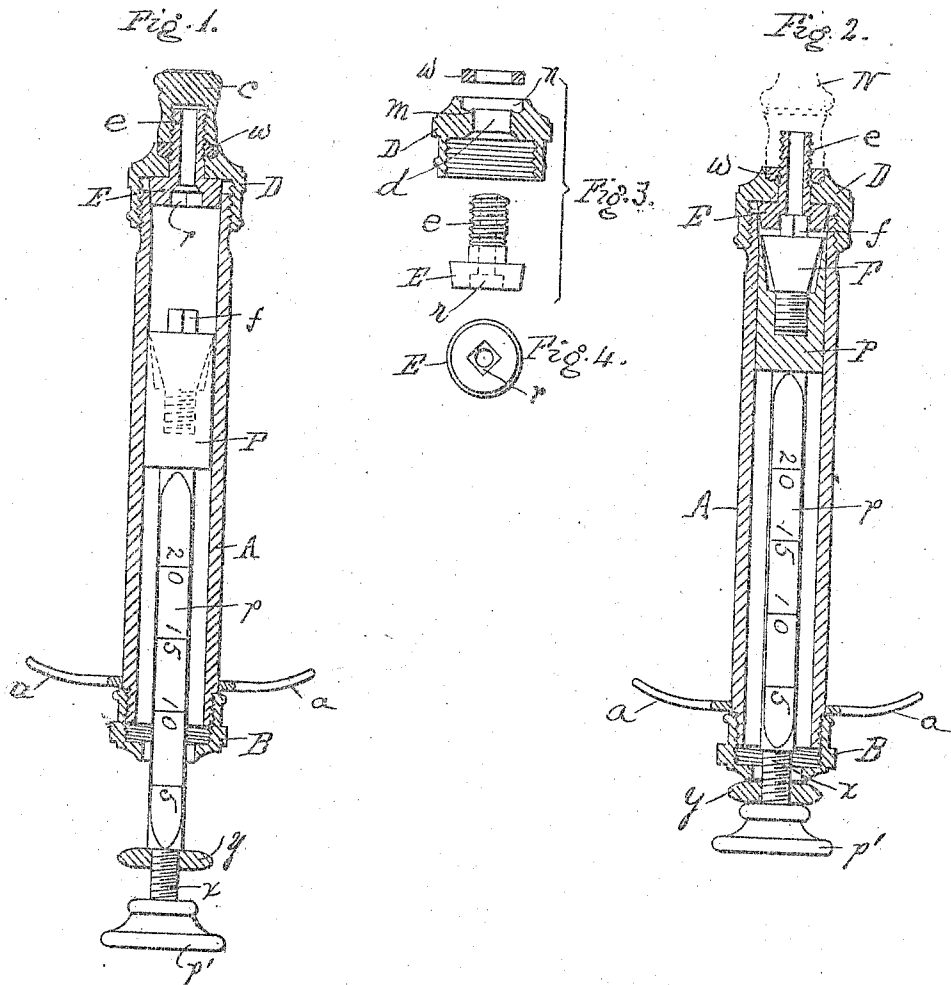


967,136.

J. E. LEE.
HYPODERMIC SYRINGE.
APPLICATION FILED FEB. 6, 1909.

Patented Aug. 9, 1910.



WITNESSES

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HYPODERMIC SYRINGE.

967,136.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed February 6, 1909. Serial No. 476,494.

To all whom it may concern:

Be it known that I, JOHN ELLWOOD LEE, a citizen of the United States of America, residing in the city of Conshohocken, in the county of Montgomery, in the State of Pennsylvania, have invented certain new and useful Improvements in Hypodermic Syringes, of which the following is a specification.

10 The object of my invention is to improve the construction of that class of surgical devices which are commonly known as hypodermic syringes.

15 In the accompanying drawings Figure 1 is a vertical section of a syringe embodying my improvements; Fig. 2 is a similar view showing the cap removed and the piston in a different position; Fig. 3 shows some of the parts on a large scale, detached but ready to be assembled; Fig. 4 is an end view of a part.

20 The barrel A may be of any suitable construction, and provided at its rear end with finger holds *a*, *a*, and a screw cap B, through which passes the stem *p* of the piston P. The rear end of the piston rod carries a suitable thumb piece *p*¹. Between this thumb piece *p*¹ and the graduated portion of the stem *p* is a short part *x* of reduced diameter carrying a stop nut *y*, for a purpose explained hereinafter. At its forward end, the barrel A is externally threaded to receive a screw cap piece, the construction of which will be more clearly understood from 35 Fig. 3. This cap piece comprises a screw cap D and nipple E. The cap has a central opening *d*, through which is passed from the inside of the cap, the hollow screw-threaded stem *e* of the nipple E, (Fig. 3). The enlarged inner end of the nipple is of less diameter than the internal diameter of the threaded portion of the cap D, and is made tapering as shown in the drawing to enter and fit closely the mouth of the barrel 40 A, which is made internally tapering to fit over the tapering end of the nipple.

In the manufacture of the syringe the parts E and D are made separately as shown in Fig. 3, but when the stem of the nipple

has been put through the hole in the cap D, 50 the edge *m* of the metal of the cap is spun down into the screw threads of the stem, as will be understood by reference to Figs. 1 and 2, to securely fasten the nipple to the cap. An annular recess *n* is formed in the 55 outer face of the cap D to receive a washer *w* of flexible material, which engaging the threads of the stem is thereby held securely in place and will not fall off and be lost. Thus the surgeon can always rely on finding 60 the washer in place to make a tight joint, when he screws the needle into the nipple thus formed.

In the inner face of the nipple E is formed centrally a polygonal recess *r*, Figs. 1, 3 and 65 4, of a size and shape to receive a like projection *f* on the outer end of an expansion cone F which has a screw stem threaded into the body of the piston. The outer end of the piston is made hollow to receive this cone 70 and the extreme outer end is thinned down and of a quality of metal capable of an appreciable expansion to fit more closely the walls of the barrel, when a partial turn is given to the cone F to carry it farther 75 into the piston. Under ordinary conditions the stop nut *y* is left in the position shown in Fig. 1, so that when the piston is pushed inwardly to its full extent with the stop nut *y* in contact with the cap B, the projection 80 *f* will not have reached the nipple piece E. But when it is desired to expand or reduce the diameter of the piston without taking the syringe apart, the stop nut *y* is screwed back against the thumb piece *p*¹ as shown in 85 Fig. 2, so that the piston on being pushed into the barrel will carry the projection forward into the corresponding polygonal recess *r* in the cap piece, (Fig. 2), and thereupon by turning the thumb piece *p*¹ and with 90 it the piston in one direction or the other, the piston body may be expanded or reduced, as required. When the needle N, which is indicated by dotted lines in Fig. 2, is removed from the syringe, it is usual to replace 95 it by a cover C, Fig. 2.

I claim as my invention—

A syringe barrel having a cap piece with

a polygonal recess on its inner face in combination with a piston having a graduated stem with a short threaded portion back of the graduations, an adjustable stop nut on said short threaded portion, and an expansion cone in the piston with a projection to enter and engage said recess in the cap piece.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN ELLWOOD LEE.

Witnesses:

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A. A. BARR.