

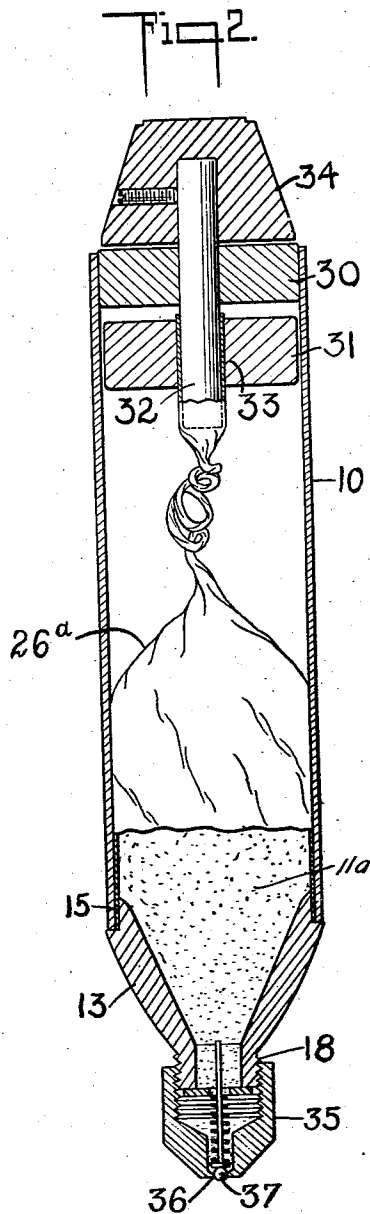
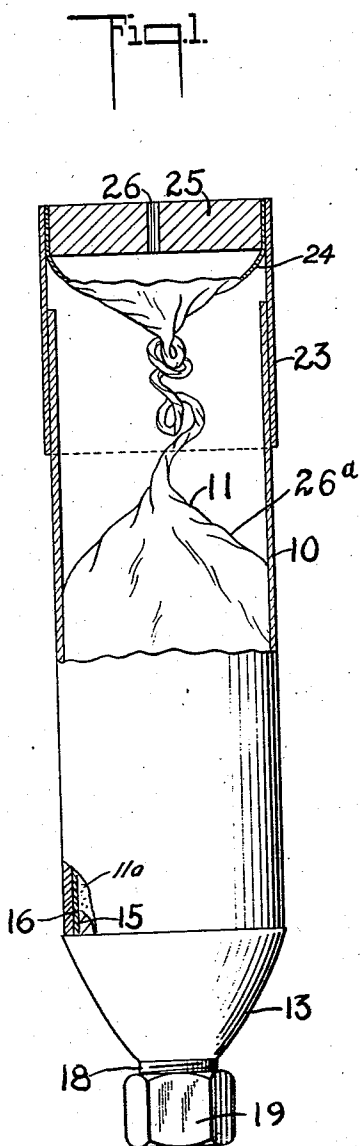
May 15, 1945.

S. D. BARLOW  
DISPENSING CONTAINER

2,376,222

Filed March 1, 1943

2 Sheets-Sheet 1



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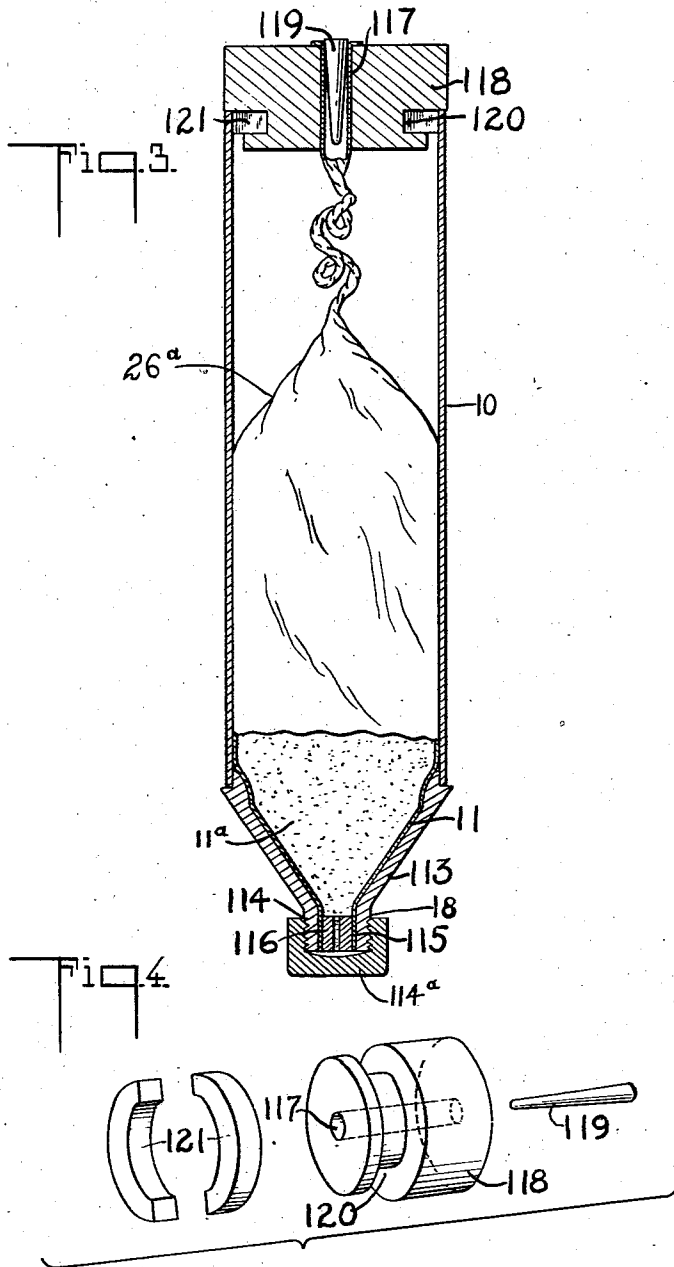
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## UNITED STATES PATENT OFFICE

2,376,222

## DISPENSING CONTAINER

Sidney D. Barlow, Bronx, N. Y.

Application March 1, 1943, Serial No. 477,535

7 Claims. (Cl. 120—46)

This invention relates to containers adapted to supply a fluid under moderate pressure such for example as supplying a continuous feed of such fluid. It is particularly intended for use with marking devices of a wide variety, but I have chosen for illustration a device for permanent identification of textiles.

In a previous patent granted to me jointly with Philip Sussman, Patent No. 2,211,312, we disclosed certain constructions for fabric marking devices comprising metal tubes adapted to contain a quantity of fluid or viscous ink and having at one end a valve controlled marking tip so constructed as to discharge an amount of ink sufficient for marking.

The ink used in this device is rather thick in consistency and it is expelled through the marking tip by pressure exerted upon the body of the ink within the device. During marking on textiles for which the device is intended, some of the ink is absorbed and thus an appreciable quantity is used. It is desirable that the device be capable of continuous use for a considerable period of time, thus the means for creating and maintaining the pressure should provide a resiliency in the pressure so that the discharge of ink does not too rapidly relieve the pressure. For these reasons, hydraulic pressure such as the direct pressure upon the ink itself does not prove satisfactory.

It is the object of this invention to provide a device by which such a relatively continuous pressure can be created and maintained and yet such that the device may be made inexpensively and of simple materials.

The construction of the prior patent is highly satisfactory for its purpose, but it requires that the tube be refilled with the pigment from time to time which is a somewhat untidy operation and moreover, that construction was made of metals which have become scarce and expensive and which are not available under present war conditions.

It is a further object of this invention to provide a device of the character described which will be inexpensive in construction so that it may be used once and then discarded, but which never-the-less will be wholly satisfactory during use, and which will prevent evaporation of the solvent from the pigment while in the device.

It is a further object of this invention to provide a device which may be made of inexpensive materials, which will be relatively free from war time restrictions, for example such as paper, wood, or plastics.

The invention accordingly comprises an article of manufacture possessing the features, properties and the relation of elements which will be exemplified in the article hereinafter described and the scope of the application of which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

In the drawings, Fig. 1 is a sectional view showing a device embodying this invention.

Fig. 2 is a similar section showing an alternative construction adapted particularly for use where the lining element or sack is of thin material.

Fig. 3 is an alternative construction.

Fig. 4 shows details of the fastening means for the upper end of the tube in the construction of Fig. 3.

Referring now to Fig. 1, it will be seen that the device comprises primarily an outer shell 10 of cardboard or the like and an inner flexible-wall container 11 within said shell which may be made of a thin flexible plastic sheet or of paper treated with any of a variety of plastics selected to make the paper water-proof and durable and suitable to receive a pigment 11a.

I have found satisfactory results from the use of "Cellophane." Normally, that fabric does not possess very great resiliency, but in the form which it is used in this device a very substantial resiliency is obtained.

A breast plug 13 of general conical construction is provided with an undercut annular surface 15 substantially equal to the inner diameter of the shell 10 allowing only sufficient room between them to enable the breast member to be forced into the shell with the lower end 16 of the container to be embraced between them.

The parts are preferably reinforced by an adhesive to insure their sticking together.

The breast member 13 is provided with a hollow nipple as shown at 18 to facilitate the adjustment of a marking tip as shown in Fig. 2.

With most pigments used, it is desirable to have the marking tip permanently attached because if the tip be removed the ink contained therein would dry out so rapidly as to interfere with the operation of the valves. The nipple is preferably screw threaded into the tip to hold it very firmly in place. If, however, with any given pigment, it be desired, the nipple end of the device may be closed by an imperforate cap 19 for

purposes of shipment, but in such cases when the marking tip is put in place care must be taken to expel all air contained therein.

The marking tip herein illustrated is suitable for use with this invention, but its details form no part thereof. As illustrated, it comprises primarily a conical tip 35 screwed on to the end of the breast member 13 having a dispensing opening 36 in its lower end closed by a spring pressed ball valve 37 which protrudes slightly beyond the opening, so that during the dispensing operation it will be pressed back into the conical member to feed the material. It will be understood, however, that any suitable tip may be employed.

The inner container 11 is preferably slightly larger in diameter than the shell 10 and of an appreciably greater length but only its lower portion will be filled.

By reason of this fact the pressure of the contents of the container 11 presses its wall firmly against the interior wall of the shell, so that there is no tendency of the body of the flexible container turning within the shell to twist off the tube at the top.

Fitted upon the other end of the shell 10 is a telescoping shell 23 fitting over the shell 10 and rotatable upon it. The outer end 24 of the container 11 is held in the outer end of the shell 23 by means of a plug 25 of such diameter as to bind the ends of the container against the inner walls of the shell and the opening 26 is preferably provided in the plug 25 to permit the exit of air as the inner container is twisted.

With the above construction it will be clear that as the container 11 is longer than the shell, it will have a collapsed portion 26a up above the material contained therein, thus, as the outer shell 23 is twisted, the inner container 11 will commence to twist at the collapsed portion and thus the open end of the inner container is shut off by the twisting. As the twisting continues during use of the device, the contents are expelled from the container and gradually the whole contents are discharged.

By reason of the fact that the container 11 is longer than the shell the empty portion of the container twists up into something of a knot. This is desirable because when the twisting commences to put pressure on the tube, this tightly twisted portion of the tube furnishes a very substantial measure of resiliency, because when the pressure of twisting is resisted by the contents of the tube, the already twisted portion tightens up very considerably and then as pressure is released by the discharge of contents, this tightly twisted portion untwists somewhat.

I prefer to make the tube 50% longer than the container, but the result of this invention can be accomplished by a lesser length, and to obtain the best results it should be at least 25% longer.

It will be noted that there is no tendency for the container to commence to twist at an intermediate portion where it is filled with the contents particularly because the tube itself is large enough to permit the contents to exert considerable friction on the inside of the shell, until the actual twisting commencing at the surplus end actually pulls the container away from the shell, and also because the original collapsed portion near the outer end furnishes a point of much less resistance to twisting than these portions of the tube that are inflated with the contents. As the inner tube twists it tends to shorten, but by reason of the fact that it is much longer than the

outer container this imposes no longitudinal strain upon the inner container itself.

In the form of the construction shown in Fig. 2, there is provided an annular plug 30 of a diameter to fit tightly within the shell 10 and a second annular plug 31 of a diameter to turn freely within said shell. A plug 32 extends through the central opening of the plug 30, and turns freely therein, but it fits tightly within the interior of the outer end of the container 11 when it is placed within the opening 33 in the inner plug 31 and within the upper end of container 11. A knob 34 may be fitted over the outer end of the plug 32 to provide a ready means of turning the same and thereby turning the annular plug 31, and twisting the inner container.

The other end of the container 10 is fitted with a plug 13, but similar to the one disclosed in Fig. 1.

In this embodiment of Fig. 2, it is not necessary to provide the secondary shell 23.

In the form of the invention embodied in Fig. 3, the breast member 113 is fitted directly within the container 10 and it extends forwardly as at 114 to provide a threaded nipple of a size and shape to receive the customary screw cap 114a. The inner container 11 has its forward end extending through opening 115 in the nipple end of the member 113, and annular member 116 fits within the outer end of the inner container as the latter fits within the breast opening 115. The other end of the flexible container 11 extends through a central opening 117 in an annular plug 118 and within the outer end of the container 11 as it extends through said opening, there is provided a wedged shaped plug 119 arranged to force the goods into firm contact with the surface 117. Thus plug 118 has an annular groove 120 adapted to receive and fit snugly against an annular plug 121 fitting with a non-rotating fit on the interior of the shell.

The details shown in Fig. 4 comprise the elements 118, 119, 121 and it will be seen from this figure the annular ring 121 may conveniently be split along its diameter so as to facilitate its ready assemblage in the manufacture of the device.

With any of the above constructions, it would be clear that the device is constructed with a small expense and it is both rigid and serviceable, and in all modifications the contents are discharged to the marking point by twisting the end of the tube, yet at the same time the marking fluid is sealed against evaporation.

This device has been particularly illustrated as a device for marking textiles. It will be understood that it is capable of a wide variety of uses whether it is desirable to dispense a fluid or viscous material under moderate pressure, and while it has been illustrated in connection with a ball type of dispensing tip, any type of tip may be employed which will properly control and distribute the material. Another important advantage lies in the fact that the operator may at any time adjust the pressure of the ink at the dispensing tip merely by twisting and untwisting the flexible container.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A dispensing container comprising a tubular shell, a hollow plug in one end of said shell having a dispensing means thereon, a flexible container within said shell firmly attached to said plug and said shell, a member at the other end of said shell, means for rigidly attaching the other end of said flexible container to said member, said container being at least 25% longer than the shell.

2. A dispensing container comprising a tubular shell, a hollow plug in one end of said shell having a dispensing means thereon, flexible container within said shell firmly attached to said plug and said shell, a member attached at the other end of said shell, means for rigidly attaching the other end of said flexible container to said member, said container being larger in diameter than the interior of said shell.

3. A dispensing container comprising a tubular shell, a hollow plug in one end of said shell having a dispensing means thereon, a flexible container within said shell, firmly attached to said plug and said shell, a sleeve fitting over the other end of said shell and means for attaching the other end of said flexible container to said sleeve, said container being of larger diameter than the interior of said shell.

4. A dispensing container comprising a tubular shell, a hollow plug in one end of said shell having a dispensing means thereon, a flexible container within said shell, firmly attached to said plug and said shell, a sleeve fitting over the other end of said shell and means for attaching the other end

of said flexible container to said sleeve, said flexible container being of materially greater length than the said shell, and there being a vent opening connecting the interior of the other end of said container with the atmosphere.

5. A marking device comprising a hollow shell, a flexible tubular container within said shell, a hollow plug in one end of said shell firmly attached to said container and to said shell and having a discharge nipple, a hollow plug at the other end of said shell and rotatable with respect thereto the other end of said flexible container being carried into the opening in said second mentioned hollow plug and a solid plug for binding said end in said opening.

6. A marking device comprising a combination, a tubular shell having a nipple in one end thereof, a flexible tubular container within said shell, said nipple, said shell, said container, being attached together at one end, a marking tip upon said nipple, and said container being at least 25% longer than the shell whereby, as it is twisted, it exerts a resilient pressure on said container.

7. A marking device comprising a combination, a hollow shell, a flexible tubular container contained within said shell, a plug in one end of said shell having a discharge opening, one end of said flexible container being carried into said opening and a hollow plug within the end of said container in position to bind the same against the interior of said opening, said plug having a threaded nipple surrounding said opening to receive a marking tip.

SIDNEY D. BARLOW.