March 3, 1936. C. E. SCHWESER 2,032,723

SERUM INJECTING OUTFIT

Filed May 5, 1934

Fig. 1.

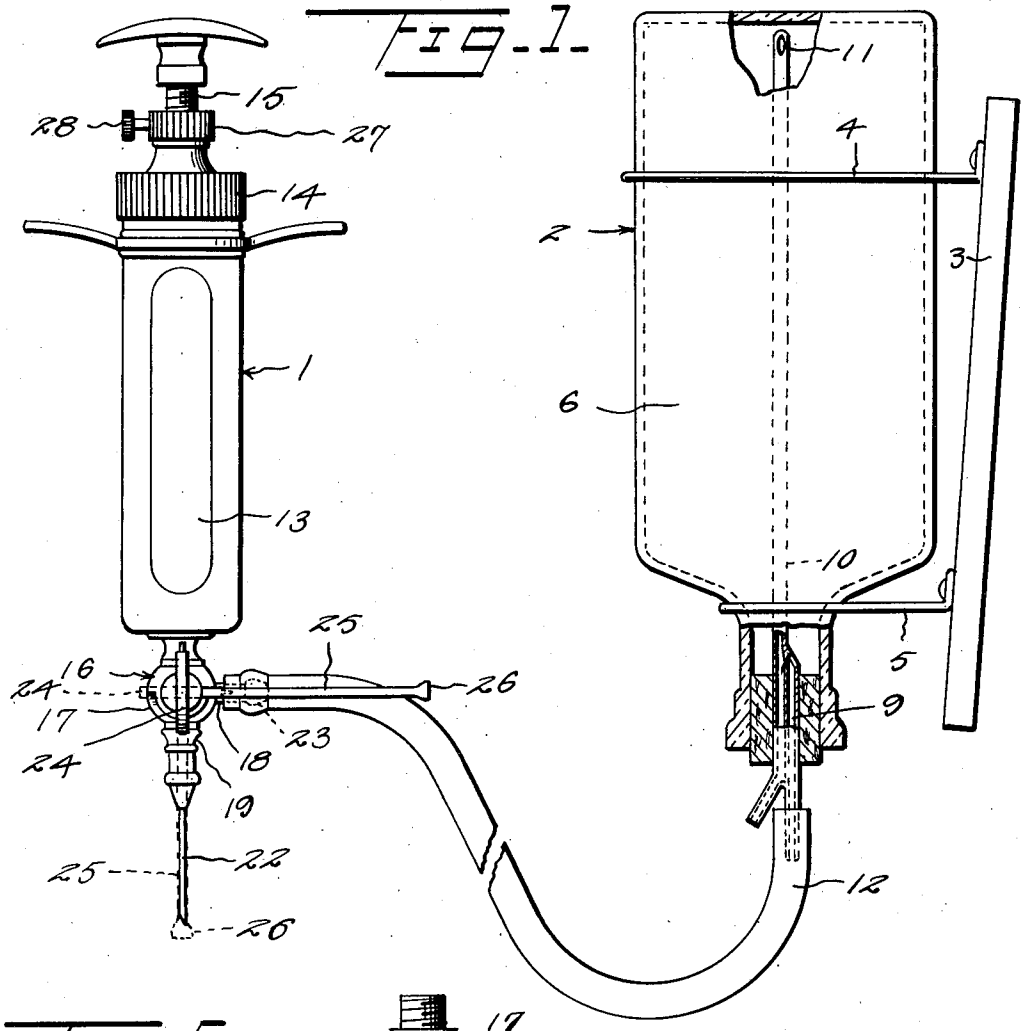
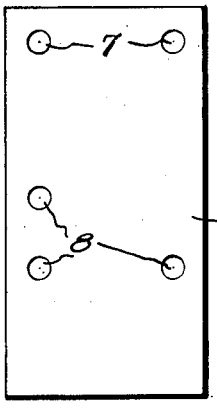



Fig. 5.



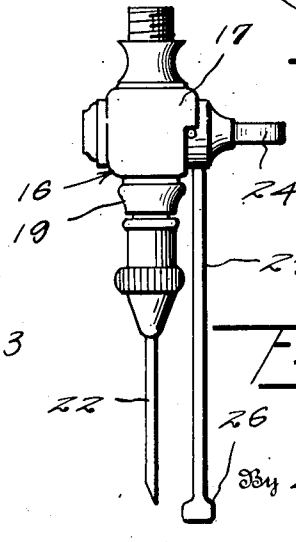




Fig. 3.

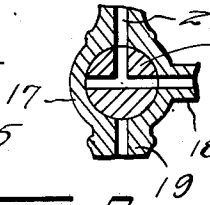



Fig. 4.

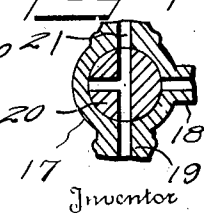



Fig. 2.

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2,032,723

# UNITED STATES PATENT OFFICE

2,032,723

## SERUM INJECTING OUTFIT

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Application May 5, 1934, Serial No. 724,182

2 Claims. (Cl. 128—235)

This invention relates to the class of medicating devices and pertains particularly to an improved device for handling and injecting a vaccine.

The primary object of the present invention is to provide a vaccine injecting syringe having a novelly designed valve disposed between the syringe barrel and the needle whereby there may be coupled with the needle a vaccine supply and the syringe may be repeatedly filled from the supply and emptied by injecting the substance into the subject, until the supply is exhausted.

Another object of the invention is to provide a continuous supply vaccine syringe having means associated therewith whereby the introduction of the needle will be prevented when the supply connection with the syringe barrel is open.

A still further object of the invention is to provide in a mechanism of the above described character a syringe having a two-way valve interposed between the barrel and the discharge needle, a supply receptacle having novel means for drawing off liquid and replacing the same with air, and a coupling means between the receptacle draw-off means and the syringe valve, whereby a supply of vaccine may be transferred from the receptacle to the syringe and then ejected from the syringe through the needle thereof.

Still another object of the invention is to provide an outfit of the above described character in which the supply receptacle is mounted so that it may be suspended from and moved about with the operator.

A still further object of the invention is to provide a novel syringe having a piston, piston rod and barrel with the rod of which is associated an adjustable member by means of which the movement of the piston in the barrel may be controlled.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawing but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawing:—

Figure 1 is a view in elevation of the outfit embodying the present invention, proportions thereof being in section.

Figure 2 is a view in elevation on an enlarged scale of the valve and needle portion of the syringe.

Figure 3 is a sectional view through the valve showing the connection passage between the receptacle and the syringe barrel.

Figure 4 is a sectional view similar to Figure 3 but showing the passage leading from the syringe barrel to the needle.

Figure 5 is a view in elevation of the carrier board for the receptacle.

Referring to the drawing wherein like numerals of reference designate corresponding parts throughout the views, the device embodying the present invention comprises two main units, one of which is the syringe, which is indicated as a whole by the numeral 1, while the other is the liquid or vaccine carrying receptacle and the supporting means therefor which is indicated as a whole by the numeral 2. The unit 2 preferably comprises a supporting body in the form of a board 3 to the front surface of which is attached in any suitable manner the resilient wire rings 4 and 5, which are employed for holding in proper position on the board the receptacle 6.

The board 3 is preferably provided with two holes adjacent its upper edge, as indicated by the numeral 7 and three holes in a group adjacent the lower edge of the board, as indicated by the numeral 8, whereby supporting ropes or cords may be conveniently attached to the board to facilitate securing it to the body of the person using the outfit. The upper pair of holes may be used by securing one end to a cord or rope in one hole and forming a loop with the cord around the neck of the user and securing the other end of the cord in the other hole 7 while the lower group of holes 8 is used in a similar manner by securing one end of the cord in the single hole at one side of the board, and then passing the cord around the waist and bringing the other end back to be secured by passing it through the two adjacent holes at the opposite edge of the board.

The receptacle 6 is provided with a suitable cork or other closure element through which a passage is formed and extending through this passage is a draw-off tube 9 which terminates just inside the bottle adjacent the inner end of the cork.

Secured to or formed integral with the tube 9 is the long air inlet tube 10 which passes through the receptacle to a point adjacent the upper end thereof where it is provided with the opening 11 through which air may enter into the receptacle,

the opposite end of the tube 10 being, of course, outside the receptacle the same as the outer end of the draw-off tube 9.

To the outer end of the draw-off tube 9 is attached one end of a rubber or other suitable type of tube 12, the opposite end of which is connected with the syringe in the manner hereinbefore described.

The syringe unit 1 comprises the usual barrel 13 at one end of which is the closure cap 14 through which passes the rod 15 of a piston (not shown) within the barrel. At the forward end of the barrel, there is attached a three-way valve which is indicated as a whole by the numeral 16 which comprises the body 17 having the inlet and outlet nipples 18 and 19, respectively, and the three-way plug which is indicated by the numeral 20. The passage leading from the barrel 13 into the valve body 17 is indicated by the numeral 21 and is alined with the outlet nipple passage as illustrated. To the outlet nipple is connected a needle 22 of the usual type.

As shown, the outer end of the nipple 18 terminates in the head 23 over which is slipped the end of the tube 12. This head assists in retaining the tube attached to the nipple.

The rotary plug 20 at one end has the key 24 by which its rotation is facilitated and formed integral with the base portion of the key or the adjacent part of the plug body is a guard rod or wire 25 which terminates in the head 26. This guard wire is arranged transversely of the transverse or through passage of the plug 20 so that when it is transversely of the needle 22, the barrel 13 will be in communication with the needle so that the contents of the barrel may be ejected through the needle, but when the rod or wire 25 is parallel with the needle, the needle cannot be introduced into the skin and communication is established between the barrel 13 and the receptacle 6.

By the provision of the rod or wire 25, two purposes are accomplished, one of which is to indicate to the operator of the needle how the plug 20 is disposed as regards the connection of the passages therethrough with the nipples 18 and 19 and the other purpose is to prevent the operator inserting the needle when the plug is not in the proper position for the ejection of the fluid through the needle. In other words, this guard wire prevents the operator inserting the needle and forcing the contents of the barrel back into the receptacle 6 instead of through the needle, as desired.

The piston rod 15 is threaded and has threadably mounted thereon a collar 27 which carries a set screw 28 which is adapted to engage the piston rod so that the collar cannot be turned after the screw has been moved in against the rod. By this means, the extent of movement of the piston may be regulated so that the quantity of fluid ejected through the needle may be controlled.

Having thus described the invention, what I claim is:—

1. In a hypodermic syringe including a barrel having an outlet at one end and a piston reciprocable in the barrel, a three-way valve connected with the outlet end of the barrel, said valve having an oscillatable plug, means for attaching a needle to the valve to be coupled with one of the three ways thereof and to extend longitudinally of the barrel, means facilitating the attachment of a tube to the valve to be coupled with the other of the three ways thereof, and an arm secured to said valve plug to be swung with the turning of the valve, to a position parallel with an attached needle, the arm being of sufficient length to project beyond the point of the needle when in such position whereby the projection of the point of the needle into a body when the valve is closed will be prevented.

2. In a hypodermic needle including a barrel having an outlet at one end and a piston reciprocable in the barrel, a three-way valve connected with the outlet end of the barrel and including an oscillatable element, a needle connected with the valve to be coupled with one of the three ways thereof, means for connecting a tube with the valve and for coupling the tube with the other of the three ways of the valve, and means connected with the oscillatable element of the valve and actuated thereby to extend longitudinally of and beyond the point of the needle to prevent the insertion of the latter into a body when the valve is set to close the way leading to the needle.

CARL E. SCHWESER.