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DUPLICATING AND AFFIXING METHOD

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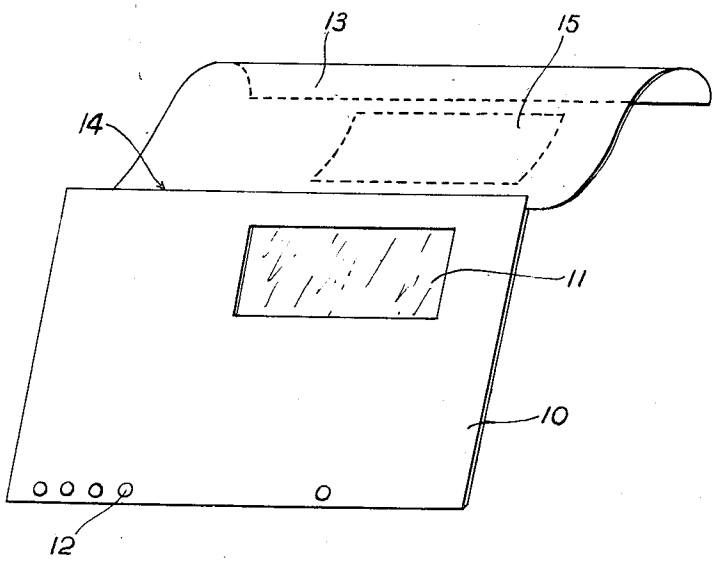



FIG. 1

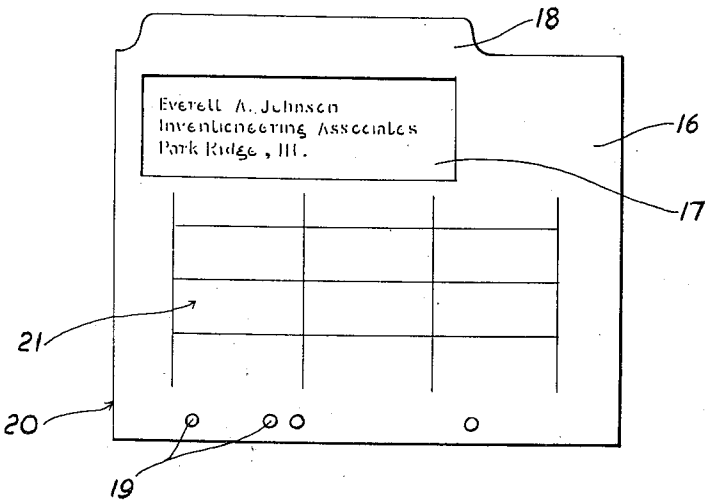



FIG. 2

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2,783,910

# DUPLICATING AND AFFIXING METHOD

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8 Claims. (Cl. 216—62)

This invention relates to improvements in duplicating and multiplying records. More particularly the invention relates to a system wherein a record is made in reverse characters with a duplicating or dissolvable ink and reproduced therefrom as a mirror image on a clear surface.

It has been desired to adapt tabulating machines or key sorting systems to the indexing of customer record cards, the labeling of packages and the selection of cards for addressing of catalogs based upon the customer record, but prior systems have been of limited utility for a number of reasons. If a punched tabulating card was employed for recording transactions and addressing catalogs, there remained the problems of affixing individual package labels and of applying the addresses to the individual package labels from the same record over a prolonged period. A stencil window on the record card might be used for the making of package labels but the messy accumulation of stencil ink on the tabulation card precludes its continued use in card indexing and tabulating machines. Furthermore, such a system also required a separately typed address for identification, i. e., one on the stencil and one on the card proper because the inked stencil is not legible.

It is, therefore, an object of my 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 my invention is to provide a novel and improved tabulating card adapted to include means for reproducing a record independently of the selecting, indexing and tabulating system. An additional object is to provide a visual record on a tabulating or sortable card adapted to be duplicated without mutilating the visual or punched records.

A further object is to provide a method and means for conveniently interlineating, adding, or superposing characters and the like on run-off copy of a master. Another object is to provide a method and means for simultaneously applying a record to a gummed sheet and moistening the sheet for fixing to a base surface. An additional object is to provide a novel base sheet or label adapted to be fixed to a package or the like.

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

Figure 1 is a perspective view of one form of index card according to my invention; and

Figure 2 is a plan view of another modification of my invention.

Briefly, in my invention an apparatus is used which comprises a fluid reservoir, means for discharging fluid from said reservoir, a roller, means for movably mounting a roller adjacent the reservoir, wick means communicating with said discharge means and adapted to deposit a uniform film of solvent fluid on the roller and means for imparting relative movement between said roller and



said wick. This device is portable and particularly adaptable for making transfers from small, relatively rigid masters to any clear surface. Thus, the device is adapted for use where only one or a few copies of a multiplicity of small masters such as index cards, are to be made at frequent intervals. Moreover, the apparatus is unique in its class, it being of such proportions that it is readily portable and can be used on odd shapes and on surfaces ordinarily inaccessible to prior duplicating devices. Suitable fluids include methanol-acetone mixtures, light naphtha, chlorofluoromethanes and ethanes, such as trichloromonofluoromethane, and similar volatile fluids which are solvents for duplicating ink.

According to my invention the tabulating index card includes means for recording customer transactions which may be recorded by typing, writing or hand-punching the card. The card is preferably of stock used in controlling business machines. The visual identification may be set up on one side of the master in positive permanent ink characters and in reverse soluble ink characters on the other. In the preferred embodiment, a transparent area is provided within which the record is written in duplicating ink reverse script, and being on a transparent area the record is readily viewed as a positive character. Also bench marks or reference lines on the base sheet can be clearly viewed for orienting the record or indicia to be transferred. These visual records and indicia provide means for identification and also provide means for reproducing the addresses or other record on package labels, invoices or the like. At any time the card is withdrawn from the file, the address can be reproduced by the liquid duplicating process from the soluble ink impression carried by the index card by the aid of the hand duplicator.

The tabulating index card with a key-punched record and a visual address can be made by an electrically operated typewriter which sets up the key punch simultaneously with the typing of the record. The tabulating index card contains the customer's address, both key punched and typed, the typed address being in reverse or negative characters in soluble ink in the transparent area. It is contemplated that a conventional typewriter can be modified to reverse the direction of the carriage and the script on the type heads reversed so that a duplicating ink ribbon can be used to apply the mirror script directly. It should be understood, however, that the invention is not limited to any mechanical means for producing the master record.

As outlined above, one embodiment of my device comprises a fluid reservoir, a wick, a roller and means for movably mounting the roller and wick so that the roller can be moistened selectively by fluid from the wick. The reservoir may be unitary with the roller mounting or detachable therefrom. When operating the device, it is held to the work piece or clear surface, the arrangement of elements enabling the operator to pass a selectively moistened roller thereover. Thus, the hand duplicator involves simple hand operations after the reservoir has been filled with the duplicating fluid or ink solvent: (1) the apparatus is rolled over the clear surface with the wick in contact with the roller thereby moistening the surface of the roller which in turn transfers moisture to the surface of the clear sheet; (2) the master to be duplicated (i. e., reverse characters printed in duplicating ink on the transparent master) is placed in contact with the moistened surface; and (3) the roller is drawn over the master with the roller out of contact with the wick whereby the transfer of the ink characters to the moistened clear surface is effected. Inasmuch as the duplicating fluid evaporates quickly from the roller, it is dry when passed over the master.

My method of duplicating punched record addresses

comprises forming a soluble ink master in mirror script on a window in an index card whereby said characters can be read as positive characters when viewed through said window. Limited moisture is applied in a uniform film by capillary flow on a roller to the upper face of a base sheet. The soluble characters carried by the transparent window are oriented with reference to bench marks on said base sheet and the oriented record is transferred to the base sheet.

Referring to the drawing, Figure 1 illustrates a form of an index card adapted for use in accordance with my system. Basically the index card comprises a blank **10** having a window **11** glazed with a durable transparent material which is impermeable to the transfer fluid and resistant to cutting by type. The illustrated embodiment also includes punch marks or perforations **12** for sorting, but longhand records may also be entered upon the blank **10**. Referring to the window **11**, soluble ink characters are placed on the remote surface so that characters are positive when viewed through the window. One way to apply the mirror script soluble characters is by means of a duplicating ink carbon paper. This may be carried by a flexible or tissue sheet such as flap **13** shown attached to the blank **10** along the edge **14**. Thus, a patch **15** of carbon paper can be removably carried by the index blank, the active surface being disposed across the window **11**. Hence, when the address or other record is imprinted over the window, the corresponding mirror script character is applied to the underside of the window **11** and a transparent master is thereby produced. Although such transparent master has been described in connection with an index card, it may be independent thereof. Thus, I contemplate a transparent master which may be used for example in correcting copies or adding characters to copies made from other and incomplete or incorrect masters. For this purpose a pencil-like modification of the fluid applicator may be provided for applying narrow swaths of fluid film on the clear sheet.

Figure 2 illustrates another embodiment of my invention wherein the card **16** having window **17** is provided with a tab **18**, punched record **19** and space for visually recording transactions at **21**. It is contemplated that the surface of the window to receive the soluble ink impressions may be gelatin-treated. If desired, the card **16** may carry a source of duplicating ink, such as a patch of duplicating carbon paper, removably fixed thereto and adapted to be placed over the back of the window **17** during the typing of the record. Such source of duplicating or soluble ink can for example be carried by a removable sheet fixed to edge **20** of the card.

The transparent area may comprise an insert of cellophane, polyethylene, or other transparent material resistant to ink solvents. Preferably it is tough and resistant to cutting by typewriter type and remains fluid-impermeable in use. Alternatively, the blank and window may be integral, the window comprising a processed portion of the blank. It is also contemplated that the window surface may be coated with an insoluble material which takes the duplicating ink characters more readily than some glossy materials. A suitable material is a thin coating of a gelatin conventionally employed in connection with duplicating systems of this general character.

My invention has been described with reference to the direct application of a record to a clear or base surface. It is also contemplated, however, that the system may be used for the dual purpose of applying a label to a base and of adding characters to such label. To effect this, the adhesive on the pre-coated label is soluble in the fluid which is also a solvent for the duplicating ink characters on the master. Thus, if an alcohol-acetone mixture is used, the paper label may be pre-coated with an adhesive such as shellac, which is soluble in alcohol-acetone. Then when the label is moisten according to my invention, the adhesive becomes tacky and the label adheres to the base surface. Simultaneously or successively the ink characters are transferred to the label as described hereinabove.



Thus, to simultaneously address and apply a label I dispose an adhesive-coated label on a base surface and moisten the clear surface of the label with a volatile solvent for the adhesive. A transparent sheet carrying soluble characters in mirror script is disposed on the moistened label which may have an orientation or bench mark for aligning the characters to be transferred. Likewise a bench mark on the transparent sheet can be brought in register with a bench mark on the base sheet. Pressure is then applied over the transparent sheet whereby the label is fixed to the base surface and the record is transferred to the label.

Another use for my invention is in conjunction with an amusement device. More specifically, mirror script characters may be printed in duplicating ink, the color of which matches the color of the master sheet. Then only upon reproducing the unknown character will the operator discover the nature of the character.

This application is a continuation-in-part of my co-pending application Serial No. 779,328, filed October 11, 1947, now abandoned.

From the above description, it is apparent that I have attained the objects of my invention and have provided a novel master copy sheet and novel method of keeping and reproducing records. It should be understood, however, that modifications may be made in the illustrated and described embodiments by those skilled in the art without departing from the spirit of my invention as defined by the appended claims.

What I claim is:

1. The method of addressing and applying labels which comprises disposing an adhesive-coated label on a base surface, moistening said label on the clear surface thereof with a volatile solvent for said adhesive, disposing on said moistened label a transparent sheet carrying soluble characters in mirror script so that the characters are positive when viewed therethrough, and applying uniform pressure over said transparent sheet whereby the label is fixed to the base surface and the record is transferred to the label.

2. The method of affixing an adhesive-coated sheet and transferring a record thereto which comprises disposing such sheet on a base surface with the coating in contact with the base, moistening said sheet on the upper clear surface thereof with a volatile solvent for said adhesive, superposing on said moistened sheet a transparent hectograph master carrying a record in mirror script so that the record appears positive when viewed through said master, and applying pressure over said master and sheet whereby the sheet is fixed to the base surface and the record is transferred to the sheet.

3. The method of affixing an adhesive-coated porous sheet to a base surface and transferring a soluble ink record to said sheet which comprises disposing such sheet on a base surface with the coating in contact with said base, moistening the clear surface of said porous sheet with a volatile mutual solvent for said ink and adhesive coating, superposing on said moistened sheet a hectograph master carrying a record in mirror script, and applying pressure over said master and sheet whereby the sheet is fixed to the base surface and the record is transferred to the sheet.

4. The system of sealing and applying indicia to fluid-permeable base sheet which comprises positioning an adhesive-coated base sheet on a base surface with the coated side in contact with the base surface, applying a solvent liquid to the uncoated surface of the base sheet, aligning a mirror script soluble ink transparent master copy on said base sheet, applying pressure over

said base sheet, and simultaneously transferring indicia from the said mirror script soluble ink master copy to said uncoated surface of the base sheet and sealing the base sheet to the base surface.

5. The system of claim 4 wherein the base sheet is a sealable envelope flap.

6. The system of claim 4 wherein the base sheet is a label blank with a bench mark thereon.

7. The system of claim 4 wherein the mirror script ink transparent master copy comprises a transparent window in an opaque card, said mirror script being viewable in positive script when said copy is aligned on said base sheet.

8. The method of affixing a fluid-permeable sheet to a base surface and of transferring soluble ink indicia to said sheet from a fluid-impervious transparent master which comprises the steps of disposing such sheet over such base surface with an adhesive layer therebetween, applying to the exposed surface of said sheet a volatile mutual solvent for said adhesive layer and for said ink, disposing said fluid-impervious transparent master on said permeable sheet, and applying pressure over said master, sheet, and layer, whereby the said permeable sheet is fixed to said base surface by said adhesive layer and the soluble ink indicia are transferred to the said permeable sheet.



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