

Nov. 22, 1949

E. R. LAWSHE

2,489,040

HOLDER

Filed Feb. 14, 1946

Fig. 1

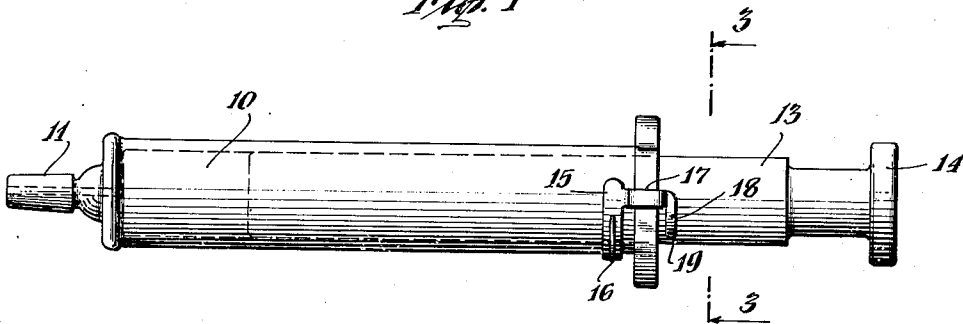


Fig. 2

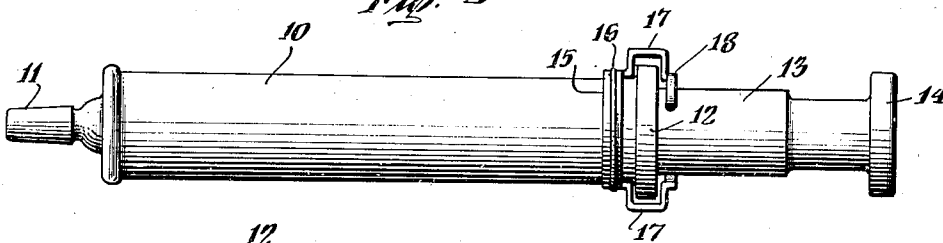


Fig. 3

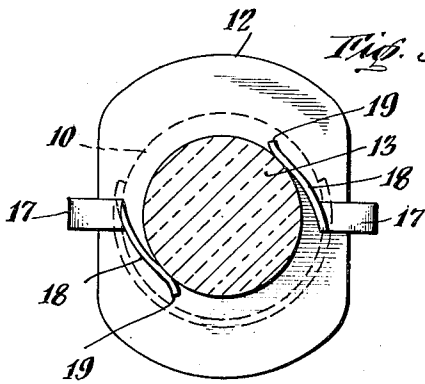


Fig. 4

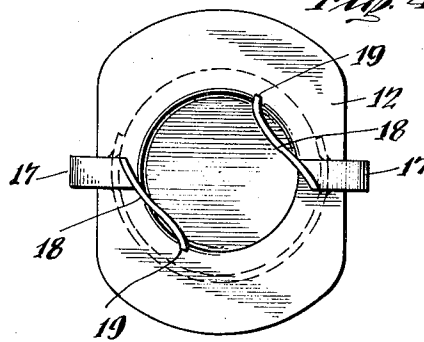
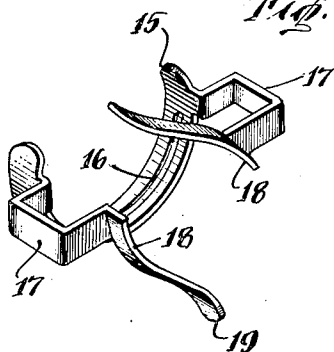


Fig. 5



INVENTOR

Errol R. Lawshe

BY *Orell, Kane & Smith*

ATTORNEYS

UNITED STATES PATENT OFFICE

2,489,040

HOLDER

Errol R. Lawshe, Rutherford, N. J., assignor to
Becton, Dickinson & Co., Rutherford, N. J., a
corporation of New Jersey

Application February 14, 1946, Serial No. 647,545

2 Claims. (Cl. 128—218)

1

This invention relates to a structurally and functionally improved holder and in its more specific aspects aims to provide a unit of this type for application to a hypodermic syringe to maintain the parts of the latter against accidental displacement.

It is a well appreciated fact that considerable difficulty has been experienced in connection with glass hypodermic syringes involving a barrel and plunger, due to the fact that great care has had to be exercised to prevent the plunger from accidentally moving with respect to the barrel. Such displacements have occurred either incident to the action of gravity, a vibration due to the normal handling of the syringe, jarring the latter, etc.

With these difficulties in mind, attachments have been provided for syringes which would serve to restrain movements of the plunger with respect to the barrel except when a deliberate manipulation of these parts occurred. These attachments have been unsatisfactory for a number of reasons, among which are included the fragile nature of the attachment, the fact that the latter might exert too great or too little a restraining influence, the cost of dies required for production of the device and for various other reasons.

By means of the present invention, a holding unit is provided which may be manufactured at low cost and in large quantities; the required die being relatively simple and inexpensive.

Moreover, an improved holder is provided which will not be fragile and which may readily be applied to and removed from association with a hypodermic syringe. Additionally when in applied position, the holder will effectively and properly increase the resistance to movement of the plunger with respect to the barrel to just the extent desired. Accordingly, difficulties will not be experienced due to accidental movements of these parts nor will sufficient resistance be encountered to render the use of the holder objectionable.

With these and other objects in mind, reference is had to the attached sheet of drawings illustrating one practical embodiment of the invention, and in which:

Fig. 1 is a side elevation of a holder applied to a syringe assembly;

2

Fig. 2 is a plan view of such holder;

Fig. 3 is a transverse sectional view in enlarged scale taken along the lines 3—3 and in the direction of the arrows as indicated in Fig. 1;

Fig. 4 is a view similar to Fig. 3 but with the plunger of the syringe removed; and

Fig. 5 is a perspective view of the holder detached from the syringe assembly.

In these views it will be seen that the numeral 10 indicates the barrel of the syringe formed of glass or similar material, and which barrel has adjacent its outer end a needle-mounting boss or extension 11. Adjacent its inner end, it may be formed with a flange, the area of which may be adequate to provide ears for engagement by the fingers of an operator. The barrel 10 receives a plunger 13 which may have a portion 14 engageable with the thumb of the operator. As is well known, the technique of utilizing a member of this nature is that of retracting the plunger 13 to draw a desired quantity of fluid into the barrel 10. Thereafter the needle (not shown) is caused to pierce the desired tissue and by applying pressure to the thumb piece while gripping the barrel 10, the contents of the syringe are ejected through the cannula.

According to a preferred embodiment of the invention, the holder will conveniently include a strip 15 of resilient material which is bent to extend throughout an arc of slightly more than 180°. The initial diameter of the strip will be less than the diameter of the external face of the barrel 10. Therefore, it may readily be clipped onto such barrel and will remain in applied position thereon. As illustrated, the strip 15 is preferably flat although it may be formed with a rib 16 which will rigidify its body. Thus a deliberate force will be necessary in either clipping the mounting member onto the barrel by forcing it laterally toward the axis of the syringe, with the ends of the strip 15 camming against the surface of the barrel, or in order to reverse the operation to dismount the holder.

Connecting portions 17 extend from points preferably just short of the ends of strip 15 and are bowed or formed so that they may bridge the flange 12. As shown, the inner ends of the portions 17 are preferably spaced substantially 180°. Adjacent the outer ends of these connecting portions, fingers 18 are attached. The latter

3

extend in a plane preferably parallel to that in which the strip 15 extends. The outer ends of the fingers 18 may terminate in outwardly curved contacting portions 19.

Thus, as is shown in Fig. 4, the holder may readily be moved to a position at which it is mounted on the barrel of the syringe. With the plunger not in position, the contacting or outer portions 19 of the fingers will be spaced a distance less than the diameter of the plunger 13. Therefore, if a plunger is disposed in position as in Fig. 3, it will be apparent that the outer ends of the fingers will yieldingly engage the outer plunger surface to exert a frictional restraint on the latter against axial movement with respect to the barrel. The fingers will bear against the plunger at substantially diametrically opposite points and will effectively prevent accidental movement of the plunger with respect to the barrel. However, they will not restrain deliberate movement of these parts with respect to each other.

Thus among others, the several objects of the invention as specifically afore-noted are achieved. Obviously numerous changes in construction and rearrangement of the parts might be resorted to without departing from the spirit of the invention as defined by the claims.

I claim:

1. A holder to restrain movements of the plunger of a hypodermic syringe with respect to the barrel of such syringe, said holder including a mounting member to be applied to the outer face of the syringe barrel, spaced connecting portions extending upwardly from said member, a pair of resilient fingers each presenting an inner end mounted by one of said connecting portions, an outer plunger-contacting end also forming a part of each of said fingers, the inner ends of said fingers and adjacent parts of said connecting portions being spaced a distance greater than the diameter of the syringe plunger to which the holder is to be applied, the bodies of said fingers extending in the same direction around the circumference of the plunger, being opposed to each other and additionally extending at angles with respect to said connection portions such that the plunger-

4

contacting ends of said fingers are spaced a distance less—with the plunger removed from said barrel—than the diameter of that plunger, whereby solely the outer end of each finger will engage the plunger; the contacting of the plunger by the outer ends of said pair of fingers occurring solely at points spaced substantially 180° around said plunger.

2. A holder to restrain movements of the plunger of a hypodermic syringe with respect to the barrel of such syringe, said holder including a resilient mounting member curved to extend in excess of 180° and to be clipped to the outer face of the circular syringe barrel, resilient connecting portions extending upwardly from said member at points short of the ends of the latter, said connecting portions being spaced from each other substantially 180°, a pair of resilient fingers each presenting an inner end mounted by one of said connecting portions, an outer plunger-contacting end also forming a part of each of said fingers, the inner ends of said fingers and adjacent parts of said connecting portions being spaced a distance greater than the diameter of the syringe plunger to which the holder is to be applied, the bodies of said fingers extending in the same direction around the circumference of the plunger, being opposed to each other and additionally extending at angles with respect to said connecting portions such that the plunger-contacting ends of said fingers are spaced a distance less—with the plunger removed from said barrel—than the diameter of that plunger, whereby solely the outer end of each finger will engage the plunger; the contacting of the plunger by the outer ends of said pair of fingers occurring solely at points spaced substantially 180° around said plunger.

ERROL R. LAWSHE.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,496,654	Crowther	June 3, 1924
1,678,991	Marschalek	July 31, 1928