Nov. 24, 1964 W. C. HARRIS ETAL 3,158,094

RECIPROCATING MARKING STAMP WITH REMOVABLE PRINTING ELEMENT

Filed March 27, 1963

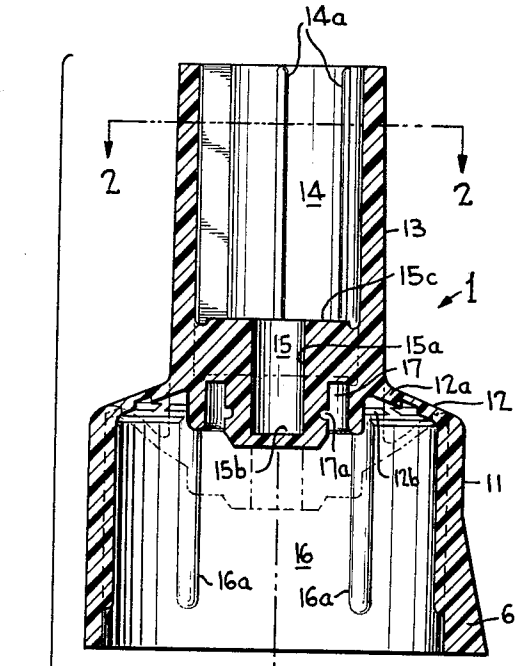


FIG. 1

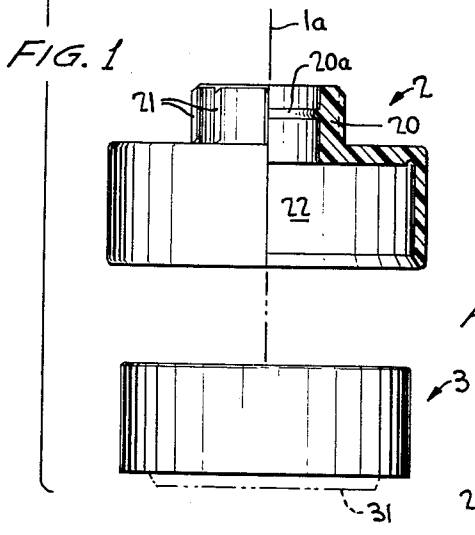


FIG. 2

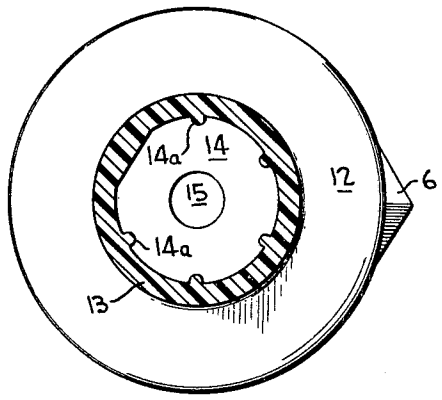


FIG. 3

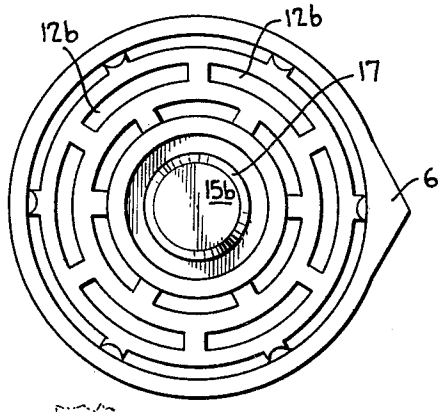


FIG. 4

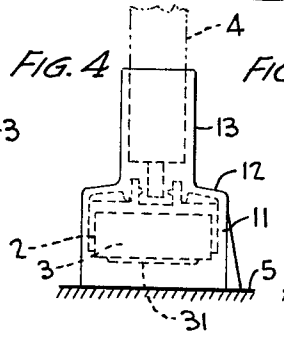
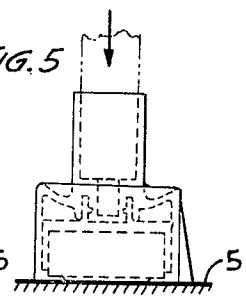


FIG. 5



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RECIPROCATING MARKING STAMP WITH REMOVABLE PRINTING ELEMENT

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5 Claims. (Cl. 101—327)

This invention relates to a novel marking device. More particularly, the invention provides a marking stamp having a retractable marking surface, which is extremely simple in construction, inexpensive to produce and completely free of mechanically moving parts. The device, having a minimum number of components, is easily molded from plastic or light metal.

In the prior art, a large number of stamping devices have been suggested to fulfill the needs of the supermarkets, etc. where a great number of articles are identically marked at one time. The more commonly employed devices comprise a replaceable handle for attachment to any one of a number of suitably inscribed stamps. In operation, the handle is attached to a particular stamp, the articles to be marked suitably inscribed, and thereafter, the handle removed and attached to other stamps as needed.

The aforesaid devices, while fulfilling a definite need, are not applicable in operations where one stamp carrying a designated number, letter or combination of letters and numbers, is to be used over and over again at spaced intervals, as for example, where an inspector of materials affixes his designated number or letter to each piece of goods after it has been inspected. Preferably, if not necessarily, devices suitable for the above type of operation must be small, compact and have a retractable marking surface to avoid having the inked surface come in contact with a working surface, leaving unwanted marks, ink smudges, etc. The available devices meeting this requirement comprise a number of components, are expensive and require a mechanical operation, thereby enhancing the chances of failure of the device.

Accordingly, it is an object of the instant invention to provide a marking stamp which is compact and easily interchanged upon a common handle, permitting the convenient marking of a large number of articles.

It is another object of the instant invention to provide a marking stamp which is simple in construction, but possesses a retractable marking surface.

It is still another object of the invention to provide a retractable hand stamp which comprises a minimum number of parts and is completely free of mechanically moving parts.

It is still another object of the instant invention to provide a retractable hand stamp which can be conveniently attached to a pencil.

These and other objects will become more fully apparent from the following detailed description with particular emphasis being placed upon the drawing.

In general, the objects of the instant invention are accomplished by constructing a marking stamp comprising as essential components: (*a*) an ink retaining pad suitably inscribed on one surface, (*b*) a small cup for receiving the ink retaining pad and (*c*) a larger cup having a shank which is adapted to receive a suitable handle, such as a pencil or similar device. The smaller cup, after being fixedly secured to the ink retaining pad, is mounted within the larger cup. The larger cup, composed of plastic or light metal, possesses a flexible shoulder immediately adjacent the handle receiving shank. When the shank is depressed by means of force applied to the handle, the shoulder flexes downwardly bringing the smaller cup carrying the inscribed ink retaining material into contact with the surface to be marked, leaving

an imprint. When the force on the handle is released, the shank returns to its original position, retracting the small cup and inscribed ink retaining material within the larger cup. The design permits a minimum number of components in the marking stamp, simplifying construction ond reducing costs.

In the accompanying drawing, forming a material part of this application and wherein like numerals are employed to designate like parts throughout the specification:

FIGURE 1 is an exploded front view of the stamping mechanism, partly in cross-section, the handle not being shown;

FIGURE 2 is a cross-sectional top view taken along lines 2—2 of FIGURE 1;

FIGURE 3 is a view looking into cup 1 along vertical line 1*a* of FIGURE 1;

FIGURE 4 is a side elevation of the complete marking device in the retracted position, the internal components being shown in broken lines; and

FIGURE 5 is a side elevation of the device of FIGURE 4 in a depressed position.

More specifically, referring to FIGURE 1, **1** defines the large cup and shank and **2** defines the smaller cup for receiving the inscribed ink retaining pad **3**. Cup and shank **1** comprises cupped portion **11**, having flexible shoulder portion **12** joining shank portion **13**. Shank **13** has a hollow bore **14** for receiving a suitable handle, preferably a pencil. The bore contains a series of vertical ribs **14***a*, seen more clearly in FIGURE 2, to maintain snug contact between the shank and handle. In the embodiment shown in the drawing, a bore of smaller diameter **15**, having walls **15***a* and base **15***b*, meets larger bore **14**. The handle will rest on shoulder **15***c*. As is apparent, it is not completely necessary to have small bore **15** in the structure. However, bore **15** simplifies molding operations and provides improved flexibility.

The smaller cup **2** is received by opening **16** of cup portion **11**. Cup portion **11** contains vertical ribs **16***a* to help position smaller cup **2** within the larger cup. In the drawing, cup **2** is held in locking engagement with cup and shank **1** by annular channels **17**, which receives collar **20** of cup **2**. Collar **20** has an annular ridge **20***a* which engages annular channel **17***a*. Proper positioning of cup **2** in annular channel **17** is enhanced by means of splines **21** on collar **20**. The above arrangement securely locks smaller cup **2** into the larger cup and shank **1**.

Ink retaining pad **3**, suitably inscribed at surface **31**, is fixedly secured into opening **22** of cup **2** with an adhesive or other suitable means. Although pad **3** can be formed of any ink retaining material such as felt or microporous rubber, it is preferred that the pad be constructed from a never-inking plastic such as Porlon, trademark of S. C. Johnson & Son, Inc. Porlon is a microporous, thermoplasic synthetic resin composition. Thus, the Porlon pad is formed by combining a resin such as polyvinyl chloride with a plasticizer or stabilizer to form a paste or plastisol. Thereafter, the inking material, as well as a vehicle therefor, are added to the paste or plastisol and thoroughly mixed. The mixture is poured into a suitable stamp mold and heated at a temperature in the range of from about 250–350° for a period of from about 10–30 minutes. The resultant structure is a microreticulated material having the inking fluid permanently retained. Thus, the ink cannot be removed by immersing in water or other solvent. However, a light pressure contacting the stamp with the surface to be marked will leave an imprint. A stamp pad formed in this manner can make up to about 50,000 impressions before the ink is exhausted. The above materials are more completely described in Harry R. Leeds U.S. Patent Nos. 2,777,824 and 3,055,297.

In construction of the novel stamps, components 1 and 2 are molded from plastic or metal in a simple operation. Thus, plastic such as polyethylene or polypropylene are eminently suitable for cup and shank 1. It has been found, however, that a more solvent resistant plastic material such as the polycarbonate resins are particularly suitable for cup 2, since the polycarbonate resins are not detrimentally affected by inks or solvents which may be contained in the ink retaining pad. As is apparent, a light metal can be employed in place of the plastic. However, plastic is preferred due to cost consideration.

Although it is not strictly necessary, to prolong the life of the unit, it is desirable to increase the thickness of the plastic or metal shoulder at 12*a*. Thus, the enlarged radius will permit a greater number of flexings without having the shank tear away from the shoulder. Moreover, to provide superior flexibility, it is preferred that shoulder portion 12 contain a re-enforcing rib-like network 12*b*, as shown clearly in FIGURE 3. As is apparent, excellent flexing of the shoulder is obtained without substantially weakening the component.

The operation of the stamping device is illustrated in FIGURE 1 and FIGURES 4 and 5 by means of the broken lines. Thus, a pencil or other suitable handle 4 is positioned in splined shaft 13. In the retracted or reposed position, ink pad 3 and cup 2 are completely withdrawn into cup 11. However, when downward pressure is applied to the handle, the shoulder portion 12 flexes, causing the inscribed surface of the ink pad 31 to contact the work surface 5, leaving an imprint. When the pressure on the handle is released, the shoulder and shank assume their natural position, withdrawing the ink pad from the work surface. To simplify the positioning of the stamp on the surfaces to be marked, pointer 6 can advantageously be molded on cup portion 11.

As is apparent, the instant marking device is extremely simple in construction, as well as in operation. The design can be employed in sets containing a multiplicity of stamps for use with a common handle, i.e. for use in a supermarket, or it can be used where the same inscription is to be applied to a work surface at spaced intervals. Since the marking surface is completely retracted when pressure is not being exerted on the handle, the unit can be placed in a shirt pocket, etc. in the same manner as a pencil and eraser without danger of damage to the shirt. In the preferred embodiment employing a Porlon pad, it is not necessary to have the sometimes messy inking pad for inking the stamp.

As is apparent, therefore, the presently disclosed device has many applications and it should be appreciated that while only the preferred embodiment has been described, the invention is not restricted thereto. Modifications will be apparent to one skilled in the art, which come within the scope of the appended claims.

We claim:

1. A retractable stamping device comprising an integral unit having a first cup and shank, said first cup comprising a body portion and a depressible shoulder portion connected to said shank, said shoulder and shank together forming the top of said first cup, said first cup and shank each having an opening with said openings being in opposite directions, a second unit associated with said first cup comprising a second cup opening in the same direction as said first cup having a smaller diameter and shorter height than said first cup and containing an ink retaining material fixedly secured therein, and means for locking said second cup into said first cup and shank, said first cup, shank, and second cup having the same vertical axis, whereby said ink retaining material and second cup are contained completely within said first cup when in a reposed position and in contact with a working surface when said shank and shoulder are depressed.

2. The stamping device of claim 1 wherein the first cup and shank unit contains an annular channel in locking engagement with a collar on said second cup.

3. The stamping device of claim 2 wherein the first cup and shank and the second cup are plastic.

4. The stamping device of claim 2 wherein the ink retaining material is a microporous microreticulated structure, having an internal ink supply.

5. A retractable stamping device comprising an integral unit having a first cup and shank, said first cup comprising a body portion of larger diameter than said shank, having vertical ribs covering substantially the entire height of said body portion and a re-enforced depressible shoulder portion connected to said shank, said shoulder and shank forming the top of said first cup, said shank having a hollow bore opening in a direction opposite the opening in the first cup, said bore containing internal ribs for holding said handle in snug contact with the shank, said first cup and shank having annular channels, a second unit associated with said first cup comprising a second cup opening in the same direction as said first cup and having a smaller diameter and shorter height than said first cup and containing a never-inking microporous microreticulated ink pad fixedly secured therein, said second cup having a collar with a series of vertical splines and an annular ridge, said splines and annularly ridged collar being held in locking engagement with said annular channels of said first cup and shank, said first cup, shank, and second cup having the said vertical axis, whereby said ink retaining pad is contained completely within said first cup when in a reposed position, and in contact with a working surface when said shank and shoulder are depressed.

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ROBERT E. PULFREY, *Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,158,094 November 24, 1964

William C. Harris et al.

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

Column 2, lines 53, 54 and 55, and column 3, line 46, for "Porlon", each occurrence, read -- Porelon --; column 3, line 18 and column 4, line 26, for "re-enforcing", each occurrence, read -- reinforcing --.

Signed and sealed this 13th day of April 1965.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents