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E. L. HOLLENBECK
 FLUID CONTROL APPLICATOR
 Filed March 1, 1940

2,282,406

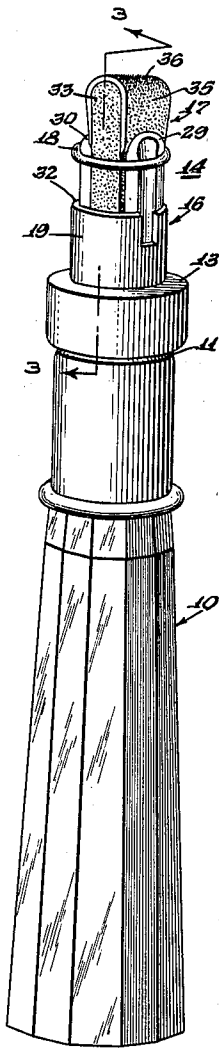


FIG. 1.

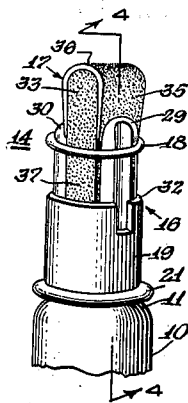


FIG. 2.

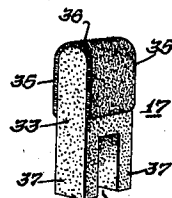


FIG. 6.

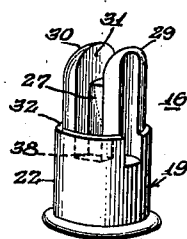


FIG. 7.

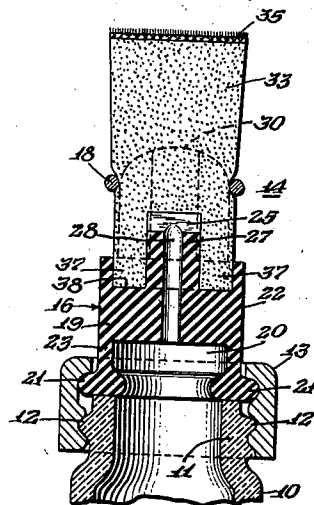


FIG. 3.

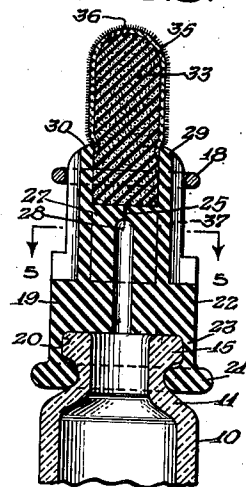


FIG. 4.

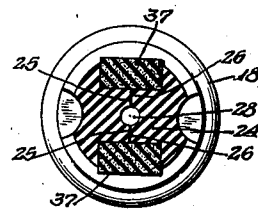


FIG. 5.

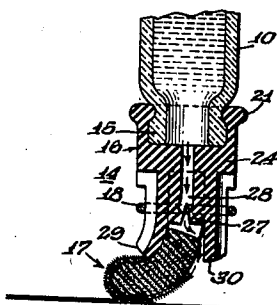


FIG. 8.

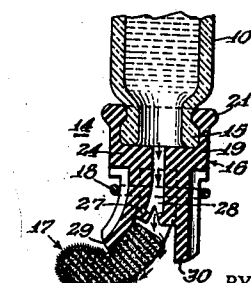


FIG. 9.

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2,282,406

FLUID CONTROL APPLICATOR

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Application March 1, 1940, Serial No. 321,621

17 Claims. (Cl. 15—139)

My invention is an improved fluid control for applicators.

The fundamental basic concept consists in the provision of a device of this character in which the salient movable components are resilient, thus insuring ease and positiveness of operation, and extreme durability. Other improvements reside in the incorporation of a novel type of valve; a unique means for actuating the valve and feeding the fluid to the spreader; a spreader which thoroughly diffuses and works in the fluid with respect to the surface of the article under treatment; a sleeve which serves the dual function of regulating and closing the valve; and a nipple connection which is interchangeable with different types of reservoirs.

Essentially, the invention involves a resilient nipple having an annular flange which is adapted as a connection for either of two dissimilar reservoirs, the body of the nipple including a resilient valve, a passage and a pair of auxiliary protuberances in combination with a spreader—also resilient—and a sleeve for controlling the valve. The spreader is adapted to be manually oscillated in such manner as to actuate the valve and permit the flow of fluid through said passage to the applying extremity of the spreader.

One form of the invention is illustrated by the accompanying drawing, in which

Fig. 1 is a perspective view of a specially designed reservoir with the fluid control assembly attached thereto.

Fig. 2 is a similar view of the fluid control assembly secured to a conventional type of reservoir, which latter is illustrated as being partly broken away.

Fig. 3 is a vertical section taken along lines 3—3 of Fig. 1.

Fig. 4 is a similar section along lines 4—4 of Fig. 2.

Fig. 5 is a transverse section along lines 5—5 of Fig. 4.

Fig. 6 is a detailed perspective of the spreader removed from the assembly.

Fig. 7 is a similar illustration of the valve, and

Figs. 8 and 9 are vertical sections of the outer extremity of the assembly in inverted positions showing different adjustments of the valve, and the spreader in the act of applying fluid.

In the present embodiment of the invention, 10 indicates a specially constructed reservoir of rather ornate design with the neck 11 thereof externally threaded at 12 to receive the gland 13 which is designed to couple the reservoir and the fluid control assembly—denoted generally by

the reference character 14—see particularly Figs. 1 and 3. As an alternative form of reservoir, the conventional type with a flanged neck 15 may be employed—note Figs. 2, 4, 8 and 9. And in either instance the novel construction of the base of the control assembly renders the attachment interchangeable, as will presently be explained in greater detail.

More specifically the fluid control assembly 14 comprises the following elements: a valve component 16, a spreader 17, and a feed regulator 18.

As observed in Fig. 7, the valve component consists, firstly, of a base in the form of an elastic nipple 19 with a recess 20 and an annular flange 21 extending laterally in opposite directions—outwardly beyond the periphery of the nipple body 22 and inwardly beyond the internal diameter of recess 20—this construction resulting in the formation of a relatively short connecting wall 23 between the body and the flange. The nipple is interchangeable with different types of reservoirs. In Fig. 3, for example, the base of flange 21 is adapted to rest on the top edge of neck 11 and the outer portion of the flange engaged by the gland 13, while in Fig. 4, recess 20, wall 23 and the inner portion of the flange completely envelop and tightly hug neck 15 of a distinctly different type of reservoir.

In other respects the valve component involves essentially a valve 24—also resilient—and including a pair of opposed seats 25—26, which are formed by splitting the outer extremity of a vertical extension 27. This extension is integral with the nipple 19, and moreover, is provided with a medial passage 28 which continues through the nipple and at its open end establishes communication with the reservoir. Carried by outer opposite sides of extension 27 and projecting well beyond its confines are parallel companion protuberances or auxiliary feeders 29—30. The confronting surfaces 31 of the protuberances are flat, and their outer surfaces are longitudinally channelled to augment their flexibility—the channelling reaching down below the edge 32 of the nipple body in line with the point of emanation of the extension 27. Together, the protuberances serve in diverse ways, i. e., as buffers, as feeders, etc.—explication of which is hereinafter set forth.

Spreader 17, basically, is of sponge rubber 33, or similar material, and of substantially rectangular configuration, with its inner extremity bifurcated at 34 and a thin strip of fuzzy substance 35, as mohair, or the like, permanently affixed to the outer extremity—the tip of the spreader be-

ing rounded at 36, and said strip 35 manifestly conforming therewith—see Fig. 6. The inner extremity of spreader 17 is devised to fit snugly between protuberances 29—30, the bifurcated extremity 34 embracing extension 27 to present a quasi lap-joint, and the assembly is completed by permanently fixing the inner ends of the bifurcations 37 to the corresponding countersunk portions 38 upon diametrically opposite sides of the upper portion of the nipple body; and by the addition of a feed regulator 18 in the nature of a sleeve or equivalent device for the purpose of frictionally engaging protuberances 29—30.

Normally the various components of the fluid control assembly are relatively disposed, as exhibited in Figs. 1 to 4 inclusive, that is, the opposing seats 25—26 of valve 24 are maintained in close contact with each other—simply expressed, the valve is closed. And the valve is so held as long as sleeve 18 remains at the limit of its forward movement. Now when it is desired to use the device, sleeve 18 is slid downwardly a suitable distance over protuberances 29—30, as illustrated in Fig. 8 and Fig. 9—the precise adjustment of the sleeve being dependent upon the characteristics of the fluid in the reservoir and the rate of flow best suited for the particular job at hand. In any event, employing the reservoir as a handle, the spreader component is worked back and forth over a given surface in a fashion similar to the conventional method of using a paint brush. Upon each oscillation of the spreader, valve 24 is opened so as to permit a quantity of the fluid from the reservoir to be uniformly fed upon the outer end of the spreader between bifurcations 37—first on one side and then on the other side of the body of the spreader—from whence it flows to the fuzzy strip 35 and ultimately is diffused on the article. Upon completion of the particular job, sleeve 18 is returned to its normal position so as to effectively seal the contents in the reservoir.

During the actual operation of the device—again referring to Figs. 8 and 9—the inner faces of the outer extremities of protuberances 29—30 serve as floating fulcrums for the adjacent extremity of the spreader.

I claim:

1. A fluid control assembly comprising a body having a passage therein, a resilient valve at the outer terminal of said passage, said valve being flanked by resilient auxiliary feeders, and a spreader operatively associated with the valve.

2. A fluid control assembly composed of resilient material, and comprising a body having a passage therein, an integral valve at the outer end of said passage, an integral protuberance carried by opposite sides of said valve, and a spreader in operative relation to said valve.

3. A fluid control assembly comprising a resilient body having a passage therein, a valve for said passage, protuberances carried by said valve, a spreader disposed between said protuberances in operative relation to said valve, and a feed regulator engageable with the protuberances.

4. A fluid control assembly comprising a body having a passage therein, an elastic valve for said passage, a pair of elastic protuberances upon opposite sides of said valve, and an elastic spreader contiguous said valve and intermediate said protuberances.

5. A fluid control assembly comprising a body having a passage therein, an elastic valve for

said passage, a pair of elastic protuberances upon opposite sides of said valve, an elastic spreader contiguous said valve and intermediate said protuberances and a feed regulator engageable with said protuberances.

6. A fluid control assembly comprising a body provided with a passage, a valve for said passage, protuberances carried by said valve, and a spreader operatively associated with the valve, said spreader having its outer extremity equipped with a fuzzy surface.

7. A fluid control assembly comprising a nipple having a passage therein, a resilient valve at the outer terminal of said passage, said valve being flanked by resilient auxiliary feeders, and a spreader operatively associated with the valve, said feeders having channels therein to increase the flexibility thereof.

8. A fluid control assembly comprising a body having a passage therein, a resilient valve for said passage, said valve being flanked by resilient auxiliary feeders, and a spreader operatively associated with the valve, said feeders and said body being channelled.

9. The combination with an open ended reservoir of a fluid control assembly comprising a body carried by the open end of the reservoir and having a passage therein, an elastic valve at the outer terminal of said passage, elastic protuberances upon the sides of said valve, and an elastic spreader contiguous said valve and intermediate said protuberances.

10. The combination with an open ended reservoir of a fluid control assembly comprising a body carried by the open end of the reservoir and having a passage therein, an elastic valve at the outer terminal of said passage, elastic protuberances upon the sides of said valve, an elastic spreader contiguous said valve and said protuberances, and a feed regulator engageable with said protuberances.

11. The combination with an open ended reservoir of a fluid control assembly comprising a body carried by the open end of said reservoir and having a passage therein, an elastic valve at the outer terminal of said passage, said valve having elastic protuberances upon the sides thereof, and an elastic oscillating spreader contiguous said valve and said protuberances, said protuberances designed to serve as fulcrums for the spreader.

12. A fluid control assembly, comprising a body having a passage therein for fluid, a resilient valve for controlling the discharge of fluid from said passage, a resilient feeder flanking said valve, and a spreader flanking and projecting beyond said feeder so as to operate said valve through actuation of said feeder.

13. A fluid control assembly, comprising a body having a passage therein for fluid, a resilient valve for controlling the discharge of fluid from said passage, a resilient feeder flanking said valve, a spreader flanking and projecting beyond said feeder so as to operate said valve through actuation of said feeder, and a regulator for and in operative relation to said feeder.

14. A fluid control assembly, comprising an elastic body, a passage in said body, an elastic valve for said passage which is normally closed, an oscillatable spreader secured to and projecting from said body, and elastic elements on the body and flanking said spreader so that according as said spreader is oscillated in one direction or the other one of said elements or the other will be flexed to open said valve.

15. A fluid control assembly, comprising an elastic body, a passage in said body, an elastic valve for said passage which is normally closed, an oscillatable spreader secured to and projecting from said body, elastic elements on the body and flanking said spreader so that according as said spreader is oscillated in one direction or the other one of said elements or the other will be flexed to open said valve, and means for controlling the flexing of said elements, whereby the degree of opening of said valve can be regulated.

16. A fluid control assembly comprising a body, a resilient and flexible extension on said body having a passage and an integral valve for said passage urged to closed position, a resilient and flexible spreader normally contiguous said valve, and resilient and flexible feeders integral with

5 said extension and flanking said spreader, said spreader projecting beyond said feeders so that when said spreader is flexed in one direction or the other one feeder or the other will be flexed to bend said extension and open said valve and simultaneously space said spreader from said valve to one side or the other.

10 17. In a fluid control applicator, a body, a passage for fluid in said body, flexible elements carried by said body and normally closing said passage, and a flexible spreader between and projecting from said elements, whereby according as said spreader is flexed in one direction or the other one of said elements or the other will be flexed to open said passage.

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