

R. VANDER EMDE.

PISTONS FOR SYRINGES, AIR PUMPS, &c.

No. 181,226.

Patented Aug. 15, 1876.

Fig: 1.

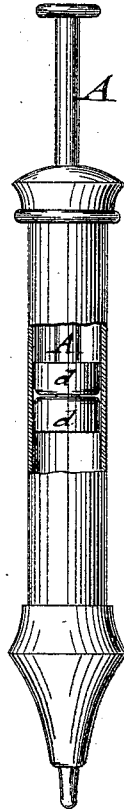
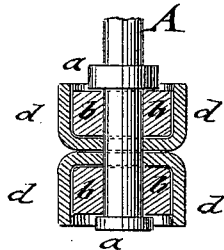


Fig: 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

REINHOLD VANDER EMDE, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF  
AND CHARLES E. KOEHLING, OF SAME PLACE.

## IMPROVEMENT IN PISTONS FOR SYRINGES, AIR-PUMPS, &c.

Specification forming part of Letters Patent No. **181,226**, dated August 15, 1876; application filed  
February 28, 1876.

*To all whom it may concern:*

Be it known that I, REINHOLD VANDER EMDE, of the city, county, and State of New York, have invented a new and Improved Piston for Syringes, Air-Pumps, &c., of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of a syringe with my improved piston, and Fig. 2 is a detail vertical section of the piston.

Similar letters of reference indicate corresponding parts.

The invention relates to an improved piston for syringes, air-pumps, &c., by which the working out of the pistons, which forms a frequent source of annoyance in syringes, &c., is prevented, and the ready replacing of the packing material rendered possible.

The invention consists of a piston-rod provided with shoulders and elastic collars, that hold intermediate leather washers placed over the same.

In the drawing, A represents the piston-rod of a syringe, air or other pump, in which a tightly-fitting piston is required. The piston-rod A is made with two retaining-shoulders, *a*—one at the end of the rod, the other at a distance from the same equal to the length of the piston. Two collars or sleeves, *b*, of rubber or other elastic material, are placed on the rod between the retaining-shoulders *a*, for holding disk-shaped leather washers *d*, that are placed on the rod intermediately between the collars, and then lapped over the same in

opposite direction, to form the packing of the piston.

The elasticity of the rubber collars produces the tight fitting of the washers to the syringe or pump barrel, and thereby the effective working of the piston.

The washers and collars are readily replaced when worn out by long use, but keep up their working capacity for long time by the action of the rubber, without getting loose.

This piston construction overcomes, in a cheap and effective manner, the annoyance caused by the insufficient fitting of the pistons to the syringes at present in use, and forms a better-working and more satisfactory syringe.

I am aware that it is not new to use leather washers cushioned by rubber rings, but fastened by metal disks, the lower screwed on the piston-rod. My object is to avoid the use of metallic disks by the use of rigid shoulders on the piston, the elastic collars being readily pushed over the shoulders.

What I claim is—

The piston A, having annular shoulders *a*, in combination with the elastic collars *b b* and flexible washers *d d*, as and for the purpose specified.

REINHOLD VANDER EMDE.

Witnesses:

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