

Jan. 26, 1943.

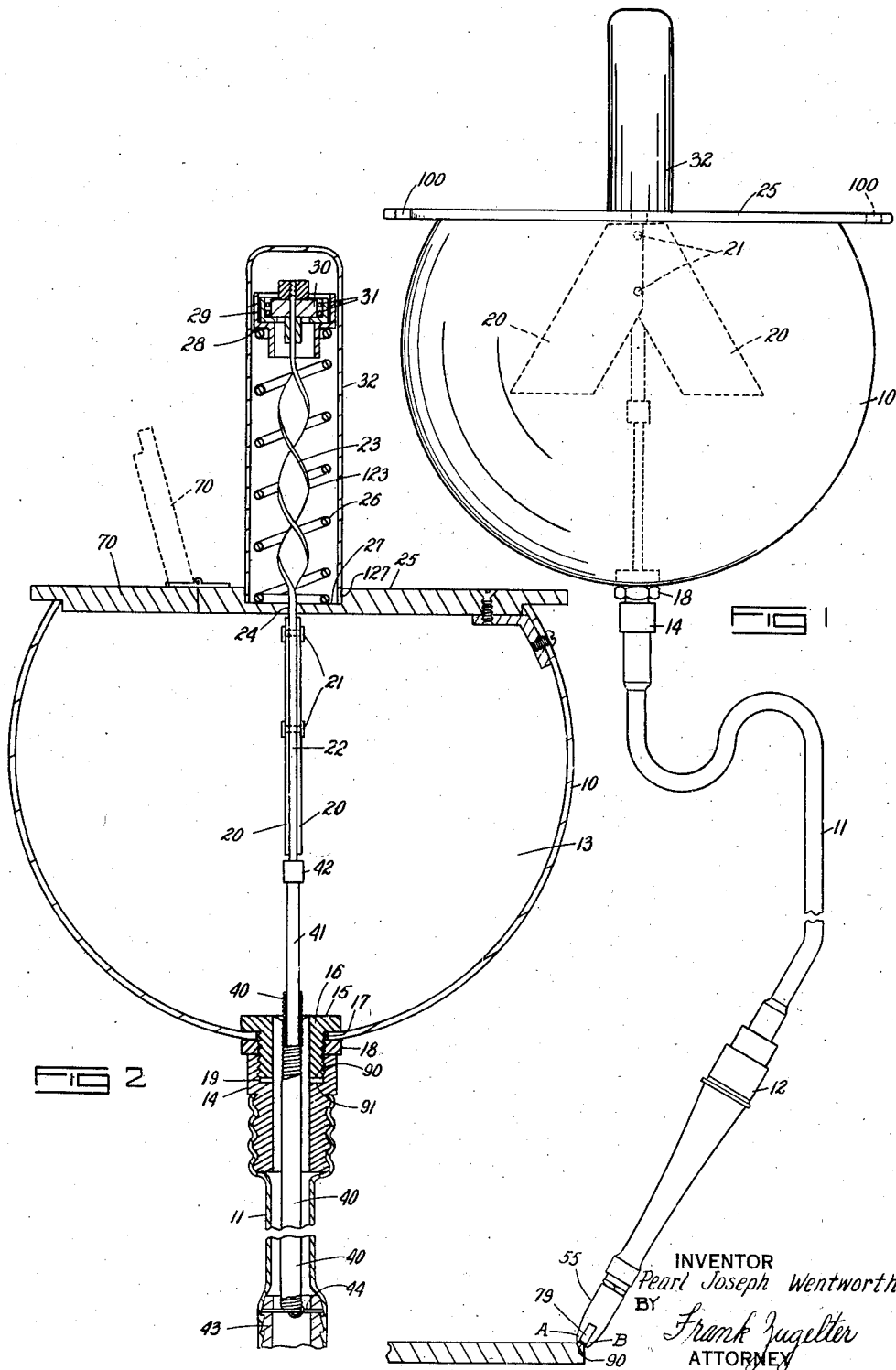
P. J. WENTWORTH

2,309,286

INK APPLYING APPARATUS

Filed July 26, 1939

3 Sheets-Sheet 1



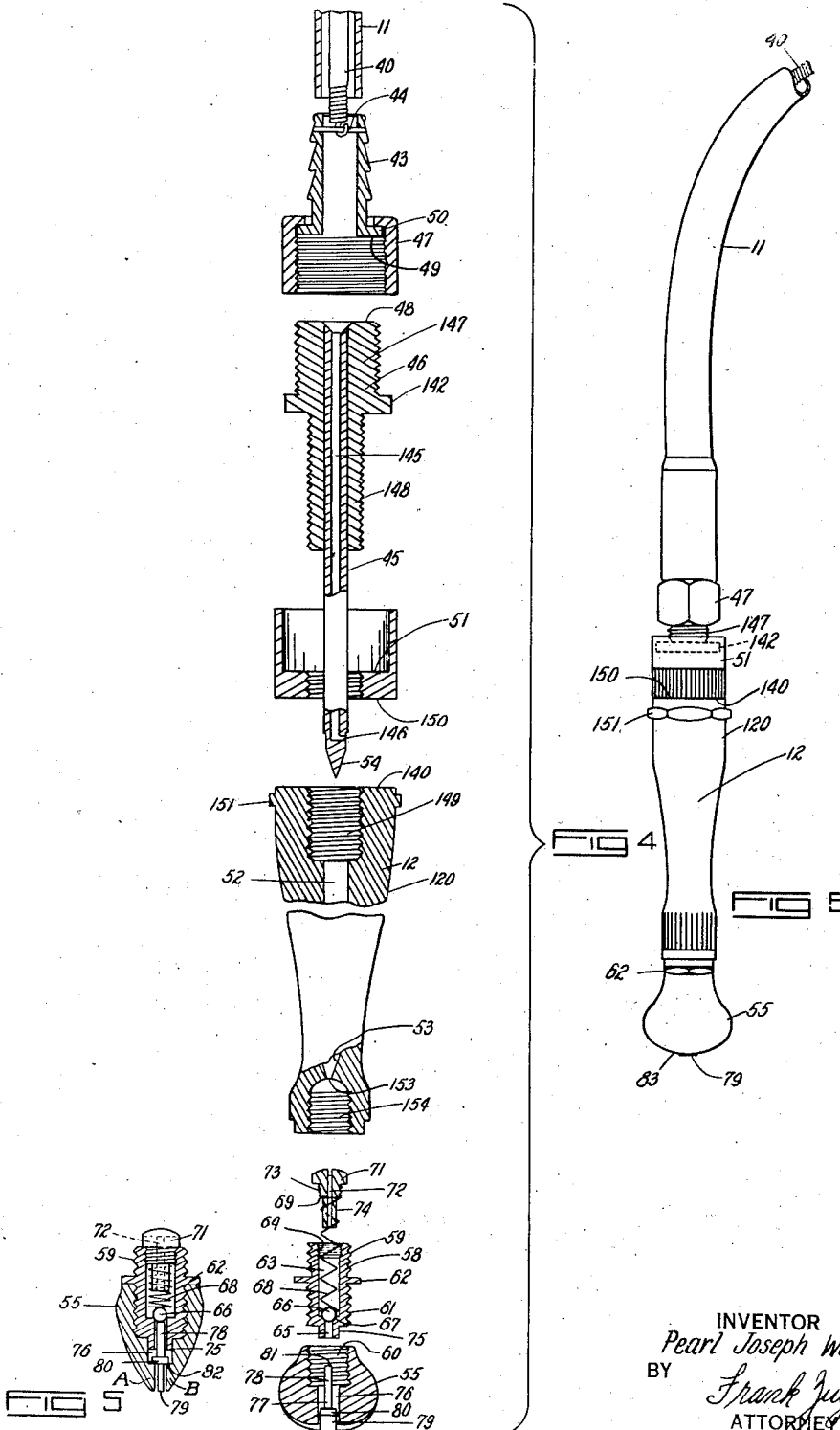
Jan. 26, 1943.

P. J. WENTWORTH
INK APPLYING APPARATUS

2,309,286

Filed July 26, 1939

3 Sheets-Sheet 2



Jan. 26, 1943.

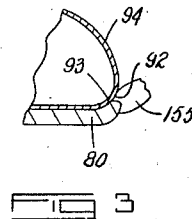
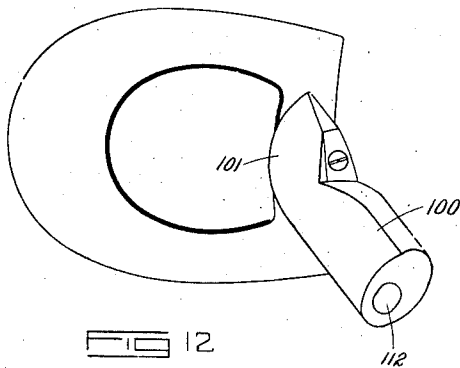
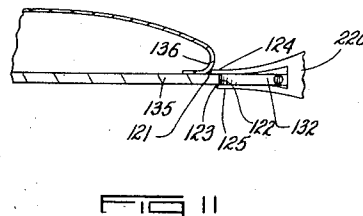
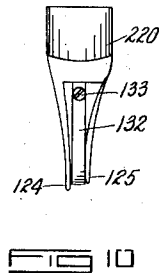
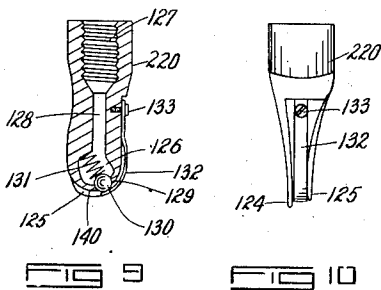
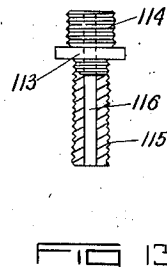
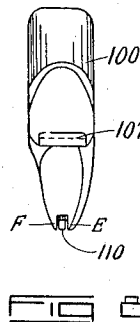
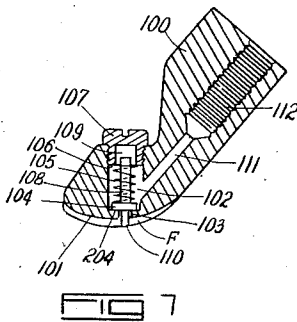
P. J. WENTWORTH

2,309,286

INK APPLYING APPARATUS

Filed July 26, 1939

3 Sheets-Sheet 3



INVENTOR
Pearl Joseph Wentworth
BY Frank Jugelter
ATTORNEY

UNITED STATES PATENT OFFICE

2,309,286

INK APPLYING APPARATUS

Pearl Joseph Wentworth, Fort Thomas, Ky.

Application July 26, 1939, Serial No. 286,635

18 Claims. (Cl. 91-43)

This invention relates to fluid dispensing devices and more particularly to dispensing devices of the type used for dispensing fluids which because of their inherent qualities, require frequent agitation to maintain their proper fluidity and composition.

An object of the invention is to provide a fluid dispensing device having means associated therewith to agitate the fluid incident to discharge of said fluid from said device.

A further object of the present invention is to provide a fluid dispensing device including a fluid reservoir and a discharge conduit with means for agitating the contents of the reservoir and of simultaneously agitating the fluid contained within the discharge conduit.

Another object of the present invention is to provide a fluid ink applicator having a discharge tip so constructed as to permit precise and accurate control of the fluid being discharged.

Still a further object of the invention is to provide a discharge device of the type described and which may be inexpensively manufactured and maintained at a minimum of cost.

These and other objects are attained by the means described herein and disclosed in the accompanying drawings, in which:

Fig. 1 is a side plan elevation of the device embodying the invention.

Fig. 2 is a vertical sectional view of the reservoir portion of Fig. 1.

Fig. 3 is a partial vertical sectional view illustrating the applicator, which comprises a detail of the present invention, operatively associated with the edge of a shoe sole.

Fig. 4 is a vertical sectional view of the applicator which forms a detail of the present invention, the parts of which are shown in ready-to-be assembled relationship for clarity of detail.

Fig. 5 is an end vertical sectional view of the applicator tip shown in Fig. 4.

Fig. 6 is a side plan view of an assembled applicator comprising a detail of the invention.

Figs. 7 and 8 are vertical sectional and front plan views respectively of a modified form of applicator head embodying the present invention.

Figs. 9 and 10 are vertical sectional and front plan views respectively of a second modified form of applicator head.

Fig. 11 is a side view illustrating the applicator disclosed in Figs. 9 and 10 operatively associated with the outer edge of a shoe sole.

Fig. 12 is a top perspective view illustrating the

applicator disclosed in Figs. 8 and 9 operatively associated with the bottom edge of a heel.

Fig. 13 is a vertical sectional view of a device comprising a detail of the invention.

For the purpose of illustration only and merely by way of example, the present invention will be described as an apparatus for applying ink or dye to the outer edges of shoe soles, insoles, shanks, heels and the like.

It has long been the custom in the shoe industry to apply ink or dye to the outer edges of shoe soles, shanks and heels for the purpose of touching up said edges so as to properly and harmoniously blend with the general color scheme of the shoe.

The ink has been and is even today applied to the shoes by means of a brush. It has been customary to provide each shoe worker with one or more pot or cup-like receptacles in each of which a small quantity of suitable inks were kept for his immediate inking needs. The contents of said pot or cup-like receptacles were replenished, at frequent intervals during the day, from a larger supply of inks contained in master containers. It has been customary for such master containers to be provided with suitable means for continuously agitating their contents in order to keep the ingredients comprising the ink properly blended and the ink in a proper state of fluidity.

In order to prevent the ink which is applied to the shoe soles, shanks, heels and the like from accidentally finding its way onto the shoe uppers, due to carelessness of the worker or because of the condition of the inking brush, it frequently was necessary to protect the shoe uppers by means of masking tape. Obviously the process of masking increased the cost of production, since in addition to the cost of the tape itself it added the operation of applying said tape and the operation of removing said tape after the inking process has been completed, to the labor manufacturing cost.

The present invention is directed, among other things, to the provision of an ink dispensing device of such construction as to enable an operator to apply ink directly to any portion of a shoe directly from an individual ink reservoir, the contents of which may be agitated by said operator as he performs the inking operation. The invention is also directed to the novel construction of an ink applicator head from which the ink may be applied directly to the shoe with such accuracy as to eliminate the necessity for the presently used masking tape.

As clearly shown in Fig. 1, the device comprises an ink reservoir 10, a suitable ink conduit or conductor member 11 and an ink applicator 12. The ink reservoir 10 is adapted to be mounted in close proximity to and preferably above the individual shoe worker so that contents of said reservoir may flow by gravity through conduit or conductor 11 to the ink applicator 12.

Ink reservoir 10 may comprise a suitable chamber 13 formed from any suitable material which is unaffected by the ink, such as aluminum or the like. The upper portion of said chamber is preferably provided with a suitable lid or cover member 25 which may be secured to chamber 13 by any suitable means such as a bracket member, as clearly shown in Fig. 2. Access to the interior of chamber 13 may be controlled by means of a suitable hinged closure member 70 which may be hingedly connected to cover member 25, as shown.

A suitable discharge nipple 14 is provided in the lowermost portion of said chamber, as shown. A fluid tight fit may be effected between the collar portion 15 of sleeve 16 and that portion of the chamber bottom adjacent aperture 17 by means of a suitable lock nut 18. Said discharge nipple 14 may be secured to the lower portion of sleeve 16 as shown. If desired a suitable gasket 19 may be interposed between abutting faces 90 and 91 of sleeve 16 and nipple 14 respectively, as shown.

Conduit or conductor 11 may be made of any suitable material such as rubber or the like possessing similar characteristics of flexibility and extensibility, for reasons hereinafter more fully explained. Said conductor may be secured to nipple 14, as shown, for conducting the contents of reservoir 10 to applicator 12. The opposite end of said conductor may be secured to applicator nipple 43, as shown.

In order to agitate the contents of reservoir 10 a suitable impeller such as 20 may be provided. If desired, said impeller may comprise two or more blades, as shown, which may be secured by any suitable means such as rivets 21 or the like, to the lower portion 22 of a screw drive member 23. Said screw drive member may comprise a flat rectangular strip of suitable metal which is provided, intermediate its ends, with a helical rib 123.

A suitable slot-like aperture 24 may be provided through reservoir cover member 25 through which slot said screw drive member 23 is adapted to be vertically moved. The pitch of said helical rib 123 is preferably large or coarse so that as said screw member is moved upwardly or downwardly along its longitudinal axis, through slot 24, said screw member will be given a rotary motion about its longitudinal axis. From the foregoing it is apparent that the impellers 20 will be simultaneously rotated about and moved along the longitudinal axis of the screw drive member, as helical rib 123 is moved up or down relative to slot 24.

In order to return screw drive member 23 and impellers 20 to their upper or normal position (shown in Figs. 1 and 2) a suitable spring such as 26 may be interposed between the upper face 27 of a recess 127 provided in lid 25 and the lower face 28 of a bearing sleeve member 29. The upper end of screw drive member 23 may be secured to a roller member 30 which is adapted for frictionless rotation on ball bearings 31 within bearing sleeve 29 as clearly shown in Fig. 2.

In this manner the screw drive member 23

and impeller 20 are constantly urged to the upper or normal position indicated in Figs. 1 and 2. If desired a suitable cap member 32 may be provided to house and protect screw drive member 23, spring 26 and associated parts. The lower end of said cap member may be secured within recess 127 by means of a wedge fit with the side walls thereof.

In the preferred embodiment of the invention, screw drive member 23 is forced downwardly through slot 24 whereby to rotate impeller 20 in response to a pull on applicator member 12. This may be expeditiously accomplished by means of a suitable flexible drive member 40 which is housed within and extends co-axially of conductor member 11. One end of flexible drive member 40 may be secured to the lower end 22 of screw drive member 23 through a suitable shaft 41 and coupling member 42 as clearly disclosed in Fig. 2. Flexible member 40 may be secured to shaft 41 by any suitable means such as welding or the like.

The opposite end of flexible drive member 40 may be anchored to the interior of applicator nipple 43, by securing the end of drive member 40 to a suitable pin 44 which may be secured to applicator nipple 43 as shown in Figs. 2 and 4.

In this manner the lower end of screw drive member 23 is operatively connected to applicator 12 through flexible drive member 40 whereby said screw drive member 23 may be given a downward motion in response to a pull upon said applicator.

In the preferred form of the invention flexible drive member 40 may comprise a tightly coiled spring the opposite ends of which are anchored, as explained, to screw drive member 23 and applicator nipple 43.

It should be noted that by reason of the flexible and extensible nature of conductor member 11 it is free to be stretched or extended along its longitudinal axis each time applicator 12 is pulled or moved relative to reservoir 10, for the purpose of actuating impeller 20.

It should also be observed that when the force which normally maintains the coils comprising drive member 40 in a closed, contacting relationship is overcome by a pull exerted upon it via said applicator 12, that the individual coils thereof will be separated by an amount which is proportional to the degree of pull on said applicator.

When applicator 12 is pulled to agitate impeller 20 conductor 11 will be stretched a certain amount. It should be observed that the individual coils which comprise coiled spring drive member 40 will not necessarily be separated simultaneously therewith the same moment said applicator is pulled since the drive screw member 23 will yield to the force so applied by drive member 40 and move downwardly through slot 24. However, when screw drive member 23 and its associated impeller 20 have reached the bottom limit of their vertical travel or stroke, the individual coils comprising said spring drive member will separate and there will be a relative movement between the interior walls of conductor 11 and the individual coils of drive member 40. Such relative motion will effectively agitate any fluid contained within said conductor or conduit 11.

The extensible or stretchable portion of said spring is somewhat longer than the stretchable portion of said conduit so that their stretch is relative rather than equal, wherefore agitation

occurs.

It should be observed that when conductor 11 is stretched or extended along its longitudinal axis, the side walls thereof are contracted or drawn inwardly toward said longitudinal axis whereby the cross sectional area of said conductor is diminished. When relative motion occurs between the individual coils of drive member 40 and the inner contracted walls of the stretched conductor 11, the outer edges of said coils may frictionally engage or scrape said contracted inner walls whereby any ink which may be deposited upon said conductor walls will be scraped off. Likewise ink is squeezed or forced through said spring coils when said conductor is contracted by stretching.

It should be noted that while it is preferable to use a tightly coiled spring for drive member 40, as hereinabove described, still it is a fact that such a drive member may comprise a flexible but non-elastic or non-extensible member. Such a flexible, but non-extensible member may comprise a wire, a linked chain, a braided or twisted cable, a cord or the like. When using such a non-extensible drive member the amount or degree to which extensible conductor 11 is stretched when the applicator is pulled to operate impellers 20, is limited to the length of travel of screw drive member 23.

Ink from reservoir 10 and conductor 11 is introduced via applicator nipple 43 (Fig. 4) into the upper end of hollow needle 45. A suitable passageway 145 extends longitudinally through said needle, the lower end of said passageway terminating short of the end of the needle as shown. An outlet port 146 is provided through the outer wall of needle 45 and at right angles to the axis of passageway 145. Hollow needle 45 may be mounted within a suitable stem member such as 46 by any suitable means such as by a force fit. A substantial portion of said needle extends from the lower edge of stem 46, as shown, for reasons hereinafter apparent.

The upper portion 147 of stem 46 may be adapted for threaded engagement with nipple-cap member 47 for providing a fluid tight fit between the upper edge 48 of stem 46 and the lower edge 49 of the out turned flange 50 of applicator nipple 43.

The lower end 148 of stem 46 may be externally threaded for threaded engagement with a spacer nut 51, and for threaded engagement with the upper threaded recessed portion 149 of applicator housing 120.

A suitable shoulder 142 may be provided intermediate the upper and lower ends of stem 46 for providing an area or member which may be engaged by a suitable tool for rotating said stem about its longitudinal axis.

Applicator housing 120 may be provided with a central longitudinal bore 52 which terminates at its lower end in a conoidal seat portion 53 with which the pointed end 54 of needle 45 is adapted to cooperate for metering the quantity of fluid delivered to applicator discharge head 55. The degree of penetration of needle 45 within bore 52 may be accurately controlled by governing the distance which recessed portion 149 is threaded onto the lower end 148 of stem 46. The degree to which said applicator housing may be threaded onto the lower end of said stem is determined by the location of spacer nut 51 on the lower threaded end 148 of stem 46, since the upper surface 140 of applicator housing 120 is adapted to contact and abut against the lower surface 150 of said spacer nut, as clearly shown in Fig. 75

6. If desired a suitable shoulder nut 151 may be provided integral with the upper end of applicator housing 120 to facilitate adjustment of housing 120 relative to stem 46. If desired spacer nut 51 may be provided with upstanding cylindrical side walls 151 which are adapted to telescopically house shoulder 142 of stem 46.

The lower portion of conoidal seat 53 terminates in a discharge aperture 153 which interconnects the lower end of bore 52 with the upper portion of an internally threaded chamber 154 provided in the lower end of applicator housing 120.

An applicator discharge head 55 may be operatively associated with applicator housing 120 by means of a connector member 58, the upper end 59 of which is externally threaded for threaded engagement with internally threaded chamber 154 of applicator housing 120. Applicator head 55 is provided with an internally threaded recessed portion 60 which is adapted for threaded engagement with the lower externally threaded end 61 of connector 58. If desired a shoulder nut 62 may be provided intermediate the upper and lower ends 59 and 61 respectively, of connector 48 as shown.

A chamber 63 is provided interiorly of connector 58, the upper portion of said chamber being open and internally threaded as at 64. The lower end of chamber 63 terminates in a restrictive passageway 65. A ball valve 66 is adapted to cooperate with a valve seat 67 which circumscribes the upper end of passageway 65, as shown.

Ball valve 66 is constantly urged towards seat 67 by means of a suitable helical spring 68, the upper end of which contacts the under side of a collar 69 of a screw member 71 which is provided with a passageway 72 extending longitudinally therethrough. The upper shank portion 73 of said screw member is externally threaded for threaded engagement with the upper threaded portion 64 of chamber 63 as shown. If desired said screw member may be provided with an extended shank portion 74 which is adapted to extend interiorly of spring 68 to maintain said spring in proper alignment relative to ball valve 66.

The lower end of connector 58 terminates in a discharge nipple 75 having an outside diameter substantially less than the outside diameter of connector end 61, as shown.

Applicator head 55 is provided with a fluid discharge port 76 which extends outwardly of said head from the bottom of threaded recess 60. The outside diameter of the upper portion of said discharge port is proportioned so as to freely receive the discharge nipple 75. A suitable valve actuator 77 is provided comprising a pin member 78, a pilot member 79 and an intermediate flange member 80, as shown.

Pin member 78 is adapted to loosely extend upwardly through passageway 65 of discharge nipple 75 whereby the upper end 81 thereof may contact the lower edge of ball valve 60.

Discharge port 76 is provided intermediate its length, with an offset 82 against which the lower side of flange member 80 may abut to prevent said valve actuator 77 from becoming disassociated from said discharge port 76. Flange member 80 is also adapted to function as a valve in conjunction with abutment 82 which functions as a valve seat to augment the operation of ball valve 66.

Valve actuator 77 is adapted to loosely fit within head 55 so that any ink discharged through ball valve 66 may be discharged through port 76.

It should be noted that pilot member 79 is preferably of such a length as to extend to the lower edge 83 of applicator head 55 (Figs. 4 and 5) when ball valve 66 is in a closed, seated position.

Ink in passageway 145 of hollow needle 45 is discharged via needle outlet port 146 into conoidal seat 53 thence through aperture 153 into chamber 154, thence through passageway 72 of screw member 71 into valve chamber 68 from which it is discharged via discharge port 76 when valve 66 is unseated.

As clearly shown in Figs. 1 and 5 the lateral distance between opposed faces A and B of applicator head 55 determines the width of the ink line made by that particular head.

It should be noted that each shoe operator may be provided with a plurality of applicator discharge head members as 55, 100 and 220 (Figs. 5, 7, and 9), each having different characteristics whereby flexibility of the device is greatly increased. In those instances where just the bottom outer edge 90 of a shoe outsole, shank or heel or any combination of such items require inking, a narrow throated applicator discharge head, such as disclosed in Fig. 1 would be used. The width of the ink line applied is defined and limited by the distance between opposite edges A and B of said applicator head. It is obvious that the ink so applied cannot splash or become unwieldy such as is the case when a brush is used to apply the ink.

For certain other inking operations the applicator heads shown in Figs. 7 and 9 are more practical.

In those instances where the upper edge of the outsole of a man's or woman's shoe is to be inked, or when it is desired to ink curved surfaces such as the edge of a heel bottom, a striper head such as 100 is particularly well adapted for the job.

Such a striper head comprises rounded ink applicator head 101 having spaced walls E and F which define the width of the ink stripe applied.

Ink may be discharged from a suitable chamber 102 via orifice 103 when a suitable valve 104 is unseated against the force of spring 105 from valve seat 204 which circumscribes the upper end of said orifice. Said spring may be disposed intermediate the upper edge of valve 104 and the lower edge of collar 106 of a partially bored set screw member 107. Valve 104 may be provided with an upstanding, spring aligning pin 108 the upper end of which is adapted for reciprocation within bore 109 of set screw 107, which is adapted for the threaded engagement with said device, as shown. A pilot member 110 may be provided which functions in a manner similar to pilot member 79 as hereinabove more fully described in connection with discharge head 55.

Fluid is introduced into chamber 102 via passageway 111, the upper free end of which terminates in an enlarged, internally threaded portion 112. An auxiliary connector 113 (Fig. 13) having an upper externally threaded portion 114 is adapted for threaded engagement with internally threaded chamber 154 of applicator housing 120. The lower portion of said auxiliary connector is externally threaded as at 115 for threaded engagement with the interiorly threaded end 112 of striper head 100. A suitable unrestricted passageway 116 is provided longitudinally of auxiliary connector 113, as shown.

It should be observed that in the preferred embodiment of the invention, passageway 111 is disposed at an angle to the vertical axis of valve 104 whereby the main body or hand grip portion of said head will be disposed off to the side in

order that an operator may more easily see his work and control the ink stripe being applied, as shown in Fig. 12.

A striper head as disclosed in Figs. 7, 8 and 12 is particularly well adapted to apply ink the upper edge of the outer sole adjacent the shoe upper since the rounded applicator head is particularly well adapted to engage the shoe edge during the entire inking stroke from the breast of the heel, around the sole to the breast of the heel on the opposite side of the shoe.

As clearly shown in Fig. 12 such a striper is likewise particularly well suited to stripe the lower heel edges with an even coating of ink of constant width.

In those instances where it is desirable to ink the upper, outer and lower edges, 121, 122, and 123, of a shoe outsole a suitable shoe edge-ink applicator head such as 220 may be used. Such a device may comprise spaced upper and lower outer sole edge engaging fingers 124 and 125.

Ink from applicator housing 120 may be conducted to said applicator head via auxiliary connector 113. The upper portion of said applicator head may be internally threaded as at 127 for threaded engagement with externally threaded end 115 of said auxiliary connector.

A passageway 128 may be provided intermediate chamber 126 and the bottom of said threaded recess 127. A suitable chamber discharge port 129 is normally closed by a suitable ball valve 130 which is yieldingly seated by spring 131 with the inner edge of said discharge port, as shown. A portion of ball valve 130 extends beyond the outer edge of the discharge port when said valve is in a closed position. Said valve is adapted to be unseated when a resilient spring member 132 is forced against the projecting portion of said ball valve. In the preferred form of the invention the width of spring member 132 is substantially equal to the lateral distance between opposite faces of fingers 124 and 125. One end of spring member 132 may be suitably secured to the body of said applicator head by means of a suitable screw 133.

It should be noted that when ball valve 130 is unseated a portion of the ink will flow from discharge port 129 under spring member 132 thence outwardly between the opposite side edges of said spring member into the inner faces of fingers 124 and 125, the rest of the ink being discharged into face 140 (Fig. 9) between said fingers.

As shown in Fig. 11 the ink so discharged may be accurately applied, simultaneously to the top, side and bottom edges 121, 122 and 123 respectively of outsole 135. It should be noted that finger 124 is adapted to extend along the entire width of the top outsole edge 121 extending to and under the sole-adjacent edge of upper 136, as shown.

It should be noted that applicator heads 100 and 220 are adapted to be secured to applicator housing 120 via auxiliary connector 113 whereby the rate of ink delivered to said heads is under the control of needle valve 45, as hereinabove more fully described.

In those instances where ladies' shoes are being inked, the outer edge of the outsole may be neatly and accurately inked by using an applicator head 155 as disclosed in Fig. 3 in which the contour of the ink applying edges of said head is approximately equal to and the complement of the width of the contour of the edge of outsole 80. It should be noted that the outer

edge 92 of said head snugly fits into and completely fills the space intermediate the lower portion 93 of the shoe upper 94 and the upper edge of outsole 80. Since no ink can get onto outer applicator head edge 92, the ink cannot find its way onto upper 94 wherefore the need for masking tape is eliminated.

It should be understood that a separate discharge head may be provided for each different type of inking job or problem as well as for different thicknesses of shoe soles, etc., so that the nature of the ink line made in any instance will be of the proper width, etc.

The term discharge channel hereinafter used refers to the recessed, wide throated ink-line defining portions of the applicator discharge heads 55, 100 and 200 as defined by the lateral distance between faces A and B, E and F and fingers 124 and 125 respectively.

It should be further noted that by reason of the accuracy and the manner in which ink may be directed by said device that the present practice of ironing the inked portions may be dispensed with.

In actual practice, each worker is provided with one or more devices as hereinabove described, and at frequent intervals (preferably each time an ink line is about to be made), the contents of reservoir 10 and of the conductor 11 are agitated by pulling on applicator member 12 one or more times. By reason of the fact that each operator is able to keep his ink supply properly agitated, it is possible to provide said operator with a sufficient quantity of ink to last the entire day thereby eliminating his numerous trips to the master reservoir for ink as is now the case.

It should be understood that if desired, a different type of impeller may be provided to agitate the contents of reservoir 10 rather than the type herein disclosed. Such an impeller may comprise merely a flat plate member adapted to be oscillated up and down by means of drive member 40.

Likewise, it is contemplated that in some instances the contents of reservoir 10 may be continuously agitated by means of a suitable motor in which case the means disclosed herein for agitating the fluid contents of the reservoir would be dispensed with and the means disclosed herein for agitating the contents of the conduit or conductor 11 would be used without using said tightly coiled spring as a drive member 40, but merely as a conduit contents agitator.

It should be noted that cover member 25 may be provided with suitable fastening means, such as slotted members 100 which are adapted to engage a suitable bracket member, not shown, for maintaining reservoir 10 adjacent and above a shoe operator.

It should likewise be noted that once an operator has adjusted the rate of ink discharge (by regulating the degree to which needle 45 penetrates bore 52) from his applicator, he need not thereafter be concerned about getting too much or too small an amount of ink when pilot 79 is depressed to actuate valve 66. In this manner the rate and quality of production is increased without increasing the skill required of the individual operator.

By reason of the neatness and accuracy with which ink may be applied by the present device, it is now possible to use so-called fast drying, self-polishing inks, which, as their name indicates, dry rapidly with a fine lustre and which require no ironing as is required to polish the brush ap-

plied inks. Heretofore it has not been practically feasible to use a fast drying, self-polishing ink because of the chance of damaging the shoes in the event such ink was not neatly and accurately applied. However, the present device is admirably adapted to apply such inks.

It is to be understood that various modifications and changes in the structural details of the device may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed is:

1. In a device of the class described a fluid dispenser comprising a fluid reservoir, a fluid applicator and an extensible conduit interconnecting said reservoir and applicator, agitator means housed within said reservoir, a flexible member disposed within said conduit, one end of said flexible member being connected to said agitator means, the opposite end of said member being anchored to said applicator said agitating means being operable from said applicator upon extension of said conduit for operating said agitator means from said applicator.

2. In a device of the class described comprising a fluid reservoir, a fluid applicator and an extensible fluid conduit interconnecting said reservoir and applicator, impeller means disposed within said reservoir for agitating the fluid contents thereof, impeller drive means operatively associated with said impeller, a flexible shaft-like member extending between said applicator and said impeller drive means and located interiorly of said extensible fluid conduit, said impeller drive means being remotely operable from said applicator upon movement of said applicator for extending said conduit.

3. A fluid dispensing device of the class described comprising a reservoir, an applicator and an extensible conduit interconnecting said reservoir and applicator, means operable upon extension of said conduit connected to said applicator for simultaneously agitating the fluid contents of said reservoir and said extensible conduit, and means on said applicator for controlling the discharge of fluid from said applicator.

4. In a device of the class described including a fluid reservoir, a discharge nozzle and an extensible fluid conduit interconnecting said reservoir and nozzle, impeller means disposed within said reservoir for agitating the fluid contents thereof, impeller driving means comprising a screw member adapted for vertical movement along its longitudinal axis for producing a rotating motion about its longitudinal axis, means for returning said impeller driving means to the top of its vertical travel to a normal position, means for actuating said impeller driving means comprising a flexible, tightly coiled spring member one end of which is secured to said vertically movable screw member the other end of which is anchored to said discharge nozzle, said spring member being loosely housed within said extensible fluid conduit, said screw being caused to rotate in response to a downward pull on said nozzle, and means responsive to pressure for controlling discharge of fluid from said nozzle.

5. In a device of the class described comprising a fluid reservoir including a discharge nipple, impeller means disposed within said reservoir for agitating the fluid contents thereof, a fluid applicator comprising a housing having a fluid inlet nipple at one end and having a fluid outlet at the opposite end, an extensible fluid conduit interconnecting said reservoir discharge nipple

and said applicator inlet nipple, impeller actuator means extending through said conduit terminating at and operatively secured to said applicator whereby said impeller means may be remotely actuated from said applicator incident to extension of said fluid conduit, said applicator including means for controlling the rate of flow of fluid through said applicator, a valve, and means for operating said valve including a pilot member, a fluid discharge head, said discharge head operatively associated with the outlet end of said applicator housing, said discharge head comprising a fluid discharge port which terminates in a pair of spaced faces, said valve operating means extending through said discharge port, said pilot member adapted to normally extend forwardly between and extend beyond the outer edge of said spaced discharge head faces when said valve is in a closed position, the lateral distance between said spaced faces defining the width of a fluid line discharged from said discharge head when said valve is operated in response to actuation of said pilot member.

6. In a device of the class described comprising a fluid reservoir including a discharge nipple, a fluid applicator including an inlet nipple, and an extensible fluid conduit having opposite ends secured to said reservoir discharge nipple and said applicator inlet nipple respectively, a flexible coiled spring member extending longitudinally of and co-axially through said conduit, opposite ends of said member being fixed relative to the opposite ends of said conduit whereby movement of said applicator away from said reservoir will stretch said conduit and said coiled spring member for producing a relative movement between the interior of said conduit and the individual coils comprising said spring member whereby the fluid contents of said conduit will be agitated.

7. A fluid dispensing device of the class described comprising a reservoir, an applicator, and an extensible conduit interconnecting said reservoir and applicator, means operable from said applicator incident to extension of said conduit for simultaneously agitating the fluid contents of said reservoir and the fluid contents of said extensible conduit, and means housed within said applicator for controlling the rate of discharge of fluid from said applicator, and valve means for controlling the duration of fluid discharge from said applicator.

8. In a device of the class described comprising a fluid reservoir, fluid agitating means disposed within said reservoir, a fluid applicator including an inlet and a discharge end, and an extensible fluid conductor interconnecting said reservoir and the inlet end of said applicator and including agitator drive means rendered operative upon extension of said conduit interconnecting said agitator and applicator, said applicator including adjustable fluid metering means, a valve, and means including a pilot member which normally projects beyond the discharge end of said applicator for controlling the operation of said valve.

9. In a device of the class described comprising a fluid reservoir, an extensible fluid applicator and a conductor interconnecting said reservoir and applicator, impeller means disposed interiorly of said reservoir for agitating the contents thereof, impeller actuating means extending co-axially of said conductor for interconnecting said impeller means with said applicator whereby said impeller means is rendered operative when said

applicator is moved relative to said reservoir by an amount sufficient to extend said fluid conductor beyond its normal, unextended length.

10. In a device of the class described comprising a fluid reservoir, fluid agitating means disposed within said reservoir, a fluid applicator, a conductor interconnecting said reservoir and applicator including fluid agitating drive means rendered operative upon extension of said conduit, said applicator including means for metering the rate of discharge of fluid from said applicator, a valve, and means for actuating said valve to effect a fluid discharge from said applicator.

11. In combination, a fluid reservoir, a fluid applicator including a discharge head, an extensible conduit member interconnecting said reservoir and applicator, an impeller to agitate the fluid contents of said reservoir, of an impeller drive member located coaxially of said conduit member and extending between and operatively connecting said impeller and applicator for actuating said impeller when said conduit is extended incident to movement of said applicator away from said reservoir, a valve in said applicator to control the rate of supply of fluid from said discharge head, and a second valve in said applicator including a pilot member movable relative to said discharge head for controlling the discharge of fluid from said discharge head.

12. As a new article of manufacture an applicator head of the class described comprising a body portion, a recessed substantially U-shaped open ended discharge channel disposed intermediate a pair of outwardly projecting spaced walls, a valve to control the flow of fluid to said discharge channel, and valve actuating means projecting from said valve and extending forwardly between said spaced walls.

13. As a new article of manufacture an applicator for applying ink to the corner edge of shoe soles, said applicator comprising a housing, means in the upper end thereof for attaching a fluid ink reservoir, the lower end of said housing terminating in a recessed substantially U-shaped open ended discharge channel disposed intermediate a pair of spaced walls, a passageway extending through said housing, a valve, resilient means for normally maintaining said valve in a seated condition, valve actuating means disposed intermediate said valve and the outer edge of said spaced discharge channel defining walls, a second valve disposed between said valve and the discharge channel, said valve actuating means adapted to unseat both of said valves when the corner edge of a shoe is introduced between said spaced walls, whereby ink is discharged onto those portions of the shoe edge located within said spaced walls.

14. As a new article of manufacture an applicator head for applying ink to the corners of articles such as shoe soles, heels and the like, comprising a housing, a passageway extending through said housing, means in one end of said passageway for attaching an ink reservoir, the opposite end of said passageway terminating in a discharge port, and an ink applying edge comprising an arcuate shoe corner engaging surface, a recessed substantially U-shaped open ended channel way extending longitudinally of said surface, said channel being defined by a pair of spaced walls, and a bottom, said discharge port terminating at and being in communication with said channel bottom, a valve for controlling the discharge of ink into said channel, and means

disposed intermediate said valve and a plane through the outer edge of said channel for contacting the corner of an article introduced into said channel to be inked whereby to unseat said valve.

15. As a new article of manufacture an applicator head for simultaneously applying ink to the top, outer and bottom edges of a shoe sole, said applicator head comprising a housing, a passageway extending through said housing and including an inlet and a discharge port, said discharge port located in the perimeter of a rounded ink applying face, a pair of spaced fingers extending outwardly beyond the plane of said face for defining the width of said face, the lateral distance between said spaced fingers being substantially equal to the width of the shoe edge sole to be inked, said fingers adapted to extend over the top and bottom edges of the shoe sole, a valve for controlling the discharge of ink from said discharge port, and means disposed intermediate said fingers to contact the outer edge of the shoe sole being inked for actuating said valve.

16. As a new article of manufacture an applicator head for simultaneously applying ink to the outer, top and bottom edge of shoe soles, said applicator head comprising a recessed discharge channel including a bottom and upstanding side walls, said bottom adapted to engage the outer edge of a shoe sole, one upstanding wall adapted to extend over the top edge of said sole intermediate the outer edge of the sole and extend along said top edges to the juncture of the shoe upper with said sole, the other side wall adapted to engage the bottom edge of said sole, a valve for controlling the discharge of ink to said channel, and means for contacting the outer surface of said sole for actuating said valve.

17. As a new article of manufacture an applicator including a fluid discharge head for applying ink to the corner edge of shoe soles, and the like, said applicator comprising an elongated housing having a central bore terminating in a chambered discharge opening and a tapered valve seat, a hollow tapered needle valve operating through the central bore and closable against said seat, means for selectively adjusting and fixing said needle valve relative to its seat, a fluid connector removably secured to and projecting from said chambered discharge opening, 50

said connector having a constricted tubular discharge opening and a valve seat in its lower portion, a ball valve closable against said seat and resilient means for normally urging said ball valve onto its seat, and a fluid discharge head removably secured to the lower end of said connector, said head having a discharge opening and a valve seat in its lower portion, said discharge opening being defined by a pair of outwardly projecting spaced walls for providing a U-shaped channelway into which the edge of a shoe sole is bodily receivable, a valve closable against said seat, said valve including a forwardly extending pilot member operating through and terminating in the discharge opening, said pilot including means engageable with the lower face of said ball valve for synchronizing the operation of the valve of the discharge head with the operation of said ball valve, said needle valve adapted to control the rate of flow of fluid through said applicator, said discharge head valve and ball valve adapted to concurrently control the discharge of fluid from said head, each of said valves adapted to be unseated against the counter force of said resilient means when the pilot is shifted inwardly of said head incident to the introduction of the edge of a shoe sole into said U-shaped channelway.

18. In combination, a fluid reservoir, fluid impeller means within said reservoir, a fluid applicator including a fluid discharge head, an extensible conduit member interconnecting said reservoir and applicator, impeller actuating means extending co-axially of said fluid conduit and operatively interconnecting said applicator to said impeller means whereby said impeller means may be remotely driven from said applicator incident to stretching said conduit upon movement of the applicator away from the reservoir, a valve in said applicator to control the rate of supply of fluid to the discharge head, a second normally closed valve to control the discharge of fluid from said head, and means carried by and movable relative to said discharge head for unseating said second valve only incident to the application of fluid, and for precluding accidental or unintentional discharge of fluid incident to actuation of said impeller actuating means.

PEARL JOSEPH WENTWORTH.