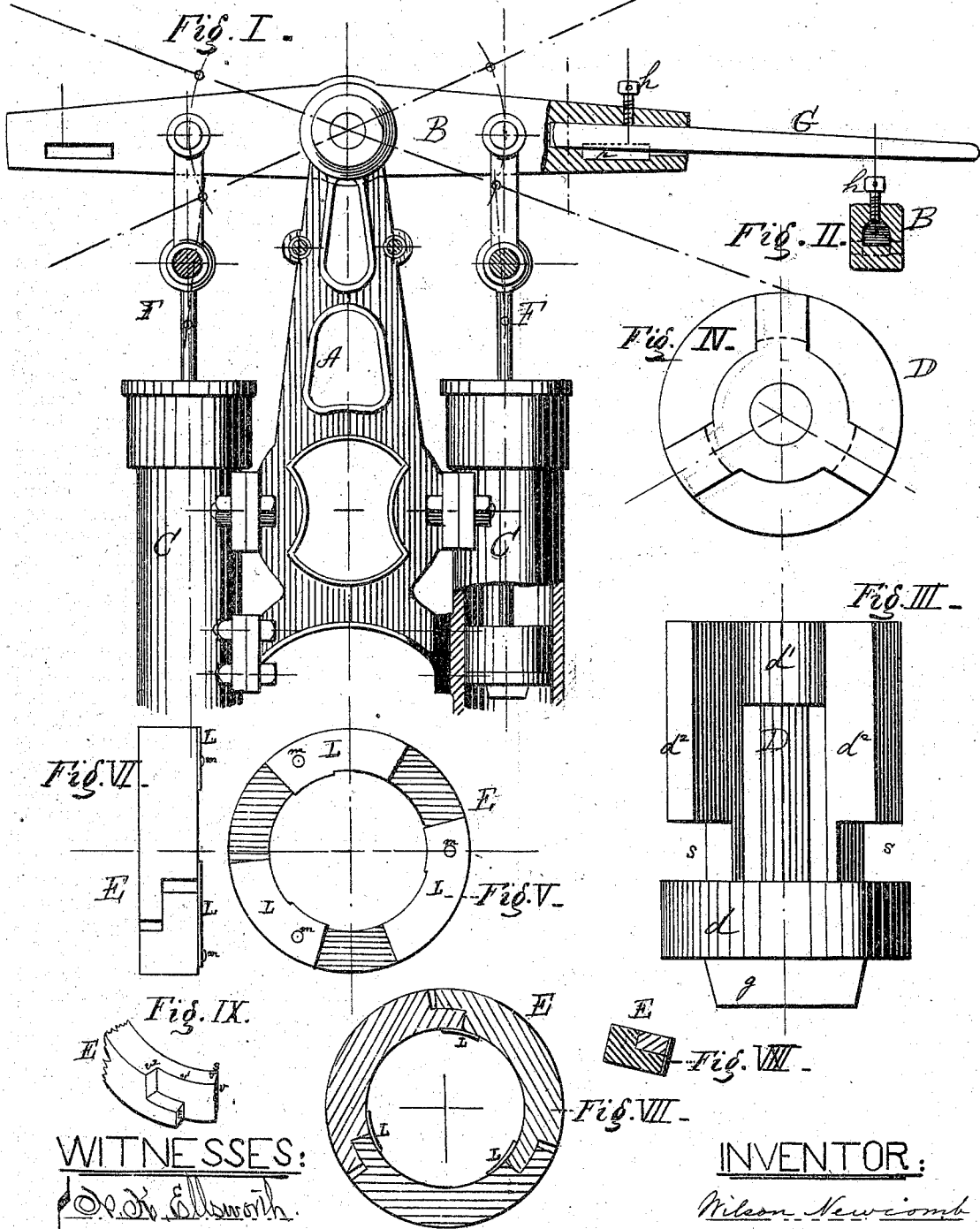


— WILSON NEWCOMB —

No. 120,767. — PUMP — Patented Nov. 7, 1871.



WITNESSES:

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WILSON NEWCOMB, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PUMP-PISTONS.

Specification forming part of Letters Patent No. 120,767, dated November 7, 1871.

To all whom it may concern:

Be it known that I, WILSON NEWCOMB, in the city of Baltimore and State of Maryland, have invented a new and Improved Pump; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a side elevation representing a double pump, the lower end of the cylinders and a portion of the walls of one of them having been removed, and also a portion of the metal socket for the handle or brake having been broken away. Fig. 2 is a cross-section of said socket in the line *xx* of Fig. 1. Fig. 3 is a side elevation of the plunger without the packing-ring. Fig. 4 is a top view of the same. Fig. 5 is a top view of the packing-ring, of which Fig. 6 is an edge view; Fig. 7, a bottom view; Fig. 8, a cross-section. Fig. 9 is a perspective view, showing the end of one segment of the packing.

Similar letters of reference indicate like parts.

This invention consists in an improved construction of packing-rings for the plunger, as hereinafter set forth.

In the drawing, A is a standard to support the walking-beam B. C C are the cylinders or pump-boxes; D D, the plungers; F F, the plunger-rods; E E, the packing-rings; and G G, wooden handles or brakes attached to the iron walking-beam or to metal sockets, by means of a clamping-screw, *h*. The plungers, which may be made either of wood, metal, or other suitable material, consist of a large ring, *d*, a small one, *d'*, above and parallel to it, with their centers in line, the two rings being connected at several points, preferably three, by means of radial flanges *d''* formed upon the upper ring and projecting from its lower and outer edge down to the upper and inner edge of the lower ring, to which they are connected, said extended flanges being cut away on their convex side immediately above the part *d*, in order to accommodate the ring-packing and allow it to rest on the ring *d*. The central opening in the upper ring receives the lower end of the plunger-rod, which may be fastened therein in any suitable manner. The central opening in the lower ring accommodates the main valve, which rises and falls therein, seating downward upon a shoulder or rim formed around the concave wall of the opening. An extension, *g*, may be formed upon the under side of the ring *d* to act as a guide for

the valve, the stem or lower end of the valve projecting down into or through the same, and thus rising or falling always in a vertical line. The plunger may be made or cast in one or more pieces, as may be considered best by the manufacturer.

Such being the general construction of the pump, I will now proceed to describe the parts which I more particularly claim as my invention, and which consist of the packing-ring and supplementary valve E, constructed and operating as follows: It is made in three (more or less) segments, the bond that connects them being formed by interlocking recesses upon one and projections upon the other, and by a pivoted metal plate, as shown in Figs. 5, 6, 7, 8, and 9. By inspecting Fig. 9 it will be observed that outside of the point *e* the rabbet is made entirely across the segment and to a depth equal to one-half the thickness of the ring while inside of the point *e*. The rabbet, being made to the same depth, extends only half way across the back of the ring. The opposite end of the segment is the counterpart of the end shown in Fig. 9, so that the two fit together and form a continuous ring, as seen in Figs. 5, 6, 7, and 8. It will be observed, however, that the ends of the projections are cut away a little, so as not to fill the space entirely, in order that any sand that may work into the joint shall have an opportunity to wash out readily. The segments being thus constructed and put together, it is evident that there will be a seam or crack across the inner wall of the ring at *v*, Fig. 9, and along the top of the ring will be another, *v'*, running longitudinally of the ring and terminating in a third and fourth, *v''* and *v'''*, respectively, the seams *v''* and *v'''* being somewhat open, as above described, to permit the ready escape of any sand that may wash in. Now, to cover all these seams at once, and yet allow the ring to expand and open the seams or contract and close them, I employ an L-shaped metal plate, L, pivoted to one of the segments at *m*, the bottom or arm of the L being bent down against the inner wall of the ring to cover the vertical seam *v*, while the top lies flat upon both segments, covering the three seams *v'*, *v''*, *v'''*, as shown clearly in Fig. 5, its shape being conformed to that of the ring, so as, with it, to bear against the walls of the cylinder while the plunger is rising. The ring thus constructed is placed around the plunger so as to rest upon the

part *d* and occupy the rabbets *s s*, the plates *LL* occupying the spaces between the flanges *d² d²*. In that position it operates both as a packing and as a supplementary valve, for, when the plunger descends, the water passing up around it presses in the ring, forcing the segments together, contracting its circumference, and pouring over it into the central space, where it mingles with the water that passes the main valve; but when the plunger ascends the main valve closes, and the water, pressing outward in all directions from the central space, forces the segments outward, thereby expanding the ring till it bears on all sides against the concave walls of the cylinder and prevents any escape of water in that direction. The plunger may thus be made to work very loosely in the cylinder, so that there will be absolutely no friction against either it or the ring when they descend, and scarcely any friction when they ascend.

It will be observed that the elastic cushion which holds the ring-packing against the cylinder when the plunger rises is simply a water-cushion, which yields readily to any irregularities in the bore of the cylinder or pump, and yet acts efficiently to keep the ring pressed out while the plunger is rising.

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

The packing-ring *E*, constructed in segments united at their ends, as described, and provided with the pivoted plates *L L*, constructed to lap over and protect the joints of the ring, all said parts being combined and arranged substantially as and for the purposes herein set forth.

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Witnesses:

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