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G. W. OAKES

2,531,525

FOUNTAIN PEN FILLING DEVICE

Filed Jan. 11, 1947

Fig. 2.

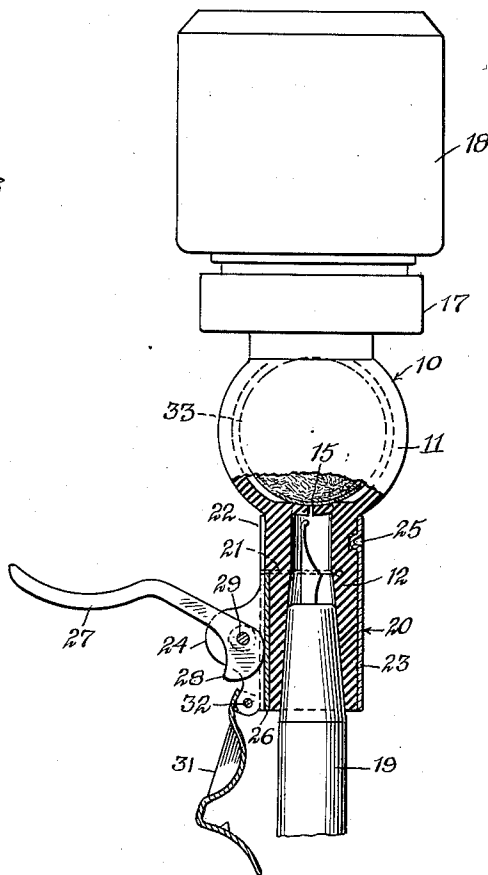
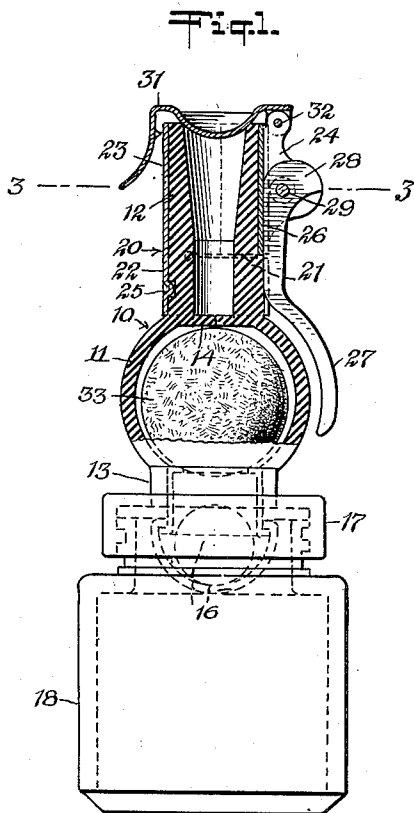


Fig. 3.

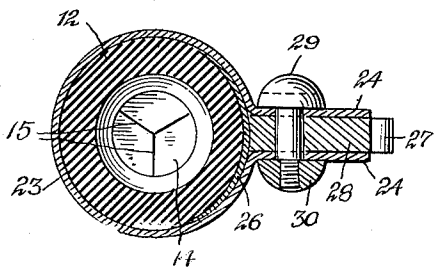
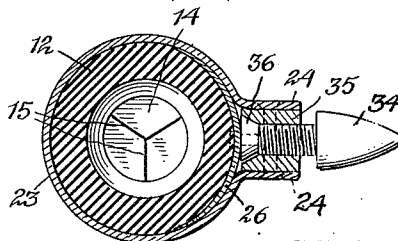


Fig. 4.



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FOUNTAIN PEN FILLING DEVICE

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6 Claims. (Cl. 222-63)

1

2

This invention relates to a device which is designed and adapted to be applied to a container or bottle of ink and to receive a fountain pen for the purpose of filling the pen with ink.

The principal object of the invention is the provision of a device of the indicated character embodying improvements whereby the writing end portion of a fountain pen may be easily inserted into the device and then be held in a fluid-tight manner, so that the ink may be delivered to fill the pen without waste resulting from leakage, and to subsequently close or seal the device to prevent evaporation or deterioration of the ink in the container or bottle after the pen has been withdrawn from the device.

With the foregoing, other objects of the invention will appear when the following specification is read in conjunction with the accompanying drawing, in which:

Fig. 1 is a view showing a device embodying the features of the present invention applied to an ink bottle, the device being partly in section and partly in elevation and certain features being shown in dotted lines.

Fig. 2 shows the device applied to the ink bottle in use to fill a fountain pen, a part of the pen barrel being broken off.

Fig. 3 is an enlarged sectional view taken on the line 3-3 of Fig. 1.

Fig. 4 is a sectional view showing a modification of the actuating means.

Referring now more particularly to the drawing, it will be apparent there is shown a body 10 which is made wholly of rubber. The body 10 is formed to provide compressible and expansible means consisting of a bulb 11 between a tubular outlet portion 12 and an inlet end portion 13. A diaphragm 14 formed from the material of the body 10 is integral with the bulb 11 at the outlet side thereof. The diaphragm 14 has slits 15 which radiate from a central point in line with the longitudinal axis of the outlet portion 12.

The inlet end portion 13 has connected thereon suitable valve means 16 which is shown in dotted lines. The inlet portion 13 also has an adaptor 17 thereon for the purpose of attaching the device to the outlet neck of a receptacle or bottle 18 containing a supply of ink. The valve means 16 is of the type disclosed in United States Patent No. 2,494,518 granted to me January 10, 1950.

The bulb 11 being resilient is adapted to be manipulated to receive and discharge or expel quantities of ink. When the bulb expands by

withdrawing the compression action thereon, a quantity of ink is drawn into the bulb, and when the bulb is compressed by squeezing it, the ink is discharged or expelled from the bulb. It is to be understood these manipulations are performed when the device as applied to the bottle is inverted, as shown in Fig. 2. The bottle is grasped with one hand and the bulb 11 is manipulated with the thumb and forefinger of the other hand. The valve means 16 cooperates with the action of the bulb 11 to control the flow of ink from the bottle into the bulb. The diaphragm 14 also cooperates with the action of the body 10 to pass the ink from the bulb 11 into the outlet portion 12 when the bulb is compressed and to stop the flow of ink when the compression action on the bulb is withdrawn.

The outlet portion 12 being made of rubber serves as an expansible and contractible socket or nipple into which the writing end of a fountain pen 19 may be inserted for the filling operation, as shown in Fig. 2. The outlet portion 12 is cylindrical.

In accordance with the present invention improved means are provided for clamping the writing end of the fountain pen in the outlet portion 12 and for releasing it. Said means includes a substantially cylindrical tube or sleeve 20 having a transverse cut 21 part way through providing an attaching section 22, and a clamping section 23, which latter is longitudinally split and has laterally projecting spaced lugs 24. The section 23 being split or divided longitudinally at one side may be expanded and contracted. It is to be understood that the sleeve 20 is made of metal or other suitable material inherently resilient or springy. The attaching section 22 is indented to provide small projections 25 on the inside which enter small holes molded in the outlet portion 12. If desired, small pins may be used in lieu of the projections 25. These projections or pins securely hold the sleeve 20 in place.

Use is made of a cross-sectionally arcuate member 26 adapted to receive and apply pressure on the outlet portion 12 in cooperation with the clamping section 23. The member 26 is approximately equal in length to the length of the clamping section 23 and is disposed between the outlet portion 12 and the section 23 at the split in the latter, as shown most clearly in Fig. 3. The member 26 is of a width to close the gap formed by the split in the section 23 and to overlap the adjacent portions of said section to a considerable extent. A lever 27 having a cam 28 is pivotally

3

mounted between the lugs 24 by means of a pivot bolt 29 and nut 30 or the equivalent thereof. The lever 27 may be manipulated to cause the cam 28 to exert pressure on the member 26 or to withdraw the pressure. When the pressure of the cam 28 is exerted on the member 26 it is applied by the latter in cooperation with the clamping section 23 on the outlet portion 12, thereby compressing the latter. Hence, when the writing end of a fountain pen is inserted into the outlet portion 12 it will be securely clamped in a fluid-tight manner as the outlet portion 12 is compressed. When the lever 27 is swung to its down or releasing position shown in Fig. 1, the writing end of the pen may be readily inserted into or be withdrawn from the outlet portion 12. A cap or stopper 31 is pivoted to the lugs 24, as at 32. This cap or stopper aids in sealing the device to prevent evaporation or deterioration of the ink when the device is not in use. The slitted diaphragm 14 permits ink to pass through it when under applied pressure, but will not pass any ink under gravity pressure alone. This will permit the device as applied to the bottle to be laid on its side in a drawer, if desired, without ink flowing out, in case the cap 31 is carelessly left in an open position.

In order to help remove all of the ink from the bulb 11 and to expel the ink more rapidly, use may be made of a substantially round compressible body 33 of cellular material such as sponge rubber. The body in the form of a ball may be disposed within the bulb 11 as shown.

In lieu of the cam lever 27, use may be made of a headed screw 34 operable in a nut 35 fixed between the lugs 24. The inner flared end 36 of the screw 34 contacts the pressure member 26, and there being a central projection extending into a hole in the member 26 to keep it from slipping out of place. It is obvious that by turning the screw 34 in opposite directions, the outlet portions 12 may be compressed and allowed to expand for the stated purposes.

I claim:

1. The combination with a fluid filling device including a resilient tubular fluid delivery portion, of cooperative overlapping compression members of such shape and size together completely surrounding the delivery portion in contact therewith, and manipulatable means connected with one of said members and adapted to exert pressure on the other one of said members, to compress the delivery portion into fluid-tight engagement with an article to be filled with the fluid, while one end of the article is inserted into the delivery portion.

2. The combination as set forth in claim 1, wherein said manipulatable means consists of a movable pressure member supported by means connected with one of the compression members and which bears on the other compression member.

4

3. The combination with a fluid filling device including a resilient tubular fluid delivery portion, of a longitudinally split collar fitting about said delivery portion in contact therewith, a cross-sectionally arcuate pressure member between the delivery portion and the collar adapted to receive and apply pressure on the delivery portion to compress said portion into a fluid-tight engagement with an article to be filled with the fluid while the article is inserted into said delivery portion, and manipulatable means to exert pressure on said pressure member for the purpose stated.

4. The combination as set forth in claim 3, wherein said pressure member is arranged at the split in the collar, and said manipulatable means consists of a cam lever operatively mounted on said collar.

5. The combination with a fluid filling device including a resilient tubular fluid delivery portion, of a sleeve comprising an attaching section fitting around and secured to said delivery portion and a longitudinally split collar integral with the attaching section fitting about said delivery portion in contact therewith, a cross-sectionally arcuate pressure member between the delivery portion and the collar adapted to receive and apply pressure on the delivery portion to compress said portion into a fluid-tight engagement with an article to be filled with the fluid while the article is inserted into said delivery portion, and manipulatable means to exert pressure on said pressure member for the purpose stated.

6. A device for filling an article from a receptacle containing a liquid, including a resilient bulb having an inlet and an outlet for the liquid, and a compressible resilient cellular body positioned within and immediately adjacent the inner surface of the walls of said bulb, so that upon compression of the bulb the same will contact and compress the cellular body, thereby expelling quantities of the liquid through the outlet for the purpose stated.

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The following references are of record in the file of this patent:

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