May 7, 1940. H. E. SHEELER ET AL 2,199,973

PRINTING MEANS

Filed Dec. 31, 1938

FIG. 1

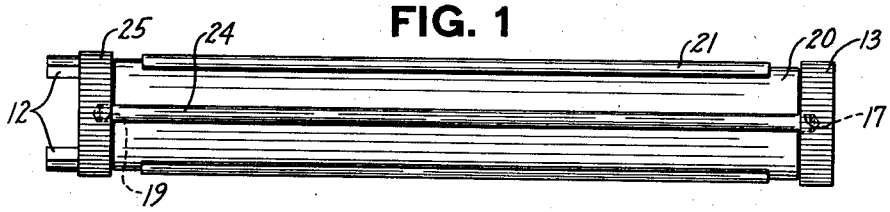


FIG. 2

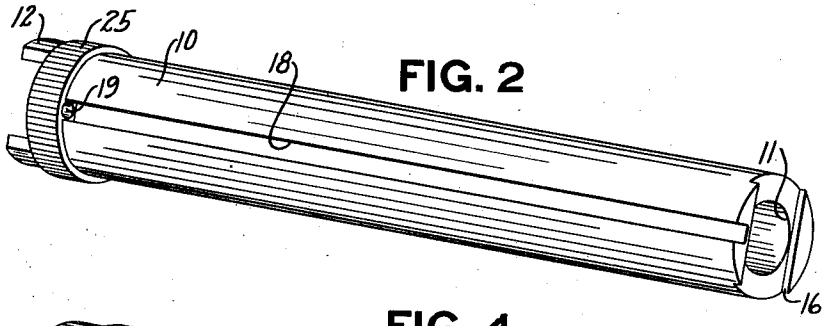


FIG. 3

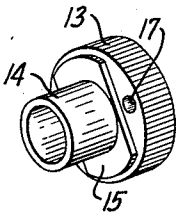


FIG. 4

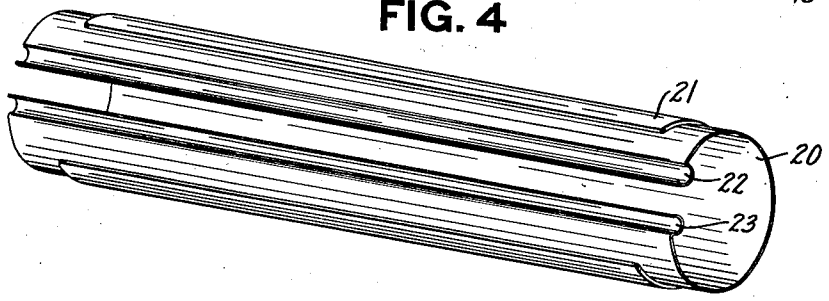


FIG. 5

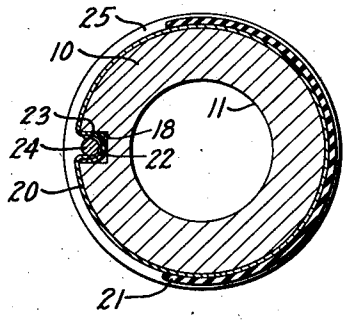
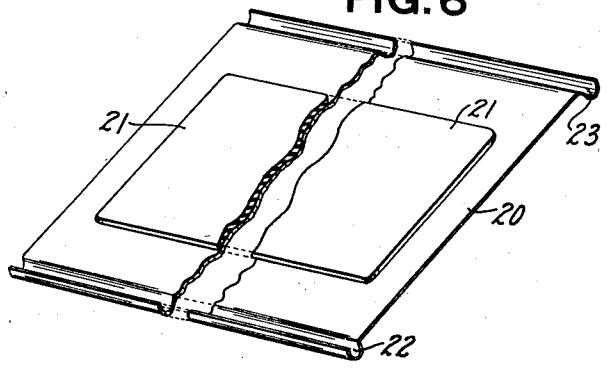


FIG. 6



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UNITED STATES PATENT OFFICE

2,199,973

PRINTING MEANS

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Application December 31, 1938, Serial No. 248,808

8 Claims. (Cl. 101—415.1)

This invention relates to improvements in printing devices for use on cash registers and similar printing machines.

One object of this invention is to provide a cash register or similar printing machine, with novel means for printing various data on record material.

Another object is the provision of novel printing means for use on cash registers and similar machines, said printing means comprising a printing element supporting part which is economical to manufacture and which is readily interchangeable with similar parts having different printing elements thereon.

Still another object is to supply novel printing means comprising a thin, easily-formed part having a printing element integral therewith for printing data on record material, said part being readily interchangeable with similar parts having different printing elements thereon.

A further object is to provide a cash register or similar printing machine with a printing device comprising a thin, easily-formed part, having a printing element integral therewith, said part also having a novel locking connection by means of which it is easily removed from or installed in the machine, said part being readily interchangeable with similar parts having different printing elements thereon.

With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims, and a preferred form or embodiment of which is hereinafter described with reference to the drawing which accompany and form a part of this specification.

In the drawing:

Fig. 1 is an assembly view of the printing roll or cylinder showing the printing element mounted thereon.

Fig. 2 is a perspective view of the main body portion of the printing cylinder or roll.

Fig. 3 is a detail view of the cap for locking the printing element in place on the printing roll.

Fig. 4 is a perspective view showing the printing element removed from the printing roll or cylinder.

Fig. 5 is a cross-sectional view of the printing roll, with the printing element assembled thereon.

Fig. 6 is a fragmentary perspective view of the printing member in its flat state before it is assembled on the printing roll for the first time.

Description

In cash registers and other printing machines which issue receipts or checks, it is usually the practice to provide such machines with printing means for printing various data of an advertising or instructive nature either upon the back or the face of the issuing receipts or checks. As it is frequently desirable to change this information from time to time, the printing media or element for printing this data should be readily removable from the machine and interchangeable with other printing elements for printing other data upon the issuing receipts or checks, or other record material.

Heretofore the method usually employed in printing such data included the use of a printing roll or cylinder, similar to that shown in Fig. 2, having electro plates, with the desired data thereon, secured to the peripheral surface thereof by means of small screws or in some similar manner. In this case, changing the electro plates, when it was desired to change the printed data, was a procedure beyond the scope of the average user and required either the services of a skilled mechanic or the replacing of the present printing roll with a new printing roll having electro plates thereon with the desired information and in either case entailing quite a bit of unnecessary expense and inconvenience to the merchant or user.

The present invention overcomes the above difficulties by providing a printing element which is economical to manufacture and one having a demountable feature, by means of which it may be readily removed from the printing roll and replaced by similar demountable printing elements having the desired data thereon.

Referring to the figures of the drawing, the present invention comprises a printing roll 10 having a boring 11 therein, which fits on a supporting shaft (not shown) in the printer section of a machine, and having integral therewith a flange 25 with two tenons 12, which fit corresponding clutch cuts in a driving member (not shown), also mounted on the supporting shaft. A cap 13 (Figs. 1 and 3) has a tenon 14 which fits snugly in the boring 11 (Fig. 2), and a tongue por-

tion 15, formed on the inside face of said cap, which fits a groove 16 in the right-hand end of the roll 10, to insure proper alinement of a hole 17, in the inside face of said cap, with the right-hand end of a groove 18 extending lengthwise of the roll 10. A hole 19, similar to the hole 17, in the flange 25, is in alinement with the left-hand end of the groove 18.

A printing element supporting member 20 is made preferably of soft thin sheet metal and has a printing element 21 adhesively applied to one face thereof in any suitable manner, such as, for example, cementing or vulcanizing. The printing element 21 has molded on the face thereof of the desired data for printing upon the record material.

The member 20 may be made and delivered to the user with the body portion thereof in a flat state, as shown in Fig. 6, opposite edges of said member having formed therein similar semi-circular edges or corrugations 22 and 23, by means of which said member is demountably attached to the printing roll 10.

In applying the member 20 and its associated printing element 21 to the roll 10, first either of the semi-circular or half-round corrugations 22 or 23 is placed in the groove 18. Next the flat portion of said member, carrying the printing element 21, is wrapped snugly around the periphery of the printing roll 10 and the remaining corrugation is then placed in the first inserted corrugation. Due to the fact that the corrugations 22 and 23 are similar in size, the last mentioned corrugation does not nest properly in the first mentioned corrugation until forced therein by a retaining rod 24, as will now be explained. One end of the retaining rod 24 is inserted in the hole 19 and said rod is then laid in the groove formed by the uppermost corrugation 22 or 23, and then forced downwardly to properly nest the corrugations together and within the groove 18, as shown best in Fig. 5. The cap 13 is then placed in position by inserting the tenon 14 in the boring 11 and the tongue 15 in the groove or recess 16 and finally slipping the hole 17 over the right-hand end of the rod 24, to secure said rod and the corrugations 22 and 23 of the printing member 20 in the groove 18. Suitable means (not shown) is provided for retaining the cap 13 in place on the printing roll 10 when said roll is properly assembled in the machine.

From the foregoing description it can be seen that it is a simple matter to change the printing member 20, as all that is necessary is to remove the cap 13 and the rod 24, disengage the corrugations 22 and 23 from each other and from the groove 18, and then slip the printing member 20 off of the printing roll 10, after which said member may be replaced by a different printing member having the desired data thereon.

After the printing member 20 has once been assembled on the printing roll 10 and removed therefrom, it assumes the form shown in Fig. 4, and thereafter may be easily reassembled upon the roll 10 whenever desired.

From the foregoing description it can be seen that it is a simple matter to change printing elements, one that can be performed by the average clerk or merchant, and as many of the inexpensive printing elements as desired may be kept on hand for interchanging upon the printing roll 10, to print the desired data upon the record material.

While not here shown, any suitable means may be employed for inking the printing element.

The flange of the cap 13 (Figs. 1, 2, and 3) is similar to the flange 25 on the left end of the printing roll 10 and each of said flanges has record material feeding teeth in the periphery thereof, which in cooperation with a combined feeding and impression roller (not shown) feeds the record material while the printing element 21 prints the desired data thereon.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form or embodiment herein disclosed, for it is susceptible of embodiment in various forms, all coming within the scope of the claims which follow.

What is claimed is:

1. In a device of the class described, the combination of a printing roll, having a groove therein; a segmental cylinder formed of thin flexible material and having a printing element integral therewith, said segmental cylinder adapted to fit the periphery of the printing roll and having lateral nesting edges adapted to fit in the groove; and means, comprising recesses in the printing roll and a retaining rod, said rod cooperating with the nesting edges and the ends of said rod projecting into the recesses of the printing roll to retain said nesting edges in the groove, to removably secure the segmental cylinder and the printing element in place on the printing roll.

2. In a device of the character described, the combination of a printing roll, having recesses and a groove therein; a flexible plate arranged to snugly fit the periphery of the printing roll, said plate having integral therewith a printing medium; corrugations in the opposite edges of the plate, either of said corrugations adapted to nest in the groove and the remaining corrugation in turn adapted to nest in the other corrugation; and a retaining member adapted to fit in said remaining corrugation and to project into the recesses in the printing roll, when said corrugations are in the groove, to removably secure said flexible plate to said printing roll.

3. An easily changed printing device comprising, a supporting roll, having a groove running lengthwise therein and a recess in a flanged portion thereof; a cap to fit one end of the printing roll, said cap having a recess in a flanged portion thereof; a flexible plate, having a resilient printing element integral therewith, said plate adapted to snugly fit the periphery of the roll; corrugations formed in the opposing edges of the plate, one of said corrugations adapted to fit in the other, the latter in turn fitting in the groove in the roll; and a retaining member adapted to fit in said one corrugation when it is in place in the groove, and opposite ends of said retaining members likewise adapted to engage the recesses in the supporting roll and the cap, to movably retain the flexible plate and the printing element in place on the printing roll.

4. An easily removable and installable printing device comprising, a supporting roll, having a central boring, a clutch cut adjacent the boring, a groove running lengthwise therein and a flanged portion with a recess therein, said recess adjacent to one end of the groove; a cap having a recess therein, a tenon adapted to fit the boring in the supporting roll and a tongue portion adapted to fit the clutch cut in said roll, to position the recess in said cap adjacent to the other end of the groove; a flexible plate, having op-

posing edges and a resilient printing element integral therewith, said plate adapted to snugly fit the periphery of the supporting roll; a corrugation formed in one of the opposing edges of the flexible plate and adapted to fit in the groove in the supporting roll; a corrugation formed in the other confronting edge of the plate and adapted to nest in the first corrugation; and a rod adapted to nest in the second corrugation and simultaneously engage the recesses in the supporting roll and the cap, to provide an easily removable means for retaining the flexible plate in place on the supporting roll.

5. In a device of the character described, the combination of a cylindrical printing roll having a lateral groove therein and a flanged portion with a recess therein adjacent to one end of the groove; a plug member adapted to fit in the cylinder, said plug member having a flanged portion similar to that on the cylinder, with a recess therein adjacent to the other end of the groove; a flexible member adapted to fit between the flanges and around the periphery of the printing roll, said member having integral therewith a resilient printing element; nesting corrugations formed in the edges of the tubular member, said corrugations adapted to fit in the groove, upon being nested together; and a retaining rod arranged to nest in one of the corrugations, one end of said rod adapted to be engaged with the recess in the flanged portion of the printing roll and the other end of said rod adapted to be engaged by the recess in the flange of the plug member, upon insertion of said plug member in the printing roll, to facilitate the removal and installation of the flexible member and its associated printing element.

6. In a device of the character described, the combination of a printing roll, having a groove therein and a flanged portion; a removable cap for the printing roll; a segmental cylinder formed of thin, flexible material, said segmental cylinder having a printing element integral with the periphery thereof; nesting surfaces formed in the confronting edges of the segmental cylinder, said nesting surfaces adapted to fit in the groove; and means including a rod adapted to fit in the groove formed by the uppermost nesting surface; and recesses in the flanged portion of the roll and the removable cap, to retain said rod in said groove in the nesting surface, to provide readily demountable means for retaining the segmental cylinder and its associated printing element in place on the printing roll.

7. In a device of the class described, the combination of a printing roll having a central boring therein, a groove running lengthwise therein and a flanged portion with a recess therein, said recess adjacent to the groove; a segmental cylinder formed of thin flexible material, said segmental cylinder having a resilient printing element adhesively applied to the periphery thereof; inter-fitting surfaces formed in the adjacent edges of the segmental cylinder, said inter-fitting surfaces adapted to fit in the groove; a retaining rod adapted to engage the recess in the flanged portion of the printing roll and one of the inter-fitting surfaces; and a cap, having a tenon adapted to fit in the boring in the printing roll and also having a recess adapted to engage the rod, when said cap is properly placed on said printing roll and when said rod is properly engaged with the other recess and said one inter-fitting surface, to secure the segmental cylinder in place on said printing roll.

8. In a printing device for cash registers, the combination of a printing roll having a groove running lengthwise therein and a flange on one end thereof with a recess therein, said recess adjacent to one end of the groove; a thin flexible part having a flat body portion with a resilient printing element adhesively applied to one face thereof, said flat body portion adapted to be wrapped around the periphery of the printing roll; similar parallel corrugations in opposite edges of the flexible part, said corrugations adapted to fit one in the other and within the groove, when the flexible part is mounted on the printing roll; a cap adapted to fit one end of the printing roll and having a flange, similar to the flange on said printing roll, with a recess therein adjacent to the other end of the groove; and a retaining rod for forcing the corrugations together and within the groove, one end of said rod adapted to be engaged with the recess in the flange of the printing roll and the other end of said rod adapted to be engaged by the recess in the flange of the cap, when said cap is properly fitted to said printing roll, to provide an easily removable means for retaining the flexible part in place on the printing roll.

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