Nov. 14, 1961 L. D. THOMPSON 3,008,172

SHOE POLISH APPLICATOR

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Fig. 1

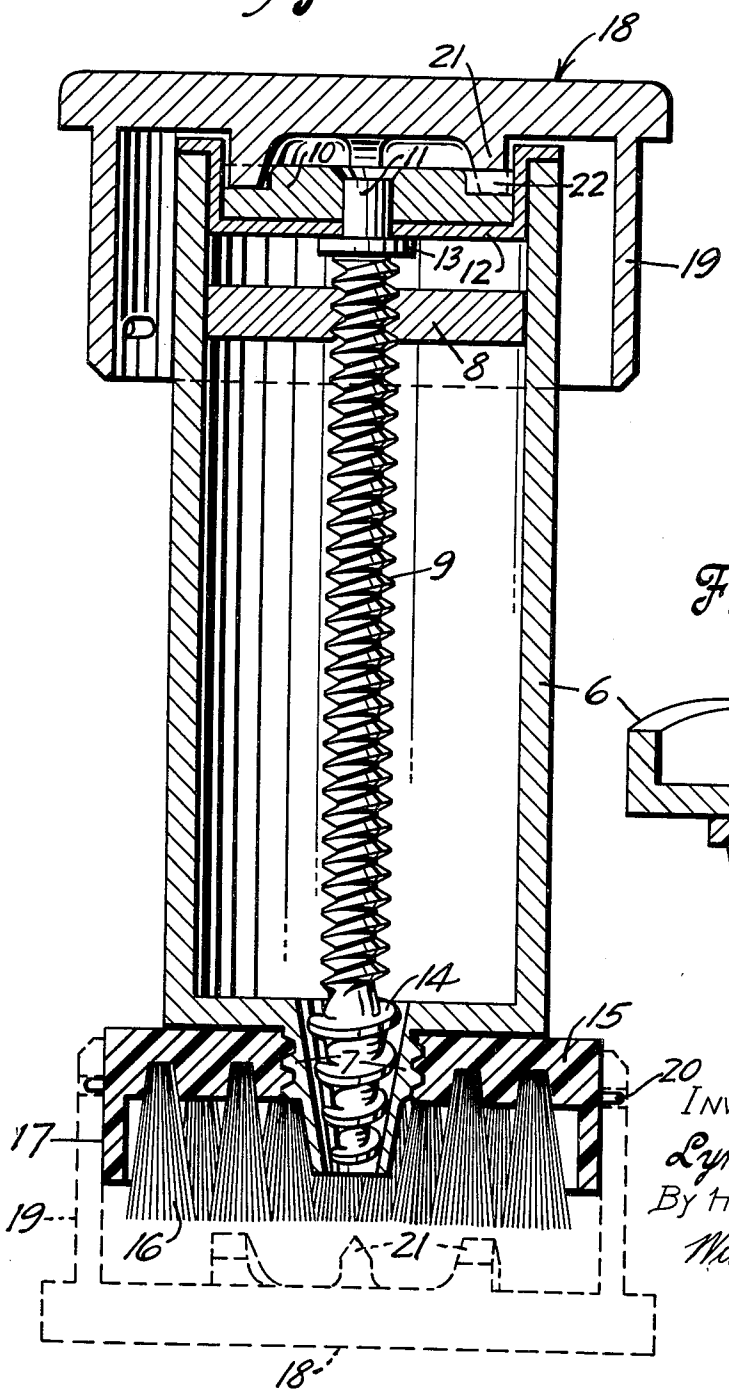

Fig. 2

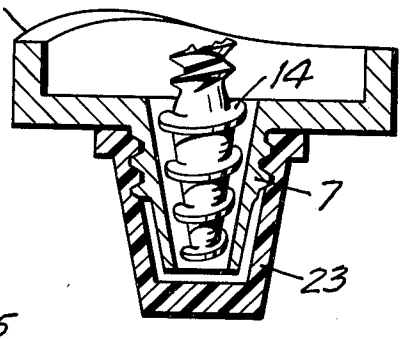

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Fig 3

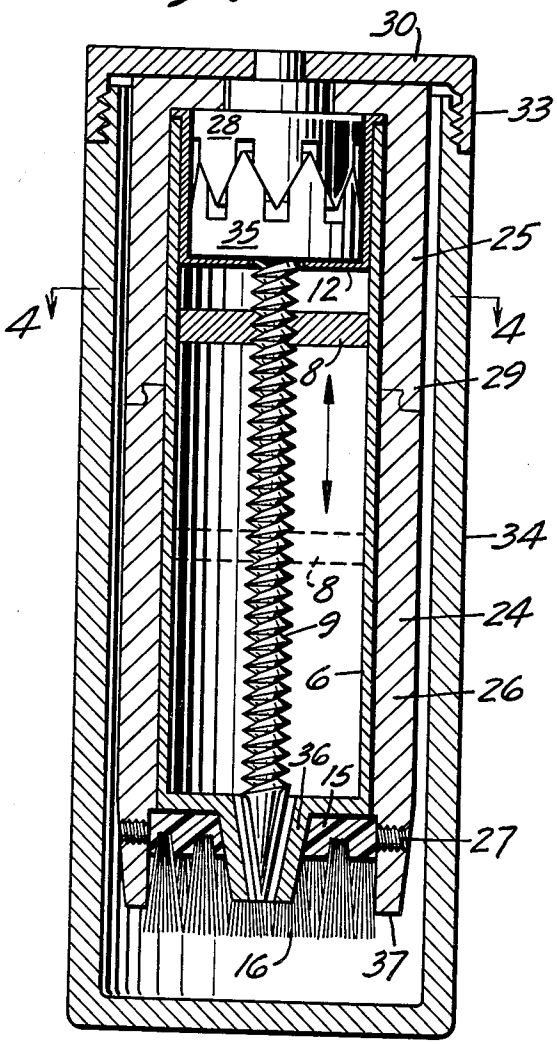


Fig 4

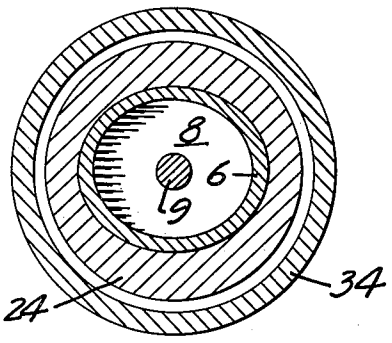
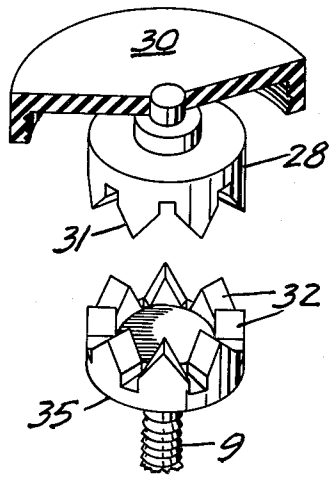


Fig 5



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SHOE POLISH APPLICATOR

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3 Claims. (Cl. 15—547)

This invention relates to a fountain brush particularly suitable for use as a shoe polish applicator. Shoe polish of the paste wax variety is commonly applied to the surface of leather goods such as shoes by means of a brush, rag or fingertips which have been dipped into an open can or container of paste wax. This method is disadvantageous because it is messy, inconvenient, soils the hands and involves the disposition of soiled rags and the storing of brushes having wax thereon, and is additionally disadvantageous because the repeated opening of the container of shoe polish tends to dry out the wax making it progressively less suitable for use.

Also, where a brush is employed, there is normally no convenient means provided for storing and sealing the brush to prevent the bristles from becoming hard and unmanageable due to the drying of wax thereon between uses thereof.

An object of my invention is a fountain brush type shoe polish applicator in which the handle of the brush serves as a reservoir for the paste wax and has screw operated piston means for extruding the polish from the reservoir to the bristle tips in measured quantities and hermetically seals the polish and bristles when not in use to prevent drying thereof, thereby maintaining the polish and bristles in soft pliable condition throughout long periods of usage.

Another object is an applicator of the class described which is particularly adapted for use with a disposable polish containing cartridge which is adapted for easy assembly therewith.

Still another object is an applicator of the class described having conveyor means for delivering the polish from the reservoir to the bristles in uniform measured quantities as well as means for retaining the polish in the bristle portion of the applicator and preventing messy spill over of the polish on the sides of the applicator.

A further object is an applicator of the class described in which the extruding piston and operating screw may be permanently hermetically sealed in the cartridge and disposed of therewith.

A still further object is an applicator of the class described in which the means for hermetically sealing the bristles when not in use may function as the operating mechanism for the screw motivated extruding piston when in use.

A more specific object of my invention is a shoe polish applicator of the class described in which the disposable cartridge is detachably united with the bristle portion thereof to serve as a disposable handle and polish reservoir therefor.

These and other objects and advantages of my invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like reference characters refer to the same or similar parts throughout the several views, and in which:

FIG. 1 is a vertical sectional view of one form of application of my invention;

FIG. 2 is a fragmentary vertical section of the lower portion of the disposable cartridge of FIG. 1 equipped with a removable sealing cap;

FIG. 3 is a vertical sectional view of another applicator of my invention;

FIG. 4 is a cross section of FIG. 3 along the line 4—4; and

FIG. 5 is an exploded view of the piston screw activating mechanism illustrated in FIG. 3.

Referring to the embodiment of my invention shown in FIGS. 1 and 2, the handle of the applicator and reservoir for the shoe polish consists of a hollow disposable elongate body or cartridge 6 having a polish extruding aperture in the bottom thereof defined by the exteriorly threaded tapered nozzle 7 and having mounted and enclosed therein a polish extrusion mechanism comprising a coaxially disposed longitudinally movable extrusion member such as piston 8 whose peripheral edge circumferentially engages the interior wall of the cartridge and a piston motivating member such as the elongate screw 9 which is threadably engaged with the piston 8 coaxially thereof and is turned by means of a screw activator such as clutch plate 10 which is fastened to the butt 11 of the screw and rests on a shallow dish-like supporting and sealing member such as housing 12 which is inserted into the upper opening end of the cartridge in close fitting relation thereto and sealingly and fixedly secured thereto.

A washer 13 assists in sealing the screw butt receiving aperture in the housing 12. The lower end of the screw 9 is provided with a worm gear conveyor 14 which is inserted into and enclosed within the nozzle 7 and serves to deliver the extruded polish from the cartridge in uniform uninterrupted quantities. To prevent rotation of the piston 8 in the cartridge, the cartridge and piston may be of elliptical or oval cross section, as shown in FIG. 4, or some other means such as a cooperating key and keyway may be provided.

The brush portion of the applicator consisting of a bristle holding ring 15, bristles 16 fixedly mounted thereon, and an annular polish retaining lip 17 are detachably secured to the cartridge as by means of an interiorly threaded aperture in the holding ring 15, which threadably engages the nozzle 7. The annular retaining lip 17 extends downwardly sufficiently to form a recessed portion below the holding ring which recess surrounds and encloses the major portion of the bristles, permitting only a minor portion of the bristles to extend therebeyond. The nozzle 7 is adapted to project into the recess far enough to deliver the polish to the bristle tips, rather than to the base of the bristles.

An operating and sealing cap, indicated generally by 18 is provided which performs the dual functions of hermetically sealing the bristles and lower portion of the cartridge when the applicator is not in use and serving as the operating cap when means for turning the screw 9 when polish is to be applied. The cap is provided with an annular wall 19 which fits over the retaining lip 17 in close fitting relationship therewith to hermetically seal the bristles and cartridge when not in use, as best shown by the dotted lines of FIG. 1, and is removably secured thereto as by means of lugs 20 which engage bayonet type apertures provided in the wall 19.

When functioning as the means for turning the screw 9, to extrude polish from the cartridge, the cap 18 is removed from sealing engagement with the brush portion and is rotatably mounted on the top of the cartridge, so as to enclose it, with the gear teeth 21 projecting from the innerface of the cap engaging suitable recesses 22 provided in the upper surface of the clutch plate 10.

In operation, the cap 18 is removed from sealing engagement with the brush portion and mounted in operative engagement with the clutch plate 10. By turning the cap 18, screw 9 is caused to turn or rotate through the medium of clutch plate 10. The piston 8, being non-rotatable, is caused to move or slide downwardly in the cartridge chamber in response to the turning of the screw, and presses against the polish contained therein, forcing it out of the cartridge through the nozzled aperture 7.

The spiral worm gear **14**, which turns or rotates simultaneously with the screw **9** conveys the polish forced into the nozzle through the nozzle to the bristle tips in uniform uninterrupted quantities. Because the nozzle terminates just below the surface of the bristle tips, the polish is ready for application upon leaving the nozzle, and does not have to ooze up from the base of the bristles as would be the case if the nozzle terminated near the base of the bristles. This arrangement also permits only the right amount of polish needed to be extruded and delivered to the bristles, and substantially reduces the amount of polish which would otherwise accumulate around the base of the bristles and be wasted. It is, of course, inevitable that small portions of the polish will be worked backwardly towards the base of the bristles and accumulate there, this amount of polish slowly increasing with each use of the applicator. However, this portion of the polish which backs up to the base of this bristles is successfully retained therein by means of a retaining lip **17** which prevents the polish spilling over the sides of the applicator and soiling the hands. The worm gear not only delivers the polish uniformly and in measured quantities to the bristle tips, but also prevents any mass reaction by the polish which might occur to prevent or make difficult the passage of the polish through the nozzle, and also eliminates the possibility of the polish being delivered in spurts or gushes, which frequently occurs when no conveyor mechanism such as the worm gear is provided.

When the desired amount of polish has been applied to the leather surface to be polished, the operating cap is removed from engagement with the clutch plate and remounted in sealing engagement with the brush portion, as previously described.

FIG. 2 shows the cartridge provided with a threaded sealing cap **23** which may be employed to hermetically seal the contents of the cartridge prior to its being attached to the brush portion for use.

Still another form of my invention is illustrated by FIGS. 3, 4, and 5. In this particular embodiment, the disposable cartridge **6** containing the polish and extruding piston **8**, piston screw **9**, clutch plate **35** and sealing and mounting frame **12**, and provided with an extrusion nozzle **36** which receives and encloses a conical wax agitating element carried and rotated by the screw member **9** and corresponding to the element **14** of FIG. 1 with the spiral worm removed therefrom, and said nozzle, is inserted into an elongate annular handle or sleeve **24** having upper portion **25** and lower portion **26** detachably connected as at **29** to permit the cartridge to be readily inserted into and removed from the sleeve. The tapered nozzle **36** is inserted through and engages a suitable cooperative tapered aperture in the bristle holding ring **15** which is inserted into and encloses the lower end of the sleeve **24** and is held in place as by set screws **27**, the lower leading edge of the sleeve providing an annular polish retaining lip **37** similar to the retaining lip **17** previously described in conjunction with the form shown in FIG. 1.

The upper portion **25** of the sleeve has mounted thereon a rotatable gear mechanism **28** attached to and rotated by the rotatable operating cap **30**, the gear mechanism **28** having downwardly projecting teeth **31** adapted to cooperatively engage the gear teeth **32** of the rotatable clutch plate **35** to turn the piston screw **9**.

The operating cap is provided with a threaded overhanging flange **33** which is adapted to threadedly engage the wall of the sealing container **34**, into which the applicator is inserted when not in use to hermetically seal the bristles and cartridge. In the form shown, the piston and cartridge and interior bore of the sleeve or handle are elliptical in cross section, as best shown in FIG. 4, to prevent relative rotation between the piston and the cartridge in between the cartridge and the handle. However, it should be understood that I do not

limit my invention to this elliptical configuration and include as part of my invention any suitable means for preventing relative rotation movement between the pistons and the cartridge, and between the cartridge and the handle.

In operation, a fresh cartridge filled with shoe polish is inserted in the handle and the applicator is assembled as shown in FIG. 3. The applicator is removed from the container **34**, and the operating cap is turned, causing the piston **8** to press against the polish contained in the cartridge and force it out of the cartridge through the nozzle into the bristle tips. When the polish has been applied, the applicator is reinserted in the container **34** to hermetically seal the bristles and the polish remaining in the cartridge.

From the foregoing description, it can readily be seen that I have provided a novel fountain brush type shoe polish applicator which is composed of readily assembled and disassembled component parts, which may be individually replaced when worn out or emptied without the expense of replacing the entire unit. This is particularly true of the disposable cartridge which may readily be replaced when emptied, and the brush portion which may be replaced when the bristles become worn or unmanageable. In addition, the polish is delivered to the bristle tips in steady uniform quantity, any excess polish is retained in the bristle area and prevents it from spilling over to cause soiling of the hands, the polish and bristles are hermetically sealed when not in use to maintain them in self-pliable condition, and the polish is substantially hermetically sealed even during application of the polish by the particular structure of my invention.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What is claimed is:

1. A fountain brush for dispensing and applying shoe wax and the like comprising a hollow container body having an aperture brush structure detachably mounted thereon, a nozzle member extending through the aperture of the brush structure providing a communicating passage between the interior of the body member and the bristles in an area adjacent to the tips thereof, a piston enclosed within the body member adapted to extrude the contents therefrom and having a screw type piston rod cooperatively engaged therewith for motivating said piston, means enclosing the upper end of the body member and hermetically sealing the contents therein, a spiral conveyor connected to the screw member and turnable therewith and disposed in said nozzle and adapted to carry the extruded contents from the body member through the nozzle to the bristles, and an annular retaining wall adapted to confine the extruded polish to the bristles, and a cap member adapted to detachably engage and turn the screw member in use and for detachable mounting on the container brush assembly to enclose the brush bristles and hermetically seal the brush structure when not in use.

2. A shoe polish dispenser comprising an elongate disposable annular cartridge suitable for use as a reservoir for shoe polish and the like and readily adaptable for grasping, said cartridge being provided with an axially disposed nozzle member at one end thereof, a bristle mounting member having an axial aperture therein adapted to receive and seat in cooperative engagement with the nozzle member of said cartridge, means detachably connecting the bristle holding member to said cartridge member, a polish extruding piston whose periphery is adapted to engage the interior surface of said cartridge so as to press against the shoe polish contained therein and extrude the same therefrom, and an elongated screw member threadably engaged with said piston member, the rotation of said screw member forcing the piston member against the polish contained in said cartridge, mechanism adapted to rotate said elongate screw member

and a cap member adapted for removable mounting on the cartridge brush assembly to enclose the brush bristles to hermetically seal said bristles when not in use, said member being also adaptable for detachable connection to said mechanism for use as the activating member for said piston screw mechanism to extrude the polish from the cartridge and dispense same to the bristles of the brush.

3. In a shoe polish applicator, a disposable tubular polish containing body member, a brush structure adapted for mounting on the lower end of said member for receiving polish therefrom, means hermetically sealed within said body member together with said polish at the point of manufacture for extruding the polish therefrom including a rotatable screw member and a polish extruding piston element motivated by said screw member, screw turning means connected to said screw member adjacent the upper end of said body member and located outside said hermetically sealed portion and a cap member adapted to removably and cooperatively engage said screw turning means to turn the rotatable screw member to

extrude polish from said member to the brush and further adapted to be disengaged from said screw turning means and removably mounted on the lower end portion of the body member-brush assembly to enclose the bristles of the brush and hermetically seal the brush structure when not in use.

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