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 SYRINGE PLUNGER EJECTOR

3,040,744

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**FIG. 1**

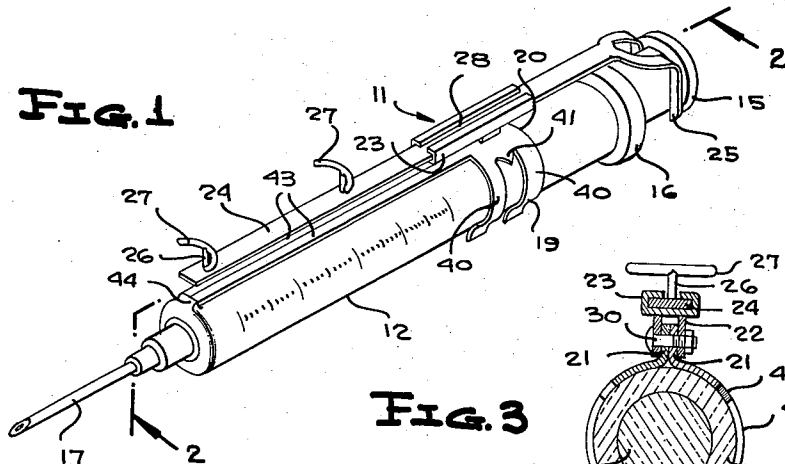


**FIG. 3**

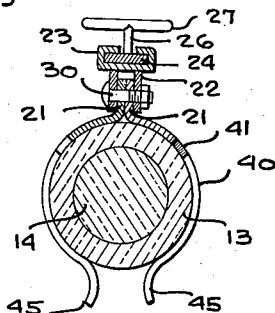


**FIG. 2**

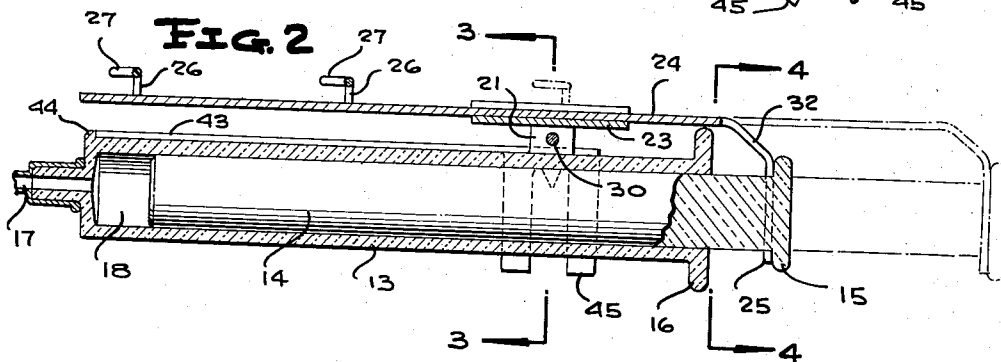


**FIG. 4**

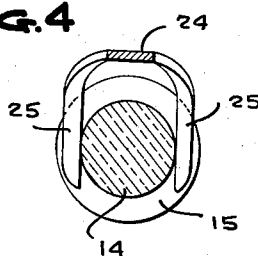
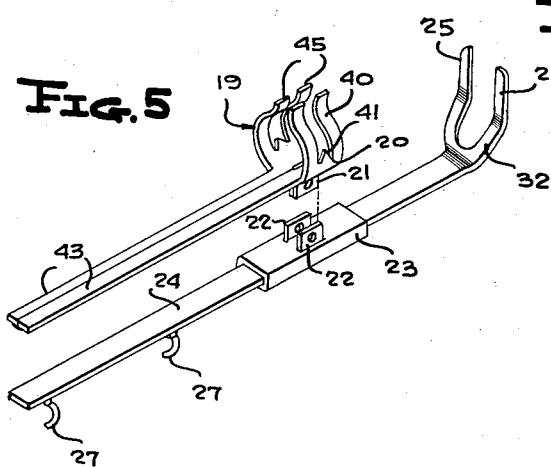


**FIG. 5**



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## SYRINGE PLUNGER EJECTOR

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3 Claims. (Cl. 128-218)

This invention relates to hypodermic syringes, and more particularly to an attachment to be employed as a means for ejecting the plunger of a hypodermic syringe in order to aspirate liquid from the syringe.

A main object of the invention is to provide a novel and improved plunger-ejecting attachment for a hypodermic syringe, said attachment being simple in construction, being easy to mount on a hypodermic syringe, and enabling the hypodermic syringe to be operated with one hand, allowing the other hand of the operator to be free for other functions.

A further object of the invention is to provide an improved plunger-ejecting attachment for a hypodermic syringe, said attachment being inexpensive to fabricate, being durable in construction, and providing a means for accurately controlling the rate of ejection of the plunger of a hypodermic syringe while allowing the syringe to be operable with only one hand, whereby the operator's other hand is free.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

FIGURE 1 is a perspective view of a hypodermic syringe provided with an improved plunger-ejecting attachment constructed in accordance with the present invention.

FIGURE 2 is an enlarged longitudinal vertical cross sectional view taken substantially on the line 2-2 of FIGURE 1.

FIGURE 3 is an enlarged transverse vertical cross sectional view taken on the line 3-3 of FIGURE 2.

FIGURE 4 is an enlarged transverse vertical cross sectional view taken on the line 4-4 of FIGURE 2.

FIGURE 5 is a perspective view of the plunger-ejecting attachment of FIGURES 1 to 4, with the parts thereof shown in separated positions.

Referring to the drawings, 11 generally designates a plunger-ejecting attachment constructed in accordance with the present invention, adapted to be employed on a hypodermic syringe 12 of conventional construction. Thus, the syringe 12 comprises the tubular barrel 13 in which is sealingly and slidably engaged the plunger 14, the plunger 14 being provided at its outer end with an integral peripheral flange 15, and the tubular barrel 13 being likewise provided at its outer end with a peripheral flange 16. Secured to the forward end of the barrel 13 in the usual manner is the hypodermic needle 17, the needle communicating with the filling space 18 in the forward end of the barrel 13.

The plunger-ejecting attachment 11 comprises a resilient clamping collar 19 which is clampingly engageable on the barrel 13 in the manner clearly illustrated in FIGURES 1, 2 and 3, the collar comprising a pair of opposing, resilient clamping sections 20, 20 formed with abutting apertured lugs 21, 21 which are received between and secured to a pair of spaced parallel apertured lugs 22, 22 integrally formed on and depending from a longitudinally extending guide sleeve 23 of substantial length.

The clamping sections 20 are formed with spaced parallel resilient clamping fingers 40, 40 and with index pointers 41 located between the clamping fingers. Each clamping section is further formed with a longitudinally extending elongated abutment finger 43, the abutment fingers 43, 43 being disposed in side-by-side relation and

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engaging an upstanding transverse stop lug 44 formed on the forward end of barrel 13, to prevent the clamping sections 20 from slipping forwardly on the barrel when a forward force is applied to said sections.

5 The fingers 40, 40 are formed with arcuate free portions 45 which are outwardly concave and which are yieldable to allow the barrel to be slipped into the clamping collar assembly 19 when said assembly is pressed onto the barrel.

10 Guide sleeve 23 is generally rectangular in transverse cross section and slidably receives a longitudinally extending rod member 24. Rod member 24 is formed at one end thereof with a pair of parallel spaced fingers 25, 25 which are directed substantially perpendicular to the main portion of the rod member and which are spaced to receive the outer portion of the plunger 14 therebetween and to closely engage same, whereby the fingers 25, 25 may be employed to transmit ejecting force to the flange 15 when the rod member 24 is moved rearwardly.

20 Rigidly secured on the rod member 24 are the upstanding post elements 26, 26 on which are rigidly secured the respective arcuate, forwardly concave finger bars 27, 27, the members 26 being spaced a substantial distance from each other and being located at the forward portion of the bar member 24, as is clearly illustrated in FIGURES 1 and 2. Thus, the finger bars 27, 27 are spaced so that with the hypodermic syringe held in one hand, the operator may employ one finger of his hand to first exert a rearward force on the rearmost finger bar 27, causing the plunger 14 to be retracted a predetermined amount, after which the operator may use the same finger to engage the forward finger bar 27, to further retract plunger member 14.

30 As is well understood, the retraction of the plunger member 14 causes liquid to be drawn into the filling space 18, assuming the hypodermic needle 17 is in communication with a vein or other vessel containing the fluid to be extracted. By employing the attachment in the manner above described, a measured amount of fluid may be readily drawn into the filling space 18, and the rate at which the fluid is drawn into said space is regulated by the rate at which the bar member 24 is moved rearwardly by the action of the user's finger.

40 As will be readily apparent, the attachment enables the plunger 14 to be retracted by the use of only one hand, namely, the hand which holds the hypodermic syringe, leaving the operator's other hand free to perform other necessary and related functions associated with the procedure in which the hypodermic syringe is being employed.

50 As shown in FIGURES 1, 2 and 3, the elongated sleeve member 23 is formed at its top wall with the longitudinal slot 28 which is of sufficient width to slidably receive the post members 26 to allow said post members to be moved rearwardly with the rod member 24, whereby said rod member is free to move longitudinally with respect to the sleeve member 23 for substantially its entire length.

60 As shown in FIGURE 3, the fastening lug 21 of the collar 19 is pivotally connected between the sleeve-supporting lugs 22, 22 by transversely extending pivot bolts 30, thus allowing the sleeve 23 to pivot, if necessary, when the attachment is installed on the hypodermic syringe, whereby to allow the spaced fingers 25, 25 to obtain effective bearing contact with the flange 15 of the hypodermic plunger 14. To facilitate the achievement of effective bearing contact, the finger members 25, 25 are preferably formed on the free end portions of the arms of a U-shaped fork element 32 integral with the rear end portion of the bar member 24, said U-shaped member being inclined at an obtuse angle to said bar member. The fingers 25, 25 are bent with respect to the main body

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portion of the fork element 32 so that said finger members extend substantially perpendicularly to the main body portion of the bar member 24, as above described. The U-shaped member 32 and the finger elements 25, 25 are somewhat resilient so as to cushion the retractile force transmitted to the plunger member 14 by the bar member 24, to provide smooth retractile action.

While a specific embodiment of an improved plunger retracting attachment for a hypodermic syringe has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. In combination with a hypodermic syringe having a barrel and a plunger slidably mounted in the barrel, a plunger retracting attachment comprising a support member clampingly engaged on the barrel, a longitudinal guide sleeve pivotally connected to said support member, a bar member slidably engaged in said guide sleeve and being manually movable therein, and resilient means on the end of said bar member engageable with the plunger to transmit retractile force thereto.

2. In combination with a hypodermic syringe having a barrel and a plunger slidably mounted in the barrel, said plunger having a flanged exposed end, a plunger retracting attachment comprising a resilient collar mem-

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ber clampingly engaged on the barrel, a longitudinal guide sleeve pivotally connected to said support member, a bar member slidably engaged in said guide sleeve and being manually movable therein, and spaced fingers resiliently connected to the end of said bar member and being engaged on the plunger forwardly adjacent the flanged end thereof to transmit retractile force thereto.

3. In combination with a hypodermic syringe having a barrel and a plunger slidably mounted in the barrel, said plunger having a flanged exposed end, a plunger retracting attachment comprising a resilient collar member clampingly engaged on the barrel, a longitudinal guide sleeve pivotally connected to said support member, a bar member slidably engaged in said guide sleeve and being movable therein, spaced fingers resiliently connected to the end of said bar member and being engaged on the plunger forwardly adjacent the flanged end thereof to transmit retractile force thereto, and a plurality of outwardly projecting, forwardly facing arcuate, longitudinally spaced finger-engaging members on said bar member for exerting retractile force thereon.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

|    |           |        |                |
|----|-----------|--------|----------------|
| 25 | 2,739,589 | Yochem | Mar. 27, 1956  |
|    | 2,952,255 | Hein   | Sept. 13, 1960 |

##### FOREIGN PATENTS

|         |        |               |
|---------|--------|---------------|
| 396,140 | France | Jan. 18, 1909 |
|---------|--------|---------------|