(No Model.) 2 Sheets—Sheet 1.

P. H. & T. A. SPRAGUE.

PUMP PLUNGER.

No. 262,845. Patented Aug. 15, 1882.

Fig. 1.

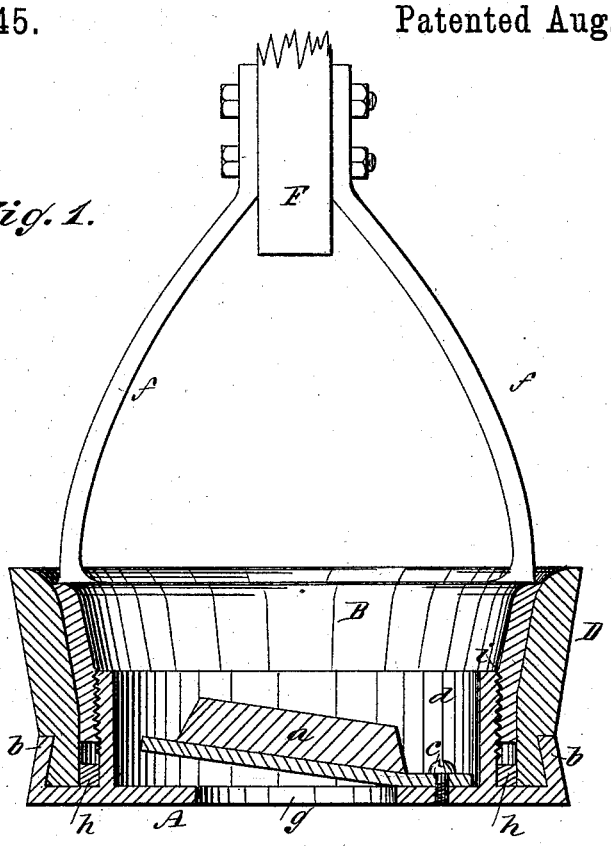
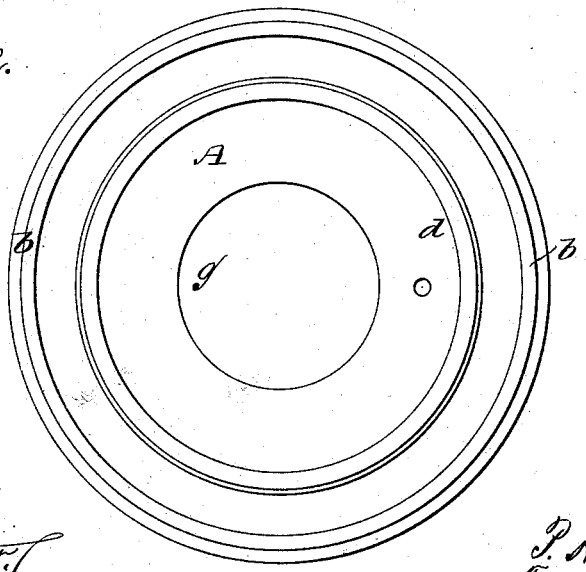


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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PUMP PLUNGER.

No. 262,845. Patented Aug. 15, 1882.

Fig. 3.

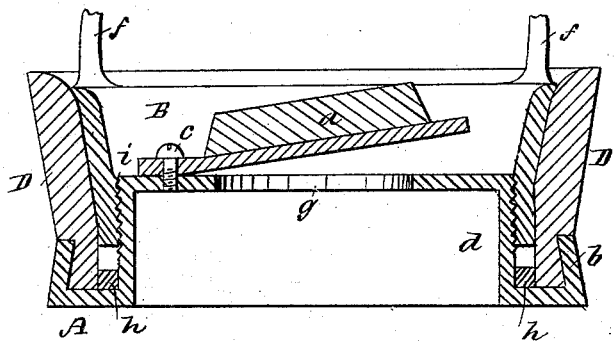


Fig. 4.

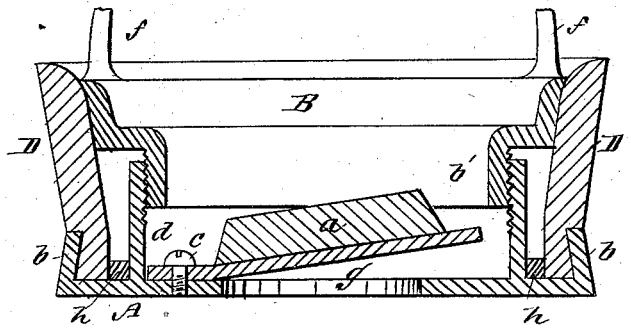
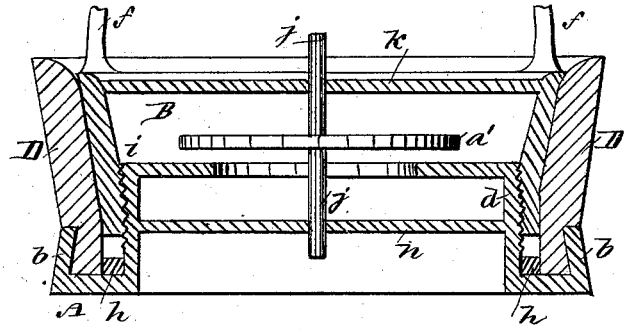


Fig. 5.



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UNITED STATES PATENT OFFICE.

PHILIP H. SPRAGUE AND TOBIAS A. SPRAGUE, OF CORNELL, ILLINOIS.

PUMP-PLUNGER.

SPECIFICATION forming part of Letters Patent No. 262,845, dated August 15, 1882.

Application filed January 21, 1882. (No model.)

To all whom it may concern:

Be it known that we, PHILIP H. SPRAGUE and TOBIAS A. SPRAGUE, of Cornell, in the county of Livingston and State of Illinois, have invented a new and useful Improvement in Pump-Plungers, of which the following is a full, clear, and exact description.

Our invention for wood pumps relates to that class of pump plungers or buckets which are adapted to be expanded for fitting the plunger to the pump-tube and for taking up the wear; and the invention consists in the construction, arrangement, and combination of parts, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional elevation of our improved plunger. Fig. 2 is a plan view of the bottom plate of the plunger; and Figs. 3, 4, and 5 are sectional elevations, showing modifications of our improved plunger.

The main parts of the plunger consist of the metal bottom plate or casting, A, which carries the valve *a*, the adjustable flaring ring B, which carries the rods *f f*, by which the plunger is attached to the pump-rod F, and the leather or rubber outside ring or sleeve, D. The main plate A is cast with the outside flange, *b*, which is slightly inclined toward the center of the plate, and with the collar *d*, which is of greater height than the flange *b*, and is screw-threaded, either upon the outside or inside, for receiving or being screwed upon the flaring ring B. The central portion, *g*, of the ring A forms the valve-seat, and has the valve *a* secured to it by the screw *c*, except as hereinafter stated.

In the form of plunger shown in Figs. 1, 3, and 5 the ring B is screwed upon the outside of the collar *d*, and is adapted to be adjusted thereon by means of the screw-threads, by which they are attached together, as will be clearly understood from the drawings. Upon the outside of the ring B is placed the leather or rubber sleeve D, the lower edge of which is placed within the flange *b*, and is held in place by the loose ring *h*, placed between the lower edge of the sleeve and the collar *d*, as shown. The outside of this sleeve D runs in contact with the pump-tubing, and is thus the wearing-surface of the plunger, and in order that the pump may work easy and well this sleeve must be accurately adjusted to fit the tubing, and this adjustment is accomplished by the ring B, which, as above mentioned, is flaring, and is adapted to be screwed a greater or less distance upon the collar *d* to expand the sleeve D outwardly or permit its contraction, as required, to cause it to fit the tubing when first put in the pump or to take up the wear of the sleeve after considerable use.

In the form of plunger shown in Fig. 4 the collar *d* is internally screw-threaded and the ring B is cast in the form shown, with the flange *b'*, which is externally screw-threaded and fits inside the collar *d*.

In the form of plunger shown in Figs. 3 and 5 the valve-seat *g* is formed at the top of the collar *d*, instead of at the bottom, as shown in Figs. 1 and 4, and in the form shown in Fig. 5 the valve *a*, instead of being an ordinary weighted flap-valve, is a circular disk of metal cast with the central arms, *j j*. This valve is held in place so as to open and close the opening in the valve-seat as the plunger is operated, by means of the narrow cross-piece *k*, cast with the ring B, and the narrow cross-piece *n*, cast with the main casting or plate A, which cross-pieces are centrally perforated for the passage of the arms *j j*, as shown.

By this construction of the plunger it will be seen that the plunger may be easily and accurately fitted to the pump-tubing by the adjustment of the main castings A and B upon each other, and that any wear of the sleeve D of the plunger may be easily taken up, thus making the plunger very durable and always efficient in its action; and it will also be seen that no nails, screws, or similar fastenings are required in the plunger, as all of the parts are put together by rigid and positive connections.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The main plate A, formed with the inclined flange *b* and the collar *d*, in combination with the ring B and the sleeve D, substantially as and for the purposes set forth.

2. The adjustable flaring ring B, in combination with the sleeve D and the main plate A, formed with the inclined flange *b*, substantially as described.

3. The main plate A, formed with the inclined flange *b* and the threaded collar *d*, in combination with the sleeve D, threaded flaring ring B, and the ring *h*, substantially as and for the purposes set forth.

4. The main plate A, formed with the flange *b* and with the internally-threaded collar *d*, substantially as and for the purposes set forth.

5. The ring B, cast with the cross-piece *k*, and the main plate A, cast with the cross-piece *n*, in combination with the disk *a'*, formed with the arms *j j*, substantially as described.

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