Jan. 20, 1959 C. E. MURCOTT 2,869,160

MULTIPLE ELEMENT CLEANING DEVICE FOR HYPODERMIC SYRINGES

Filed March 22, 1956

Fig. 1.

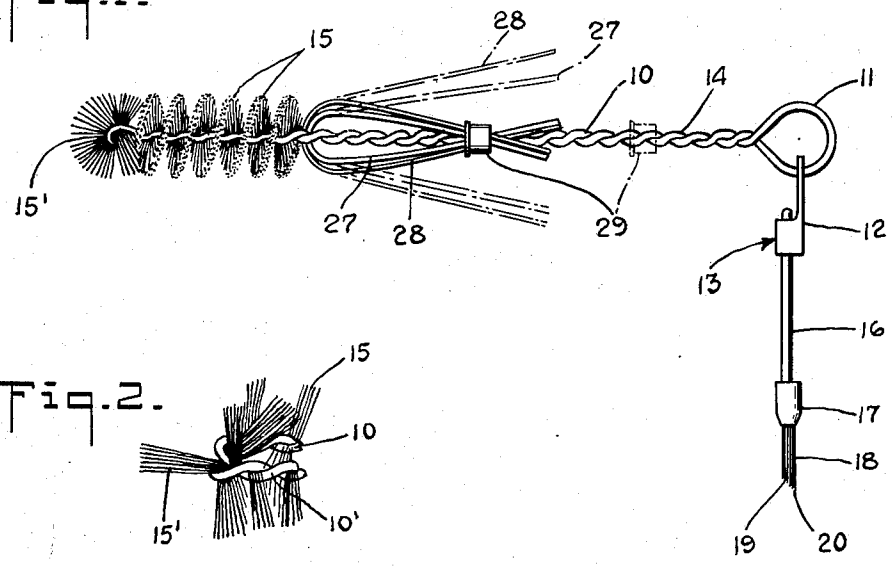


Fig. 2.

Fig. 3.

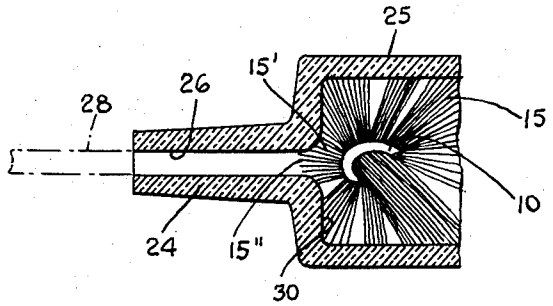
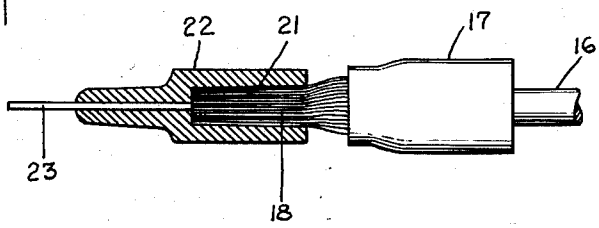


Fig. 4.



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MULTIPLE ELEMENT CLEANING DEVICE FOR HYPODERMIC SYRINGES

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1 Claim. (Cl. 15—105)

This invention relates to devices for cleaning the passages or chambers of hypodermic syringes to render the same clean prior to sterilization and use. More particularly, the invention deals with a device comprising a twisted rod having a nylon bristle brush end with a pair of nylon stylets arranged on the rod and a ferrule slidable on the rod for support of the stylets in collapsed position on the rod, whereby the various parts of a hypodermic needle can be brushed clean for removal of coatings or deposits which may prevail upon the interior surfaces of the various syringe parts.

Still more particularly, the invention deals with a device of the character described, wherein a pair of stylets of different diameters are employed.

The novel features of the invention will be best understood from the following description, when taken together with the accompanying drawing, in which certain embodiments of the invention are disclosed and, in which, the separate parts are designated by suitable reference characters in each of the views and, in which:

Fig. 1 is a plan view of a device made according to my invention, showing parts in collapsed position in full lines and in extended use position in dot-dash lines.

Fig. 2 is an enlarged detail view of the brush end portion of the device, the view being taken at right angles to the showing in Fig. 1.

Fig. 3 is an enlarged sectional view through one end portion of a syringe vial, indicating diagrammatically the brush end in the operation of cleaning the vial and also indicated, in dotted lines, one of the tube cleaning strands; and

Fig. 4 is an enlarged detail view of the supplemental brush element which I employ, illustrating diagrammatically its arrangement in the mounting end portion of a hypodermic needle.

In practice, my improved device consists of an elongated rod **10**, preferably fashioned from a wire strand, which is formed centrally to provide a loop **11**, upon which is mounted a coupling **12** of a supplemental brush element **13**, this assemblage being made prior to the twisting of the rod end portions one upon the other as indicated at **14**. In this twisting operation, the outer end portion of the rod **10** has nylon strands arranged in the twist so as to form a substantially spiral brush end **15**, as diagrammatically illustrated in Fig. 1 of the drawing. After the complete assemblage of the nylon bristles or strands with the twisted strands of the rod **10**, the end portion **10'** of the rod is bent inwardly upon itself, as diagrammatically seen in Fig. 2 of the drawing end, in this operation, one of the spirals of the brush **15** is positioned in a fan-like manner at the end of the rod **10**, as seen at **15'** in Fig. 1 of the drawing.

The supplemental brush element **13** includes a rod **16**

extending from the coupling **12** and to the end of the rod **16** is secured a ferrule or sleeve **17**, which supports a relatively small group of nylon bristles **18**, the latter forming the supplemental brush and it is preferred that the bristles **18** have a bevelled cut, as seen at **19**, so as to produce a more or less pointed end **20** which facilitates positioning of the brush **18** in the slightly tapered bore **21** of the coupling end **22** of a hypodermic needle **23**, as diagrammatically seen in Fig. 4 of the drawing. The coupling **22** is adapted to frictionally fit upon the tapered reduced tubular end portion **24** of the vial **25** of a syringe, the latter being shown, in part, in Fig. 3 of the drawing, the tube **24** including a bore **26**.

In the operation of forming the twists in the rod **10**, as indicated at **14**, and prior to starting the arrangement of the bristles **15** therein, a pair of nylon strands or stylets **27** and **28** are also secured within the twists, the stylet **27** being preferably of larger diameter than the stylet **28** and both of these are of irregular or corrugated form and are adapted to be inserted into the bore **26**, as diagrammatically illustrated in dot-dash lines in Fig. 3 in the operation of cleaning the bore **26**. Again, prior to assemblage of **27**, **28** and **15** with the twisted rod, a ferrule or sleeve **29** is arranged upon the rod and is free to move longitudinally thereof to normally retain the stylets **27**, **28** in collapsed position upon the rod, as seen in full lines in Fig. 1 and also is to free the stylets for use, it being understood that these stylets can be flexed to a position substantially at right angles to the rod for the use purpose, as indicated in Fig. 3 of the drawing.

In the use of the brush **15** in the vial **25**, it will be apparent that the end **15'** will more or less flatten out so as to engage the end wall **30** of the vial and also to extend partially into the bore **26**, as indicated at **15''** in Fig. 3 of the drawing. In the use of the brushes **15**, **18**, as well as the stylets **27** and **28**, they are rotated as well as moved longitudinally of the respective bores in scraping any type and kind of deposit that may have collected on the bores to free the same and, in the several uses, suitable detergents can also be employed to assist in freeing the film coatings so that all of these bores can be thoroughly cleaned prior to placement of the same into sterilizers, preparatory to further use thereof.

In the administering of certain types and kinds of drugs, there are types that adhere to or form film deposits upon end surfaces of the bores of the various parts of the hypodermic syringe. These film-like deposits cannot be removed by simply washing. However, a brush assemblage of the type and kind under consideration will operate to free the surfaces of the bores of such deposits, thus maintaining the same clean and unstained at all times.

The strands or stylets **27** and **28** are preferably composed of a fairly rigid and yet flexible material such, for example, as nylon, and the irregular or corrugated structure thereof is preferred in order to facilitate the cleaning of the bore **26**. No attempt is made to illustrate this irregular or corrugated characteristic in Fig. 1 of the drawing for sake of simplicity in the showing and keeping in mind that such irregularities are relatively fine. It might also be said, at this time, that, in forming these stylets, they will be shaped to normally assume or spring to the dot-dash line position shown in Fig. 1 of the drawing and, in use, can be sprung to any desired angular position with respect to the rod **10** and, when released, will return to the dot-dash position.

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

A cleaning device for hypodermic syringes of the character described, comprising an elongated twisted rod having a loop end and a spiral brush end portion, the brush end comprising bristles retained on the rod within the twists thereof, a pair of nylon stylets fixed within the twist of said rod adjacent and inwardly of the brush end portion, a ferrule slidable upon the rod engaging end portions of said stylets in retaining the same in collapsed position upon the rod, and one stylet being of different diameter than the other.

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