

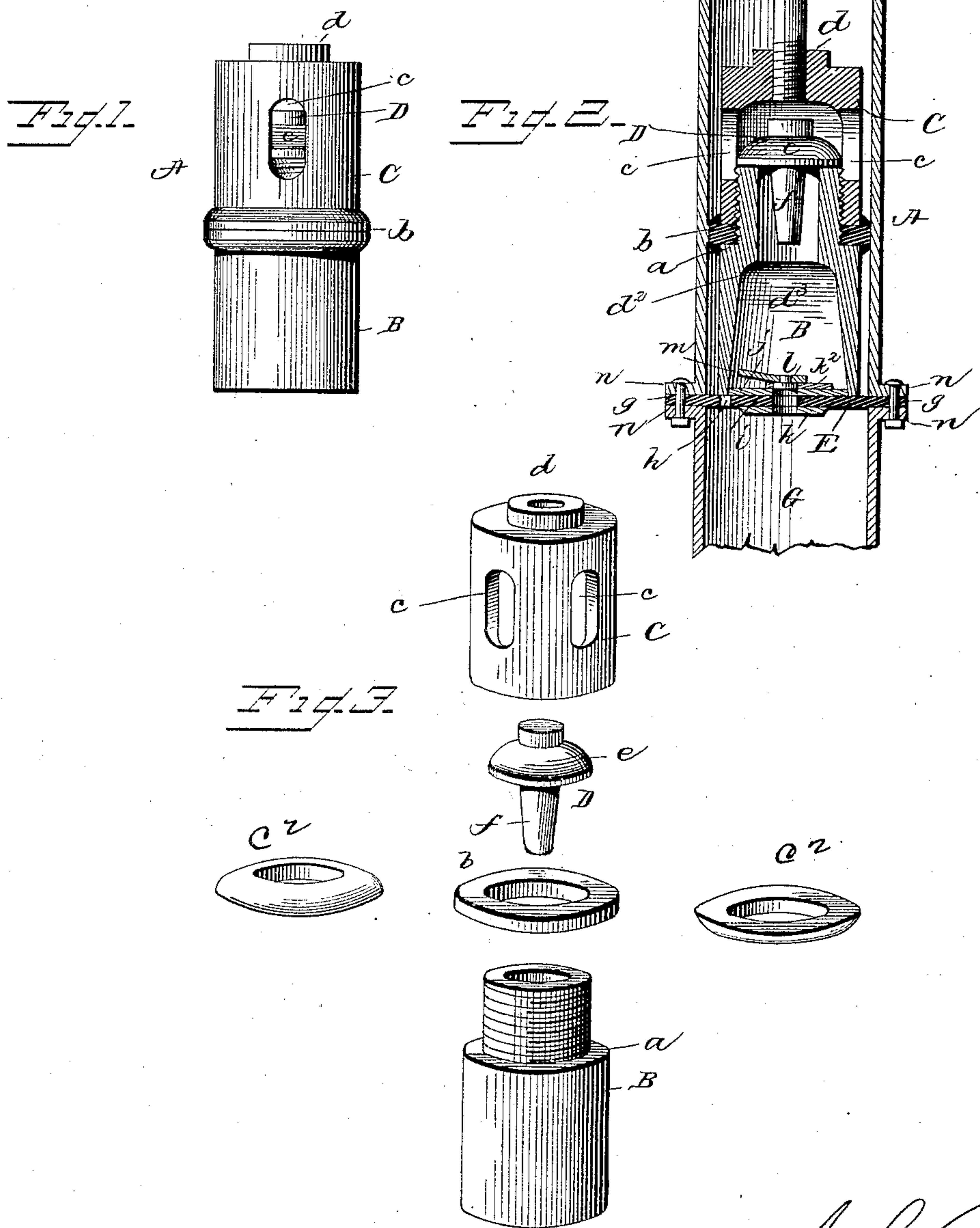
(No Model.)

A. L. RUSSELL.

PUMP.

No. 328,146.

Patented Oct. 13, 1885.



WITNESSES

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SPECIFICATION forming part of Letters Patent No. 328,146, dated October 13, 1885.

Application filed December 27, 1884. Serial No. 151,335. (No model.)

To all whom it may concern:

Be it known that I, ABIEL L. RUSSELL, a citizen of the United States, residing at Romulus, in the county of Seneca and State of New York, have invented certain new and useful Improvements in Pumps; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to plungers for suction, force, and lifting pumps; and it has for its object to provide the same with improved means whereby, when the packing has become worn to such an extent that it will not free the vacuum in said pipe, that such wear may be compensated.

A further object of the invention is to improve the details of construction and to provide a plunger which shall be simple in its construction, effective in its operation, and one that may be manufactured at a comparatively slight cost.

The invention consists in the improved construction and combinations of parts, herein-after fully described, and pointed out in the claim.

In the drawings, Figure 1 is a side elevation of my improved plunger. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a perspective view of parts detached.

In the accompanying drawings, in which like letters of reference indicate corresponding parts in all the figures, A represents the plunger, which consists of two sections, B C. The section B is reduced at one end, thus forming a shoulder, *a*, said reduced end of the section B being exteriorly threaded, as shown. Fitting upon said reduced threaded end of the section B, and resting upon the shoulder thereof, is a rubber washer or washers, *b*.

The section C is interiorly threaded at one end and receives the threaded end of the section B. It will thus be seen that when said sections are tightened they will compress the rubber washer or washers and expand the same. It will also be obvious that by the employment of rubber in lieu of leather, which has ordinarily been used, a packing is provided which is thoroughly impervious to water, therefore more lasting, for the reason that water does not destroy the life of the same.

Fitted upon the threaded extension B are leather washers *c*², which are flat or plain upon their inner faces and convex in form upon their outer faces, said washers being located on each side of the rubber gasket or packing. By the employment of these washers, when the sections are tightened, said packing can be more easily expanded when it has become so worn as to be unfit for use.

The section C is provided with a series of elongated openings, *e*, of which there may be as many as desired or found necessary. Said section C is also provided at its other end with a screw-threaded opening, *d*, for the reception of the plunger-rod, which is attached to said section. The under side of the top of the section C is so constructed as to be bell-shaped or concave in form, as shown.

The section B is provided on its inner side, adjacent to its threaded end, with an inwardly-extending circumferential flange, *d*², the face of which is concave, thus forming a concave seat, *d*³. The inner walls of said section also incline or slope toward said seat.

Fitting in the opening or chamber of the upper section of the plunger is a valve, D, said valve consisting of a disk, *e*, having a convex upper face and a stem, *f*, projecting downwardly from the under side of said disk, said stem being adapted to fit in the opening at the upper end of the lower section, the disk resting on and closing said opening.

E represents the check-valve, which consists preferably of a circular strip of rubber having projecting ears *g*, provided with holes or openings for the passage of screws or their equivalent for its attachment. The circular strip of rubber of the valve E is recessed or cut away, as shown at *h*, to form the hinged portion *i*, which is provided with a central perforation or opening. Upon the upper side of the hinged piece *i* is provided a metal disk, *j*, while upon the under side of said piece *i* is a somewhat smaller disk, *k*, said disks being provided with central openings to register with the opening of the piece *i*. Upon the upper side of the disk *j* is hinged, by means of a strip of rubber, *k*², a valve, *l*, having the extension-piece *m*.

The pipe G, in which the plunger and valve E are located, is composed of two sections having flanges *n* at their meeting ends. The

circular strip of rubber having the projecting ears *g* is fitted between the flanges of the pipe, the rivets or bolts securing said sections together passing through the openings in the ears *g*, the hinged portion *i* fitting the pipe and being held tightly therein against movement.

The operation is as follows: Supposing the plunger to be lowered, the same is raised, which opens the valve *l* and draws the water into the upper pipe. When the plunger is lowered, the water passes through the cone-shaped passage of the lower section of the plunger and forces the valve *D* from its seat, the water passing through the elongated openings of the upper section, the rubber packing between the sections of the plunger preventing the backward flow of the water.

I claim as my invention and desire to secure 2, by Letters Patent—

The combination, in a plunger, of two sections removably secured together, the rubber packing between the sections, the washers having the plain inner faces and convex outer faces and located on each side of the rubber packing, the lower section having the bell or cone shaped opening, and a valve supported on the lower section and adapted to close the opening between the sections, said upper section having the escape openings *c*, substantially as set forth. 25 30

In testimony whereof I affix my signature in presence of two witnesses.

ABIEL L. RUSSELL.

Witnesses:

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