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NOZZLE FOR SYRINGE TYPE HYDROMETERS

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Fig. 1.

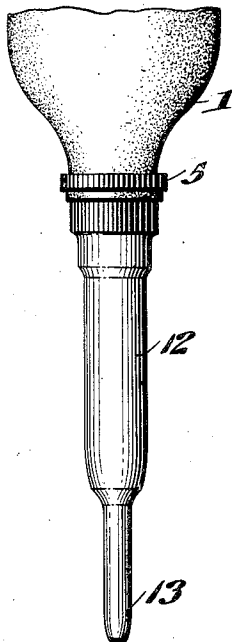


Fig. 2.

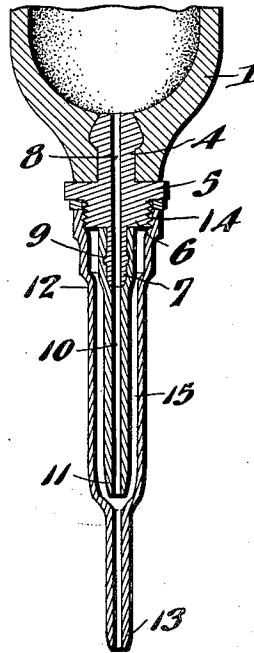


Fig. 3.

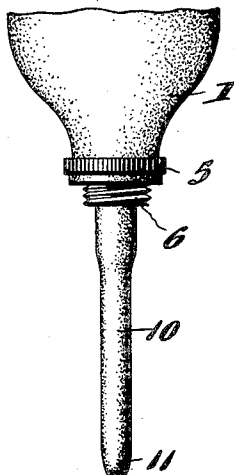
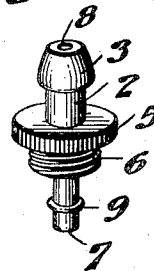


Fig. 4.



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NOZZLE FOR SYRINGE TYPE HYDROMETERS

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3 Claims. (Cl. 265—45)

My invention relates to nozzles for syringe type hydrometers and the like, and particularly to a nozzle structure intended and adapted to be embodied with hydrometers and other like instruments used to draw liquid from battery cases or other compartments rather difficult of access.

An object of my invention is to provide a nozzle structure that can be embodied with and made as a part of a syringe hydrometer or other like instrument that will serve the double purpose of giving a small rigid tip to be inserted between the plates of a battery to withdraw electrolyte solution, or a flexible tip that can be bent to fit within an opening more difficult of access.

Another object is to so construct the parts that in the use of either nozzle tip structure the liquid solution is taken in and expelled through the same nozzle.

With the above and other objects in view, which will be apparent to those skilled in the art, my invention includes certain novel features of construction and combinations of parts which will be hereinafter set forth in connection with the drawing and then pointed out in the claims.

In the drawing:

Figure 1 is a view in side elevation of a complete nozzle constructed in accordance with my invention.

Fig. 2 is a vertical sectional view through the structure shown in Fig. 1.

Fig. 3 is a view similar to Fig. 1 with the rigid nozzle tip removed.

Fig. 4 is a perspective view to better show the structure of the connector.

In the present instance I have illustrated my invention embodied with a cushion rubber sleeve or housing 1, such as is ordinarily provided adjacent the nozzle of syringe type hydrometers and like instruments, but it will be appreciated that this member 1 might be of any desired shape, size and construction, and might be of any desired material. The connector, generally indicated at 2, has a beaded tip 3 adapted to be received and held frictionally within an opening 4 in the member 1, and an enlarged flange 5 forming a stop is preferably knurled on its peripheral face. Beyond this flange 5 an externally screw-threaded shoulder 6 is provided and beyond the shoulder portion 6 a hose connecting nipple 7 extends. A fluid passage 8 is provided through the connecting member 2 to open at one end through the tip 3 and at the other end through the nipple 7 and nipple 7 is preferably provided with an external bead 9 to better hold an extension hose or flexible tip.

The extension hose, tube or tip 10, is preferably of flexible soft rubber tubing, or other suitable material and is fitted on the nipple 7 to be retained in place by bead 9. The outer end of the tip 10 is extended to any desired length and is preferably slightly reduced as at 11 to fit into smaller spaces. As shown in Fig. 2 the fitting of this flexible nozzle tip 10 gives a direct passage from the reduced end 11 into the chamber of the sleeve or other member 1, and when the instrument is used with the nozzle as shown in Fig. 3, this tip can be bent or curved to any desired degree to fit in the opening of a battery case or other receptacle that is not readily accessible but is difficult to reach.

A nozzle tip 12, made of vulcanized rubber or other suitable material, is provided with a relatively thin tip end 13 at one extremity and at its other end has an internal screw-threaded opening 14 to be fitted upon and connected with the threaded shoulder portion 6. The tip 12 is relatively longer than is the tip 10 and is provided with a central opening 15 to freely receive the tip 10 when the nozzle tip 12 is fitted in place.

With this construction and arrangement of the parts the tip 10 has a continuous passage therethrough, and when the tip 12 is fitted in place, the passage through the portion 13 is substantially continuous. With this arrangement of the parts it is possible to use the instrument as shown in Fig. 1 and the rigid tip end 13 is sufficient slender to be fitted between the plates of a battery to draw electrolytic solution when the solution is low in a battery and access can be readily had thereto. If the battery or other liquid container is in a position difficult to reach, this inflexible tip 12 can be removed and the flexible tip 10 can then be inserted in the receptacle opening and can be bent in any desired manner to reach the liquid.

While I have herein shown and described only certain specific embodiments of my invention, it will be apparent that changes and variations can be made in the construction and arrangement of the parts and in the manner of assembling them to suit varying conditions of use.

I claim:

1. A nozzle for syringe type hydrometers comprising, a conductor having a central liquid passage therethrough, a soft rubber tubular tip member connected with and extending from said conductor member and having a liquid passage therethrough aligned with the passage of the conductor, said conductor having an externally

screw-threaded portion thereon adjacent to the point of mounting of the soft rubber tip member, and a rigid tip member having one end open and threaded to be turned onto the threaded portion of the conductor member provided with a central opening to freely receive the soft rubber tip member and provided with a relatively thin tip end extending beyond the soft rubber tip and having a passage therethrough aligned with the passage of the soft rubber tip member.

2. A nozzle for syringe type hydrometers comprising, a conductor member having a central liquid passage therethrough, said conductor member being provided on one side with an externally screw-threaded portion formed concentrically around the central liquid passage and an extending hose connecting nipple projecting beyond the screw-threaded portion and located concentrically in line with the central liquid passage, a soft rubber tubular tip member mounted on the hose nipple, and an extension tip member having one end upon and threaded to be turned onto the threaded portion of the conductor member, said extension tip member being provided with a central opening to freely receive the soft rubber tip member and having a relatively thin tip end portion extending beyond said opening and provided with a liquid passage

aligned with the liquid passage of the soft rubber tip member.

3. A nozzle for syringe type hydrometers comprising, a conductor member to be fitted and associated with a hydrometer and provided with a central liquid passage, said conductor member having an outwardly projecting externally screw-threaded portion disposed substantially concentrically around the central liquid passage and a hose connecting nipple extending beyond the screw-threaded portion and also aligned with the central liquid passage, a soft rubber tubular tip member mounted on the hose nipple and provided with a passage aligning with the central liquid passage of the conductor member, and an extension tip member having one end screw-threaded to be turned onto the threaded portion and thus associated with the conductor member in liquid-tight fitting, said extension tip being provided with a central opening to freely receive the soft rubber tip and having a relatively thin extension tip end provided with a central passage, all of said parts being thus associated and connected in such manner that a continuous suction and liquid passage is provided through the conductor member and through the soft rubber tip member and through the extension tip member.

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