

**No. 715,290.**

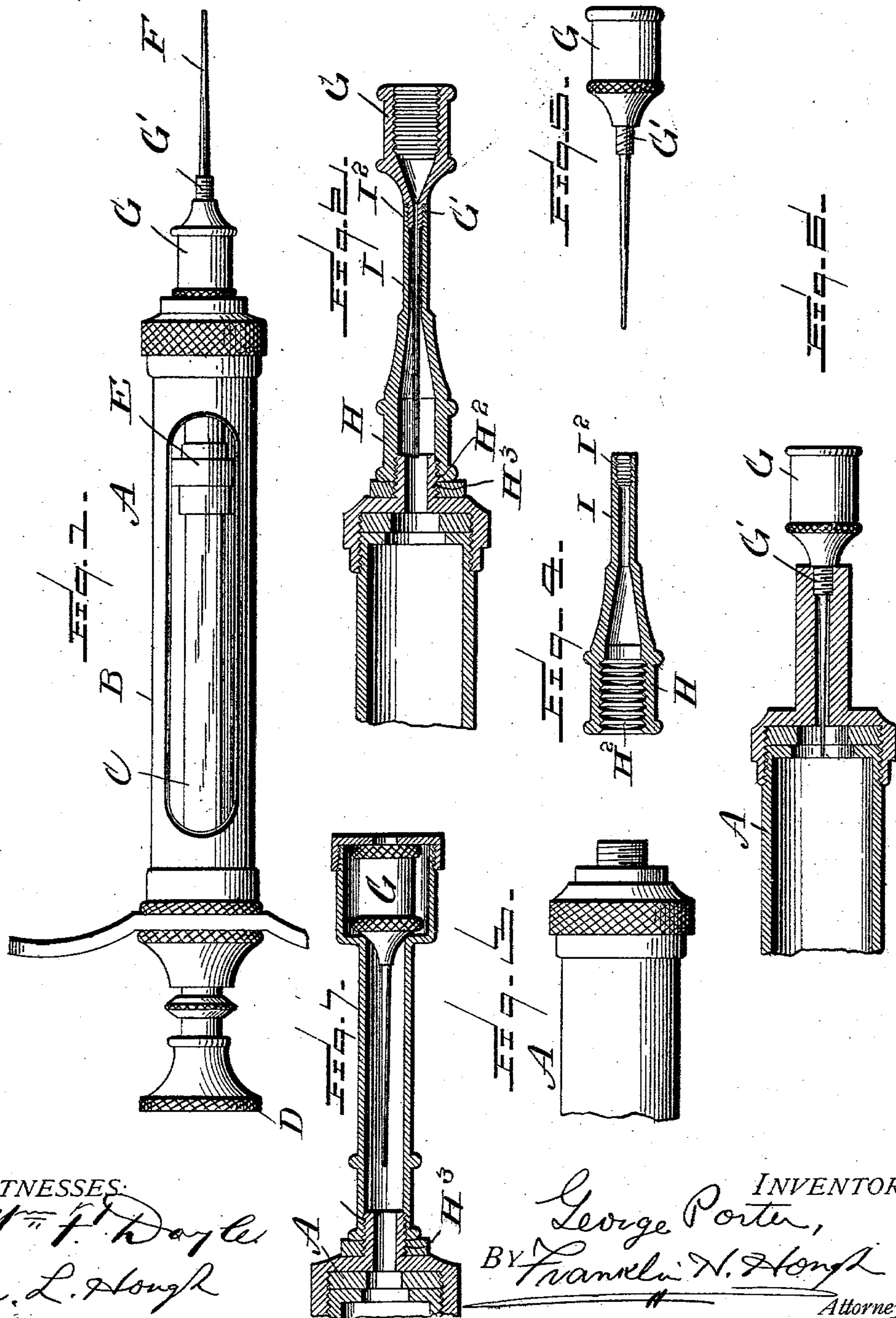
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**G. PORTER.**

# DEVICE FOR CLEANING HYPODERMIC NEEDLES.

(Application filed July 7, 1902.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR CLEANING HYPODERMIC NEEDLES.

SPECIFICATION forming part of Letters Patent No. 715,290, dated December 9, 1902.

Application filed July 7, 1902. Serial No. 114,627. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE PORTER, a citizen of the United States, residing at Manchester, in the county of Hillsboro and State of New Hampshire, have invented certain new and useful Improvements in Devices for Cleaning Hypodermic Needles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in means for removing obstructions from the needles of hypodermic syringes.

Owing to the extreme minuteness of the opening or passage-way with which needles for hypodermic syringes are provided, it is found that the passage is easily clogged, and physicians are frequently greatly annoyed thereby, especially in view of the fact that it frequently happens in emergency cases that an immediate use of the syringe is necessary. This clogging of the needle has not only resulted in serious annoyance and inconvenience, but upon account of the difficulty that has been experienced in efforts to clear the obstruction from the needle it has been customary in case a needle becomes clogged to throw it away and substitute therefor a new needle. The tendency of the passage in the needle to become obstructed is due not alone to the minuteness of the passage, but more to the fact that the opening or passage-way is not of a uniform diameter throughout its entire length. The diameter of the passage is considerably greater at the base than at the point of the needle, thus causing minute particles of foreign matter which may be contained in the syringe-chamber to be wedged within the contracted end of the passage in the needle, and any force applied to the operating-handle of the syringe will thus serve to more firmly wedge the obstacle in the contracted end of the passage.

The present invention has for its object the provision of means whereby the needle may be reversed with reference to the syringe, and the force applied to the liquid may be caused

to enter the contracted end of the passage in the needle, and thus forcing the obstruction therein out at the larger end of the passage.

It is at once evident that various details of construction may be adapted whereby this end may be accomplished without departing from the spirit of my invention, which contemplates, broadly, the removal of obstructions from the needles of hypodermic syringes by forcing either air or liquid from the syringe through the needle when the same is held in a reverse position relative to the syringe, so that the force applied will enter the contracted end of the passage in the needle and force the obstruction therein out at the larger end of the passage.

To these ends and to such others as the invention may pertain the same consists in the peculiar construction and the novel combination and arrangement and adaptation of parts whereby the object sought may be accomplished, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which drawings—

Figure 1 is a side elevation of a hypodermic syringe embodying my invention. Fig. 2 is a central vertical section through a portion of the syringe-chamber and its connecting parts with the needle shown as reversed and in position for forcing an obstruction from its chamber. Fig. 3 is a side elevation of the ends of the syringe with the needle-holding section removed. Fig. 4 is an enlarged central longitudinal section of the needle-holding end of the syringe. Fig. 5 is a side elevation of the portion of the syringe holding the needle. Fig. 6 is a central vertical section taken through the end of a modified form of syringe with the needle held in position for cleaning, and Fig. 7 is a modification showing a means of holding the needle without having screw-threads thereon.

Reference now being had to the details of the drawings by letter, A designates a hypodermic syringe, which may be of any of the usual and well-known constructions, such as are in common use, and consisting of a bar-



rel or body portion B and provided with a piston-rod C, one end of which is provided with the usual operating-handle D and its opposite end provided with a suitable piston-head E.

F is the needle, which is of the usual well-known construction, being exceedingly small in cross-section and held in the section G, which section is provided with screw-threaded connection with the barrel B of the syringe. The extreme tapering end G' of the part G I provide with an external screw-thread, as shown.

H is a suitable casting, in size and general form resembling the part G. This casting H is provided at its enlarged end with an internal screw-thread, which is adapted to engage the screw-threads H<sup>2</sup> upon the extension H<sup>3</sup> of the syringe and is provided with a contracted neck or extension I, having a central opening of a sufficient diameter to admit the needle of the syringe, the extreme end of this neck or extension being internally threaded to engage the threaded portion G' at the base of the needle.

When the needle of the syringe becomes clogged, it is simply necessary to unscrew the section G, to which the needle is attached. The needle is then passed into the opening in the neck or casting, after which it is reversed and its point is passed into the free end of the neck portion I of the casting H, and the needle is projected into the said neck until the screw-threaded portion I<sup>2</sup> engages the screw-thread G' at the base of the needle, and the casting is turned until a secure engagement of the screw-threads is secured. The casting H is then screwed upon the extension H<sup>3</sup> upon the syringe-head, as shown in Fig. 2 of the drawings. It will be noted that when the parts are thus engaged the position of the needle with reference to the syringe will be reversed. As the chamber of the needle is of greater diameter at the base of the needle than it is at its point, the diameter of the chamber decreasing uniformly from end to end, it will be seen that when the needle is thus reversed the contracted end of the needle-chamber will be adjacent to the syringe-chamber and that a downward pressure upon the piston will serve to force the liquid from the contracted end of the needle-chamber out through the enlarged end of the chamber or passage, thus readily forcing out of the chamber any obstruction which may have become wedged therein. After the needle has thus been freed from obstructions it is simply necessary to unscrew the needle from the part H, remove the said part, and the needle-holding section, with its accompanying needle, is replaced, when the syringe will be in condition for immediate use.

From the above it will be at once understood that the providing of an external screw-thread at its base is essential, and this feature forms an essential feature of the present invention.

In Fig. 6 of the drawings I have shown a modification in the form of the syringe, said modification consisting in extending the portion H<sup>3</sup> for a distance corresponding substantially with the length of an ordinary hypodermic-syringe needle and providing the free end of this extension with an internal screw-thread, with which the external thread G' at the base of the needle is engaged when the section G is removed and reversed in its relation to the syringe. By this construction the part H may be dispensed with, it simply being necessary in cleaning the needle to detach the part G from the syringe, insert the needle into the chamber of the part H<sup>3</sup>, and cause the screw-threaded portion at the base of the needle to engage the internal screw-threads at the free end of the extension, when by an inward pressure upon the piston the liquid will be forced through the needle in a direction reverse to that at which the obstruction entered the needle-chamber and forces it out through the enlarged end of the passage.

In Fig. 7 I have shown a modification in which the threads upon the needle are dispensed with and the needle is held in a cylindrical casing K, having interior threads K' at one of its ends for engagement with the barrel of the syringe, while its other end has an enlarged chambered portion K<sup>2</sup>, forming a shoulder against which the flange of the needle is designed to engage, as shown. A cap N, with aperture therein, is fitted over the end of the said chambered portion and serves to hold the needle in place within the casing while being relieved of any obstruction from the base of the needle.

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

1. A needle-cleaning device for hypodermic syringes comprising in combination with the cylinder of a syringe, a holder mounted thereon, a needle adapted to be held reversely within said holder and outside the cylinder of the syringe, as set forth.

2. A needle-cleaning device for hypodermic syringes comprising in combination with the cylinder of a syringe, a holder having an elongated hollow stem portion, and a needle adapted to be held reversely within the hollow stem portion of said holder, as set forth.

3. A needle-cleaning device for hypodermic syringes comprising in combination with a syringe, a needle having its base portion provided with an external screw-thread, and a casing interiorly threaded at one end to receive said base and provided at its opposite end with means for attachment to said syringe, substantially as described.

4. A needle-cleaning device for hypodermic syringes comprising in combination with a syringe having a head with a contracted portion circumferentially threaded, a holder having interior threads adapted to be screwed upon the contracted portion of the head of



the syringe and having an elongated tapering portion terminating in a cylindrical end, a needle adapted to be held reversely within the tapering and cylindrical portion of said holder, as set forth.

5 5. A needle-cleaning device for hypodermic syringes comprising in combination with the cylinder of a syringe, a holder mounted thereon, a needle and base portion thereof adapt-

ed to be held entirely within said holder, as to set forth.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

GEORGE PORTER.

Witnesses:

WM. HADCOCK,  
WM. S. PLUMER.