

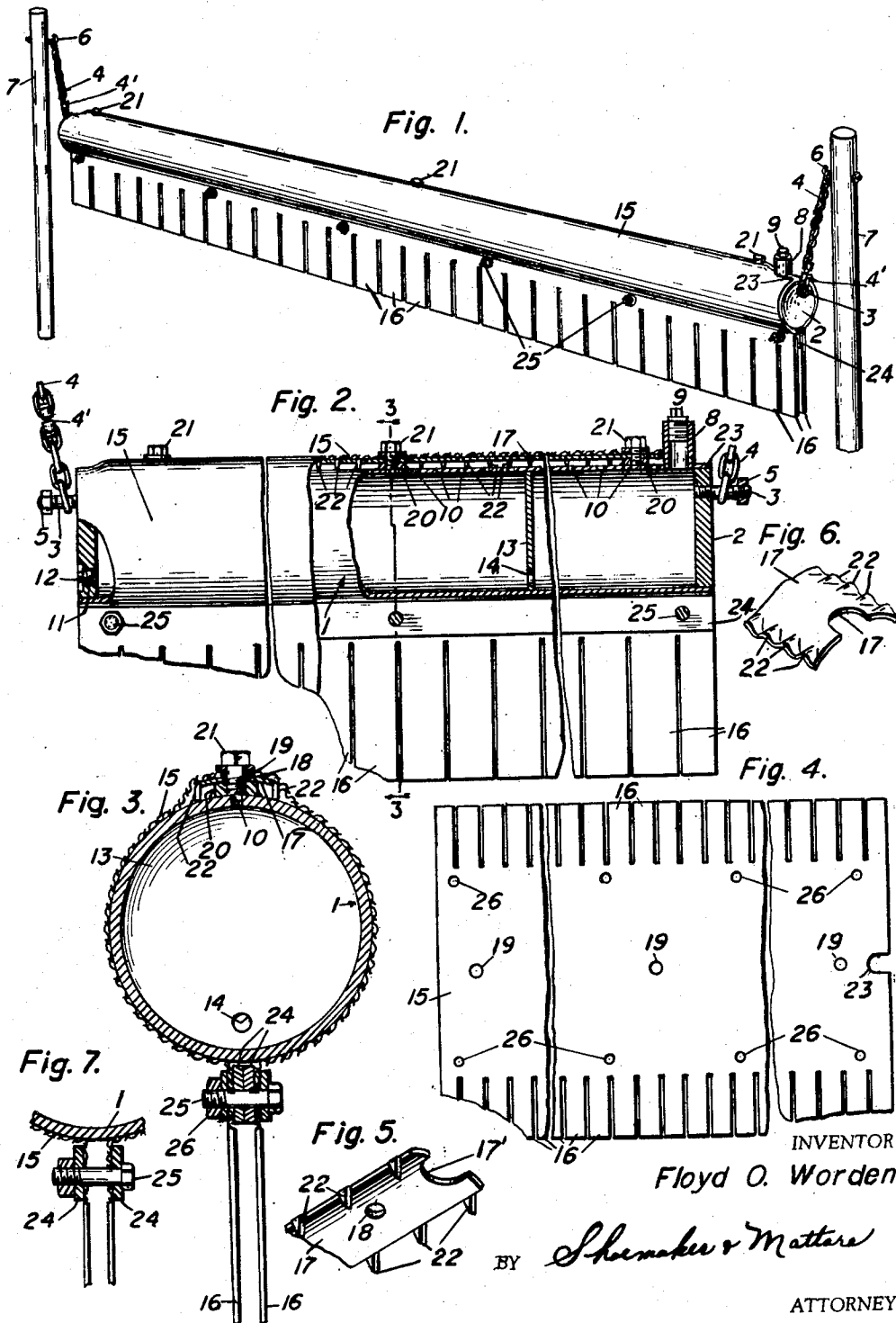
Feb. 15, 1955

F. O. WORDEN

2,702,020

LIQUID APPLICATOR FOR ANIMALS

Filed May 6, 1953



1

2,702,020

LIQUID APPLICATOR FOR ANIMALS

Floyd O. Worden, Alliance, Nebr.

Application May 6, 1953, Serial No. 353,365

6 Claims. (Cl. 119—157)

This invention relates to an applicator by means of which disinfectants or liquid medical compounds may be applied to hogs, calves, and other animals, the present invention constituting an improvement over the applicator illustrated and described in my copending application filed December 21, 1952, and having Serial No. 262,701 and issued as Patent No. 2,653,575 on September 29, 1953.

One object of the invention is to provide an applicator wherein a cylindrical container which is mounted for movement from a normal position disposing outlets in the container upwardly to an inverted position, allowing liquid in the container to flow outwardly through the openings, the container being covered by an improved jacket formed of absorbent fabric and having portions extending downwardly from the container and constituting flaps which have wiping contact with portions of an animal walking under the applicator and serving very effectively to apply liquid to portions of the animal with which they have brushing contact.

Another object of the invention is to provide a jacket consisting of a sheet of absorbent fabric which is of such width that when the sheet is secured about the container side portions of the sheet will extend downwardly therefrom a sufficient distance to form wiping flaps which apply liquid to an animal and assist in causing the container to be tilted towards an inverted position in which liquid may flow outwardly through openings in the container and saturate the jacket.

Another object of the invention is to provide an applicator of this character wherein depending portions of the sheet forming the jacket or cover are slit from their lower edges and thus divided into tongues which are freely movable relative to each other and may thus move to deflected positions in which they have wiping contact with the backs and sides of animals passing under the applicator.

Another object of the invention is to provide the container with a fabric jacket or cover of such dimensions that when it is disposed about the container portions forming depending flaps will be of such depth that metal bars may be secured between their upper portions and serve to hold the flaps spaced from each other and in addition serve as weights which tend to return the container to its normal position after the container has been tilted to a position allowing discharge of liquid through outlet openings in the upper portion of the container.

Another object of the invention is to provide the applicator with a shield which holds a portion of the fabric sheet or cover spaced outwardly from outlets in the upper portion of the container, improved means being provided for securing the shield in place upon the container and also securing a portion of the fabric cover across the shield and preventing the cover from slipping circumferentially of the container out of its proper position.

Another object of the invention is to provide a cover and improved means for firmly securing the cover about the container but allowing the cover to be easily and quickly removed when cleaning or replacement of the cover is necessary.

With these and other objects in view, the invention consists of a special construction and arrangement of parts, a practical embodiment of which is illustrated in the accompanying drawings wherein:

Fig. 1 is a perspective view of the improved applicator;

2

Fig. 2 is a view upon an enlarged scale showing the cylindrical container and its cover partially in longitudinal section and partially in side elevation;

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 2;

Fig. 4 is a view of the sheet of fabric forming the cover or jacket for the container;

Fig. 5 is a perspective view of an end portion of the shield which holds the cover in outwardly spaced relation to outlet openings formed through the upper portion of the container;

Fig. 6 is a fragmentary perspective view showing a shield of a modified construction;

Fig. 7 is a fragmentary sectional view showing bars mounted against outer surfaces of the flaps instead of between the flaps as shown in Fig. 3.

The container 1 of this applicator is of cylindrical formation and is preferably approximately 8 feet long and about 6 or 7 inches in diameter, it being understood that it may be of any length and diameter desired.

The container extends horizontally and at each end is closed by a head 2 which may be integral with the annular wall of the container or formed separate therefrom and secured in any desired manner. Stems or pins 3 extend outwardly from the heads 2 in upwardly offset eccentric relation to the container and about these pins are loosely engaged lower ends of flexible suspension members 4 which may be chains, as shown, cables, or any other desired type of suspension members. After the lower ends of the suspension members have been engaged about the pins or stems, nuts 5 are screwed upon the stems and prevent the suspension members from slipping off of the stems. Upper ends of the suspension members have been shown pivotally engaged with bolts 6 which pass through supporting posts 7 which are of such height that the applicator will be supported above the ground a sufficient distance for animals to be treated to walk under the applicator.

Since the suspension members are pivoted at their upper ends to the bolts 6, the container and the suspension members may have swinging movement relative to the bolts and the loose connections between lower ends of the suspension members and the container will permit the container to have turning movement as well as swinging movement. The swivels 4' near lower ends of the chains assist in permitting swinging and tilting movements of the container.

It will be understood that while the chains have been shown swingably connected with posts, any overhead supporting means may be used in place of the posts.

This container is to hold a liquid, such as an insecticide for killing vermin or a liquid medicine for treating sores, and, therefore, at one end of the container there has been shown a filling neck 8 which is of sufficient diameter to permit the liquid to be readily poured into the container. A plug 9 closes the upper end of the filling neck, but it will be understood that any other type of removable closure may be provided.

Along the upper portion of the annular wall of the container there have been provided a suitable number of outlet openings 10 through which liquid in the container may flow when the container is turned about its loose connections with the suspension members towards an inverted position a sufficient distance for the liquid to flow through these discharge openings. In view of the fact that the container is connected with the suspension members by pins which are offset upwardly from the longitudinal center of the container, the weight of the container will cause it to resume a position in which the discharge openings are presented upwardly after an animal has passed beneath the applicator. Therefore, the container will normally remain in a position which will prevent escape of liquid through the discharge openings.

The drain 11 which is formed in the container at the opposite end thereof from the filling neck is provided in order that liquid in the container may be readily drawn off when it is necessary to clean the container or refill it and in order to prevent unintentional escape of liquid through this drain 11 there has been provided a plug 12 which is readily removable from the drain.

Any suitable number of baffles 13 are mounted in

the container in spaced relation to each other longitudinally thereof and each of these baffles has its lower portion formed with one or more openings 14 so that liquid may flow through the openings in the baffles and thus maintain an even level throughout the length of the container. The baffles prevent the liquid from having surging motion longitudinally thereof.

The container is enclosed in a covering or jacket 15 which fits about the container, as shown in Figs. 2 and 3, and may be formed of burlap, felt, or any other suitable absorbent material. The absorbent sheet from which the cover or jacket is formed has been shown in Fig. 4 and is of sufficient length to extend the full length of the container and of such width that it may extend entirely about the container with portions extending downwardly therefrom and constituting flaps which will have brushing or wiping engagement with the back and sides of an animal passing beneath the applicator. Therefore, the liquid with which the cover or jacket is saturated will be applied to the animal by a wiping or brushing action. Slits are cut from opposite side edges of the absorbent sheet and thus form a plurality of tongues 16 disposed in side by side relation to each other. The fact that the flaps which extend downwardly from the container are cut to form tongues allows a more efficient application of the liquid to the animals as the tongues may have movement towards and away from each other and thus have a better wiping contact with the backs and sides of the animals. In addition, more than one animal may pass under the applicator and each will have liquid applied to it without interfering with the application of liquid to another animal.

When the jacket or cover is applied to the container, it might tend to clog the discharge openings and in order to prevent this there has been provided a shield 17 which is formed of metal and extends the greater portion of the length of the container. The shield is of such width that it projects well beyond opposite sides of the discharge openings and is preferably arcuate transversely. This shield is formed with openings 18 near its ends and midway its length and the cover is formed with an equal number of openings 19 so located that when the cover is applied to the container, the openings 19 will register with the openings 18.

Nuts 20 are welded or otherwise rigidly secured upon the outer surface of the container in such location that they are positioned directly under the openings 18 and after the shield has been set in place with a portion of the cover extending across it, screws 21 are passed through the registering openings in the cover and the shield and screwed into the threaded bores of the nuts. The heads of the screws have a clamping engagement with the outer surface of the cover or jacket and the cover will thus be firmly held against movement longitudinally or circumferentially of the container and thus be prevented from moving out of its proper position. Prongs 22, which are spaced from each other longitudinally of the shield and extend downwardly from opposite side edges thereof, contact the outer surface of the container and hold the shield in spaced relation to the container. Therefore, liquid in the container may flow freely through the discharge openings when the container is tilted to a discharging position, but the fabric cover will be prevented from having engagement with the container in blocking relation to the discharge openings.

In Fig. 6 there has been shown a modified form of shield wherein the prongs 22 are omitted and opposite side edge portions of the shield are crimped, as shown at 22', and thus provide channels between the container and side edges of the shield through which liquid discharged may flow and saturate the absorbent cover.

A notch or recess 23 is formed at one end of the cover to accommodate the filling neck 8 when the cover is applied to the container and a similar recess 17' is formed at one end of the shield.

After the cover has been applied and secured by the screws 21 it is brought downwardly about the container in close fitting engagement therewith until side portions of the cover are disposed close to each other along the lower portion of the container. Metal strips or bars 24 may then be disposed in side by side engagement with each other between upper portions of the flaps formed by the downwardly extending side portions of the cover and bolts 25 passed through these spacer bars and through

openings 26 formed in the cover. These bolts firmly hold the bars in place and since they act as spacers they will serve to hold the flaps in spaced relation to each other as shown in Fig. 3. Therefore, the tongues of the flaps may move freely relative to each other. It should be noted that these bars will also serve as weights and cause the container to more freely return to the normal position after an animal has passed beneath it.

Instead of disposing the bars or strips between the flaps they may be placed against outer surfaces of the flaps, as shown in Fig. 7, and the bolts then applied and their nuts sufficiently tightened to hold the bars in place but leave the flaps in spaced relation to each other.

When this applicator is in use it is suspended between the posts 7 and since the suspension members 4 are pivoted at their upper ends to the bolts 6 and at their lower ends are swiveled to the two opposite ends of the container, it will be possible for the container to have both swinging and turning movement. By using chains as suspension members the container may be moved upwardly at one end and thus disposed in a longitudinally tilted position in which liquid may flow out through the drain when the plug 12 is removed. After the applicator has been mounted between the posts and liquid poured into the container through the filling neck 8, it is ready for use and since it is normally disposed in a position presenting its discharge openings upwardly, liquid will not leak from the container. When an animal passes under the applicator and its back makes contact with the flaps and the lower portion of the container, rubbing action is applied to the lower portion of the container and this will cause the container to be swung in the direction in which the animal is moving and also the container will be turned about its swiveled connections with the lower ends of the suspension members to an inverted position in which liquid may flow through the discharge openings. As the liquid flows from the discharge openings and under side edges of the shield which are spaced from the container, the absorbent cover or jacket will be saturated with the liquid which flows downwardly about opposite sides of the container and also saturates the flaps. These flaps move along the back and sides of the animal and since they are cut to form the tongues 16, the liquid medicine or insecticide will be applied to the back and sides of the animal by wiping action of the flaps. As soon as an animal has passed under the container it will swing back and turn to its normal position where it remains until another animal walks under the applicator.

While it has been stated that chains or flexible cables or ropes are preferably used as suspension members, it will be understood that the suspension members may be rods having their upper ends pivoted to the bolts 6 and their lower ends swiveled to the container by loosely fitting about the pins or stems 3.

I claim:

1. A liquid applicator for animals comprising a horizontal elongated container having discharge openings in its upper portion, supporting means for said container swiveled to ends of the container and thereby mounting the container for movement into and out of a tilted position allowing liquid in the container to flow outwardly through said openings, and a cover of absorbent sheet material extending about said container and having at least one end portion extending downwardly from the lower portion of said container and constituting a liquid-applying flap engageable with portions of animals passing under the container.

2. A liquid applicator for animals comprising a horizontal elongated cylindrical container closed at its ends and having an upper portion formed with outlet openings, supporting means for said container mounting the said container for movement from a position presenting the openings upwardly to a position allowing liquid to flow out of the container through the openings, and a covering of absorbent sheet material fitting about said container and having a free flexible portion depending from the container and constituting a liquid-applying flap of dimensions adapting it for wiping engagement with portions of an animal passing under the container.

3. A liquid applicator for animals comprising a horizontal elongated cylindrical container closed at its ends and having an upper portion formed with outlet openings, supporting means for said container mounting the said container for movement from a position presenting

5

the openings upwardly to a position allowing liquid to flow out of the container through openings, a covering sheet of absorbent fabric fitting about said container circumferentially thereof and having free portions extending downwardly along the under portion of the container and constituting flexible wiping flaps, and spacer means mounted between upper portions of said flaps and holding the flaps in spaced relation to each other.

4. A liquid applicator for animals comprising a horizontal elongated cylindrical container closed at its ends and having an upper portion formed with outlet openings, supporting means for said container tiltably mounting the said container for movement from a position presenting the openings upwardly towards an inverted position allowing liquid to flow out of the container through the openings and then back to its initial position, a covering sheet of absorbent fabric fitting about said container and having free portions extending downwardly along the under portion of the container and constituting flexible wiping flaps, stiff bars extending longitudinally of said container in side by side relation to each other between upper portions of said flaps and holding the flaps in transverse spaced relation to each other, and fasteners passing through the flaps and through said bars transversely thereof and firmly holding the bars in place against the under portion of the container and the flaps against outer side faces of the bars.

5. A liquid applicator for animals comprising a horizontal elongated cylindrical container closed at its ends and having an upper portion formed with outlet openings, supporting means for said container mounting the said container for movement from a position presenting the openings upwardly to a position allowing liquid to flow out of the container through the openings, a covering sheet of absorbent fabric fitting about said container and having portions extending downwardly along the under portion of the container and constituting flexible wiping flaps, and spacer means mounted between upper portions of said flaps and holding the flaps in spaced rela-

6

tion to each other, the free portions of the flaps between lower edges thereof and the spacer means being slit vertically and thereby forming a plurality of tongues in side by side relation to each other.

6. A liquid applicator for animals comprising a horizontal elongated cylindrical container closed at its ends and having an upper portion formed with outlet openings, supporting means for said container tiltably mounting the said container for movement from a position presenting the openings upwardly to a position allowing liquid to flow out of the container through the openings, a shield for said openings extending along said container over the openings in upwardly spaced relation thereto, internally threaded members carried by and projecting upwardly from said container and upon which the shield rests, a sheet of absorbent fabric extending about said container transversely thereof and having an intermediate portion extending across said shield transversely thereof and other portions extending downwardly from the under portion of the container and constituting wiping flaps, and securing screws passing downwardly through the intermediate portion of said fabric sheet and through openings in said shield and screwed into the internally threaded members and serving to firmly secure the cover upon the said shield and prevent movement of the cover out of position over the outlet openings.

References Cited in the file of this patent

UNITED STATES PATENTS

974,042	Dresback et al.	Oct. 25, 1910
1,269,725	May	June 18, 1918
1,302,979	Schipper	May 6, 1919
1,453,753	Converse	May 1, 1923
1,817,449	Vaughan	Aug. 4, 1931
1,999,122	Clark et al.	Apr. 23, 1935
2,492,258	Berg	Dec. 27, 1949
2,653,575	Worden	Sept. 29, 1953