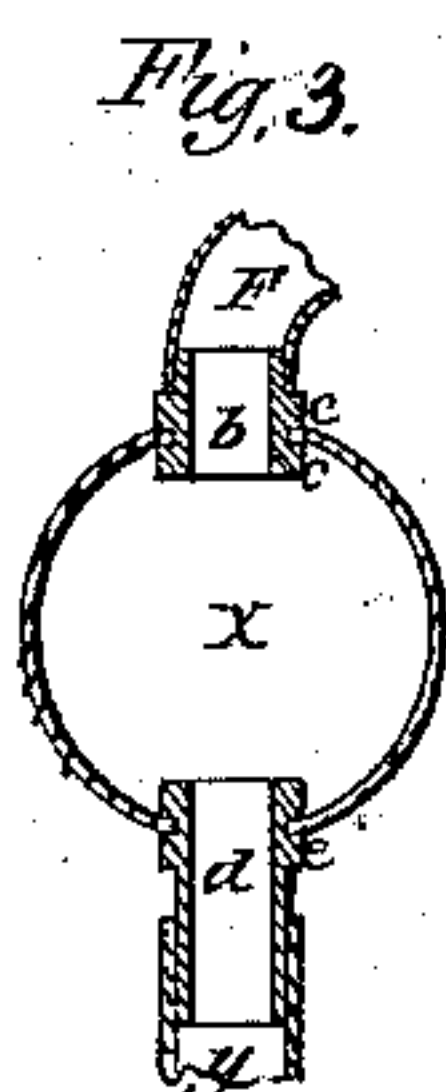
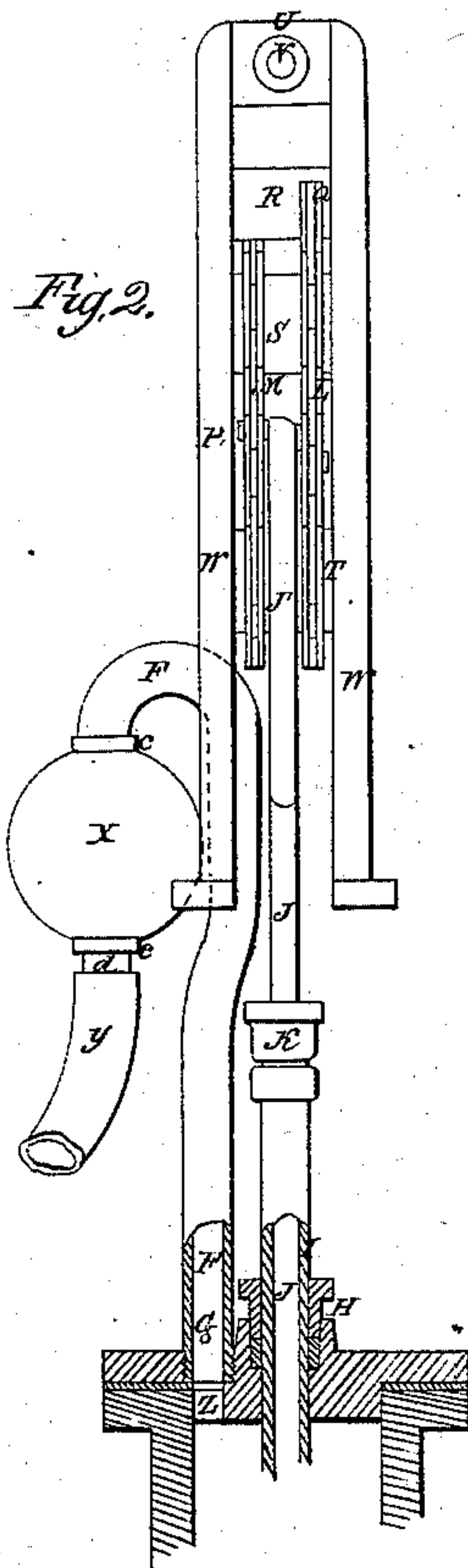
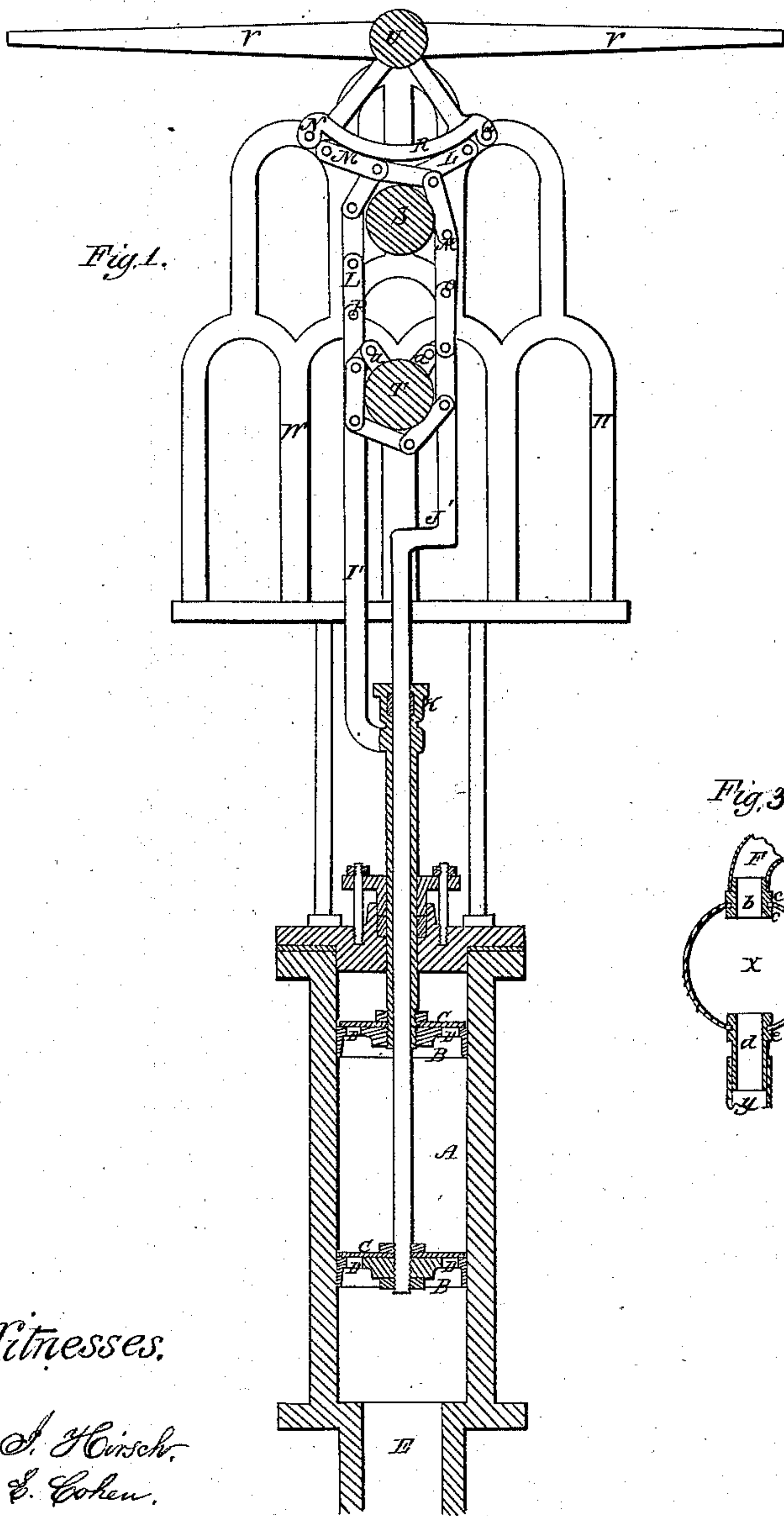


V. Weitz,

Double-Acting Pump.

N^o 32,592.

Patented June 18, 1861.



Witnesses.

*A. Hirsch,
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Inventor.

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UNITED STATES PATENT OFFICE.

V. WEITZ, OF CLEVELAND, OHIO.

PUMP.

Specification of Letters Patent No. 32,592, dated June 18, 1861.

To all whom it may concern:

Be it known that I, V. WEITZ, of Cleveland, Cuyahoga county, State of Ohio, have invented a new and useful Improvement in Pumps; 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.

Figure 1, of the drawings represents a vertical central section and Fig. 2, a side view of my improved pump; Fig. 3, a section of a detached portion of it.

The cylinder A, of this pump is provided with two pistons B, B, working opposite to each other. The rod I, of the upper piston B, is hollow and works through a stuffing box H, in the cylinder head; while the rod J, of the lower piston B, is solid and plays through the hollow piston rod I. The rod J, passes through a stuffing box K, at the upper end of the hollow rod I, the inner diameter of the other portion of the rod I, being somewhat larger than the diameter of the rod J, so as to prevent an unnecessary increase of friction and consequent loss of power in the relative operation of the two piston rods.

Each of the piston rods is provided with an arm I', J', respectively. The upper end of arm I', is hung to a chain L, and that of arm J', to a chain M. The lower portions of these chains are wound around a guide roller T, in opposite directions and the ends secured to staples a, a, projecting from the roller. The upper portions of the chains pass over another guide roller S, and underneath an arc or sector R, to the opposite ends of which the upper ends of the chains are secured as seen at N, Q. This arc forms part of a rock shaft U, from which levers or pump handles V, V, extend both ways.

On working the levers V, V, and imparting a vibrating motion to the rock shaft and arc, the upper end of one chain will be unwound while the upper end of the other chain will be wound up, so as to cause both chains to reciprocate in opposite directions. The piston rods being hung to the chains as above described, they will describe a similar reciprocating motion so that the rod J, and with it the lower piston will rise while the rod I, and with it the upper piston descends and vice versa.

Each of the pistons is provided with suit-

able valve holes D, and a flap valve C, of leather or other flexible material, as seen in Fig. 1. While the lower piston rises and the upper one descends, the valve of the latter is open and the lower piston raises the column of water above it, through the valve holes of the upper piston and into the discharge tube F, which communicates with the interior of the pump cylinder by means of a hole Z, in the cylinder head.

When the lower piston descends and the upper piston rises, the latter has its valve closed and raises the column of water while the valve of the lower piston is open and allows the water to be sucked up through the supply pipe E, and through the open valve holes of the lower piston, by the action of the rising upper piston. Thus it will be seen a continuous stream of water will be caused to flow through the discharge tube F, as long as the pump is kept in operation.

By arranging the two piston rods as described, one within the other, the cylinder head is to be provided with one stuffing box only and the power being applied in the central part of each piston they will work with perfect ease.

The lower end of the discharge tube F, is provided with a smaller perforation G, which on account of its smallness will not sensibly diminish the quantity of water discharged during the operation of the pump. But when the pumping ceases the water standing in the discharge tube will gradually pass out through the hole G, and thus the freezing of the water in the discharge tube will be prevented.

In order to perfectly equalize the discharge of the water a hollow globe X, of elastic material such as india rubber, is secured to the outer end of the discharge tube and to the rear end of a hose or other discharge pipe Y, as represented in Fig. 2. This hollow globe is clamped or otherwise secured between the flanges c, c, and e, e, of short tubes b, and d, at opposite sides of the globe, and one of the tubes is inserted into the end of the discharge tube F, and the other into the rear end of the hose or pipe Y, as seen in Fig. 3. This hollow globe operates in the same manner as the air vessel in other pumps. It serves as a water reservoir and being elastic will alternately yield and contract and thus regulate the flow of water through the muzzle of the hose or pipe Y.

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

1. The arrangement of one piston rod
5 within and concentric with another hollow piston rod, when used in combination with a pump cylinder containing two pistons, working opposite, to each other, in the manner and for the purpose described.
- 10 2. The relative arrangement of one piston rod, working through and concentric with

another hollow piston rod, and of a vibrating arc, chains, and guide rollers, in the manner and for the purpose described.

3. In combination with the preceding the 15 relative arrangement of a discharge tube perforated at the bottom end, an elastic reservoir, and hose as described.

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Witnesses:

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