(No Model.)

J. L. WELLS & D. A. COBB.

DEVICE FOR RETAINING AND APPLYING LIQUIDS.

No. 416,659. Patented Dec. 3, 1889.

Fig. 1.

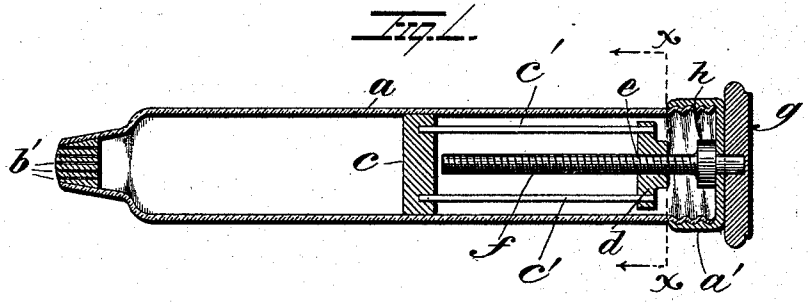
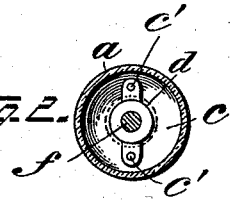


Fig. 2.



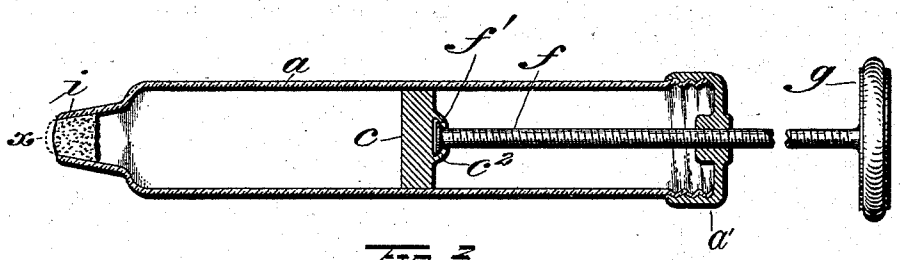
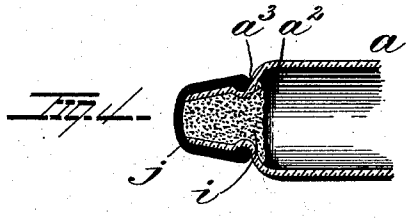


Fig. 3.

Fig. 4.



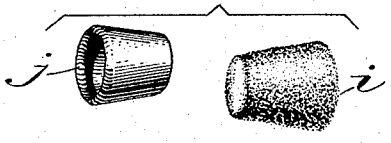


Fig. 5.

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UNITED STATES PATENT OFFICE.

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DEVICE FOR RETAINING AND APPLYING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 416,659, dated December 3, 1889.

Application filed July 16, 1889. Serial No. 317,727. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH L. WELLS and DEWEY A. COBB, citizens of the United States, residing, respectively, at Avalon, in the county of Cape May and State of New Jersey, and in the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Devices for Retaining and Applying Liquids, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a longitudinal section through one form of the device. Fig. 2 is a full transverse section, as on line *x x*, Fig. 1. Fig. 3 is a longitudinal section through a modification. Fig. 4 is a section through the exit-nozzle, showing felt and cap securing means. Fig. 5 shows the cap and felt detached from the nozzle.

The nature of this invention is a receptacle for containing a liquid or pasty material, such as mucilage, mixed paints, &c., with means for gradually forcing small or predetermined quantities out of a suitable exit in the receptacle, the modicum of liquid or paste being retained by cohesion at or slightly beyond the exit-opening, and may be readily and conveniently applied by taking the vessel in the hand and rubbing, as by brushing, upon the desired surface or object.

The invention consists, primarily, of a receptacle, preferably of tubular form, having a tight-fitting piston adapted to work by means of a rod passing through a cap upon one end of the cylinder, and having a milled head for rotating said rod, together with a foraminous exit-opening at the opposite end of the receptacle, whereby any liquid or paste placed within the cylinder in advance of the piston may be caused to exude through the foraminous exit in small quantity, and the mass projects slightly beyond the exit, where it is retained by the cohesion, and whereby the liquid or paste may be then applied as desired.

The invention consists, also, in certain features and details that will be hereinafter described and particularly claimed.

Referring to the annexed drawings, wherein Fig. 1 shows the preferred form of the device, *a* is a hollow cylindrical vessel, usually as a convenient size—say five inches long and one inch in diameter—made of sheet metal or other suitable material, screw-threaded at the upper or larger end, and contracted, as shown, at the lower or exit end. The latter is provided with a series of minute holes *b*.

c is a piston, preferably of india-rubber, which is fixed to the ends of rods *c'*, (two in the present instance,) the other ends of which rods are secured to a head *d* with a central threaded bore *e*, through which passes a threaded rod *f*. This rod extends beyond a screw-cap *a'*, screwed onto the top of the cylinder, and is provided with a milled head *g*, preferably projecting circumferentially from the cap. A boss *h* is fastened to the threaded rod just inside of the cap.

The operation of and mode of using the device are as follows: The cap *a'* is removed and the piston and its adjuncts withdrawn from the cylinder. The liquid or paste is inserted within the latter, and the piston, &c., replaced. When desired to force through the foraminous exit a quantity of the liquid or paste, the milled head *g* is rotated in the proper direction, which obviously forces the piston-head in or down the required distance. The substance within the cylinder is thus caused to exude through the pores, and is retained by cohesion around and extending beyond the exit, as indicated by the curved dotted line *x*. In order to spread the substance on the desired surface, the cylinder is taken in the hand and the exit end is applied, as by a brush, and thus a small quantity of the same need be used, and a thin and even coating may be made.

The device is useful for applying paints and pasty cosmetics, and is especially valuable for applying mucilage.

Vessels or bottles containing mucilage and having a sponge secured within and projecting beyond the mouth of the vessel have been used, the mucilage exuding through the sponge when the vessel is inverted, and the mucilage applied by means of the sponge. The defect, however, in that device is that

the gum hardens within and upon the sponge, and thus closes the pores, requiring that the vessel shall be kept inverted a considerable time before the mucilage within will liquefy that on the sponge. With our device the mucilage may be forced through the sponge.

We have mentioned that the exit end of the receptacle is foraminous. This may be a series of small holes or perforations, or it may consist of a piece of felt *i* or other suitable porous material secured just within the exit end of the cylinder. This felt, &c., when used is preferably in the form of a truncated cone. (See Fig. 5.) It is inserted at the upper or larger end of the cylinder, and is forced into the nozzle. As a means to prevent the felt from being forced from the cylinder, we sometimes provide the nozzle with an internal ring or bead a^2, against which abuts the enlarged inner end of the felt, as clearly shown in Fig. 4. The external circumferential groove a^3, arising from the formation of the bead, provides a means whereby a protective rubber cap *j* may be detachably secured over the nozzle. When forced over the latter, the edge of the cap will spring into the groove, and thus the cap be held in place. To remove said cap, it is merely forcibly withdrawn from the nozzle. This cap, when applied, excludes air from the cylinder and at the same time prevents exudation of the contents.

In Fig. 3 we show a modification of the device. It differs from Fig. 1 only in that the piston-head is attached to the screw-rod *f* (by means of a head *f'* on the end retained by a perforated boss c^2 on the piston-head) and the rod works in a threaded hole in the cap *a'*—that is to say, in this construction the rod works in and out of the cylinder, instead of always within the same, as in the previously-described construction.

We are aware of the fact that hypodermic syringes have been made with a screw-rod and piston similar to Fig. 3, but with the usual elongated nozzle or tube through which the liquid is forced. We do not, therefore, claim this construction as new when such elongated tube or nozzle is used as a part of the same.

Having thus described our invention, we claim as new and wish to secure by Letters Patent—

1. In a device for retaining and applying liquids or pastes, the combination of the receptacle provided with the nozzle, the piston, the screw-rod operatively connected thereto and provided with the head, the detachable supporting-cap, and the porous material—such as felt—confined within said nozzle, so that the outer end of said material will be practically flush with the end of the nozzle, substantially as and for the purpose described.

2. The liquid or paste retaining and applying device consisting of the combination of the cylinder or receptacle having the exit-opening, the perforated head or cap on the end of said cylinder, the piston, and the threaded rod adjustably connected with the piston and provided with the rotating head and the retaining-boss, substantially as described.

3. The liquid or paste retaining and applying device consisting of the combination of the cylinder or receptacle having the exit-opening, the piston, the threaded head, the rods connecting said piston and head, the cap *a'*, secured to the top of the cylinder, the retaining-boss *h*, and the head secured to the end of said rod for rotating the latter, substantially as described.

4. In a device of the class recited, the combination of the receptacle provided at its exit end with the internal bead and the external groove, the porous material, and the detachable rubber protective cap, the piston, the screw-rod provided with the head, and the detachable supporting-cap, substantially as described.

In testimony whereof we have hereunto affixed our signatures this 28th day of June, A. D. 1889.

JOSEPH L. WELLS.
DEWEY A. COBB.

Witnesses:
GEO. W. REED,
JOHN NOLAN.