

May 22, 1923.

O. O. R. SCHWIDETZKY

1,456,469

SYRINGE

Filed March 10, 1921

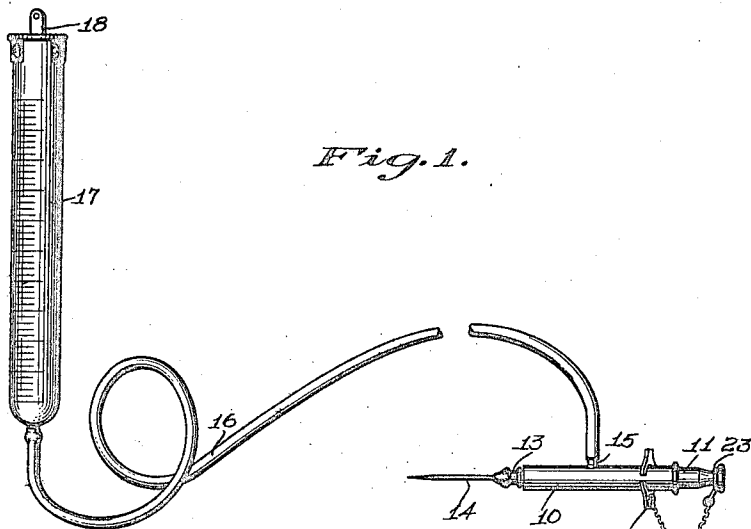


Fig. 1.

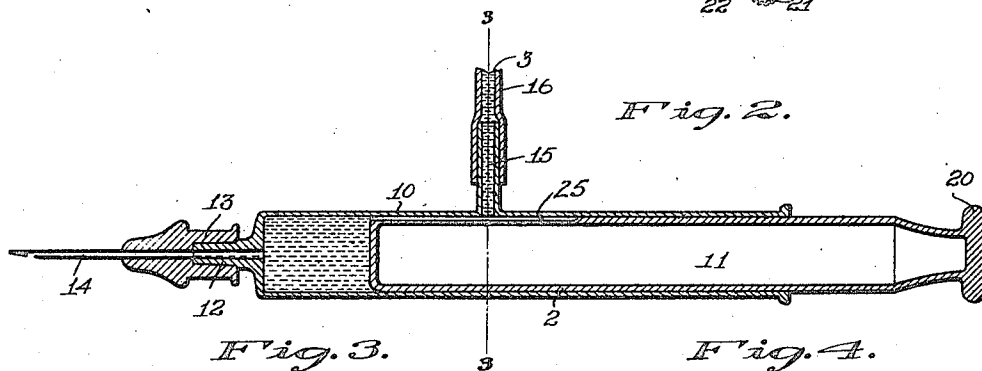


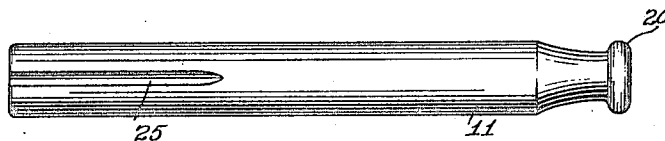
Fig. 2.

Fig. 3.

Fig. 4.



Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

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SYRINGE.

Application filed March 10, 1921. Serial No. 451,129.

To all whom it may concern:

Be it known that I, OSCAR O. R. SCHWIDETZKY, a citizen of the United States, and a resident of Hasbrouck Heights, in the county of Bergen and State of New Jersey, have invented a new and Improved Syringe, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved syringe arranged for convenient filling and refilling with a serum or other liquid, notably one that is used for local anaesthesia or the like.

Another object is to permit of refilling the syringe while the latter is applied and without danger of admitting air or other foreign deleterious matter into the barrel of the syringe thereby preventing contamination of the fluid to be injected into the body.

Another object is to prevent the injected fluid from being withdrawn from the vein or other part of the body into the syringe during the refilling operation.

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 reduced side elevation of the improved syringe connected with a gravity supply for charging the syringe;

Figure 2 is a longitudinal central section of the syringe with the parts in position for refilling;

Figure 3 is a cross section of the same on the line 3—3 of Figure 2;

Figure 4 is a similar view of the same with the valve plunger in shut-off position relative to the inlet; and

Figure 5 is a plan view of the valve plunger.

The barrel 10 and the plunger all mounted to slide in the barrel are preferably made of glass, and the forward end of the barrel is provided with an outlet 12 engaged by a hub 13 carrying the usual hypodermic needle 14. The barrel 10 is further provided at its side a distance from the outlet 12 with an inlet 15 connected by a piece of rubber tubing

16 with the lower end of a vessel 17 adapted to contain the liquid to be injected by the syringe into the body of a patient. The vessel 17 is provided at its upper end with a suitable clip 18 for supporting the vessel overhead to insure a gravity flow of the liquid contained in the vessel into the barrel 10.

The plunger 11 is provided at its outer end with a suitable handle 20 to enable the operator to conveniently manipulate the plunger with a view to force the liquid out of the barrel 10 into the vein or other part by the needle 14. The outward movement of the plunger 11 in the barrel 10 is limited by a suitable stopping means such as a chain 21 attached at its ends to clips 22 and 23 held on the barrel 10 and the outer end of the plunger 11, respectively, as plainly indicated in Figure 1. The plunger 11 is preferably made hollow and closed at the ends, and on the peripheral face of the plunger 11 is formed a longitudinal groove 25 extending from the inner end of the plunger a distance rearward to render the groove of a length corresponding approximately to the distance from the forward end of the barrel 10 to the rear end of the inlet 15. When the liquid is to be ejected from the barrel 10, the plunger 11 is turned in the barrel 10 until the groove 25 is out of register with the inlet 15 (see Figure 4), and when the plunger is now pushed forward, the liquid is forced out of the barrel, as above described, while the inflow of the liquid through the inlet 15 is cut off by the plunger. When it is desired to refill the barrel 10 with the plunger 11 in forward position and without danger of admitting air into the barrel, the operator turns the plunger 11 until the groove 25 registers with the inlet 15. The liquid from the vessel 17 now flows by gravity through the tubing 16, the inlet 15 and the groove 25 into the forward end of the barrel 10 and refills the same. After the barrel 10 has been filled with a desired amount of liquid then the operator again turns the plunger 11 to move the groove 25 out of register with the inlet 15, thus cutting off the supply of liquid to the barrel. The liquid in the forward end of the barrel 10 is now injected by pushing the plunger 11 inward.

From the foregoing it will be seen that by the arrangement described the needle 14 remains in position on the part of the body

during the refilling operation of the barrel 10, and a second application of the liquid can be quickly made without changing the position of the syringe relative to the body.

5 It will also be noticed that air or other deleterious matter is not liable to pass into the barrel during the refilling or ejection operations. It will further be noticed that the plunger 11 besides its usual function serves
10 as a valve to control the inflow of the liquid from the vessel 17 into the barrel 10.

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

15 1. A syringe, comprising a barrel provided with an outlet at one end and an inlet at the side, and a valve plunger mounted to slide and to turn in the said barrel and hav-

ing means adapted to register with the said inlet to connect the latter with the outlet 20 end of the barrel, the said means on turning the valve plunger moving out of register with the inlet.

2. A syringe, comprising a barrel provided at one end with an outlet and at the 25 side with an inlet, and a plunger mounted to slide and to turn in the said barrel and provided at its peripheral face with a longitudinal groove extending a distance rearward from the front end of the plunger, the 30 said groove in one position of the plunger being in register with the said inlet and in another position of the plunger being out of register with the said inlet.

OSCAR O. R. SCHWIDETZKY.