June 19, 1956 E. S. MANNING, SR 2,751,119

MILK BOTTLE TAP

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Fig. 1

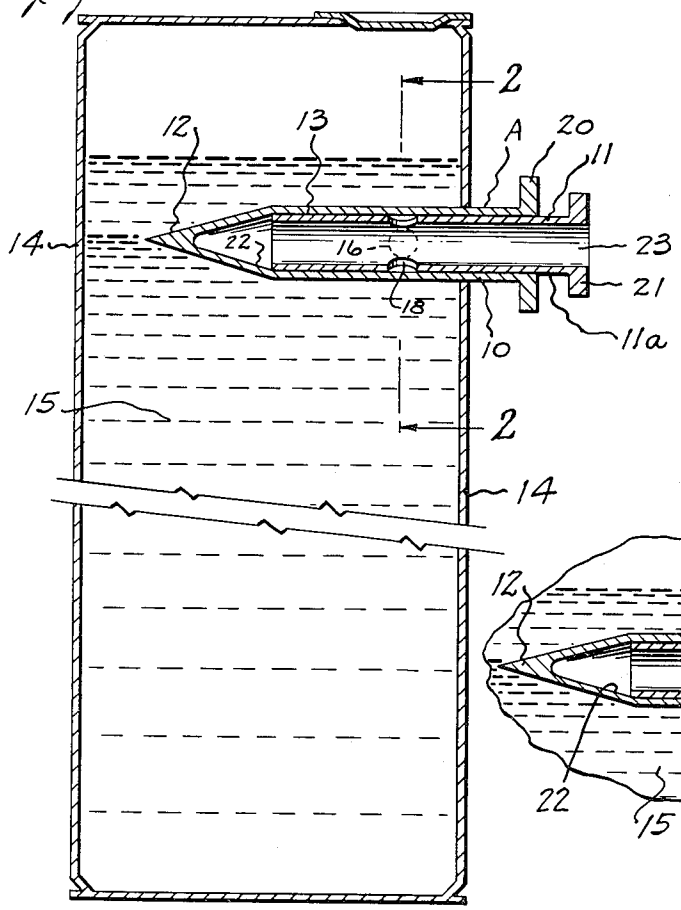


Fig. 2

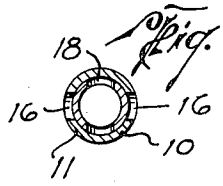


Fig. 3

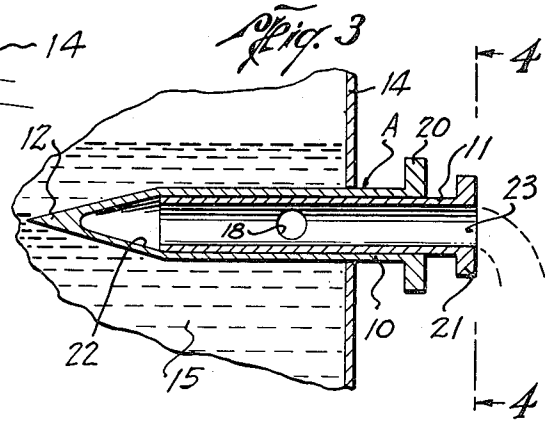


Fig. 5

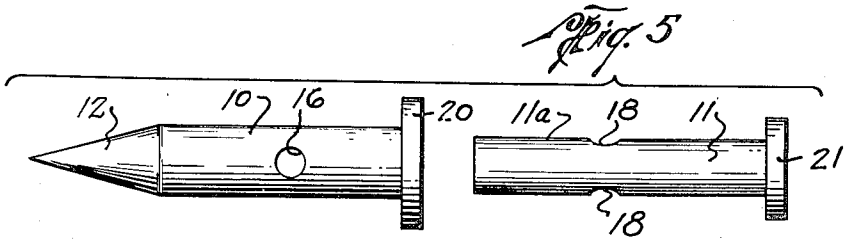
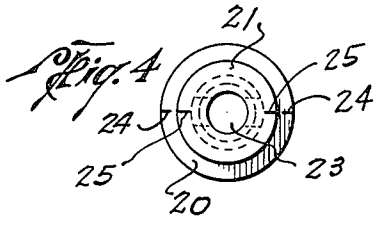


Fig. 4



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MILK BOTTLE TAP

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4 Claims. (Cl. 222—81)

This invention relates to new and useful improvements in taps for containers and relates particularly to a tap adaptable for use with the usual cardboard milk carton.

One object of the invention is to provide an improved tap which may be readily inserted through the wall of the carton at a desired point for withdrawing the contents of the carton.

An important object is to provide a tap which is so arranged that it may be employed for the purpose of withdrawing the contents of the container and which may also function as a closure for the opening made by the cap whereby the contents may be withdrawn periodically and contamination of the contents is prevented even though the tap remains in position.

Still another object is to provide an improved tap which has an outer tubular member and an inner tubular member mounted therein, with flow passages in the members adapted to be aligned, whereby when the tap is inserted into a container fluid may be withdrawn when the passages are aligned and fluid flow may be closed off when such passages are out of alignment.

Still another object is to provide a very simple tap which is very cheap in construction and which is particularly adapted for use with the usual paper milk carton, said tap being usable to withdraw the milk from the carton or to draw off the cream from the upper end thereof.

The construction designed to carry out the invention will be hereinafter described, together with other features thereof.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings forming a part thereof, wherein an example of the invention is shown, and wherein:

Fig. 1 is a sectional view of a paper milk carton having the improved tap inserted therein in the closed position.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1 and illustrates the relationship of the radial openings in the telescoped tubular bodies.

Fig. 3 is a sectional view of a portion of a paper carton wherein the tap has been inserted therein and the openings have been aligned to permit the flow of the contents from the container.

Fig. 4 is an end view of the improved tap of this invention, taken on line 4—4 of Fig. 3, and illustrates the marks on the two tubular members which are used to determine the position of the openings in the members when the tap is inserted into the container.

Fig. 5 is an exploded view of the improved tap of this invention.

In the drawings, the letter A designates the improved tap of this invention which comprises an outer tubular body **10** and an inner tubular body **11**. The outer tubular body **10** has a sharp point **12** at one end thereof for the insertion of the tap A into a carton such as the carton **14** illustrated in Fig. 1. This tap is particularly designed for withdrawing the contents from a container such as **14** wherein the contents comprise milk or other liquid **15**. It will be appreciated that this tap A could be used with cartons of different forms and shapes than the carton **14** shown in the drawings.

The inner tubular body **11** telescopes within the outer tubular body **10** and is also rotatable relative thereto. The outer surface **11***a* of the inner body **11** is in sufficiently close contact with the axial bore **13** of the outer body **10** to prevent leakage of the liquid between the body **10** and the body **11**. The outer body **10** has diametrically opposed openings **16** in its cylindrical wall **17**. The inner tubular body **11** has similar diametrically opposed openings **18** in its cylindrical wall **19**. The outer body **10** has a flange **20** which limits the extent of penetration of the tap A into the container **14**. The inner tubular body **11** has a flange **21** which in some instances may serve as a stop to prevent the inner telescoping movement of the body **11** relative to the outer body **10**, but in the forms shown in the drawings such flange merely serves as a means to rotate the inner body **11** relative to the outer body **10**. As can be seen in Fig. 1, the pointed end **12** provides the restriction **22** which limits the amount of telescoping between the two bodies **10** and **11**. When the inner body **11** has reached its fully telescoped position and is stopped from further telescoping by reason of the restriction **22**, the radial ports or passages **16** and **18** are in the same transverse plane whereby upon rotation of the inner body **11** relative to the outer body **10**, such passages can be aligned so that there is a communication between the inside of the container and the open end **23** of the inner tube **11**. It can be determined when the openings are aligned by the indicator marks **24** and **25** which are located on the flanges **20** and **21** respectively. When these marks **24** and **25** are aligned, then it is known that the passages **16** and **18** are aligned within the carton **14**. If the level of the milk or other liquid **15** is below the tap A then pouring of such liquid can be accomplished by tilting of the carton **14**. In the use of the tap for withdrawing milk from the carton **14** the tap is inserted through the wall of the carton near the top thereof. It has been found that the ordinary paper milk cartons are of sufficient stiffness so that there is no leakage of the milk or other liquid **15** from the carton after the tap has been inserted. The outer tube **10** of the tap A is of such length that it will not penetrate the opposite wall of the carton before the flange **20** stops the inward movement thereof. The tap is inserted into the carton with the indicator marks **24** and **25** misaligned with a corresponding misalignment of the openings **16** and **18**, whereby the tap is in its closed position. When it is desired to withdraw the liquid **15** from the carton **14** it is only necessary to align the indicator marks **24** and **25** so as to also align the openings **16** and **18** to permit the communication between the inside of the carton **14** and the opening **23** for the withdrawal of the liquid **15**. When the level of the liquid **15** is below the tap A the carton **14** must of course be tilted inward to withdraw the liquid.

After the desired quantity of the liquid in the container has been withdrawn it is only necessary to rotate the tubes **10** and **11** relative to each other so that the openings **16** and **18** are again misaligned and the communication from the inside of the carton with the opening **23** is closed. Such closed position is shown in Figs. 1 and 2 of the drawings, while the open position is shown in Fig. 3.

The tap A may also be employed in drawing off the cream from the milk within the container and in such case the tap is inserted at the cream line which is visible through the paper carton. The carton **14** would be held vertically upright so that the cream would flow off by

gravity through the opening **16** and **18** and thence outwardly through the opening **23** in the inner tubular body **11**. After such withdrawal of the cream it is evident that the tap may be moved to its closed position if desired, or if the milk below the cream line is then to be withdrawn such withdrawal can be effected by merely tilting the container **14**.

The tap A may be formed of metal, plastic or any other suitable material so long as it is sufficiently rigid to permit the pointed end **12** to pierce the usual paper milk carton. It will be appreciated that the particular arrangement of the openings **16** and **18** as illustrated in the drawings is shown by way of example only and other suitable openings could be used in other arrangements. Thus, the openings instead of being diametrically opposite each other may be disposed at various angles and more than two openings may be provided in each of the tubular bodies **10** and **11** if desired. Also instead of rotating the inner tubular body **11** relative to the outer tubular body **10** for the opening and closing of the tap, such opening and closing may be effected by axial or longitudinal movement of the openings **18** relative to the openings **16**. Thus for example if the tap is in the open position shown in Fig. 3 the tap may be closed by moving the inner body **11** outwardly so that the openings **16** and **18** are axially misaligned. Suitable indicator marks could be provided on the outside of the tubular body **11** to indicate when the openings **16** and **18** are in the same transverse plane, but preferably the tube **11** is of such length that the openings **16** and **18** would be in the same transverse plane when the inward movement of the tube **11** is stopped by the tapered restriction **22**.

It is thus believed evident that the improved tap of this invention provides a simple and efficient means for the withdrawing of the contents from a container such as a paper milk carton, without the necessity of movement of the portion of the tap in contact with the wall of the container after such tap has been inserted into such wall. Thus the tap of this invention eliminates damage to the opening in the wall through which the tap projects, whereby the seal between the tap and the wall is maintained even though the tap itself is opened and closed many times during its use in a single container.

The foregoing disclosure and description of the invention is illustrative and explanatory thereof, and various changes in the size, shape and materials, as well as in the details of the illustrated construction may be made, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed is:

1. A tap for withdrawing the contents from a container comprising, an outer tubular body having an axial bore with an open end and a closed end terminating on the external surface of the body in a sharp smooth surfaced point, an inner tubular body fitting within said axial bore and extending from said open end of said outer tubular body, said inner and outer tubular bodies having alignable flow ports therein, the axial bore of said outer tubular body being of a reduced size at its closed end to limit the inward movement of said inner tubular body relative to said outer tubular body for positioning said flow ports in the same transverse plane, said sharp point being adapted to pierce the wall of the container upon a non-rotative longitudinal movement of the outer tubular body whereby the contents of the container may be withdrawn upon the alignment of said flow ports, and means for rotating said inner tubular body relative to said outer tubular body to align said flow ports when they are positioned in the same transverse plane for the withdrawal of the contents from the container.

2. The tap device as set forth in claim 1, including indicator marks on the outer and inner tubular bodies for determining when said flow ports are aligned in an open position or misaligned in a closed position.

3. The device as set forth in claim 1, wherein the outside surface of said inner tubular body is in contact with the inner surface of said outer tubular body, whereby the contents of the container cannot pass between the inner and the outer tubular bodies.

4. The device as set forth in claim 1, wherein the sharp point on the external surface of the outer tubular body is substantially conical and the reduced size of the axial bore in the outer tubular member is formed by an inner substantially conical bore portion, and wherein said inner tubular body is longitudinally slidable relative to the outer tubular body for completely removing the inner tubular body from the outer tubular body.

References Cited in the file of this patent

UNITED STATES PATENTS

398,162	Keane	Feb. 19, 1889
454,217	Keeler	June 16, 1891
537,755	Crozier	Apr. 16, 1895
1,745,382	Rogers	Feb. 4, 1930
1,865,233	Campbell	June 28, 1932
2,552,155	Danielson	May 8, 1951
2,585,538	Daniels	Feb. 12, 1952