 is a view in side elevation, partly broken away and in section, of one embodiment of the invention in closed or operating position;

Fig. 2 is a view in horizontal section along the line 2—2 of Fig. 1;

Fig. 3 is a view in side elevation, partly broken away and in section, showing the device in open position with the printing roller swung away from the guide means to permit replacement;

Fig. 4 is an isometric exploded view showing the construction and mounting of the printing roller;

Fig. 5 is a view in cross section taken along the line 5—5 of Fig. 1;

Fig. 6 is an isometric exploded view showing the torsion spring construction for urging the printing roller against the guide means; and

Fig. 7 is a view in section taken along line 7—7 of Fig. 5.

The device of the present invention is an improvement of that of Vogt Patent 2,606,494, issued August 12, 1952, which embodies a printing or inking roller which can be pushed or pulled manually across the face of the printing plate with the paper which it is desired to print being interposed between the roller and the printing plate.

As shown in the drawings, the device comprises a base member 10 which may be cast or molded of metal or a suitable hard plastic composition such as a thermoset resin, together with a bottom plate 12 secured to the bottom of the base member as by screws or any other suitable means. Top member 14, which similarly may be made of cast metal or plastic, extends over base member 10 and is pivotally connected thereto at one end by means of hinge pin 16 for swinging movement to and from the normally closed operating position as shown in Fig. 1 to the open position shown in Fig. 3. The ends of top member 14 and base member 10 opposite hinge 16 may be releasably secured together in closed or operating position by means of a locking pin 18 which extends through mating apertures in base member 10 and a lug 20 depending from top member 14. Mounted on base member 10 is a bed plate or seat 22 for supporting the



portable printing plate which may be inserted into position through slot 24 which opens at each side of the device between top member 14 and base member 10. Sheet metal guides 26, 26 may be mounted on base member 10 adjacent bed plate 22 to guide the portable printing plate to the desired location on bed plate 22. A second printing plate 28 bearing the name and address of the proprietor of the store or the like, which is intended to remain more or less permanently in the device, may be secured to base member 10 adjacent bed plate 22. In addition, printing wheels 30, 30 may similarly be mounted adjacent printing plate 28, these printing wheels bearing numeral characters on their periphery and being individually rotatable to provide an indication of the date.

Mounted in top member 14 for movement across printing plate 28 and the portable printing plate which is adapted to be placed on bed plate 22 is a printing or inking roller. This roller, which may be ink absorbent such as disclosed in Gilbert Patent No. 2,620,730 or in Rockoff et al. Patent No. 2,763,208, granted September 18, 1956, is arranged to press the sales slip or the like against the indicia on the printing plates and printing wheels. In the embodiment shown two printing or inking rollers are shown mounted end to end on a single shaft, of which roller 32 is of the soft, yielding construction described in said patent application and roller 34 is of the relatively hard and unyielding construction described in said patent. In employing the relatively hard roller 34, it is preferred to provide a yielding spring support for the bed plate and printing plate or printing wheels of the type shown in Vogt Patent 2,606,494, while in the case of resilient roller 32, bed plate 22 may be secured directly to base member 10, as shown in Fig. 2. When an inked roller as described above is employed, ink impressions appear on the upper face of the paper opposite the printing plate, the characters on the printing plate being non-reversed. When a non-inked roller is used, a sheet of carbon paper laid over the paper to be printed may be used, and with either type of roller carbon paper may be interleaved between multiple sheets of paper to be printed.

Rollers 32 and 34 are mounted on a single shaft 36 together with a spacer washer 38 and are free to slide endwise of the shaft. Shaft 36 is of greater length than rollers 32, 34, its ends extending outwardly and being engaged through apertures in yoke 40 which in turn is secured to draw-bar or rod 42.

Mounted on each end of shaft 36 outwardly of yoke 40 to form end trunnions are flanged cap rolls 44, 44 which may be made of a suitable wear-resistant material such as nylon. Cap rolls 44, 44 are engaged by guide or cam members 46, 46 secured to each side of top member 14, guide members 46, 46 being provided with a depressed central zone 48 together with upwardly inclined zones 50, 52 at each end thereof. When the printing roller is properly seated against guide members 46, 46 the flanges on cap rolls 44, 44 are engaged by the edges of the guide members, thus preventing endwise movement of shaft 36 and maintaining the roller assembly properly mounted in yoke 40.

Rod or draw-bar 42 extends outwardly through an aperture 54 in one end of top member 14, terminating in a handle 56. Mounted within aperture 54 is a bearing 60 through which rod 42 is free to slide, bearing 60 being provided with slots 62 at each side and being free to rotate about an axis perpendicular to rod 42 and parallel to base member 10. Secured within recesses of top member 14 at opposite sides of bearing 60 are rubber torsion springs 64, 64, each of which is provided with a rib or tang 66, 66 mating with slots 62, 62. The arrangement

of these parts, as is best shown in Fig. 6, is such that bearing 60 is normally biased in a clockwise direction so that the yoke end of rod 42 is yieldingly urged toward guide members 46, 46.

A protective dust cover or outer housing 70 may be secured over top member 14 and a spring 72 may be secured to base member 10 adjacent hinge 16 to urge top member 14 to open position when locking pin 18 is released.

In operation of the device, a suitable portable printing plate is inserted through slot 24 onto bed plate 22 with the raised indicia of the printing plate facing upwardly. A sales slip or other piece of paper to be printed is then inserted through the same slot to rest on top of the portable printing plate as well as on top of printing plate 28 and printing wheels 30,30. Handle 56 is then pulled, causing printing rollers 32, 34 to move across the printing plates, being urged downwardly against them during its traverse by means of guide members 46, 46. When the printing operation has been completed and rollers 32, 34 approach the end of their traverse, they ride upwardly into inclined portion 50, removing them from contact with the paper and printing plate which may then be removed. In the next printing operation, handle 56 is pushed, causing rollers 32, 34 to traverse in the opposite direction with the same result.

When it is desired to change the date by moving printing wheels 30, 30 or to change printing plate 28 carrying the name and address of the proprietor, locking pin 18 is withdrawn to release the right-hand end of top member 14, as seen in Figs. 1 and 2, and permitting it to be swung to open position as seen in Fig. 3. Since torsion springs 64, 64 are secured to and move with top member 14, they will still function to urge the printing rollers against guide members 46, 46 and maintain the printing rollers in proper position even when top member 14 is in open position. When rollers 32, 34 become worn or damaged or need replacement for any other reason, top member 14 is swung to open position, whereupon the rollers may be moved away from guide members 46, 46 along with yoke 40 against the pressure of torsion springs 64, 64 simply by swinging rod or draw-bar 42 in its bearing 60, as seen in Fig. 3. Cap rolls 44, 44 may then be readily removed, permitting shaft 36 to be slid endwise, releasing rolls 32, 34 from yoke 40 and permitting their relacement. After the printing rollers and cap rolls have been replaced and allowed to return into engagement with guide members 46, 46 by virtue of operation of the torsion springs, thus securing shaft 36 in place, the top member may be swung back to closed position as shown in Fig. 1 and locked by means of locking pin 18.

Although specific embodiments of the invention have been described herein, it is not intended to limit the invention solely thereto, but to include all of the obvious variations and modifications within the spirit and scope of the appended claims.

We claim:

1. Appartus for printing sales slips and the like comprising a base member forming a bed for a printing plate having raised type on its upper face, a top member extending over said base member mounted on said base member for movement to and from open and closed position, means for releasably securing together said top and base member in closed position, said top and base member when in closed position having a slot between them for insertion of sales slips and the like above said printing plate, means mounted on said top member for pressing said sales slips against said printing plate comprising a roller, means for moving said roller across said printing plate comprising a yoke carrying a shaft on which said roller is mounted, the ends of the shaft extending beyond the yoke and carrying flanged cap rolls, guide means on said top member comprising a cam having a central zone generally parallel to the upper face of said printing plate and at least one end portion inclined away from the face of said printing plate, said central zone being arranged to urge said roller against said plate as it moves thereacross, said guide means engaging said cap rolls to hold said shaft against endwise movement, said roller being removable and replaceable when the top member is in open position by moving said roller and yoke away from said guide means against the pressure of said yieldable means and sliding said shaft endwise, a draw-bar secured to said yoke and extending outwardly from an end of said top member, a bearing slidably engaging said draw-bar, and torsion spring means securing the bearing to the top member biased to turn said bearing and to swing the yoke end of the draw-bar toward the guide means and to maintain the roller resiliently pressed against the guide means throughout the extent of movement of the roller, said torsion means being operative in both open and closed position of said top member.

2. Apparatus as defined in claim 1 in which the torsion spring means comprises a member composed of elastic rubbery material.

3. Apparatus for printing sales slips and the like comprising a base member forming a bed for a printing plate having raised type on its upper face, a top member extending over said base member mounted on said base member for movement to and from open and closed position, means for releasably securing together said top and base member in closed position, said top and base member when in closed position having a slot between them for insertion of sales slips and the like above said printing plate, means mounted on said top member for pressing said sales slips against said printing plate comprising a roller mounted for reciprocating movement across said printing plate, a draw-bar connected to said roller and extending through the wall of said top member mounted for axially reciprocating movement with said roller, a bearing rotatably mounted on said top member slidably supporting said draw-bar, torsion spring means yieldingly turning said bearing in a direction to swing said draw-bar and roller away from said printing plate through said reciprocation, and guide means mounted on said top member at the opposite side of said roller from the printing plate, said guide means comprising an elongated cam member generally parallel to said draw-bar having a central zone uniformly spaced from said printing plate and at least one end portion inclined away from said printing plate for opposing and limiting the swing of said draw-bar and roller, said central zone being arranged to urge said roller against the printing plate during its travel thereacross.

4. Apparatus for printing sales slips and the like comprising a base member forming a bed for a printing plate having raised type on its upper face, a top member extending over said base member mounted on said base member for movement to and from open and closed position, means for releasably securing together said top and base member in closed position, said top and base member when in closed position having a slot between them for insertion of sales slips and the like above said printing plate, means mounted on said top member for pressing said sales slips against said printing plate comprising a roller, means for moving said roller across said printing plate comprising a draw-bar to which said roller is secured for rolling movement across said plate, guide means on said top member comprising a cam having a central zone generally parallel to the upper face of said printing plate and at least one end portion inclined away from the face of said printing plate, said central zone being arranged to urge said roller against said plate as it moves thereacross, a bearing slidably engaging said draw-bar, and spring means securing the bearing to the top member, said spring means being biased to turn said bearing and to swing toward the guide means the roller secured to the draw-bar and to maintain the roller resiliently pressed against the guide means throughout the

extent of movement of the roller, said spring means being operative in both open and closed position of said top member.

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# CERTIFICATE OF CORRECTION

Patent No. 2,935,939 May 10, 1960

John H. Doherty et al.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 4, line 40, for "through" read -- throughout --.

Signed and sealed this 15th day of November 1960.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents