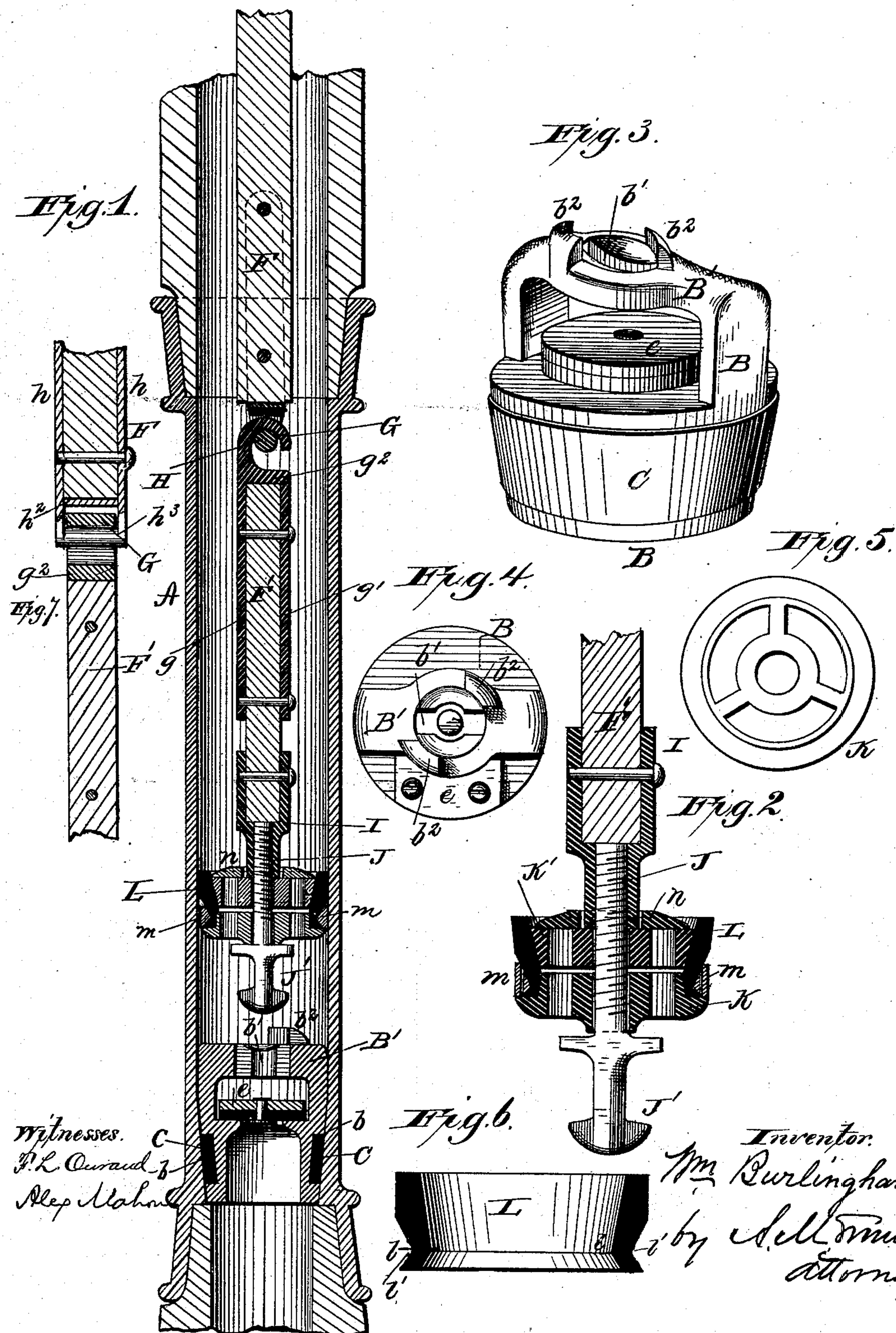


(No Model.)

W. BURLINGHAM.
Pump.

No. 232,629.

Patented Sept. 28, 1880.



N. PETERS..PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM BURLINGHAM, OF BALTIMORE, MARYLAND.

PUMP.

SPECIFICATION forming part of Letters Patent No. 232,629, dated September 28, 1880.

Application filed May 14, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BURLINGHAM, of the city and county of Baltimore, State of Maryland, have invented certain new and useful Improvements in Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a vertical section through a pump, showing my improvements. Fig. 2 shows a section through the plunger or piston enlarged. Fig. 3 is a perspective view of the check-valve, and Fig. 4 is a plan view of the same. Fig. 5 is a plan view of the lower piston-disk. Fig. 6 shows the piston packing-ring in section, and Fig. 7 shows the joint in the piston-rod in section at right angles to the section shown in Fig. 1.

Similar letters of reference denote corresponding parts wherever used.

My invention relates to a novel construction of the check-valve, plunger or piston, and piston-rod, facilitating their manufacture and increasing the durability of the pump; and it consists, first, in a novel construction of the piston packing-ring and the manner of clamping the same in place; and, second, in a novel construction of the tumbling-joint in the pump or piston rod, whereby it is provided with a long bearing, increasing its durability and adapting the parts to be cast instead of forged, and without interfering with the ready coupling and uncoupling of the same, all as hereinafter explained.

In the accompanying drawings, A represents a section of pump-stock of a construction similar to that described in Letters Patent granted to me April 2, 1878, No. 201,909, and upon which the present invention constitutes an improvement.

B is the check-valve or valve-seat, consisting of a single piece or casting, annular in form and made slightly tapering from top to bottom, adapting it to wedge tightly into its seat in the stock, in a manner explained in my former patent referred to, and provided with an annular groove at b on its outer face or periphery, for the reception and retention of a rubber packing-ring, C. The upper face of this ring has a bail, B' , formed upon it, pro-

vided midway of its horizontal part with a longitudinal slot, b' , permitting the passage through the bail of a T (inverted) shaped projection, J' , on the lower end of the pump-rod.

On either side of the slot b' are cam-shaped lugs or ears $b^2 b^2$, which serve to stop the pendant T-piece on the pump-rod when turned to a position at right angles, or thereabout, to that at which it enters and passes through the slot in the bail. These lugs b^2 may be formed either on the outer or inner face of the bail, as preferred. When formed on the upper face they may be so shaped as to guide the T-piece into proper position to enter the slot.

e is the valve, applied to the upper face of the valve-seat or ring B in any usual or preferred manner.

The pump-rod is composed of two or more parts, $F F'$, which are connected by a pivotal or tumbling joint, providing for the lateral vibration of the upper part relatively to the lower, due to its connection with a pivoted lever or handle. This joint is made in the form of a hook and eye, expanded in width to give a long pivotal wearing-surface, as follows, viz: G represents the hook part, composed of two parallel plates or straps, $g g'$, open at their lower end to receive the upper end of part F' of the pump-rod, which fits snugly and is securely bolted between said arms and united by a horizontal portion, g^2 , covering the end of part F' , as shown.

The side g extends beyond the cross-bar g^2 , and is bent into hook form of the full width of the strap part g , of which it forms an extension, and is made slightly tapering in thickness toward its point which overhangs the strap part g' , with sufficient space between it and said part to permit the insertion and withdrawal of the pivot of the eye part H. The latter is similar in form to the hook part, adapting it to be secured to the part F of the pump-rod, as represented. In this, however, the straps $h h'$ are both extended in right lines, or nearly so, beyond the connecting cross-bar h^2 , and are connected at their outer ends by a cylindrical cross-bar or pivot, h^3 , sufficiently removed from the cross-bar h^2 to permit the insertion of the hook when the parts $F F'$ are turned into a position about at right angles to each other, the hook nearly

filling the space between bars h^2 h^3 when brought into a right line or working position. (Shown in the drawings.)

By this construction loss of motion by relative play of parts F and F' is to a great extent prevented, a long pivotal bearing-surface is secured between the two parts, greatly increasing their durability, and the hook and eye parts are adapted to be cast each in a single piece, instead of being forged, as heretofore, thereby greatly reducing the cost of manufacture.

To the lower end of part F is secured a socket-piece, I, the lower cylindrical end of which has a threaded socket for the reception of a screw, J, the lower end or head of which has the pendent T-piece J', hereinabove described, formed upon it, and between the head of screw J and the socket-piece or nut I is secured the piston or plunger, constructed as follows: K K' are two slotted or perforated disks, the lower one of which is shown in plan view, Fig. 5, both made to taper inward toward each other on their outer faces, as shown in Figs. 1 and 2. The lower disk or ring, K, has a horizontal flange formed on its lower edge, forming a base for the support of the rubber packing-ring L, which is clamped in place on the disk K by a V-shaped ring, m. The packing-ring L is molded in form in cross-section substantially as represented in Fig. 6—that is say, somewhat larger at the top than at the bottom, with its inner wall made flaring each way from a point at l , below the center of its width, as shown—and on its outer wall is formed an annular V-shaped groove, l' , for the reception of the clamping-ring m. The upper flaring portion of ring L receives the wedging-disk K' and extends above the same, giving the piston, as a whole, a cup form. n is the valve resting upon and covering the passages through the disks K K'. The packing-ring L is placed within the clamping-ring m, which

rests in the annular V-shaped groove l' therein. The disk K is now inserted in the lower end of the packing-ring and the wedging-disk K' in its upper end, with the valve-disk n over it, and the screw J is passed through central perforations in said disk and screwed into the socket-piece or nut I until the wedging-disk K is drawn down within the packing-ring L, and expands the latter until it is of the required diameter to snugly fill the pump-stock or the section thereof in which it works. As the packing-ring becomes loose by wear it may be further expanded by tightening the screw J and further drawing down the wedging-disk K.

The central perforation in valve-disk n is of sufficient size to permit the cylindrical part of socket-piece or nut I to pass through it and rest on the disk K', and said socket-piece serves to guide the valve-disk in its rising and falling movements.

The operation of the parts will be readily understood without further description.

Having now described my invention, I claim—

1. The check-valve provided with the slotted bail, and with stops limiting the throw of the hook or T piece engaging with said bail for withdrawing it, substantially as described.

2. The coupling-irons connecting the two sections of the pump-rod, provided with the long pivotal bearing and the expanded hook connecting therewith, constructed and operating substantially as described.

3. The combination of the wedging-disks K K', packing-ring L, V-shaped clamping-ring m, screw J, and socket-piece or nut I on the end of the pump-rod, all arranged for joint operation substantially as described.

WILLIAM BURLINGHAM.

Witnesses:

GEO. H. BURNITT,
PATRICK J. QUINLAN.