May 3, 1960 J. D. BERGSTROM 2,934,775

POWER OPERATED SHOE CARE DEVICE

Filed April 23, 1956 2 Sheets-Sheet 1

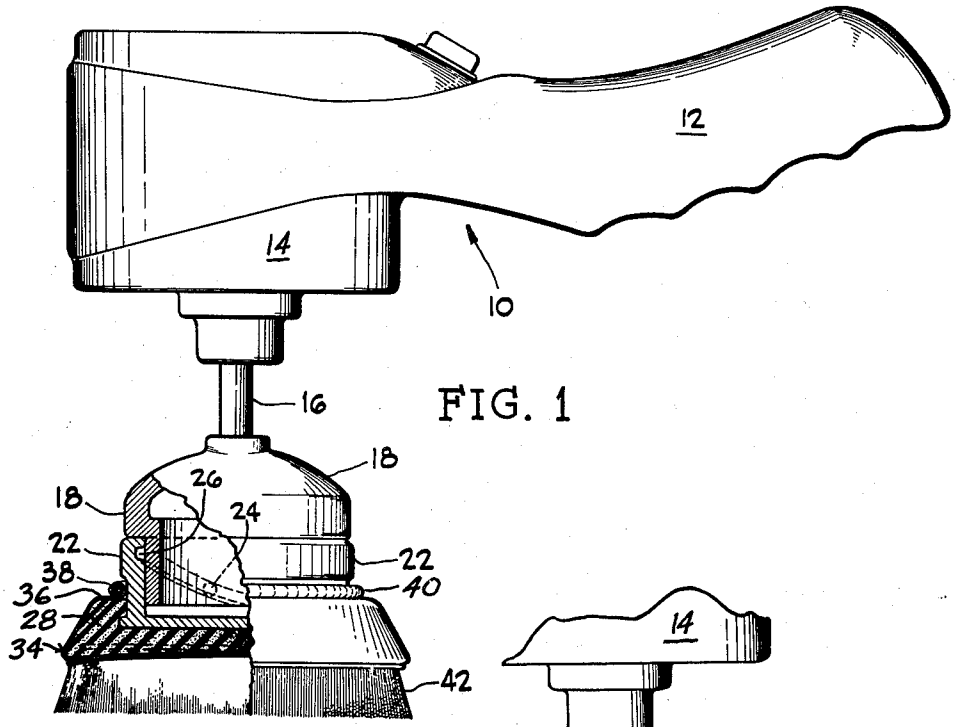

FIG. 1

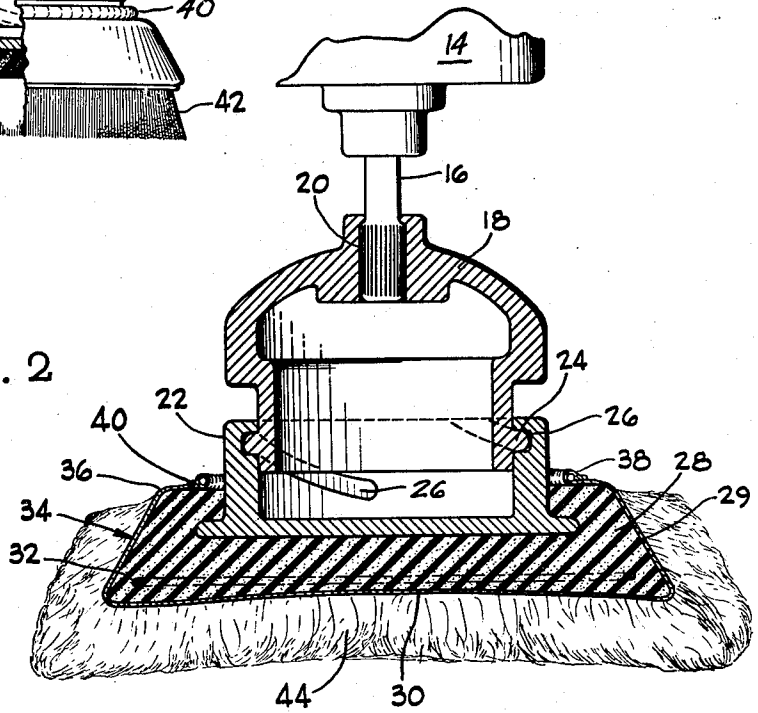

FIG. 2

INVENTOR.

JAMES D. BERGSTROM

BY Hill, Sherman, Meroni, Gross & Simpson ATTORNEYS

May 3, 1960 J. D. BERGSTROM 2,934,775

POWER OPERATED SHOE CARE DEVICE

Filed April 23, 1956 2 Sheets-Sheet 2

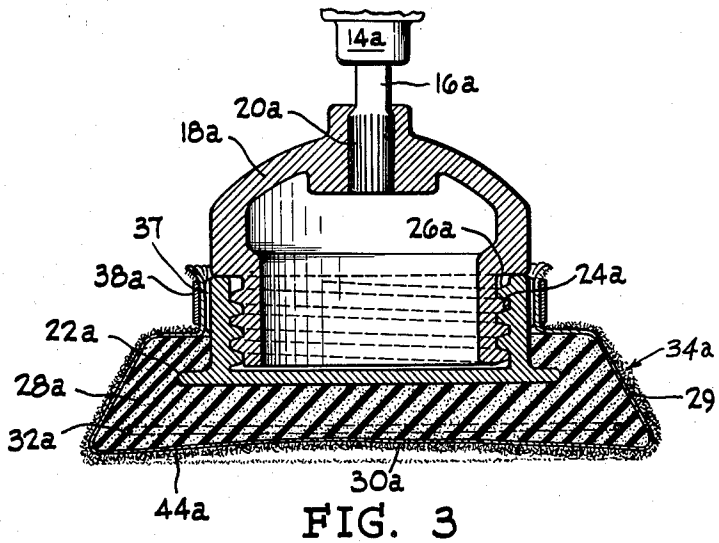

FIG. 3

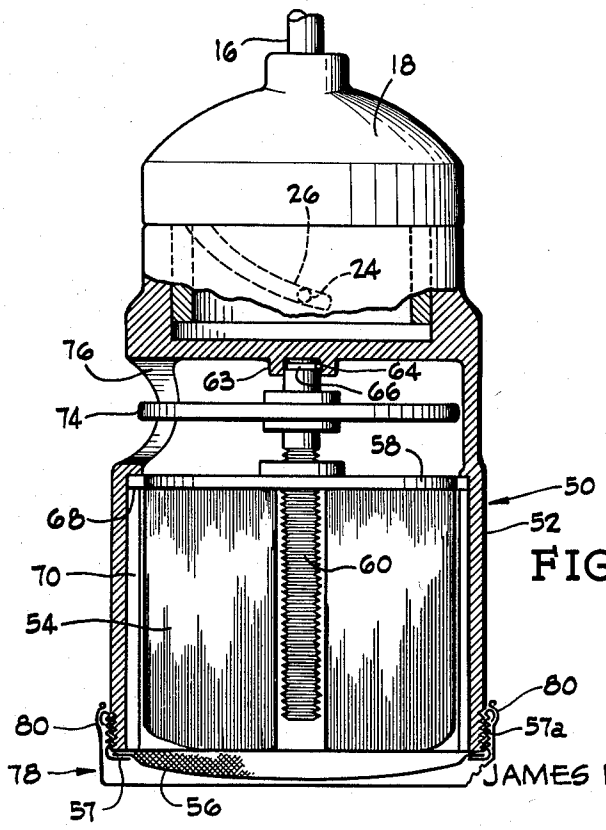

FIG. 4

INVENTOR.
JAMES D. BERGSTROM

BY Lill, Sherman, Meroni, Gross & Simpson ATTORNEYS

United States Patent Office 2,934,775 Patented May 3, 1960

2,934,775

POWER OPERATED SHOE CARE DEVICE

James D. Bergstrom, Forest Park, Ill.

Application April 23, 1956, Serial No. 579,983

6 Claims. (Cl. 15—131)

This invention relates to polishing devices, and the like, and has particular application to devices for the care of shoes, to provide operations such as polishing, brushing, and buffing thereof.

An object of my device is to provide a power-operated shoe care device, having novel construction and advantageous operating characteristics and features.

Another object of my invention is to provide a power device having a drive head and a plurality of optionally usable, interchangeable working heads for the polishing, brushing, and buffing of shoes, the working heads being readily attachable to the drive head, and having interchangeable working members optionally attachable to the working heads.

Another object is to provide a novel power-driven shoe polish dispenser and applicator.

These and other objects, features, and advantages of the present invention will be readily apparent from the following description of an illustrative embodiment thereof, taken in conjunction with the accompanying drawings, in which:

Figure 1 is an elevational view, with portions broken away and in section, of a device according to principles and concepts of the present invention, illustrating an arrangement providing a power-driven brush;

Figure 2 is a sectional view of the device shown in Figure 1, and illustrating buffing means;

Figure 3 is a sectional view corresponding to Figure 2, but showing alternative means for connecting an applicator head to the driving head, and showing polishing cloth means; and

Figure 4 is a sectional view generally similar to Figure 2, but illustrating a polish dispenser and applicator head connected to the drive head of the device, and with a removable closure covering the applicator head.

By way of example, a hand-operated power device **10** comprising a handle **12**, an electric motor **14** and a drive shaft **16** has been chosen to illustrate the invention.

According to principles and concepts of the present invention, the drive shaft **16** is provided with a drive head **18**, shown as fixed to the drive shaft as by the splines **20**, and a plurality of optionally usable, interchangeable applicator heads are provided for removable association with the drive head. The applicator heads illustrated provide for the various operations of polish dispensing and applying, brushing, buffing and polishing. Although the applicator heads which provide for the brushing, buffing, and polishing operations may be different, they are preferably the same piece, having the different operating members removably connected to the applicator head; and the applicator head for the polish dispenser and applicator is shown as a separate member.

Accordingly, in Figures 1 and 2, an applicator head **22** is shown as removably connected to the drive head **18** as by suitable connecting means such as radial projections **24** carried by the drive head **18** and engageable into grooves **26** provided to extend partially circumferentially along the applicator head.

The applicator head **22** carries an enlarged pressure base **28**. As shown, the pressure base **28** is formed of a resilient material such as foam rubber, into a general disk-shape, and is shown as secured to the applicator head **22** as by bonding the rubber of the base **28** to the head **22**.

The side walls **29** of the base **28** are desirably outwardly tapered or cone-like, and the bottom of the base **28** may be desirably formed to have a shallow concave configuration as is indicated at **30**, providing more feathered edges to better operate on the shoe welt and other relatively inaccessible portions.

A stiffening or reinforcing means such as the piano wire ring **32** shown is desirably provided, and as shown is imbedded in the base **28** adjacent the outer margin thereof.

The desired working material is carried for driving rotation by the pressure base **28** as by an attaching means shown as a cloth sheet **34** adapted to overlie the bottom face of the pressure base **28**. The sheet **34** extends around the base **28**, and upward over the base side-walls **29**, and has a marginal portion **36** adapted to be attached to the applicator head **22**. As shown, the attachment thereof is by a resilient ring member such as the spring **38** carried in a hem **40** of the marginal portion **36** of the applicator sheet **34**.

Suitable working material, such as the brush bristles **42** (Fig. 1) or fleece **44** (Fig. 2), is carried on the working face of the applicator sheet **34**.

Figure 3 illustrates an alternative drive head and applicator head arrangement. Here, instead of the pin and groove locking arrangement of the preceding figures, the drive head **18***a* and the applicator head **22***a* are shown as provided with interengaging threads **24***a*—**26***a*. Otherwise, the device corresponds generally to the construction shown in the preceding figures, and appropriate reference numerals having subscripts *a* are used to identify components corresponding to components of Figs. 1 and 2.

Figure 3 also illustrates a modified means for securing or clinching the operating material to the application head. As shown, the periphery of the applicator head **22***a* is provided with knurls or ribs **37** against which the attachment sheet margins **26***a* are drawn, and a resilient split ring **38***a* is provided to hold those sheet portions in place against the ribs **37**.

A polishing cloth surface **44***a* is shown in Figure 3 as applied to the attaching sheet **34***a*.

With the motor **14***a* operating, the surface **44***a* is lightly touched against polish in the can in which it typically is supplied, and is then lightly touched over the surface of the shoe. As such, the surface **44***a* initially picks up and holds polish and thereafter rotatively dispenses it and begins to buff it. By use of means such as **44** shown in Figure 2, a final buffing may be applied.

It is thus seen that in a preferred form so far described the various operations of brushing, polishing, and buffing may be achieved simply by attaching an appropriate attachments sheet **34**—**34***a* having the desired material thereon, and without disassembly of the applicator head from the drive head, although if desired separate applicator heads may be employed each having suitable brushing, polishing, and buffing means.

Figure 4 illustrates an advantageous construction providing a paste or polish dispensing cartridge or applicator **50** as an applicator head secured to the drive means. Here the drive means is shown as identical to that of Figures 1 and 2, and like reference numbers are employed as in those views.

The applicator head **50** as shown generally comprises a hollow cylindrical body **52**, which may be made of any of various rigid materials, and is adapted to contain a body of shoe paste or polish **54**.

The end of the tube or body **50** remote from its con-

nection to the drive head is open to provide a dispensing outlet for the paste 54, but that outlet is desirably covered with a retainer screen 56 of suitable pervious and desirably pliable material. The screen 56 normally confines the paste but permits it to be dispersed therethrough during use. It is shown as held to the body 52 by an annular screen-holding ring 57 having threads 57*a* which engage threads provided on the body 52.

For dispensing the paste 54, the body 52 carries internally a plunger member such as a disk 58 disposed to exert dispensing pressure on the paste 54. For moving the disk 58 to effect the dispensing operation, the disk is shown as threaded upon a threaded actuating rod 60, which extends longitudinally in the bore of body 52. The rod 60 is provided relatively rotatable but axially fixed with respect to the body 52, as by journalling the rod 60 in the bore of a body boss 63, that bore carrying a projection such as a ball 64 which engages in a peripheral groove 66 provided in the rod 60.

Guide ears 68 are shown as extending from disk 58 to engage in associated longitudinally extending grooves 70 of the cartridge body 52, and thus block the disk 58 against rotation relative to body 52 but permit its axial movement therein. This provides that as the rod 60 is rotated, as will now be described, its threaded engagement with the disk 58 causes the disk to advance in the bore of body 52 and thus dispense paste through screen 56.

For rotating the actuating rod 60, a knurled wheel 74 is shown as fixed thereon, with the periphery of wheel 74 extending close to the body 52. Access to the wheel 74 is shown as by one or more access openings 76 provided in the wall of the body 52, in alignment with the plane of wheel 74.

A removable closure piece or cap 78 is provided adapted to close over the dispensing screen 56. It is shown as releasably held thereon as by frictional engagement of side-walls 80 of the cap 78 with the screen-holding ring 57.

Accordingly, to effect polish dispensing, the user will remove cap 78 and attach the cartridge body 52 to the drive head 78 by engagement of the coupling means shown as pin 24 and groove 26. Then, he rotates the wheel 74 to effect an axial movement of disk 58 which forces polish out through the dispensing screen 56. The motor 14 is then energized to turn the cartridge 52, and the cartridge is held with the outlet screen 56 in engagement with the article to which the polish is to be applied.

A shoe care device so constructed is accordingly seen to be of highly advantageous construction having novel interchangeable applicator means and features selectively usable with a common standard power source.

It will thus be seen from the foregoing description considered in conjunction with the accompanying drawings, that the present invention provides a new and improved shoe care device having the desired advantages and characteristics, and accomplishing its intended objects, including those hereinbefore pointed out and others which are inherent in the invention as described.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. A device of the type described having rotary drive means, an applicator head drivingly connected to said drive means, said applicator head comprising a soft resilient non-abrasive synthetic foam-material pressure base with a feathered periphery, only one generally cup-shaped surface-treating sheet removably extending about said feathered periphery and fully enclosing and frictionally engaging directly with said synthetic foam-material of said base and also operative to hold together said synthetic foam-material base when it is subjected to centrifugal force, and resilient means acting on the periphery of said sheet in a radially inward direction for tensioning said sheet against said base to maintain the frictional engagement with said base for co-rotation with said pressure base, said feathered periphery in response to centrifugal force being effective through said sheet to impart a soft yieldable feathered edge thereto and said resilient means providing a force reactive to centrifugal force to assist said sheet in holding said foam-material base together.

2. A device of the type described having a driven shaft, comprising in combination: a drive head drivingly connected to the shaft and having a hollow bore with a diameter several times larger than that of said shaft so that said drive head has a relatively large angular inertia for its mass; a unitary generally cup-shaped applicator head telescopically receiving said drive head therein and drivingly connected to said drive head, and also having a bore of a diameter several times larger than that of said shaft so that said applicator head has a relatively large angular inertia for its mass; said cup-shaped applicator head being closed at one end axially remote from said drive head and being manually detachable from said drive head; and resilient shoe-care working material carried by said applicator head and backed up by said closed end of said cup-shaped applicator head.

3. A device of the type described having a driven shaft, comprising in combination: a pair of unitary cup-shaped heads adapted to telescope together, and having means disposed radially intermediate said heads for detachably joining said heads together for co-rotation; said cup-shaped heads each having a closed end disposed and directed axially opposite to the other to jointly define a closed cavity extending into each head; the closed end of one of said heads being coaxially and co-rotatably secured to the driven shaft; the closed end of the other of said heads defining a substantially flat unbroken backing surface perpendicular to the axis of the shaft and disposed outwardly of said cavity; a pressure base of soft resilient non-abrasive synthetic foam material externally co-rotatably fully surrounding the closed end of said other head in axially spaced relation to said one of said heads; and a surface treating sheet fully enclosing and frictionally removably engaging said foam material of said base directly and also operative to hold together the material of said base when it is subjected to centrifugal force.

4. A device of the type described having a driven shaft, comprising in combination: a pair of unitary cup-shaped heads adapted to telescope together, and having means disposed radially intermediate said heads for detachably joining said heads together for co-rotation; said cup-shaped heads each having a closed end disposed and directed axially opposite to the other to jointly define a closed cavity extending into each head; the closed end of one of said heads being coaxially and co-rotatably secured to the driven shaft; the closed end of the other of said heads defining a substantially flat unbroken surface perpendicular to the axis of the shaft and disposed outwardly of said cavity; and shoe-care working means co-rotatably carried and backed up by the closed end of said other head and externally thereto in axially extending relation from said flat surface and in axially spaced relation to said one of said heads.

5. A device in accordance with claim 4 where said shoe-care working means is adapted to contain, to dispense, and to rotatably apply polish.

6. A device in accordance with claim 4 where said shoe-care working means includes a body co-rotatably secured to said other head, said body having a polish chamber and a polish outlet leading from the chamber through the body; a pressure member movably guided by said body within the chamber for acting on polish therein to displace polish through the outlet; a rod having threaded engagement with said pressure member, an end of said rod remote from said outlet being rotatively

supported and backed up by said closed end of said other head; and an adjustment wheel co-rotatably secured to said end of said rod; said body having an access opening aligned with the periphery of said wheel for selective positioning of said wheel.

References Cited in the file of this patent

UNITED STATES PATENTS

1,479,281	Buck	Jan. 1, 1924
1,706,402	Hawn	Mar. 26, 1929
1,757,228	Albertson et al.	May 6, 1930
1,777,915	Douglas	Oct. 7, 1930
1,938,493	Myers	Dec. 5, 1933
1,998,244	Lang	Apr. 16, 1935
2,014,119	Stecker	Sept. 10, 1935
2,043,145	Bacher	June 2, 1936
2,227,588	Kemp	Jan. 7, 1941
2,281,722	Smith	May 5, 1942
2,370,323	Patt	Feb. 27, 1945
2,392,146	Hall	Jan. 1, 1946
2,444,760	Tambini	July 6, 1948
2,508,541	Russell	May 23, 1950