

UNITED STATES PATENT OFFICE.

HAMILTON D. LOCKWOOD, OF CHARLESTOWN, MASSACHUSETTS.

IMPROVEMENT IN ELASTIC-BULB SYRINGES.

Specification forming part of Letters Patent No. 57,933, dated September 11, 1866.

To all whom it may concern:

Be it known that I, HAMILTON D. LOCKWOOD, of Charlestown, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Elastic-Bulb Syringes; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

This invention relates to the manner of connecting the bulbs of flexible pipes of elastic syringes to the metal joints or couplings thereof.

It is very difficult, and by the means generally used even impossible, to make the joint between the rubber and the metal impervious, leaking soon occurring from the use of the syringe, very much to the detriment of the instrument as a means of administering injections.

To remedy this defect I construct each metal coupling-piece not only with a neck-piece to enter the bulb or flexible pipe and a button or shoulder-piece upon the inner or entering end of such neck, but with a flange, between which and the neck the elastic material of the bulb or pipe is held, being compressed when in position by the button, the rubber contracting as it is pressed into the groove made by the neck and flange, and expanding and filling the groove when the pressure is removed.

The drawing denotes a view, partly in elevation and partly in central section, of a syringe-bulb with metal connecting-pieces embodying my invention.

a denotes the elastic bulb; *b b*, the metal coupling-pieces, made to connect or screw upon the coupling-pieces of the flexible induction and eduction pipes in the ordinary manner.

Each piece *b* has a neck, *c*, which enters the end of the bulb or the pipe, this neck terminating in a button or lateral projection, *d*.

Concentric with the neck is a flange, *e*, extending from each head *b*, as seen in the drawing, the flange and neck forming together a deep groove or recess, into which the end of the bulb or elastic tube is forced by pressure until it reaches the bottom of the recess.

In pressing the rubber or elastic material into this position its outer surface contracts, and when the pressure is removed the material expands and tightly fills the space between the neck and flange, and the button *d* so projects outward as to keep the rubber crowded into the groove, causing it to resist all attempts made to displace it, and effectually tightening the joint and rendering it impervious to air or fluid.

By this arrangement or method of connection the syringe is made much more enduring and useful, and the construction adds nothing to the cost of the instrument.

No screw is necessary to compress the rubber or confine it in position, and while it is firmly held in place and is only removed by very severe strain, it is very easily slipped into position by those expert in the application.

It will be obvious that the same method of connection is as applicable to the flexible tubes and their metal connection as to the bulb and the connectors *b*, the principle of construction being the same.

The parts *c*, *d*, *e*, and *b* are all of one piece, no screw intervening to connect one to the other.

I claim—

The combination of the neck *c*, button *d*, and flange *e* for securing the elastic bulb or the tube to the metal connector, substantially as set forth.

H. D. LOCKWOOD.

Witnesses:

J. B. CROSBY,
FRANCIS GOULD.