J. M. SPRINGER.

PUMP-PISTON.

No. 191,188. Patented May 22, 1877.

Fig 1.

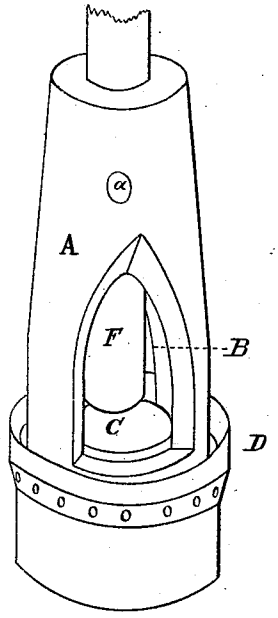


Fig 4.

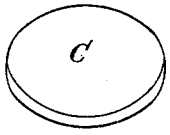


Fig 2.

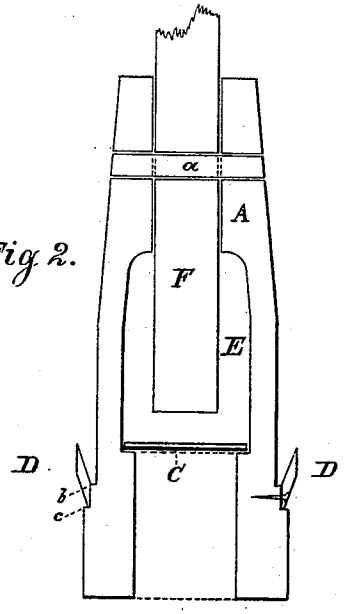
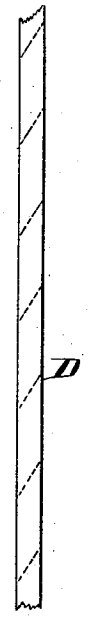


Fig 3.



WITNESSES:

Wm Holloway

Marcus L. Harris

INVENTOR:

Jacob M. Springer,

per C. Bradford.

ATTORNEY.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JACOB M. SPRINGER, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN PUMP-PISTONS.

Specification forming part of Letters Patent No. **191,188**, dated May 22, 1877; application filed February 19, 1877.

To all whom it may concern:

Be it known that I, JACOB M. SPRINGER, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Pump-Suckers, of which the following is a specification:

Reference is had to the accompanying drawings, which are made a part hereof, and in which similar letters of reference on the different figures indicate similar parts.

Figure 1 is a perspective view of my invention. Fig. 2 is a plan sectional view thereof. Fig. 3 is a view of the edge of a piece of leather or other material for packing, on which the dotted bevel lines show how it is cut into strips for use. Fig. 4 is a perspective view of the valve C.

My present invention is an improvement on that for which Letters Patent No. 160,065 were granted me, dated February 23, 1875.

The object of my invention is to produce a cheap and durable, and at the same time superior, "sucker" for the various kinds of pumps.

In my patent above referred to, "a short tube or cylinder, C, having a bevel valve-seat, *c*," was made a part of the invention, and also "an annular shoulder, *b*."

In my present improvement the valve-seat is formed in the main cylinder of the sucker, entirely dispensing with the "tube or cylinder C," and instead of using the "annular shoulder *b*" for a stop for the valve, the lower end of the connecting-rod F is made to perform that duty.

In order to show the manner in which the "cylinder C" is dispensed with in my improvement, it is necessary to describe the process of manufacture of the main cylinder A. A block of the proper size is first inserted in a machine, which shapes the outside complete, as shown, and at the same time bores a hole the size necessary to receive the rod F entirely through the sucker, all at one operation; and secondly, by pushing the lower end of the cylinder so formed upon an expansion-bit, which first bores a hole of the required size to the top of the chamber E, and then expands to a larger size, and is brought back to the point where it is desired to form the valve-seat, when the expansion is dropped and the bit withdrawn, leaving the sucker ready for the placing of the valve C, which is inserted through the opening B. The rod F is then placed in position and secured, usually by the pin *a*, and after attaching the packing, which is done either before or after putting in the valve and rod, the sucker is complete and ready for use.

The valve C is usually made of iron, but any other suitable metal or material may be used.

The method employed by me in cutting the material for the packing D forms an important part of my invention. Such material (leather being the material most commonly used) has heretofore been cut in the form of an arc of a circle, and from one to two inches wide. I cut the material on a bevel, with a width of about five-eighths of an inch, and on a straight line, saving thereby from one-half to three-fourths of the material.

By referring to Fig. 3, which represents the edge of a sheet of leather, or other material, it will be seen that cuts, which are represented by dotted bevel lines, make no waste whatever, the front edge of one cut or strip immediately adjoining the back edge of the next.

My packing, when so cut, is also much more durable than the ordinary packing, as I nail one cut edge next the cylinder, which leaves the other as a wearing-surface, instead of the side, which wears much more rapidly than the edge.

A still further saving by this mode of cutting, when leather is used, is that the whole side may be used irrespective of its varying thickness, as the cutting being done by gage, and the cut edges being the working-surfaces, the thickness of the material is of no consequence.

The cylinder A, as usually made, has the two recesses *b* and *c* turned therein, the recess *c* being for the purpose of better supporting the packing D, and the recess *b* allowing it to freely contract when passing any irregularity in the barrel of the pump.

The whole expense of manufacture of this improved sucker is only about one-third that of the old style, while it is in every way superior, as will be readily shown on trial, and will last fully three times as long without repairs, by reason of the wear coming on the

cut-edge of the packing, as described, and the valve, being entirely independent, cannot get out of repair at all.

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

1. The packing D, consisting of a strip of suitable material cut with beveled edges, as shown and for the purpose specified.

2. The combination of the cylinder A, having recesses *b* and *c*, packing D, independent valve C, and rod F, all as herein shown and described, and as and for the purpose specified.

3. The rod F, in combination with a pump-sucker, as shown, used as a stop for the valve C, as herein shown and described.

In witness whereof I have hereunto set my hand at Indianapolis, Indiana, this 15th day of February, A. D. 1877.

JACOB M. SPRINGER.

In presence of—

C. BRADFORD,

CYRUS N. WALLS.