(No Model.)

J. FERGEN & J. T. MACWHINNIE.

HYPODERMIC SYRINGE.

No. 437,149. Patented Sept. 23, 1890.

Fig. 1.

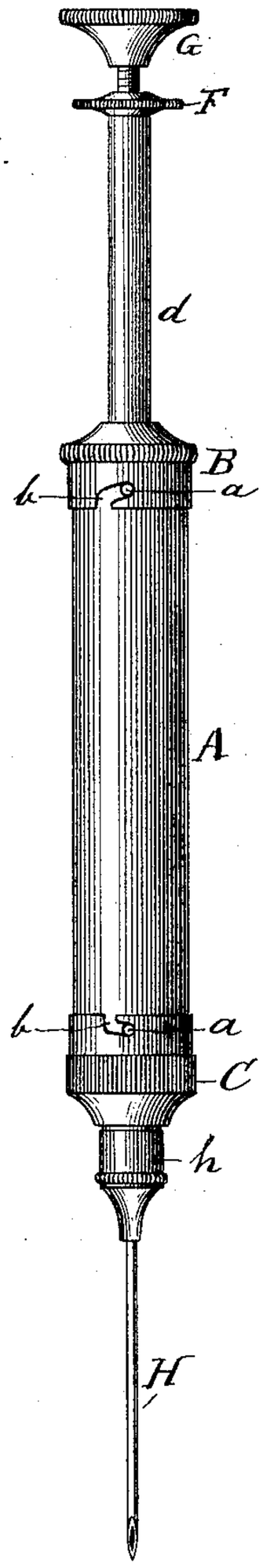


Fig. 2.

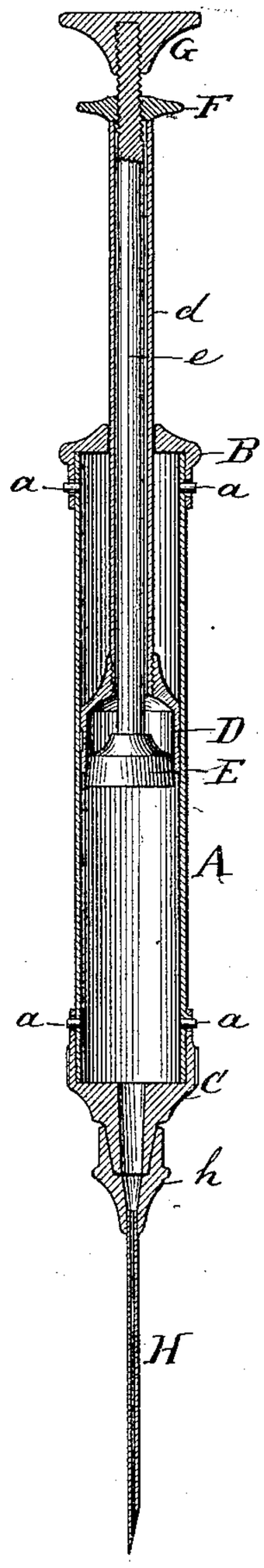
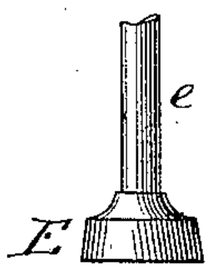


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN FERGEN AND JOHN T. MACWHINNIE, OF CHICAGO, ILLINOIS, ASSIGNORS TO THE FERGEN SURGICAL INSTRUMENT COMPANY, OF SAME PLACE.

HYPODERMIC SYRINGE.

SPECIFICATION forming part of Letters Patent No. 437,149, dated September 23, 1890.

Application filed March 4, 1890. Serial No. 342,652. (No model.)

To all whom it may concern:

Be it known that we, JOHN FERGEN, a subject of the Emperor of Germany, and JOHN T. MACWHINNIE, a subject of the Queen of Great Britain, both residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hypodermic or Under-Skin Injection Syringes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide a hypodermic syringe which, to make it aseptic, is constructed entirely of a non-corrosive metal, and in which no material is employed that is liable to imbibe putrifactive or poisonous matter, and that is also so constructed to be readily taken to pieces, so that every part can be thoroughly cleaned before or after using the same; and with these objects in view our invention consists of the novel devices and combinations of devices hereinafter described and specifically claimed.

In the accompanying drawings, Figure 1 represents an exterior view, and Fig. 2 a longitudinal section, of the syringe. Fig. 3 is an elevation of the piston-plunger, and Fig. 4 an elevation of the piston or plunger expanding-head, all the figures being on an enlarged scale.

Corresponding letters of reference in the several figures of the drawings designate like parts.

A denotes the barrel, cylindrically bored and turned and closed on its ends by caps B and C, each having in its diametrically-opposite sides spiral slots or notches *b*, engaging diametrically-opposite studs *a* of barrel A, thus forming bayonet-joints, which will rigidly couple the parts and at the same time allow a ready disengagement. The cap B is centrally bored for the cylindrically-tubular shank *d* of the cup-shaped piston or plunger D, screwed upon the lower end of the shank to be rigid therewith. This piston or plunger D is turned snugly to fit the bore of the barrel A, and is concentrically bored to be a thin shell of metal of uniform thickness. Through this tube *d* is passed a cylindrical rod *e*, snugly fitting therein, which rod *e* has at its lower end the head E to be integral therewith. This head E is turned to be concentric with its rod and somewhat conical for entering the open end of the piston or plunger D to a certain degree, and then with a further forcible insertion to expand such piston or plunger shell, thereby increasing its diameter and recompensing for any wear of the piston or plunger, thus insuring a perfect hermetic joint of the piston or plunger D with the bore of the barrel A. The upper protruding end of rod *e* is screw-threaded for a tension-nut F, shouldering against the upper end of shank *d*, by turning which nut F the head E is drawn into the piston or plunger D for expanding it to the desired extent, and upon the extreme end of this rod *e* is screwed a knob or handle G by which to reciprocate said piston or plunger D. The lower cap C has formed to its lower end a conical nipple, which is centrally bored, and upon this nipple is snugly fitted the socket *h* of tubular needle H, so as to form a hermetic joint therewith and to provide frictional hold thereon. The tubular needle H is chamfered on its end to provide a point that will readily pierce the human skin and will then allow an easy efflux of the liquid to be injected by the propulsion of the piston or plunger.

It will be readily seen that this syringe so constructed can be readily taken apart so each piece can be thoroughly cleaned with boiling water, hot air, or any other sterilizing solution, and can then be easily put together again ready for instant use, and every part of this syringe can thus be made of a non-corrosive metal that in itself is aseptic. It will also be readily seen that the manner in which the piston or plunger is constructed, to be compensating for wear, will insure a close joint with the bore of the barrel.

What we claim is—

1. In a hypodermic syringe, the cup-shaped metal piston or plunger rigid with the piston-rod, in combination with a conical metal head and with means for forcibly inserting such head for adjustably expanding such piston or plunger, substantially as set forth.

2. In a hypodermic syringe, the combination, with the barrel having caps fitted upon

its ends, each secured by bayonet-joints, one cap providing the guide for the plunger or piston shank and the other one for attaching the hypodermic needle, of the cup-shaped metal piston fitted into the bore of the barrel and having a tubular shank rigid therewith and a conical metal head entering the said piston and having a cylindrical stem passed through the tubular shank of the piston and being screw-threaded on its projecting end for engaging an adjusting-nut and for securing the handle, all substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN FERGEN.
JOHN T. MACWHINNIE.

Witnesses:
WILLIAM H. LOTZ,
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