(No Model.)

G. W. LUTZ.

COMPRESSIBLE PISTON.

No. 262,962. Patented Aug. 22, 1882.

Fig. 1.

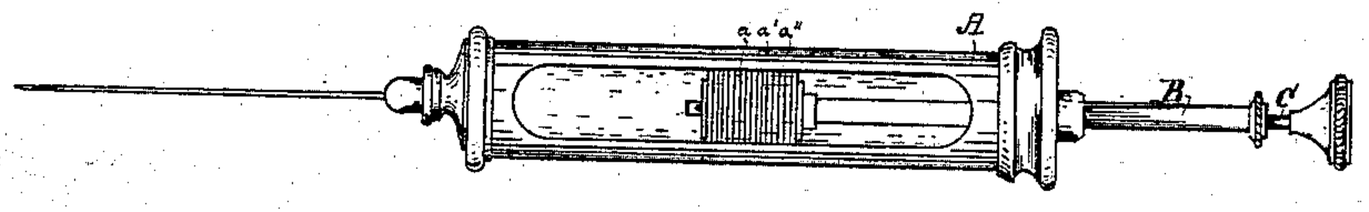
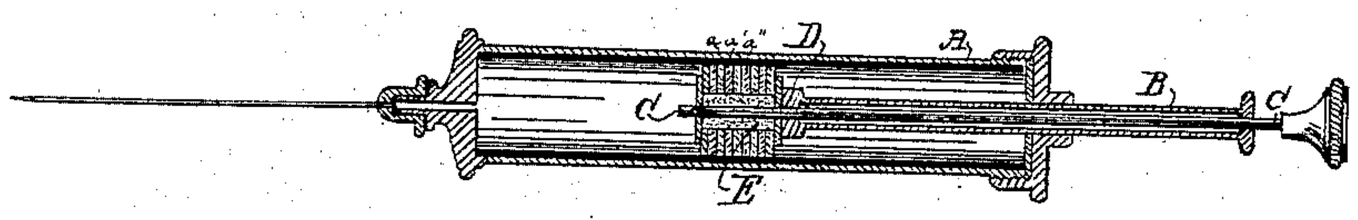


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE W. LUTZ, OF INDIANAPOLIS, INDIANA.

COMPRESSIBLE PISTON.

SPECIFICATION forming part of Letters Patent No. 262,962, dated August 22, 1882.

Application filed June 5, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. LUTZ, of Indianapolis, Indiana, have invented a new and useful Improvement in Compressible Pistons, of which the following is a description, reference being had to the accompanying drawings, like letters in the figures indicating like parts.

My invention relates to that class of pistons which are made of leather or soft material, which is likely to harden and become loose in the cylinder when dry; and my object is to provide means for enlarging the piston by compression from without the cylinder to tighten it instantly when required.

My device is capable of adaptation to many machines; but I have illustrated it in the drawings as connected with a hypodermic syringe, where it is of great value. The simplicity of its construction is such that it can readily be adjusted by any ordinary person.

In the drawings, Figure 1 represents an ordinary hypodermic syringe having an opening in its metal shell disclosing the glass cylinder within and my piston in the cylinder. Fig. 2 represents a longitudinal section of the same.

A is the outer or metal shell of a syringe.

C is a piston-rod working in an outer case, B, to the inner end of which is attached a nut, D. The inner rod, *c*, is threaded to fit the nut D.

E is a core of rubber, and *a a' a''* are a series of leather rings or washers fitting over the central rubber core, E. The piston-rod C passes through the nut D, next to which is a metallic washer, and also passes through the rubber core E and a metallic washer on the extreme end. A pin is then passed through an opening in the end to hold it from being pulled out. The combined rubber core and outer leather rings form the piston, and its rod is double, composed of the outer case, B, and inner rod, *c*, to the end of which a handle is attached.

My device operates as follows: If the leather rings have shrunk from dryness, so that the piston is loose in its cylinder, by holding the inner rod firmly by the handle and turning the outer case, B, from you, or to the right, the nut D tightens down upon the leather rings and the rubber core, and the latter, being thus compressed, enlarges its diameter and forces the leather rings outward until the cylinder is completely fitted and the piston becomes tight. The reverse process relieves the rubber core and rings of the compression, and the piston works more freely in the cylinder.

I am aware that compressible pistons have been used in some cases before, and I do not broadly claim such a one; but I believe that my device for compressing a central rubber core surrounded by leather rings from outside the cylinder and at any point along the barrel, in the manner indicated, is new.

What I claim, and desire to secure by Letters Patent, is—

1. A piston composed of a central elastic core surrounded by washers of compressible material connected with a piston-rod composed of an outer shell or case, through which an inner rod passes the entire length, passing also through the piston, and threaded to work in a nut attached to the inner end of the outer shell for compressing the piston, substantially as specified.

2. The combination, in a piston, of a central elastic core with outer compressible rings fitting around the core, and a piston-rod composed of an inner stem passing through the core and an outer shell, the two connected by a screw and nut for expanding the piston by compression at any point along the barrel, substantially as described.

3. The combination of an outer cylinder with a piston composed of the elastic core E, outer rings, *a a' a''*, and piston-rod C, with the outer case, B, and nut D, substantially as and for the purpose specified.

In witness whereof I have hereunto set my hand this 1st day of June, 1882.

GEORGE W. LUTZ.

Witnesses:

C. P. JACOBS,

JACOB W. LOESSER.