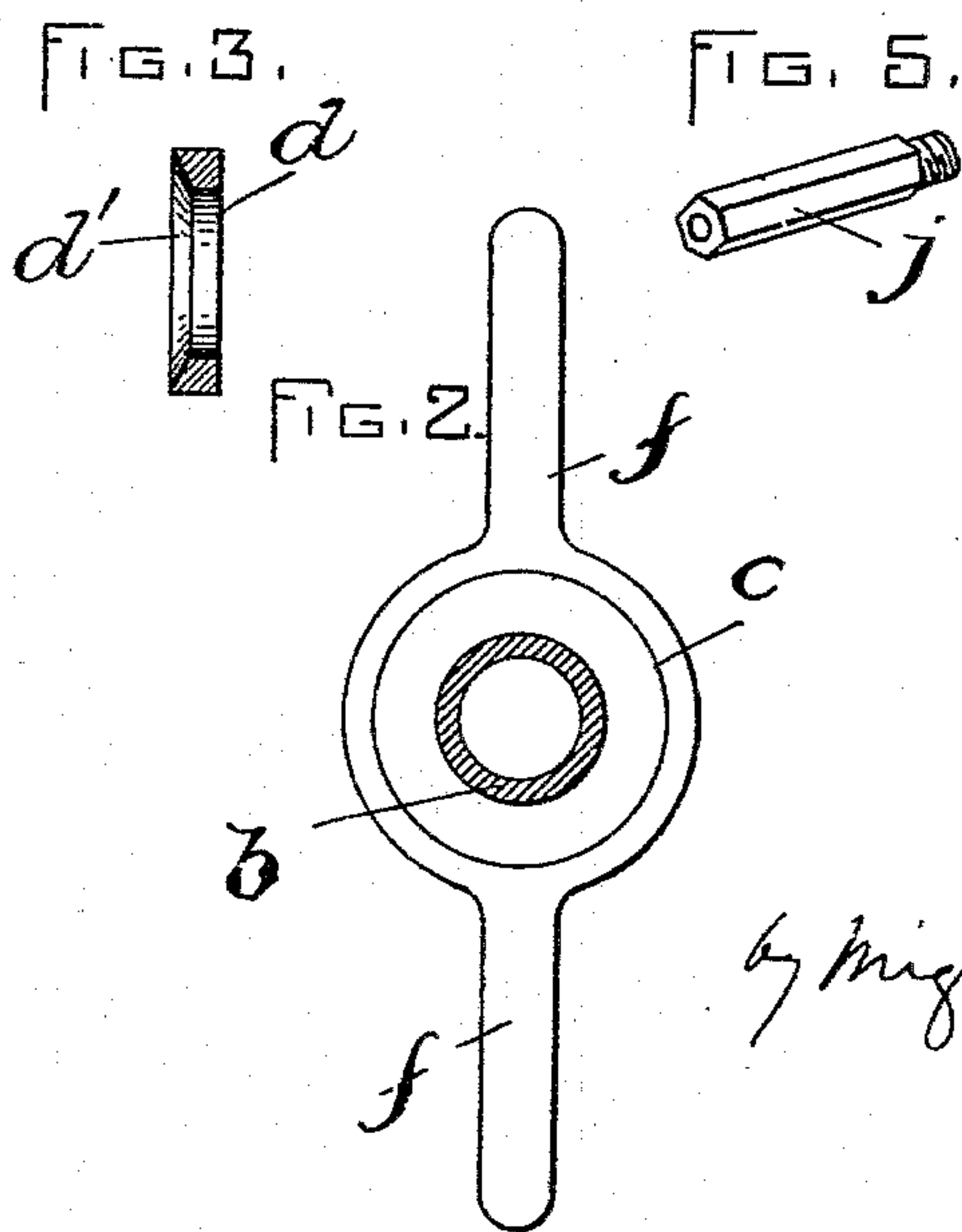
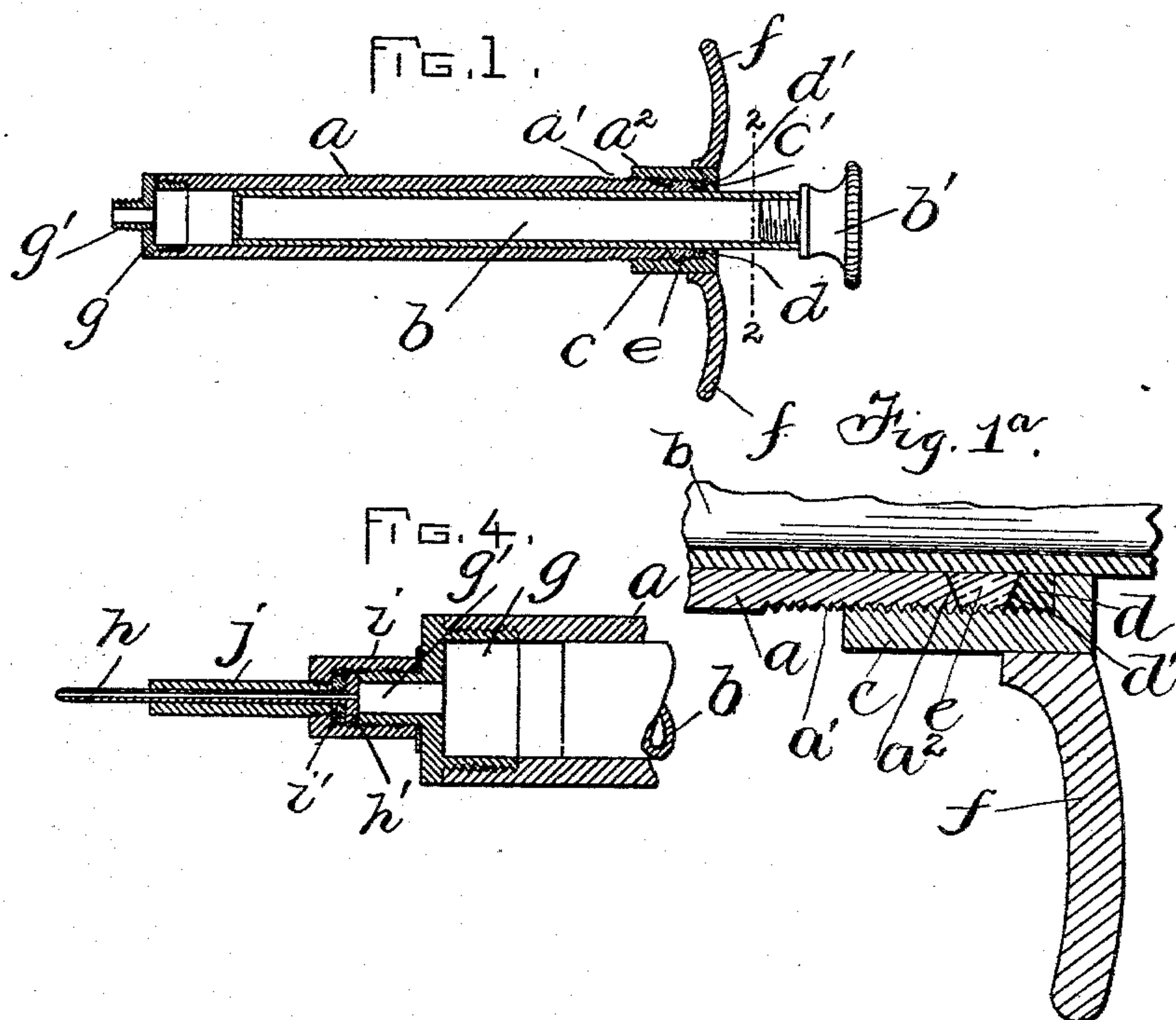


(No Model.)

C. A. NEAL.
SYRINGE.

No. 514,378.

Patented Feb. 6, 1894.



WITNESSES:
A. S. Hammon.
Edw. Davis.

INVENTOR:
C. A. Neal
by Wright Brown & Co.
Atty.

UNITED STATES PATENT OFFICE.

CHARLES A. NEAL, OF BOSTON, MASSACHUSETTS.

SYRINGE.

SPECIFICATION forming part of Letters Patent No. 514,378, dated February 6, 1894.

Application filed June 6, 1893. Serial No. 476,720. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. NEAL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Syringes, of which the following is a specification.

This invention relates to an improvement in syringes for hypodermic use, and one object is to provide a more simple construction for accomplishing the same results as the more complicated devices heretofore in vogue.

A further object is to provide means whereby the necessity of throwing away a needle after it has become broken is avoided, and the needle may be re-pointed and used again.

The invention also has in view several minor improvements, which will be herein-after referred to.

Referring to the accompanying drawings, which illustrate the invention: Figure 1 shows a longitudinal section of the syringe without the needle and attaching devices. Fig. 1^a shows an enlarged detail view of parts appearing at the right-hand of Fig. 1. Fig. 2 shows a section on line 2—2 of Fig. 1. Fig. 3 shows a detail sectional view of a beveled ring employed in the stuffing-box. Fig. 4 shows a longitudinal section of the end of the syringe where the needle is attached. Fig. 5 shows a detail perspective view of the sleeve employed to sustain the needle.

The same letters of reference indicate the same parts in all the figures.

In the drawings: The letter *a* designates the barrel of the syringe, which is exteriorly screw-threaded, as at *a'*, and formed with a beveled end-face *a²*.

The letter *b* designates the plunger, which is made tubular, and can be utilized for containing extra needles. The end of the plunger is closed by a screw-cap *b'*, which also serves as a handle for manipulating the plunger. A cap *c* is screwed on the threads *a'*, and has a flange *c'*, which fits around the plunger.

A rigid ring *d* surrounds the plunger behind the said flange, and is beveled on one side, as at *d'*, said beveled side confronting the beveled end-surface of the barrel *a*. Packing *e* is inserted between the confronting beveled surfaces, and forms a ring which surrounds the plunger.

It will be seen that, by screwing down the

cap *c*, the packing *e* will be pressed against the sides of the plunger, and this effect will be increased by the beveled surfaces which bear against the packing.

Arms *f* are formed integral with or rigidly secured to the cap *c*, and extend in opposite directions therefrom. These arms constitute handles, by which the cap may be turned, in screwing it down upon the packing, and also constitute finger-pieces to facilitate manipulation of the syringe.

A cap *g* is screwed into the opposite end of the syringe, and has a screw-threaded nipple *g'*. The needle *h* is formed with a base-flange *h'*, which fits against the end of the nipple *g'*, and a cap *i* is screwed upon the nipple *g'* and has a flange which presses the needle-flange against the end of the nipple, a packing washer *i'* being inserted between said cap-flange and needle-flange. A sleeve *j* is screwed into the end of the cap *i*, and surrounds the needle throughout the greater portion of its length. This sleeve serves as a means for sustaining the needle and preventing its becoming broken so near the base as to prevent its further use. A number of sleeves are provided, of different lengths, and, should the needle become broken, a shorter sleeve is inserted and the needle re-pointed. In this manner the necessity of throwing away a broken needle is avoided, and the same needle may be used after having been broken, by simply changing the sleeve.

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

1. A syringe, comprising in its construction a barrel having screw-threads at one end, a plunger fitting said barrel, a screw-cap on the threaded end of the barrel and having a flange fitting around the plunger and a pair of arms by which to turn the cap, and a packing-ring between the end of the barrel and the flange of the cap and engaging the plunger.

2. A syringe, comprising in its construction a barrel having a beveled end-surface and screw-threads extending therefrom, a plunger fitting the barrel, a screw-cap engaging the threads on the barrel and having a flange fitting around the plunger, a rigid ring surrounding the plunger behind said flange and having a beveled side opposed to the beveled end-

surface of the barrel, and a packing-ring between the two beveled surfaces and engaging the plunger.

3. A hypodermic syringe comprising in its
5 construction a needle and means for attaching the same to one end of the syringe, and interchangeable sleeves adapted to surround the needle and sustain it with the point of the needle projecting.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 20th day of May, A. D. 1893.

CHARLES A. NEAL.

Witnesses:

A. D. HARRISON,
F. PARKER DAVIS.