

J. T. WHIPPLE.  
Pumps for Tubular Wells.

No. 166,048.

Patented July 27, 1875.

Fig. 1

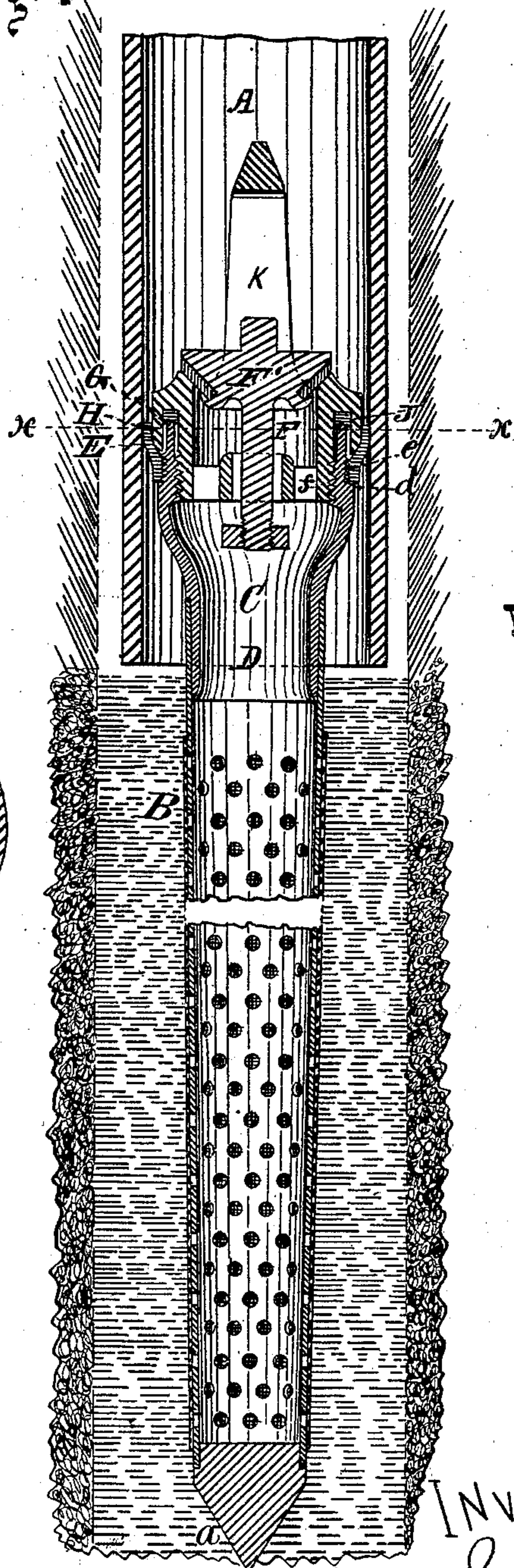


Fig. 2

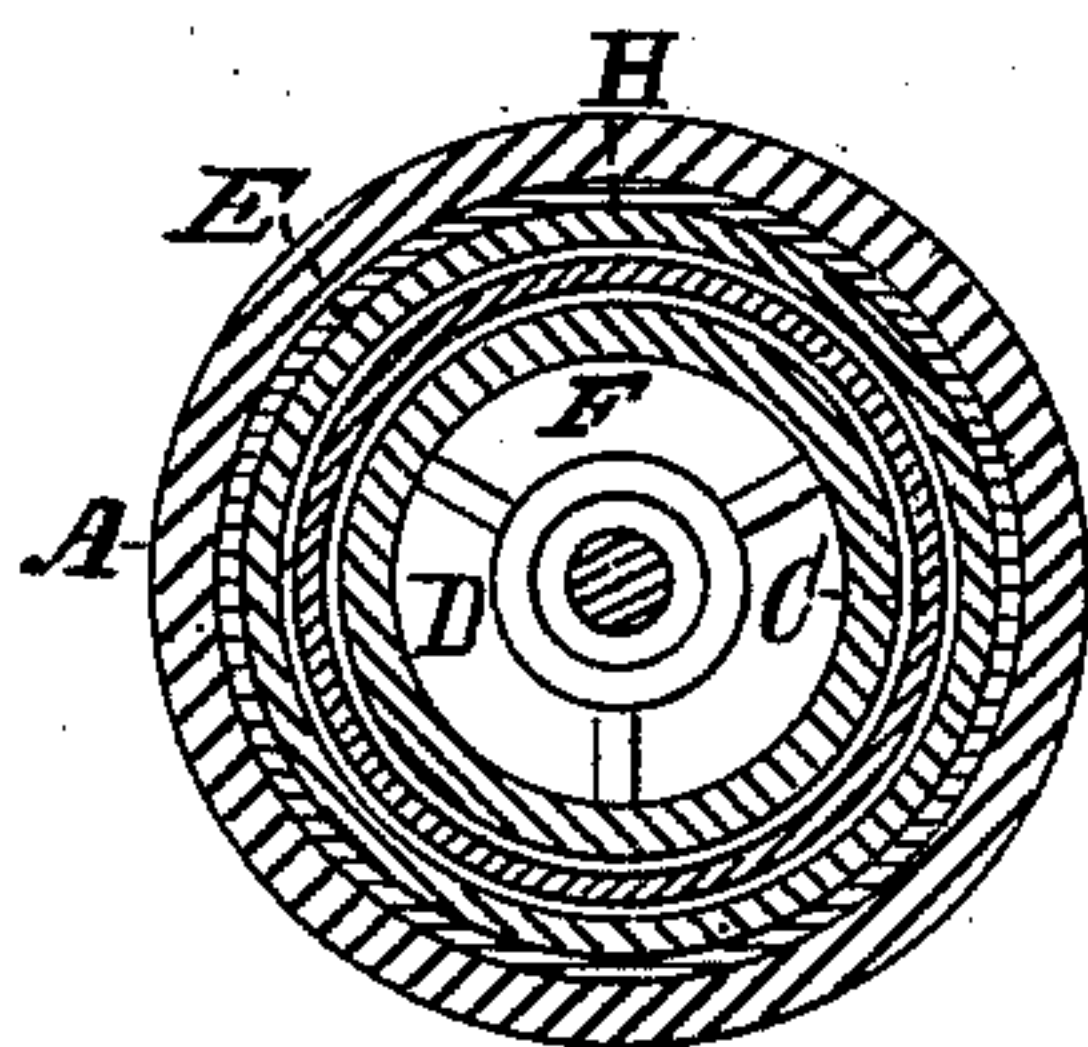
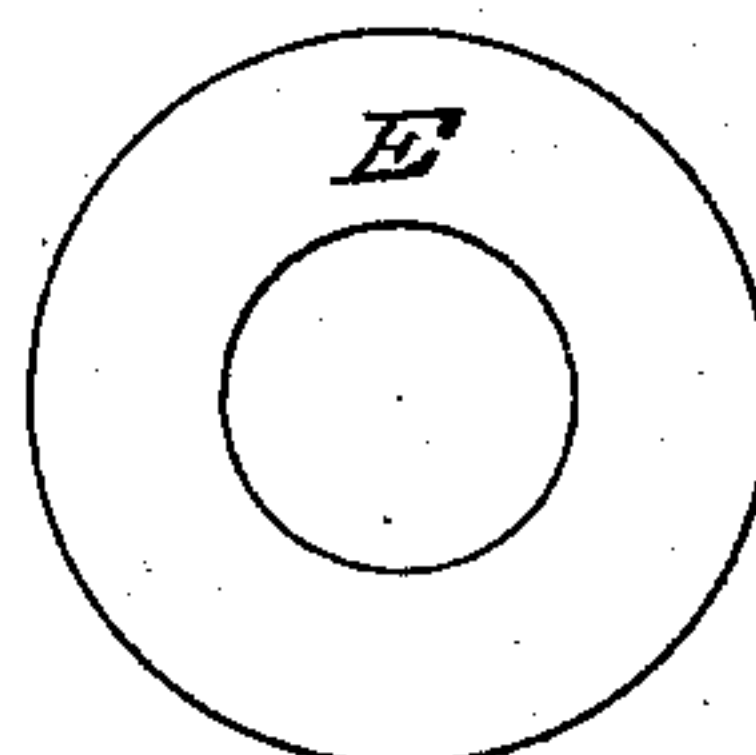


Fig. 3



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN PUMPS FOR TUBULAR WELLS.

Specification forming part of Letters Patent No. 166,048, dated July 27, 1875; application filed June 10, 1875.

*To all whom it may concern:*

Be it known that I, JAMES T. WHIPPLE, of Oak Park, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Pumps for Tubular Wells; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a vertical central section of a portion of a tubular well embodying my said invention, showing the respective parts in the well in position for use. Fig. 2 is a sectional plan taken on the line *xx* drawn across Fig. 1; and Fig. 3 is a plan of the packing detached.

Similar letters of reference indicate like parts in the several figures of the drawing.

The object of my present invention is to improve the device for which I obtained Letters Patent February 18, 1868; and to that end it consists, first, in providing the valve-seat with an annular depending flange, adapted to pass between the coupling and packing, whereby the latter is compressed between the flange and inner surface of the main tube; second, in providing the valve-seat with an annular groove, into which the upper end of the coupling loosely passes, in combination with a flexible packing arranged within the groove between the end of the coupling and upper wall of the groove, and in the combination of the several parts, as will be more fully understood by the following description and claims.

In the accompanying drawing, A represents the main tube, which consists of wrought-metal pipe, made in sections and connected together in the usual manner. B is the screen or filter proper, which is made of the proper diameter to pass loosely through the cavity of the main tube. This filter extends below the main tube into the water-course, and is made wedged-shaped at its lower end, as shown at *a*, Fig. 1. C is an annular collar or coupling, which is permanently attached to the upper end of the filter, and is provided with a cavity, D, the lower end of which corresponds with the cavity in the filter, through which the water

flows upward into the main tube. The upper portion of this coupling is slightly less in diameter than the diameter of the cavity in the main tube, and is cut away in part, forming a shoulder, *d*, as shown in Fig. 1. The outer surface of the coupling, immediately above the shoulder, is screw-threaded, as shown at *e*, the threaded portion extending upward to a point near midway between the shoulder and end of the coupling. E is the outer packing, which is secured around the threaded portion *e* of the coupling immediately above shoulder *d*. This packing consists of an annular gasket, as shown in Fig. 3, cut from sheet rubber or other suitable elastic material. The diameter of the opening through this packing or gasket is less than the diameter of the threaded portion of the coupling around which it is secured, by which means, when adjusted to its place, the elasticity of the material causes its lower edge to fit firmly against the coupling, and its upper edge to flare outward slightly toward the inner surface of the main tube. F is the valve-seat on which the lower valve F' is seated. The lower portion of this valve-seat is made less in diameter than the upper portion, and is screw-threaded externally, corresponding with a like screw-thread on the inner surface of the coupling, as shown at *f*, by which means the valve-seat and coupling are secured together. The diameter of the enlarged portion of the valve-seat above its connection with the coupling is slightly less than the diameter of the cavity in the main tube, and is provided with a vertical annular groove, G, into which the upper end of the coupling loosely passes, the outer wall of the groove extending downward, forming a depending annular flange, H. This flange is beveled on its lower outer corner, and is adapted to pass between the outer surface of the coupling and the inner surface of the upper portion of packing E when the valve-seat and coupling are screwed together, by which means the upper edge of the packing is forced outward and compressed between the outer surface of the flange and inner surface of the main tube, insuring an air and water tight joint between the wall of the tube and outer surface of the valve-seat below the valve. J is an annular ring of rubber or other flexi-



ble packing, adapted to closely fit groove G between its upper wall and the upper end of the coupling C, insuring an air and water tight joint between the valve-seat and coupling when the same are screwed together. The upper surface of the valve-seat is provided with a bail, K, made as a part of the same, and extending upward slightly therefrom, as shown in Fig. 1, the object of which is to provide a means for adjusting the seat within the main tube and to the coupling after the filter or screen has been properly placed in the water-course.

My invention is arranged for operation in the following manner: Tube A is first driven into the ground to a requisite depth. Screen B, with the packing-ring E arranged around coupling C, is then introduced into the cavity in the tube, and passed through the same into the water-course, allowing the coupling and packing to project upward into the tube. Valve-seat F, with packing J arranged within groove G, is then passed through the tube and screwed into the coupling, flange H passing between the coupling and packing E, compressing the latter between the flange and the inner surface of the main tube, while at the same time packing J is compressed between the upper end of the coupling and the upper wall of the groove, forming an air and water tight joint between the valve-seat and tube, and also between the valve-seat and coupling. The lift or suc-

tion valve (not shown) is then introduced into the main tube, and connected to the pump-handle by the plunger-rod in the usual manner when the well is complete.

Having thus described my invention, I do not claim the filter extending below the main tube, for such is shown in the patent to Duck and Whipple; nor do I claim broadly the combination of the filter with the valve-seat, for such is shown and claimed in the reissue of my original patent, dated February 18, 1868; but what I do claim is—

1. The valve-seat F provided with the depending flange H, adapted to pass between the coupling and packing, whereby the latter is compressed between the flange and inner surface of the tube, as specified.

2. The valve-seat F provided with the vertical groove G, adapted to receive the upper end of the coupling, in combination with packing J, as specified.

3. In combination with the valve-seat, coupling, and main tube, the packings E and J, arranged for joint operation to secure an air and water tight joint below the valve at the junction of the valve-seat with the coupling, as specified.

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Witnesses:

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