May 28, 1940. H. E. BRANDT 2,202,645

INTERMITTENT OR CONSTANT DISCHARGE DEVICE

Filed July 30, 1938

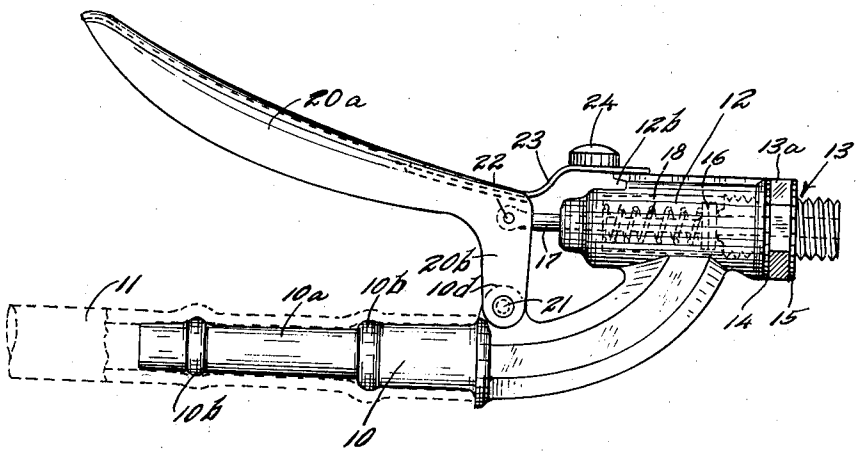

Fig. 1.

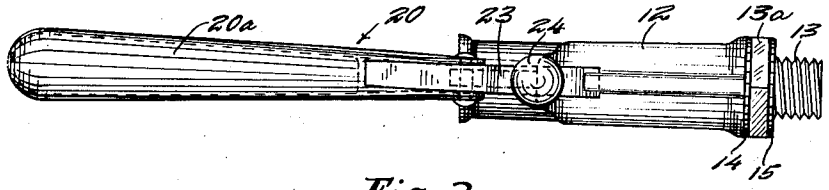

Fig. 3.

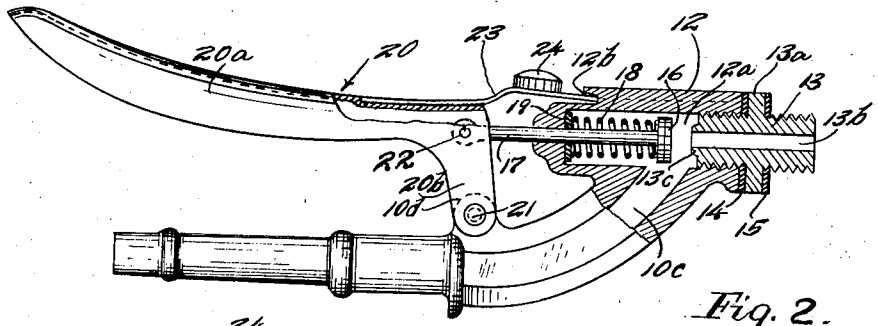

Fig. 2.

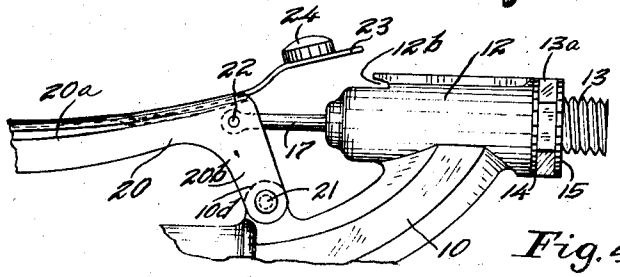

Fig. 4.

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INTERMITTENT OR CONSTANT DISCHARGE DEVICE

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3 Claims. (Cl. 251—163)

This invention relates to a valve structure and particularly to a discharge valve or discharge device for a spraying apparatus. While the structure may have various applications, it is particularly designed to be used with a sprayer in which the liquid is delivered to the nozzle under pressure and discharged without air being delivered to the nozzle and mixed with the liquid.

It is an object of this invention to provide an extremely simple, convenient and efficient discharge device which can be intermittently operated at the will of the operator or can be placed in position to operate or discharge continuously.

It is a further object of the invention to provide a discharge device formed in part by the conduit which conducts the liquid to be discharged and which comprises a valve body adapted to be engaged by a member carried by an operating lever.

It is another object of the invention to provide a discharge device in which the conduit conducting the liquid forms part of a grip handle, the other part of which is formed by a control lever adapted to be operated intermittently or held in position for the device to operate continuously.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawing in which like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a view in side elevation of the device;

Fig. 2 is a view similar to Fig. 1, some parts being broken away and others shown in vertical section;

Fig. 3 is a top plan view of the device; and

Fig. 4 is a partial view similar to Fig. 1 showing the parts in different positions.

Referring to the drawing, a discharge device is shown comprising a conduit 10 having a portion 10*a* tapering toward one end and having raised beads or collars 10*b* thereon, said portion 10*a* being adapted to have a flexible or resilient tube 11 disposed thereover and held thereon by friction. Conduit 10 has a passage 10*c* extending longitudinally thereof for the passage of liquid. Said conduit 10 is curved at one end and a valve body 12 is secured to said end and extends transversely thereof, the same having a valve chamber 12*a* therein with one side of which passage 10*c* communicates. Valve body 12 is interiorly threaded at its outer end to receive a plug 13. Plug 13 has a collar 13*a* thereon which engages a gasket 14 held between the outer end of the body 12 and said collar. Another gasket 15 is shown at the outer side of collar 13*a* adapted to be engaged by the inner end of a nozzle tip which will be screwed on the outer threaded end of plug 13 in the use of the device. Plug 13 has a discharge passage 13*b* leading therethrough which leads from chamber 12*a* and said plug has a valve seat 13*c* formed thereon surrounding passage 13*b*. Valve seat 13*c* is adapted to be engaged by a valve 16 which will have a face of yielding or resilient material such as rubber. Valve 16 has a valve stem 17 connected thereto and leading therefrom, the same passing through an opening in the rear end of valve body 12 and projecting rearwardly from said body. A coiled compression spring 18 surrounds valve stem 17 bearing at one end against valve 16 and at its other end against a gasket washer 19 surrounding valve 17 and urged against the rear end of chamber 12*a*. It will be noted that spring 18 normally urges valve 16 against seat 13*c* or to closing position. A lever 20 is provided having a handle portion 20*a* which is of arcuate or U-shape in cross-section with its concave side upwardly, which portion extends in spaced relation to conduit 10. Lever 20 has a portion 20*b* extending at an angle to portion 20*a* toward and transversely of conduit 10, the same being pivotally connected at its end to a lug 10*d* on conduit 10 by the pivot member 21. The valve stem 17 is pivotally connected at its rear end by a pivot 22 to the lever 20 adjacent the upper end thereof. A resilient strip 23 is secured to handle 20 and while this strip might be secured in various ways, in the embodiment of the invention illustrated it is shown as seated in a groove formed in the top of portion 20*a* and held therein by the sides of said groove being pressed thereagainst. Strip 23 is shown as somewhat offset upwardly a short distance from lever 20 and the same has a button 24 secured to the top thereof some distance from lever 20, said button being shown as having a semi-spherical top. The body 12 has a recess 12*b* formed at its top adjacent its rear end in which the free end of strip 23 is at times adapted to engage.

In operation, the liquid is discharged through conduit 11 under pressure from a suitable container forming part of the sprayer and said liquid passes into the passage 10*c* of conduit 10 and from said passage into valve chamber 12*a*. As stated, spring 18 urges valve 16 to closed position and said valve is normally closed. When the operator desires to spray, he grips the conduits 10 and 11 with handle portion 20*a* and moves said portion toward conduit 10. This swings lever 20 about its pivot 21 and moves valve stem 17 and

valve 16 rearwardly away from valve seat 13c so that the liquid may be discharged through passage 13b and sprayed by the nozzle. The spraying can be continued as long as handle portion 20a is pressed towards conduit 10. When handle portion 20a is released spring 18 will move valve 16 to closed position. The device can thus be intermittently operated at the will of the operator. It is sometimes desired to project a continuous spray from the device, as when a large plant or tree is being sprayed. In the normal intermittent operation of the device, the free end of strip 23 passes over valve body 12. When it is desired to have a continuous spray button 24 will be depressed by the operator and this can be very conveniently done by pressing on said button with the thumb or finger. When strip 23 is so depressed and the handle 20a released, the free end of the strip will engage in the recess 12b and, as shown in Fig. 2, valve 16 will be held away from seat 13c or in open position. With the valve in this position and with lever 20 held in the position shown in Fig. 2 the device will operate continuously.

From the above description it is seen that I have provided a very simple, very efficient and easily operated discharge device adapted for either intermittent or constant discharge. The structure is simple and compact, the parts are few and they can be easily made and assembled. The device has been amply demonstrated in actual practice, found to be very successfu and efficient and is being commercially made.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. A valve structure having in combination, a conduit through which liquid may pass, a valve body secured to and offset from said conduit having a chamber therein with a discharge passage leading therefrom, a valve seat surrounding said passage, a valve movable to and from said valve seat and having a stem projecting from one end of said body and laterally spaced from said conduit, a spring urging said valve to closed position, a lever having an arm pivoted to said conduit and having a handle portion spaced from said conduit and adapted to be gripped therewith, said valve stem being pivotally connected to said lever, said body having a recess as its end adjacent said lever and a resilient arm rigidly secured to said lever normally in position to move over said valve body but depressible to engage in said recess and hold said valve in open position.

2. A valve structure having in combination, a conduit through which liquid may pass, a valve body at the end of said conduit and having a chamber therein with a discharge passage leading therefrom, a valve seat surrounding said passage, a valve movable to and from engagement with said seat and having a valve stem projecting from said body, an angle lever having a handle portion spaced from and adapted to be gripped with said conduit and a portion extending from the end of said handle portion transversely to and pivoted to said conduit, said valve stem being pivotally connected to said lever adjacent the vertex of the angle portion of said lever and a member carried by said lever and normally moving over said body in the movement of said lever but movable to engage said body to hold said lever in position with said valve open.

3. A valve structure having in combination, a conduit through which liquid may pass, a valve body secured to said conduit having a chamber therein with a discharge passage leading therefrom, the axes of said body and conduit being substantially parallel, a valve seat surrounding said passage, a valve movable to and from engagement with said seat and having a valve stem projecting from said body, a lever having a handle portion spaced from and adapted to be gripped with said conduit, said lever having a portion extending transversely of and pivotally connected to said conduit, said stem being pivotally connected to said lever and means cooperating with and rigidly secured to said lever normally inoperative in the movements of said lever but being movable to engage said body and hold said lever in position with said valve open.

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