Oct. 1, 1940. D. I. PLETCHER 2,216,354

DOSAGE REGULATOR AND CONTROL WEDGE FOR HYPODERMIC SYRINGES

Filed Feb. 25, 1939

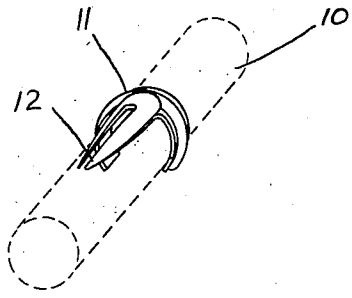


FIG. 1



FIG. 2



FIG. 4

FIG. 3

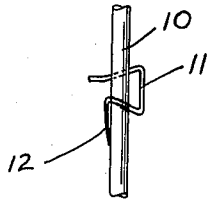


FIG. 5

FIG. 6

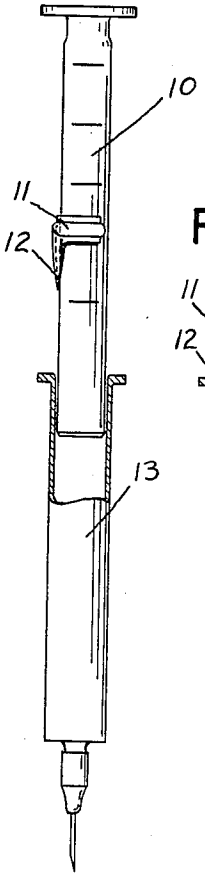
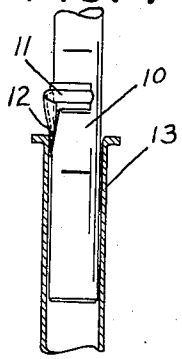


FIG. 7



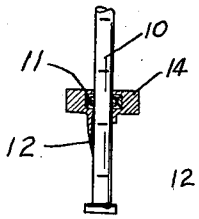
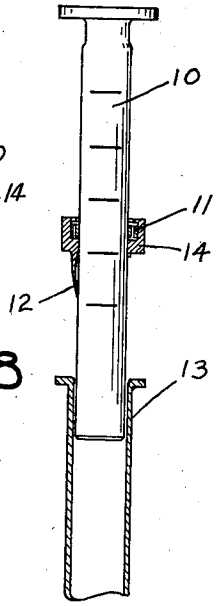


FIG. 8

FIG. 9



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DOSAGE REGULATOR AND CONTROL WEDGE FOR HYPODERMIC SYRINGES

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Application February 25, 1939, Serial No. 258,425

1 Claim. (Cl. 128—218)

This invention relates to an improvement in a control device for regulating the dosage to be given by a hypodermic syringe and for tightening the plunger or plunger rod in the cylinder so that there cannot be any flow of blood or pus into the cylinder or barrel of the syringe, due to body pressure or abscess pressure, when the pressure of the hand on the plunger has been removed.

It is well known to the profession that unless the pressure of the hand on the free acting plunger of a hypodermic syringe is maintained or the plunger or plunger rod is tightened, the counter pressure of the blood or the greater pressure of an abscess will force blood or pus back into the syringe and thereby contaminate it.

The device shown in my invention is suitable for attachment to any kind of ordinary hypodermic syringe, and when it has been attached it will change any ordinary syringe into a dosage regulating and controlled syringe.

Hypodermic syringes have an ebb and flow feature during most injections. Free acting plunger rods and rebound from rubber corks and rubber pistons are responsible for most of this condition. When hand pressure decreases so that tissue resistance is greater than pressure on medicine the unused medicine becomes contaminated. A constant flow forward is necessary during an injection and a controlled plunger rod is necessary to maintain constant pressure within the barrel of a syringe. With the herein described and claimed control wedge, the dosage may be predetermined and a positive tension maintained within the barrel or cartridge, thus preventing an invasion of outside elements with the medicine, or back infiltration. With the control wedge, rubber pistons may be safely used in glass barrels of various types of construction and the previously objectionable feature of suction from rebound is eliminated. This dosage indicator is not a locking device as an injection may be continued, with slightly increased pressure, under control, to be discontinued safely at any desired point. This control wedge is a dosage regulator and tightening device for plunger, thus preventing reinvasion of outside elements at cessation of hand pressure.

Referring now to the accompanying drawing, which forms a part of this specification and illustrates by way of example embodiments of the invention—plunger refers to ground or milled piston, plunger rod refers to rod used with reduced head opening and rubber pistons.

Fig. 1 is an enlarged view of control wedge, clasp type.

Fig. 2 is a cross-section of the control wedge with an internal coil spring grip surrounded by a ring for hand adjustment.

Fig. 3 is a top view of the control wedge shown in Fig. 2.

Fig. 4, view of coil spring used for tension in control wedge shown in Fig. 2.

Fig. 5 is a view of control wedge with its tension spring so arranged that the wedge can be easily released or removed.

Fig. 6 is an elevation partly in section of a syringe with the control wedge adjusted to tighten the rod or plunger at the second indicator line marked on the plunger or plunger rod.

Fig. 7 is a fragmentary view partly in section showing how the control wedge tightens the plunger, when it comes into contact with the cylinder or head of the syringe.

Fig. 8 is a cross-section view of the control wedge shown on the plunger rod of a syringe in which the plunger rod has a small diameter, as in metal and cartridge type syringes, with reduced head opening and rubber pistons.

Fig. 9 is a fragmentary elevation of a syringe, showing the control wedge, plunger and cylinder in cross-section as a milled piston and cylinder.

Similar numbers refer to similar parts in all the figures.

The control wedge 12 is attached to the plunger 10 at any required position by tension spring 11, or clasp spring which may be enclosed in a ring 14, shown in Fig. 3, or it may be simply a coiled spring as in Fig. 4, or simply a spring clip as shown in Fig. 1.

The control wedge 12 is very thin at its apex, and tapered rearwardly so that it may enter in the space between the circumference of the plunger 10 and the inner wall of the cylinder 13 and tighten as plunger advances.

As soon as the wedge enters the cylinder or head the increased resistance to the further movement of the plunger or rod can be immediately felt by the operator, and a further pressure will suffice to tighten the plunger in the cylinder or head of the syringe and thereby maintain the internal pressure of the fluid against the counter pressure of the body. After engagement of control wedge the cannula can be withdrawn from the body at any dosage index or the plunger piston may be advanced under increased pressure and stopped when desired with-

out contamination of the medicant in the syringe.

Having thus explained my invention, I claim:

In a syringe, the combination with a syringe cylinder and plunger therein of a wedge, clipped to the plunger by an encircling spring, the apex of the wedge pointing towards the cylinder, one side of the wedge parallel to and adjacent to the plunger, a space between the plunger and plunger guide in the cylinder cap sufficient to allow the apex of the wedge to enter between them when the plunger is pressed into the cylinder for the purpose of locking the syringe, substantially as described.

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