

No. 789,092.

PATENTED MAY 2, 1905.

G. A. HULETT.
SYRINGE.

APPLICATION FILED OCT. 13, 1903.

Fig. 1.

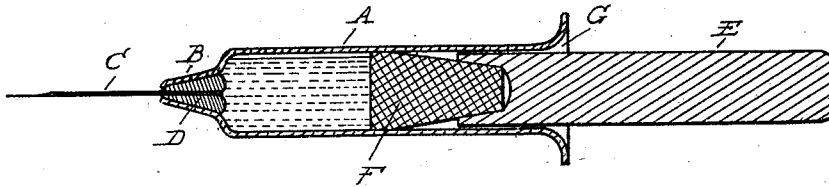


Fig. 2.

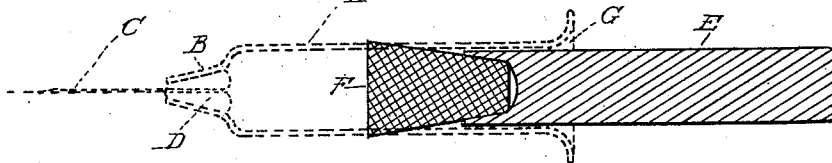
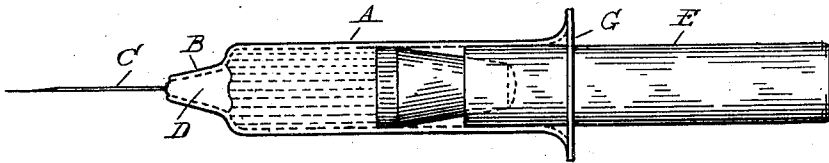


Fig. 3.



Witnesses
James P. Derry
Emma I. Barnes

Inventor
George A. Hulett
By James Whittington
Att'y.

UNITED STATES PATENT OFFICE.

GEORGE A. HULETT, OF ANN ARBOR, MICHIGAN.

SYRINGE.

SPECIFICATION forming part of Letters Patent No. 789,092, dated May 2, 1905.

Application filed October 13, 1903. Serial No. 176,919.

To all whom it may concern:

Be it known that I, GEORGE A. HULETT, a citizen of the United States, residing at Ann Arbor, in the county of Washtenaw and State of Michigan, have invented certain new and useful Improvements in Syringes, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to improvements in syringes; and it is the special object of the invention to obtain a simple and inexpensive construction which is particularly adapted for hypodermic injections.

The invention consists in the peculiar construction, arrangement, and combination of parts, as hereinafter set forth.

In the drawings, Figure 1 is a longitudinal section through the instrument. Fig. 2 is a section showing the tube or cylinder in dotted lines. Fig. 3 is an elevation of the device complete.

A is a cylinder or tube, preferably formed of glass, having one end contracted to form the nipple B. In this nipple the needle C may be secured by suitable cement D. Placed within the cylinder is the plunger E, which may be formed of wood or any other suitable material and is of a diameter slightly less than that of the tube.

F is the plunger-head or piston. This is formed of a compressible resilient substance and is of a conical form, the outer end being of a diameter which is slightly in excess of the diameter of the tube, so that it will be slightly compressed at its outer end when inserted into the cylinder. The inner end is secured to the plunger E, preferably by forming a recess in the end of the latter and cementing or otherwise securing the parts together, so as to get a solid connection between the smaller end of the piston and its plunger.

The cylinder A is preferably formed at its outer end with a flaring flange G. This permits of inserting the plunger, as the large end thereof may be forced in the flaring end of the tube and in moving inward will be compressed until it snugly fits the tube or cylinder.

In operation the liquid may be placed in the tube A, after which the plunger is inserted in the manner just described. On account of the compressible and resilient character of the plunger-head or piston F it will form an absolutely liquid-tight joint with the walls of the tube, and by being compressed between the material in front of the piston and the solid backing afforded by the plunger the length of the joint between the piston and its cylinder will be increased just in proportion to the force behind and the resistance of the material in front. Thus I obtain a packing for the piston which is always tight and automatically tightens in proportion to the pressure required to force the liquid out.

What I claim as my invention is—

1. The combination with a cylinder of a plunger therefor comprising a shank having a converging head formed of resilient compressible material, secured at its smaller end to the inner end of said shank, the maximum diameter of said head being at its extreme outer end greater than the diameter of the cylinder and being adapted to be compressed to fit within said cylinder, substantially as and for the purpose described.

2. The combination of a cylinder, of a plunger therefor a piston of resilient material of the form of a solid truncated cone having its smaller end secured to the inner end of the plunger, and its larger end extending beyond the sides of the plunger and fitting the cylinder, whereby when pressure is applied to the plunger, the joint formed between the piston and cylinder will be tightened proportionate to the pressure on the plunger, and the resistance of the liquid.

3. The combination with a cylinder of a plunger therefor comprising a shank having an inner terminal recess and a head of compressible material, secured within the recess and extending at its outer end beyond the sides of the rod.

4. A hypodermic syringe comprising a tube partially closed at one end to form a nipple of tapering shape upon its interior, a needle within said nipple, and cement surrounding said

needle within the tapered portion of the nipple, to secure the same to said tube.

5 5. The combination with a cylinder of a plunger therefor comprising a shank having a tapered terminal recess, and a conical head of resilient material fitted within said recessed portion of the plunger.

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

GEORGE A. HULETT.

Witnesses:

A. J. SAWYER,

A. J. SAWYER, Jr.