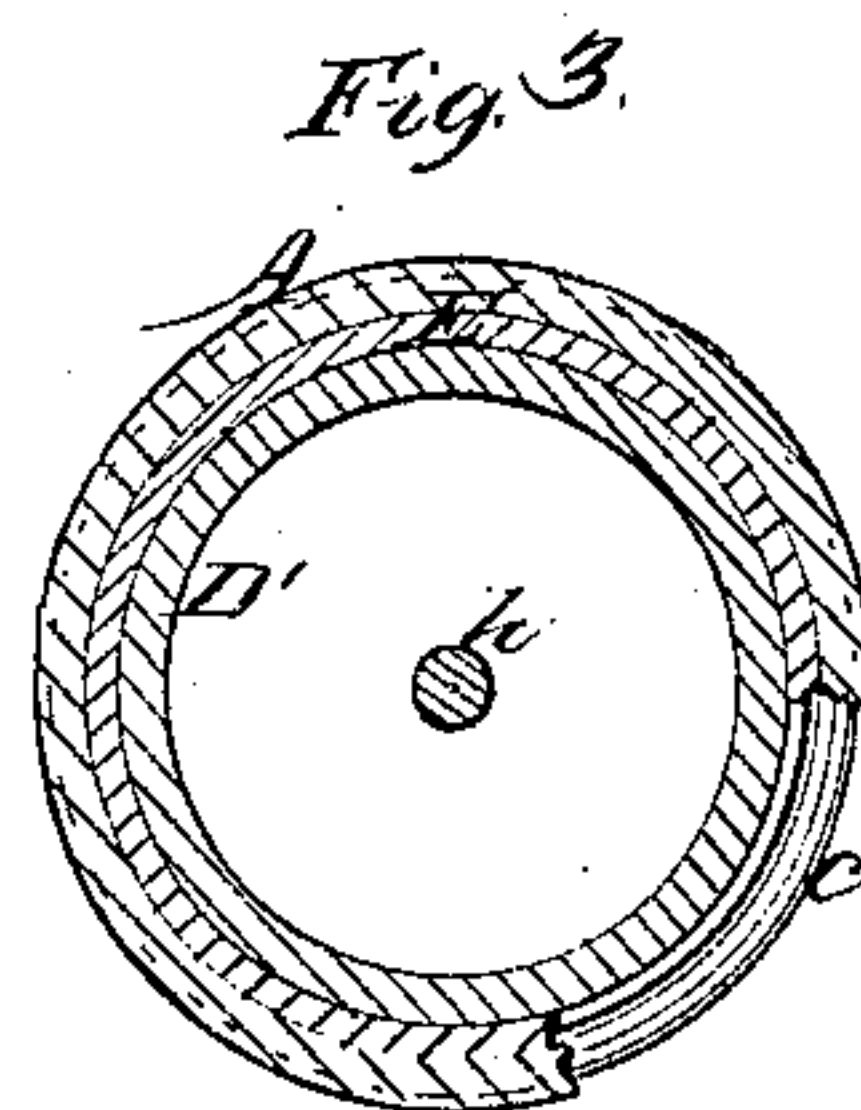
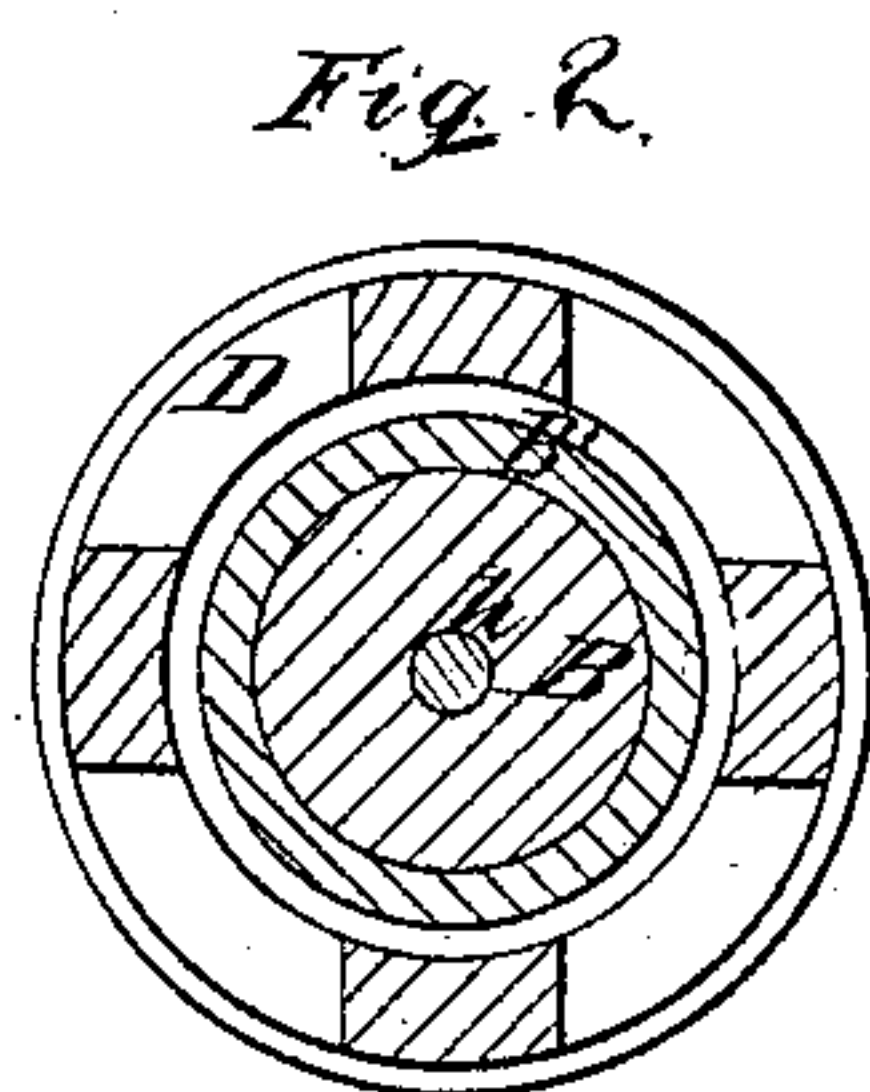
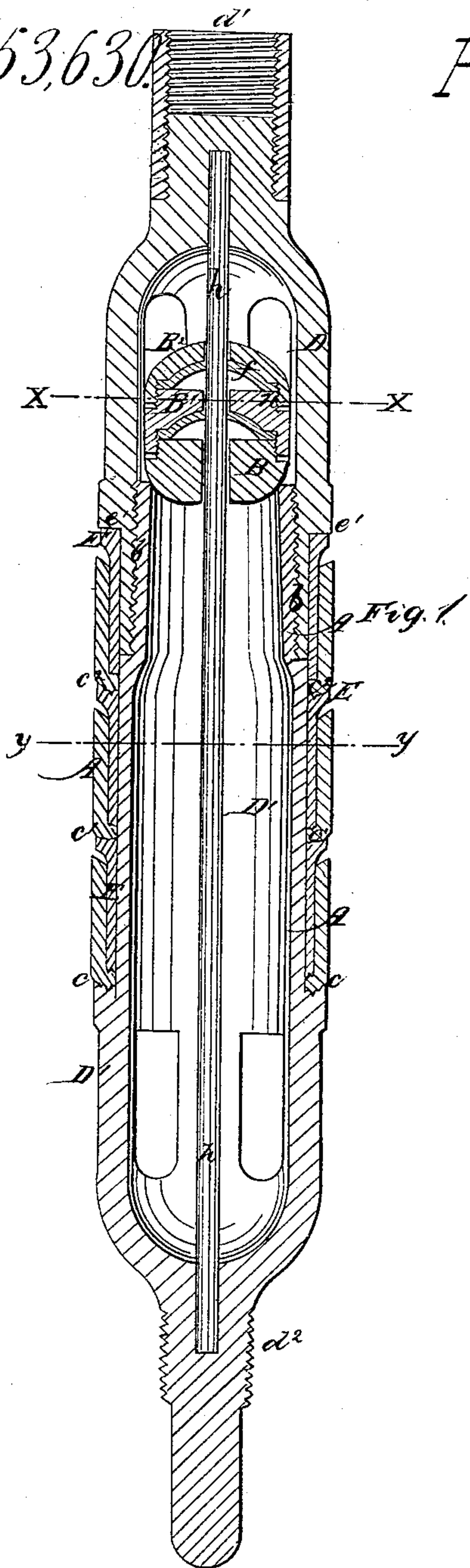


E. V. Kneeland,

Oil Pump,

No. 53,630.

Patented Apr. 3, 1866.



Witnesses,
C. S. Prince
Chas. R. Myers

Inventor,
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UNITED STATES PATENT OFFICE.

ELISHA Y. KNEELAND, OF BUFFALO, NEW YORK.

IMPROVEMENT IN PISTONS FOR DEEP-WELL PUMPS.

Specification forming part of Letters Patent No. 53,630, dated April 3, 1866.

To all whom it may concern:

Be it known that I, E. Y. KNEELAND, of the city of Buffalo, county of Erie, and State of New York, have invented a new and Improved Piston and Valve for Pumps for Artesian or Oil Wells; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure I is a vertical longitudinal section of my improved pump piston and valve. Fig. II is a cross-section of same on line *x x*, Fig. I. Fig. III is a cross-section on line *y y*.

The nature of my invention consists, first, in constructing a piston-valve in sections, with intermediate leather crown-packing, in connection with a guiding-rod, so that the valve will move up freely from its seat to admit the ingress of the liquid and pack more closely in proportion to the pressure upon it in the upward movement of the piston to expel the liquid; second, the arrangement of two, three, or more leather packing-cups, in combination with a corresponding number of compressing or holding rings, so that when the two parts of the piston are screwed together the rings will be successively pressed upon the lip or flange of each packing-cup, and each thereby securely held in place.

Letters of like name and kind refer to like parts in each of the figures.

D represents the upper section or follower, and D' the lower section of the piston, which sections are screwed together, as shown at *b*.

My improved valve is shown in sections in Fig. I at B B' B², these sections being screwed together, as shown at *n*. The upper and middle sections are each made concave, in order to receive a leather crown-packing, as represented at *f*. This packing is made of leather or other suitable elastic material. It is pressed into annular crown shape in suitable dies, so that it will fit the concave space in the valve-sections, leaving a lip or flange projecting, which is caught and gripped between the valve-sections as they are screwed together.

A guiding-rod, *h*, is fixed in the piston, occupying a vertical position, which rod passes

through the valve and packing, as represented. The crown-packing will hug the guiding-rod in the upward or ejecting movement of the piston so closely that there cannot be the slightest leak through the valve. The greater the pressure upon the valve the more closely and tightly will the packing pack against the rod, so that no amount of pressure will increase its liability to leak. When the pressure is from below by the ingress of the liquid, the packing will release its tight hold upon the rod and allow the valve to lift easily. The rod guides the valve and causes each up and down movement to be precisely alike, and hence the valve cannot be battered or bruised by violent movements, and a tight and secure fit to its seat is at all times insured.

The leather cup-packing shown at A and the holding-rings shown at E are of ordinary construction, except the small grooves made in the lower edge of the rings, which grooves are for the purpose of holding on to the flange of the cups more tightly. My improvement in reference to these is in the arrangement of two, three, or more in a series, so that they will be held in place by the two parts of the piston when the two parts of the piston are screwed together, as shown at *b*.

It will be noticed that the flange of the lower cup-packing rests on a shoulder, *c*, formed on the lower part of the piston, and that the flange of the second cup-packing rests on a shoulder, *c'*, formed on the first ring, and that the flange of the third cup-packing rests on a shoulder, *c²*, formed on the second ring, and so on, and that a shoulder, *e'*, is formed on the upper or follower part of the piston, which strikes upon the upper ring, so that when the two parts of the piston are screwed together the flange of each cup-packing will be firmly gripped by the rings and all securely held together. The object gained by a series of cups is, that one will assist and relieve the other, and that the whole, as arranged, will form a more perfect, durable, and reliable packing than either would if used alone.

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

1. A piston-valve constructed in sections B

B' B², with intermediate leather crown-packing *f*, and guiding-rod *h*, for the purposes and substantially as described.

2. The arrangement of two, three, or more leather packing-cups, A, with corresponding compressing or holding rings E, in combination with the piston, so that when the two parts of the piston are screwed together the

rings will be successively pressed upon the flanges of the packing-cups and held in place, for the purposes and substantially as described.

ELISHA Y. KNEELAND.

Witnesses:

C. ROGERS,

C. S. PRINCE.