Dec. 3, 1929. J. MacGREGOR 1,737,857

HYPODERMIC SYRINGE

Original Filed May 17, 1924

Fig. 1.

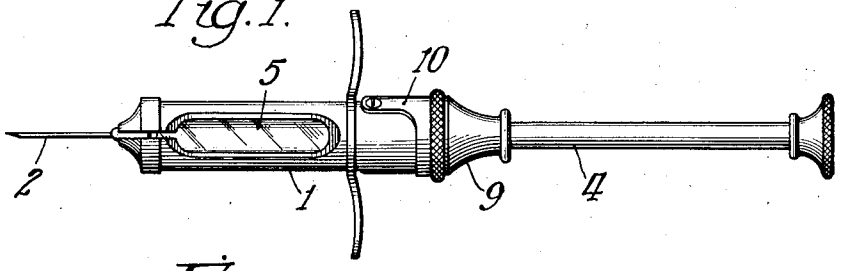


Fig. 2.

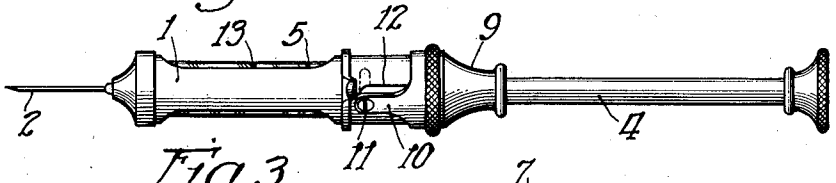


Fig. 3.

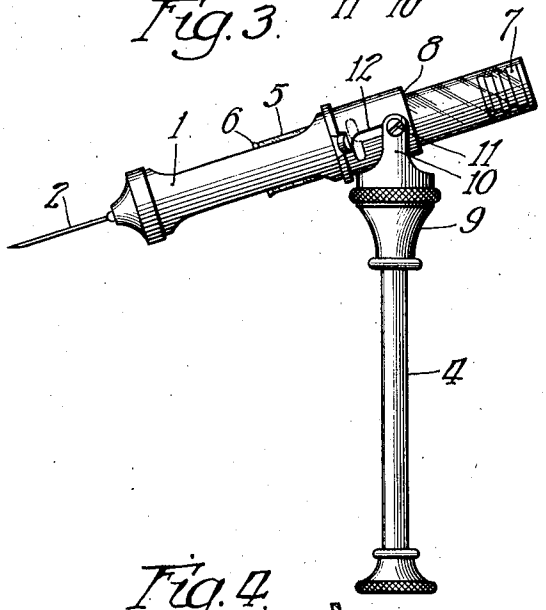
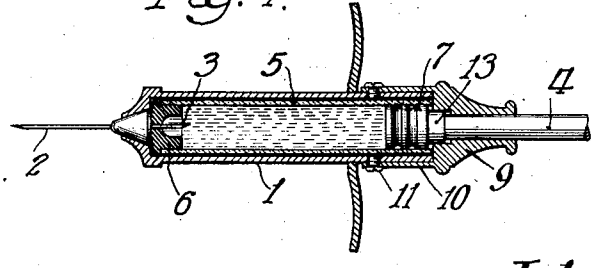


Fig. 4.



Inventor.
John MacGregor.
Emery, Booth, Janney & Varney. Attys.

Patented Dec. 3, 1929 1,737,857

UNITED STATES PATENT OFFICE

JOHN MacGREGOR, OF CHICAGO, ILLINOIS, ASSIGNOR TO COOK LABORATORIES, INC., OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE

HYPODERMIC SYRINGE

Application filed May 17, 1924, Serial No. 713,904. Renewed December 15, 1927.

This invention relates to hypodermic syringes, and among other objects aims to provide an improved holding and operating instrument for use with a cartridge and needle to make a syringe organization, having in view facility for quick insertion of the cartridge in the syringe, releasably locking the syringe in operative condition, and convenience of manipulation.

The invention may be understood by reference to one illustrative embodiment shown in the accompanying drawings, in which:

Figure 1 is a side elevation of the syringe.

Fig. 2 is a side elevation taken at right angles to that shown in Fig. 1.

Fig. 3 is a view similar to Fig. 2 but showing the syringe open to permit filling.

Fig. 4 is a longitudinal section of the principal parts of the syringe showing it ready for service.

The illustrative syringe is jointed to permit opening the barrel thereof for filling. Since the medicament may be contaminated by direct contact with the syringe, a medicament-dispensing package is inserted into the opened syringe, so that, after closing, it is ready for service. The closure for the open end of the syringe has locking means; and when unlocked it may be swung to either side out of the way.

It is to be understood that the illustrative form shown in the drawings is simply a preferred embodiment of the invention; and that in the following explanation of that specific form, the described details of structure and organization are merely exemplary.

The syringe proper includes a barrel 1 for holding the supply of medicament (in this instance contained in a dispensing cartridge); a hypodermic needle 2 having associated therewith a cartridge-piercing canula 3 (Fig. 4) for conducting the contents of the cartridge to the needle; and a plunger rod 4 for reducing the interior volume of the cartridge to expel its contents through the canula. The cartridge shown comprises a glass tube 5 sealed at opposite ends by plugs, one plug 6 being designed to be pierced, while the other plug 7 serves as a dispensing plunger, being movable into the tubular body by the plunger rod 4.

For insertion of the cartridge, the barrel 1 is open at one end 8 and has a separable head 9 to close the barrel, said head provided with opposite arms 10 embracing the barrel end and each having a projection 11 at its extremity, said projections extending through and slidable in oppositely disposed bayonet slots 12 in the barrel. Thus on sliding the head 9 over the end of the barrel and turning it axially, the head is locked to the barrel, as shown in Fig. 2; while by an axial turn in the opposite direction and an outward pull it is moved to the end of the barrel and may swing in either direction out of the way, as in Fig. 3. The plunger 4 is reciprocable through the barrel head 9 and has an inner preferably enlarged end 13 which pushes the slidable plug 7.

It will be clear that the separable barrel head and plunger are relatively swingable through an arc considerably exceeding 180°, thus enabling the practitioner to grasp the plunger in one hand and open the syringe by a movement in either direction; and when so opened, the barrel gravitates into a position facilitating filling of the syringe, as shown in Fig. 3. At the same time, there is no possibility of losing the separable barrel head.

The described syringe is of the same general type as that disclosed in my co-pending application filed May 17, 1924, Serial No. 713,903, and embodies a broader invention which is the subject-matter of said co-pending application; wherefore notice is given that the subject-matter of this application is more broadly claimed in the co-pending application referred to.

Obviously the invention is not limited to the specific embodiment herein shown and described, nor is it necessary that all the features of the invention be used conjointly; they may be employed advantageously in various combinations and sub-combinations as defined in the claims.

What is claimed is:

1. A hypodermic syringe comprising, in combination, a barrel; a head closing one end of said barrel; and means connecting the

head to the barrel comprising a pair of oppositely disposed arms extending from the head and embracing the adjacent end of the barrel, a projection extending inwardly from each arm, and a pair of like bayonet slots in the barrel slidably receiving the respective projections.

2. A hypodermic syringe comprising, in combination, a barrel having an opening for insertion of a medicament cartridge; a head closing the opening; and means joining the head to the barrel, said means including an arm extending outwardly from one of said members, a projection on said arm, and a bayonet slot in the other of said members slidably receiving said projection.

3. A hypodermic syringe comprising, in combination, a barrel; means for dispensing medicament therefrom; and a head closing one end of the barrel and slidably and swingably mounted thereon for quick removal to permit filling of the syringe.

4. A hypodermic syringe comprising, in combination, a barrel open at one end; a closure for said open end; means connecting said closure to the barrel permitting the closure to be locked, or unlocked and swung to either side of the barrel; and a medicament dispensing package constructed and arranged for insertion into said barrel end and being held securely by the barrel closure when locked.

5. A hypodermic syringe comprising, in combination, a barrel constructed to permit ready insertion of a medicament receptacle; and a barrel head which retains an inserted receptacle in the barrel slidably and swingably connected to the barrel and locked or unlocked by an axial turn.

6. A hypodermic syringe comprising, in combination, a medicament dispensing cartridge; a barrel constructed to permit ready insertion of the cartridge; a barrel head designed to close the barrel and slidably and swingably connected thereto and locked or unlocked by an axial turn; and a plunger carried by and slidable through the head for dispensing medicament from the cartridge.

7. A hypodermic syringe comprising, in combination, a body constructed and arranged to permit ready insertion and removal of a medicament cartridge through one end thereof; a closure member for that end; and locking means for the closure member, said closure member when unlocked being swingable about the end of the syringe in either of two directions.

8. A hypodermic syringe comprising, in combination, a barrel; a plunger rod for dispensing medicament therefrom; a swingable head which movably carries the plunger rod at one end of the barrel; and a bayonet lock securing said head to the barrel.

9. A hypodermic syringe comprising, in combination, a package of medicament; two parts connected together for enclosing the package of medicament; one of said parts swingable relative to the other through an angle to open the syringe for filling with the package by a movement thereof in either direction.

10. A hypodermic syringe comprising, in combination, two parts connected together for enclosing a supply of medicament; one of said parts swingable relative to the other through an angle of at least 180° to open the syringe for filling; and a bayonet lock to secure the swingable part in a position intermediate its extreme positions.

11. A hypodermic syringe comprising, in combination, a barrel constructed and arranged to permit end-wise insertion of a medicament dispensing cartridge; a barrel head designed to close the barrel; a plunger rod slidable through said head; and means slidably and swingably connecting the barrel head to the barrel so that the two parts may be locked together with the plunger rod in axial alinement with the barrel for dispensing the medicament; said plunger rod, when the head is unlocked, being swingable to either side of the syringe to provide a handle, and the head serving as a stop on which the barrel rests in convenient position for filling with a cartridge.

12. In a hypodermic syringe, a cartridge-holding and operating instrument constructed at its fore portion to accommodate a cartridge-piercing canula and having a cartridge-operating plunger in its breach portion, said instrument embodying separate members and a combined hinge and bayonet-joint connection between said members.

13. In a hypodermic syringe, a cartridge-holding and operating instrument constructed at its fore portion to accommodate a cartridge-piercing canula and having a cartridge-operating plunger in its breech portion, said instrument jointed to permit swinging the plunger out of position with accompanying opening of the breech end for insertion of the cartridge, and embodying a combined hinge and bayonet-joint.

14. In a hypodermic syringe, a cartridge-holding and operating instrument constructed at its fore portion to accommodate a cartridge-piercing canula and having a cartridge-operating plunger in its breech portion, said instrument embodying parts relatively movable rotatably and longitudinally whereby the instrument may be opened for insertion of the cartridge and closed for operative use.

15. A hypodermic syringe comprising a needle-carrying sleeve adapted to embrace one end of a medicine package, a plunger, carrying member adapted to engage the opposite end of such package, and tie-members extending from one of the aforesaid members and having pivotal and sliding connection

with the other of said end members, whereby the members are adapted to be displaced for receiving a medicine package and then to be locked in assembled position with such package.

In testimony whereof, I have signed my name to this specification.

JOHN MacGREGOR.