R. H. RIETHMÜLLER.

HYPODERMIC SYRINGE.

APPLICATION FILED APR. 29, 1919.

1,328,203. Patented Jan. 13, 1920.

Fig. 1.

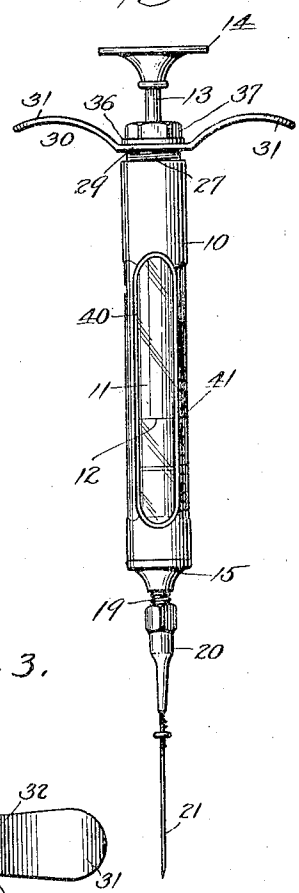


Fig. 2.

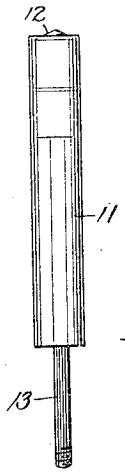


Fig. 3.

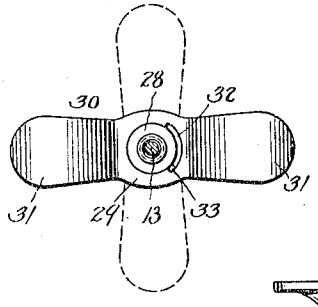


Fig. 4.

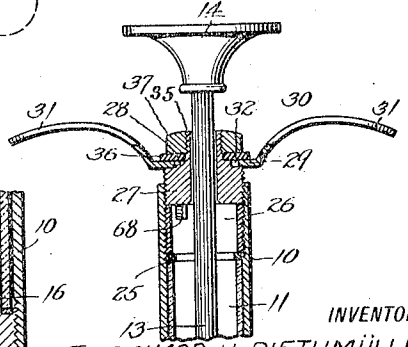
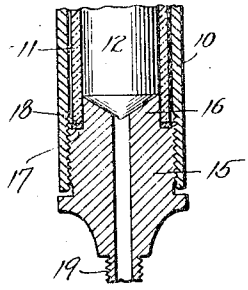


Fig. 5.



WITNESSES

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HYPODERMIC SYRINGE.

1,328,203. Specification of Letters Patent. **Patented Jan. 13, 1920.**

Application filed April 29, 1919. Serial No. 293,411.

To all whom it may concern:

Be it known that I, RICHARD H. RIETHMÜLLER, a citizen of the Republic of Germany, having declared my intention to become a citizen of the United States, and residing at Montclair, in the county of Essex and State of New Jersey, have invented new and useful Improvements in Hypodermic Syringes, of which the following is a full, clear, and exact description.

The object of the invention is to provide certain new and useful improvements in hypodermic syringes whereby the use of a graduated glass barrel is dispensed with and a non-graduated barrel can be readily removed from the casing, in case it is broken or otherwise injured, to permit of replacing it by a new one. Another object is to permit of readily sterilizing the casing and its glass barrel without danger of breaking or cracking the barrel. Another object is to permit the operator to readily change the position of the fingerpiece relative to the barrel to permit of conveniently applying the syringe without obscuring the field of vision. Another object is to permit of using the finger rest as a tool for screwing the barrel gland used for holding the barrel in position in the casing or unscrewing it therefrom.

With these and other objects in view, the invention consists of certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the hypodermic syringe;

Fig. 2 is a side elevation of the reserve barrel and plunger;

Fig. 3 is a plan view of the gland, the fingerpiece and the plunger rod, the latter being shown in section;

Fig. 4 is an enlarged sectional side elevation of the upper portion of the hypodermic syringe; and

Fig. 5 is an enlarged sectional side elevation of the lower portion thereof.

The hypodermic syringe is mounted in a tubular casing 10 containing a glass barrel 11 in which reciprocates a plunger 12 provided with a plunger rod 13 extending to the outside of the barrel and casing and terminating in a suitable handle 14. On the forward end of the casing 10 is screwed or otherwise secured a nipple 15 provided with a reduced portion 16 on which fits the forward end of the barrel 11, the reduced portion forming with the nipple 16 a shoulder 17 for the forward edge of the glass barrel 11 to rest on, as plainly indicated in Fig. 5. A packing ring 18 is preferably interposed between the barrel 11 and the shoulder 17 to prevent leakage. The nipple 15 terminates in a threaded portion 19 on which screws the hub 20 carrying a hypodermic needle 21 of any approved construction, preferably, however, one similar to the hypodermic needle shown and described in the Letters Patent of the United States No. 1,272,104, granted to me on July 9, 1918, so that further description of the same is not deemed necessary.

The rear end of the barrel 11 is engaged by a packing ring 25 held in place by a threaded retaining sleeve 26 screwing in the rear end of the casing 10 (see Fig. 4). A gland 27 also screws in the threaded rear end of the casing 10 and abuts against the threaded retaining sleeve 26 to securely lock the latter and consequently the barrel 11 in position in the casing 10, it being understood that the gland 27 prevents accidental unscrewing of the threaded retaining sleeve 26. The outer end of the gland 27 is provided with a reduced portion 28 on which is mounted to turn the middle portion 29 of a fingerpiece 30 having the usual curved members 31 extending diametrically opposite each other for engagement by the first and second fingers of the hand and pressing with its thumb the handle 14 for ejecting the liquid from the barrel 11 through the needle 21 into the afflicted part. The middle portion 29 of the fingerpiece 30 is provided with a segmental notch 32 (see Figs. 3 and 4) into which projects a lug 33 formed on the reduced portion 28 of the gland 27. By the arrangement described the fingerpiece 30 has a limited turning movement on the reduced portion 28 of the gland 27 to permit of turning the fingerpiece 30 from the position shown in full lines in Fig. 3 into right-angled position thereto as indicated in dotted lines in the said Fig. 3. By this arrangement the operator having hold of the fingerpiece and the handle 14 can readily give a quarter turn to the fingerpiece when

necessary so as not to obstruct the operator's vision when making the desired injection. It is understood that by the arrangement described ample working space is had between the finger rest and the cheek of a patient, for instance, without obscuring the field of vision. It will also be noticed that the fingerpiece forms a wrench for the gland 27 to permit of readily screwing the latter in position in the casing 10 or unscrewing it therefrom whenever it is desired to disassemble the parts. The gland 27 is further provided with a reduced threaded portion 35 on which fits a washer 36 held on the reduced portion 28 and overlying the middle portion 29 of the fingerpiece 30. A nut 37 screws on the threaded portion 35 to hold the parts in assembled position.

The casing 10 is provided with longitudinally extending cut-out portions 40 through which the glass barrel 11 is visible and likewise the plunger 12. Along one wall of a cut-out portion 40 is arranged a graduation 41 indicating the cubic contents of the barrel 11, it being understood that the graduation 41 is arranged relatively to the seat 17 so as to correctly indicate the cubic contents of the barrel 11 seated on the said seat 17. By the arrangement described a non-graduated glass barrel can be readily used and hence such glass barrel is not weakened by a graduation such as heretofore used on glass barrels. It will also be noticed that the graduation correctly indicates the liquid contents of the barrel to enable the user to readily inject the desired amount of medicated liquid into the afflicted part.

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

1. In a hypodermic syringe, a metallic casing provided with a lengthwise cut-out portion provided along one wall with a graduation, a needle detachably mounted in one end of the said casing, a barrel held in the said casing and visible through the said cut-out portion, the said graduation indicating the cubic contents of the said barrel, a gland screwing in the said casing against the said barrel to hold the latter in place in the casing, a plunger slidably fitted in the said barrel and provided with a plunger rod extending through the said gland, the outer end of the said plunger rod being provided with a handle, and a fingerpiece held on the said gland and having a limited turning motion thereon.

2. In a hypodermic syringe, a tubular casing provided at one end with a needle, a gland screwing in the other end of the casing, a barrel held in the said casing, a retainer held in the casing and engaging the said barrel, the said retainer being engaged by the said gland, a plunger in the said barrel and having a plunger rod extending through the said gland, the outer end of the said plunger rod having a handle, and a fingerpiece mounted on the said gland and adapted to screw the said gland in place on the casing or unscrew it therefrom.

3. In a hypodermic syringe, a tubular casing provided at one end with a needle, a gland screwing in the other end of the casing, a barrel held in the said casing, a retainer held in the casing and engaging the said barrel, the said retainer being engaged by the said gland, a plunger in the said barrel and having a plunger rod extending through the said gland, the outer end of the said plunger rod having a handle, and a fingerpiece mounted on the said gland and adapted to screw the said gland in place on the casing or unscrew it therefrom, the said fingerpiece and gland having coacting means to provide a limited turning motion of the fingerpiece on the gland and to allow of turning the gland by the fingerpiece.

4. In a hypodermic syringe, a tubular casing provided at one end with a needle, a gland screwing in the other end of the casing, a barrel held in the said casing, a retainer held in the casing and engaging the said barrel, the said retainer being engaged by the said gland, a plunger in the said barrel and having a plunger rod extending through the said gland, the outer end of the said plunger rod having a handle, and a fingerpiece mounted on the said gland and adapted to screw the said gland in place on the casing or unscrew it therefrom, the said gland having a reduced portion on which the said fingerpiece is mounted to turn, the fingerpiece having a notch and the said reduced portion having a lug extending into the said notch to limit the turning motion of the said fingerpiece and to allow of using the latter as a means for turning the gland.

RICHARD HENRI RIETHMÜLLER.