June 3, 1924. 1,496,654

E. C. CROWTHER

FRICTION DEVICE FOR PLUNGERS OF SYRINGES AND SIMILAR ARTICLES

Filed Jan. 26, 1920

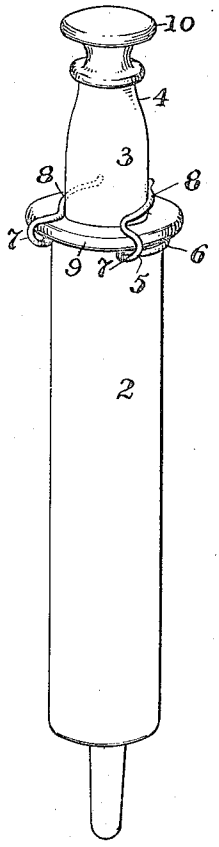


Fig. 1

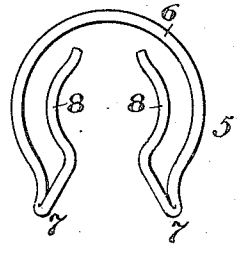


Fig. 2

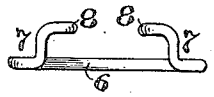


Fig. 3

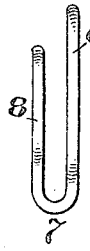


Fig. 4

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UNITED STATES PATENT OFFICE.

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FRICTION DEVICE FOR PLUNGERS OF SYRINGES AND SIMILAR ARTICLES.

Application filed January 26, 1920. Serial No. 354,063.

To all whom it may concern:

Be it known that I, EDMOND C. CROWTHER, a citizen of the United States, and resident of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Friction Devices for Plungers of Syringes and Similar Articles, of which the following is a specification.

The object of my invention is to provide a spring clamping or frictional device which is adapted to snap on the open end of a syringe body or barrel and produce a friction upon the movable plunger therefor, whereby the plunger may be frictionally held at all positions of adjustment and moreover, wherein the device will introduce sufficient resistance to movement of the plunger that it may be manipulated by the physician with definite accuracy.

My invention has for a further object, the provision of a spring wire frictional device which not only introduces a yielding resistance to movement of the plunger as above stated, but also coacts with the plunger, when pushed fully into the barrel, so that it frictionally locks or retains the plunger in said position and thereby prevents accidental separation of the plunger and escape of the remaining fluid content of the syringe, in case of careless depositing of the syringe after use or during intermittent use thereof.

A further object of my invention consists in the utilization of the friction providing means as an attachment to the smooth glass syringe which will prevent the same from rolling and thus dropping from the table to the floor.

With the above and other objects in view, the nature of which will be more fully understood from the description hereinafter, the invention consists in the novel construction of friction devices for plungers of syringes and similar articles, as hereinafter more fully described and defined in the claims.

Referring to the drawings: Fig. 1 is a perspective view of a syringe having my improved clamp and friction creating device applied thereto; Fig. 2 is a plan view of the wire clamp and frictional device embodying my invention removed from the syringe; and Figs. 3 and 4 are respectively front and side elevations of the same.

2 is the syringe body or barrel and 3 is the plunger therefor, said parts being usually formed of glass and providing a ground sliding fit. The body 2 is provided at its open end with a rim or flange 9; and the plunger 3 is provided at its outer end with knob or handle part 10 and a contracted neck 4 which curves inward from the full diameter of the plunger to the smallest diameter next to the knob or handle part.

5 is my improved friction applying means and comprises a wire bent into the shape clearly shown in Figs. 2, 3 and 4 and adapted to snap into position upon the body and over the flange 9 thereof, as shown in Fig. 1. The middle portion of the unitary wire length is bent into a curve, as at 6, preferably of circular form but not quite closed, to form a clamping jaw; and the end portions 8, 8, are bent upward and inward, as at 7, 7, and curved in opposite directions, as shown in Fig. 2, to provide two clamping jaws between which the plunger 3 may frictionally slide. The curved jaw part 6 is snapped about the body 2 below the flange 9 and the curved portions 7, 7, fit about the said flange and support the clamping ends 8, 8, immediately above the flange and adjacent the entrance into the body or barrel. The plunger 3 is frictionally held between the two clamping ends 8, 8, as shown in Fig. 1, so that it will remain in its various positions of adjustment; and when the plunger is pushed fully inward, these ends 8, 8, press inwardly into the neck groove 4 and retain the plunger in such position. When using the syringe, the frictional resistance to movement of the plunger makes it more reliable in manipulation, because the physician may more accurately operate the plunger by the feel which is made possible by this frictional resistance provided by use of my improved device.

The frictional device 5 is formed of tempered steel wire and in the shape given to it, provides the parts 6 and 8 which lock respectively below and above the glass flange 9 of the body, so that it cannot move longitudinally of the body. It will also be noted that the wire device 5 is so made that it may be simultaneously sprung into position upon the body and plunger when they are in normal engagement, but I do not restrict myself in this respect, as it will suffice that the device is adapted to be

sprung into engagement with the body, and thereafter, the plunger be introduced. It is further apparent that while it is desirable that there shall be two spring ends 8, 8, for applying frictional pressure to the plunger, one such end may be employed and said end may be variously shaped, if desired, in providing suitable engagement with the plunger.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable, and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that I do not restrict myself to the details, as the same are susceptible of modification in various particulars without departing from the spirit or scope of the invention.

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

1. A frictional device for a syringe consisting of a wire bent at its middle portion to provide a spring clamping jaw adapted to fit the syringe body and having the free end parts of said jaw bent upwardly and inwardly to provide two oppositely acting spring portions movable toward each other under spring action for clamping the plunger, said spring portions being normally closer together than the clearance space within the spring clamping jaw and having its free ends extending toward the closed end of the jaw.

2. The invention according to claim 1, characterized by having the end parts providing the oppositely acting spring portions made curved in opposite directions to provide two free curved jaws.

3. A frictional device for a syringe body and plunger, comprising a unitary wire bent into a curved portion to provide a spring jaw clamp to fit the syringe body, said jaw having two upward and inwardly turned ends to hold the device to the body and to provide an oppositely directed secondary clamp constituting an engaging means adapted to yieldingly contact with opposite sides of the plunger, the space between the end portions being less than the space between the opposite sides of the spring jaw clamp.

In testimony of which invention, I hereunto set my hand.

EDMOND C. CROWTHER.