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J. H. MORROW ET AL

2,625,701

FLUID APPLICATOR, INCLUDING MOVABLE WICK AND ROLLER

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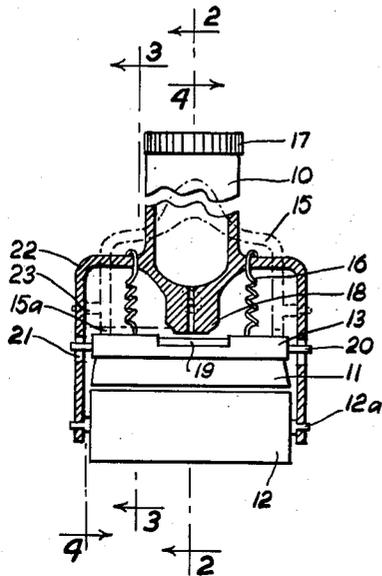


FIG. 1

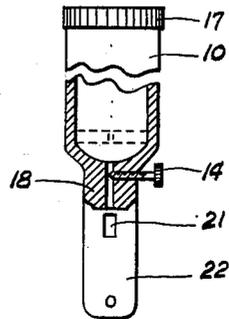


FIG. 2

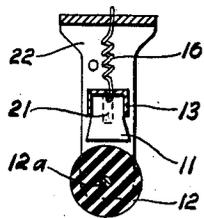


FIG. 3

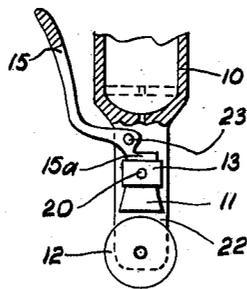


FIG. 4

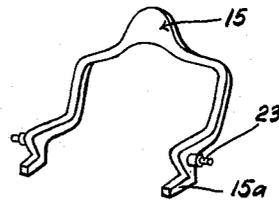


FIG. 5

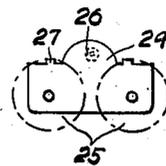


FIG. 6

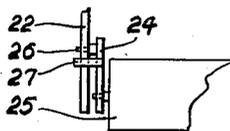


FIG. 7

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FLUID APPLICATOR, INCLUDING MOVABLE WICK AND ROLLER

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Application September 19, 1947, Serial No. 775,054

7 Claims. (Cl. 15—132.5)

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This invention relates to improvements in duplicating machines and in the process of duplicating and multiplying records. More particularly, it relates to apparatus for use in the method whereby the record is printed in reverse characters with a duplicating or dissolvable ink and reproduced therefrom as a mirror image on a clear sheet.

This application is a continuation-in-part of our now abandoned copending application Serial No. 724,054, filed January 24, 1947, for Hand Duplicator Device.

Duplicating systems of this general character have heretofore been useful in making copies of a single master whereas no suitable arrangement is available prior to our invention which permits making conveniently one or two copies of hundreds of individual masters. By our method and means a single copy can be economically and conveniently made of each of a large number of master records cards or a selected number of cards from a much larger group.

It has heretofore been desired to adapt tabulating machines to the indexing of customer cards, the labeling of packages, and the selection of cards for addressing of catalogues based upon the customer record, but prior systems have been unsatisfactory for a number of reasons. If a tabulating card of the type used in I. B. M. or Remington Rand systems (adapted to the printing of three or four-line addresses directly from the punched card) were employed for recording transactions and addressing catalogues, there remains the problem of making package labels from the same record over a prolonged period. To this end a stencil window has been cut on the record card for the making of package labels but the accumulation of stencil ink on the tabulating card precludes its continued use in card indexing and tabulating machines.

It is therefore an object of our invention to provide a system which enables one to use a tabulating card for indexing, selecting and addressing from a large group of master records and to provide simultaneously means for independently duplicating a portion of the record. Another object of our invention is to provide a novel and improved tabulating card adapted to include means for preparing labels independently of the selecting, indexing and tabulating system. A further object is to provide apparatus for reproducing a portion of the record appearing on the tabulating card. A more detailed object is to provide a novel and improved combination moistening and pressuring device adapted to deposit a uni-

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form and a balanced film of ink solvent upon a base surface. An additional object is to provide a method and means for intermittently applying a fluid to a pressuring roller upon each manipulation of the device.

The above and other objects of our invention will become apparent from the following description taken with the accompanying drawings in which:

Figure 1 is a side view partly in section (and with some parts removed) showing the general assembly of our device;

Figure 2 is a partial sectional view taken along the line 2—2 in Figure 1 with some parts removed;

Figure 3 is a sectional view taken along the line 3—3 in Figure 1;

Figure 4 is a partial view partly in section taken along the line 4—4 of Figure 1;

Figure 5 illustrates the details of one element of the apparatus shown in Figures 1 and 4; and

Figures 6 and 7 are fragmentary end and top views, respectively, of a dual roller assembly which may be substituted for the roller illustrated in Figure 1.

In brief we have attained the objects of our invention by providing a tabulating index card with a key punched address and a visual address. The typing of the address can be made by an electro-matic Hektowriter which sets up the key punch simultaneously with the typing of the record and after the record has been typed the same card can be inserted into the key punch and the punch bar tripped. This simple operation produces the tabulated index card containing the customer's address, both punched and typed, the typed address being in positive characters in permanent ink and in reverse or negative characters in soluble ink.

In addition to the above the tabulating index card includes a record of customer transactions which may be recorded by hand-punching the card. The visual address is set up on one side of the card in permanent ink and on the other in reverse characters in soluble ink. These visual addresses provide means for identification and also provide means for reproducing the addresses as package labels or the like. The catalog labels, however, are printed by the tabulating machine by holes punched in the card and the selection of the card is made mechanically by the tabulating machine based upon the customer's punched sales record. At the time the card is withdrawn for recording the customer's transaction, the package label is produced by the liquid duplicating process from the soluble ink impression carried by the

card and the hand duplicator shown in the drawings and described herein may be used.

Broadly, the device comprises a base portion such as a chamber or barrel 10 containing the duplicating fluid, a wick 11, and a roller 12, which is mounted so as to be moistened by fluid from the wick 11. The roller 12 may be of any suitable material, and may, for example, be made of hard rubber. The wick 11 is held by retainer 13 and is movable with respect to the roller 12. A control valve 14 is adapted to meter the flow of fluid from the chamber 10 onto the wick 11. A thumb piece 15 is provided to retract the wick means.

In operation the device is run over the work piece with the lever 15 depressed. In this way the moist wick 11 is held in contact with the roller means which transfers the fluid to the clear sheet. Springs 16 withdraw the wick 11 upon release of the thumb piece 15 and inasmuch as the duplicating fluid quickly evaporates, the roller is dry on the return motion over the work piece.

Thus, it will be apparent that when the wick 11 is in the retracted position it cannot moisten the roller 12 with the fluid and the device can therefore be passed over the work piece to apply pressure thereover without mutilating the master.

The hand duplicator involves simple hand operations after it has been filled with the duplicating fluid or ink solvent; (1) the hand duplicator is rolled over the clear surface such as a label, thereby moistening the surface sufficiently with a solvent for duplicating ink; (2) the master or index card to be duplicated (i. e., reverse characters printed in duplicating ink) is placed in contact with the moistened surface; and (3) the roller is drawn over the master with a backward or reverse motion to effect a transfer of the characters from the master or card to the moistened clear surface.

Referring to the drawings in detail, the barrel 10, provided with a threaded cap 17, serves as a reservoir and handle. The fluid is metered from the barrel 10 by needle valve 14 and normally, the valve will be adjusted to control the flow of the fluid onto the capillary wick means 11. However, the valve may also be used to shut off completely the flow of fluid, as for example during storage of the apparatus. The controlled quantity of fluid flows from the valved throat 18 of the chamber 10 onto the wick means 11. The wick 11 is supported by retainer 13 which has an opening 19 opposite the throat 18 to permit the flow of fluid onto the wick. On either end of the retainer 13 are guide pins 20 adapted to move within slots 21 in the supporting arms or extension means 22.

Tension springs 16 may be provided for normally urging the wick retainer 13 toward throat 18 and in this position, the wick is out of contact with the roller 12 which is mounted at the lower end of the roller support 22 on shaft 12a. Thumb piece or pivoted lever means 15 is provided for the purpose of controllably forcing the moist wick into contact with the surface of the roller means 12. This thumb piece 15 comprises a yoke having cam-like elements 15a together with pins 23 which are rotatably mounted in support arms 22. When the thumb piece 15 is pressed toward the barrel 10, the cam-like elements 15a rotate about the pins 23 and force the wick retainer 13 downwardly against the action of springs 16 and into contact with the roller 12.

Figures 1 through 4 illustrate the use of a single roller for the application of the fluid. It

is also contemplated that multiple rollers may be used. Thus, in Figures 6 and 7 is illustrated a roller mount 24 which may be carried on the roller supports 22 by pins 26 in place of the single roller 12. The hanger 24 in turn supports a pair of rollers 25 which are so spaced as to be moistened by the wick 13 when it is moved between the rollers by depressing the thumb piece 15. The stop means 27 permit limited motion of the hanger 24 and rollers 25 about pins 26 with respect to the support 22 and reservoir 10. In general, however, the operation of this modification with the multiple rollers is the same as described in connection with Figures 1 to 5 employing a single roller.

Although preferred embodiments of our invention are illustrated in the attached drawings, it will be understood by those skilled in this art that modifications and variations may be made in the illustrated embodiment without departing from the spirit of this invention as defined by the appended claims.

What we claim is:

1. An apparatus for use in the spirit duplicating process and comprising in combination an elongated fluid reservoir adapted for use as the handle of the apparatus, a discharge port for said reservoir, cylindrical roller means supported by a longitudinal extension of said reservoir, a capillary wick means between said discharge port and said roller means, pin slot means slidably supporting said wick means in said extension, and dual coil spring means positioned between a transverse portion of said extension and the wick means and secured at their ends to the extension and to said wick means to retract the wick means from the surface of the roller means.

2. An apparatus for use in the spirit duplicating process and comprising in combination an elongated fluid reservoir adapted for manipulating the apparatus, a discharge port in one end of said reservoir, a support means extending longitudinally from said one end of said reservoir, a roller means mounted in said support means transverse to the longitudinal axis of said reservoir, a wick means movable between said port and said roller means, slots in said support means between said roller means and said reservoir, pin means on said wick means engaging said slots, spring means normally urging said wick means out of contact with said roller means and across said port, and pivoted lever means carried by said support means for urging said wick means into contact with said roller means.

3. An apparatus for use in applying a film of a volatile liquid in a spirit duplicating operation which comprises an elongated chamber providing a reservoir for the volatile liquid adapted to serve as the handle of the apparatus, a discharge port at one end of said chamber, a bifurcated extension of said chamber, guide means in said extension, a capillary wick means slidably mounted in said guide means, dual springs acting on said wick means to hold said wick means across said port, a roller means carried between the stems of said bifurcated extension, and lever means pivoted to said extension and having a free end in contact with said wick means, whereby said wick means may be brought into contact with said roller means in opposition to the action of said spring means.

4. The apparatus of claim 3 wherein the roller means includes a pair of pivoted hanger means, a pair of spaced parallel rollers carried by said hanger means, and stop means between said

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hanger means and said stems for limiting the rotation of said hanger means about an axis parallel to the axes of said rollers.

5. An apparatus for use in a spirit duplicating process comprising in combination an elongated fluid reservoir base portion adapted to be grasped in the hand for manipulating the apparatus, a discharge port in one end of said reservoir, a transverse cylindrical roller means supported longitudinally of the said one end of said reservoir, said roller means being adapted to function alternately as a fluid applicator and as a pressuring roller means, a wick means disposed between said roller means and said port means, coil spring means normally urging said wick means and said cylindrical roller means out of contact, and bifurcated lever means pivoted to extension means of said base portion for selectively bringing said wick means and roller means into contact.

6. The apparatus of claim 5 wherein said

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spring means acts on said wick means to move said wick means relative to both said roller means and said port means.

7. The apparatus of claim 5 wherein said transverse cylindrical roller means is pivoted to said extension means of said base portion and said roller means comprises a pair of rollers.

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