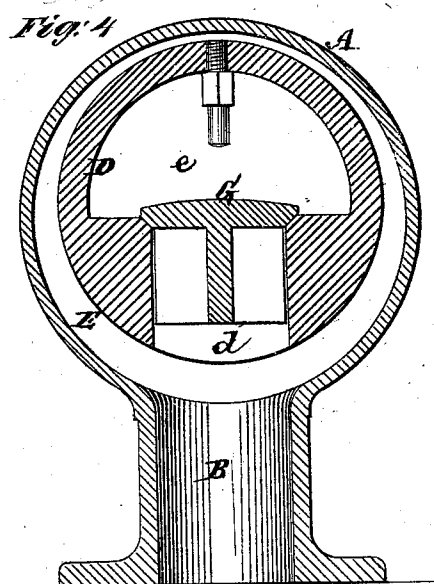
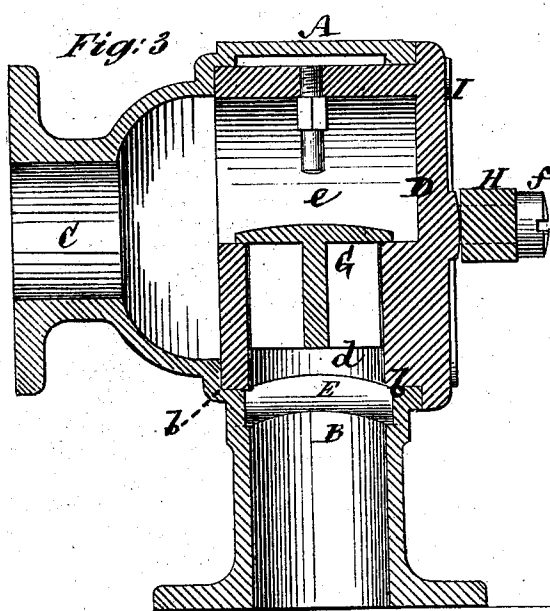
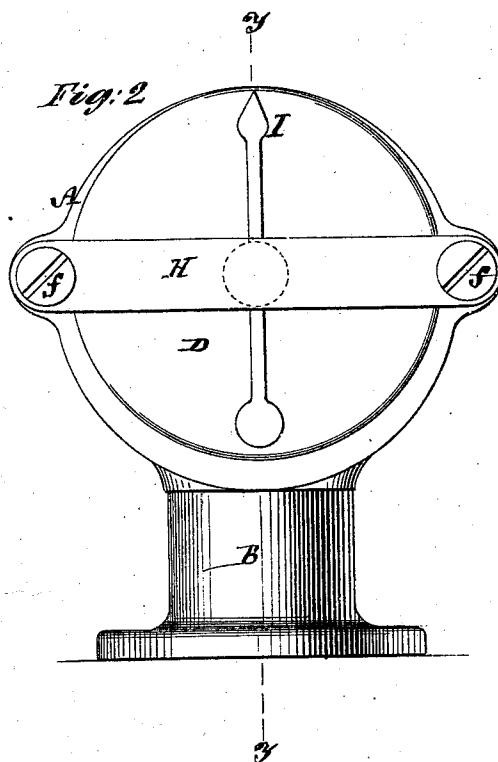
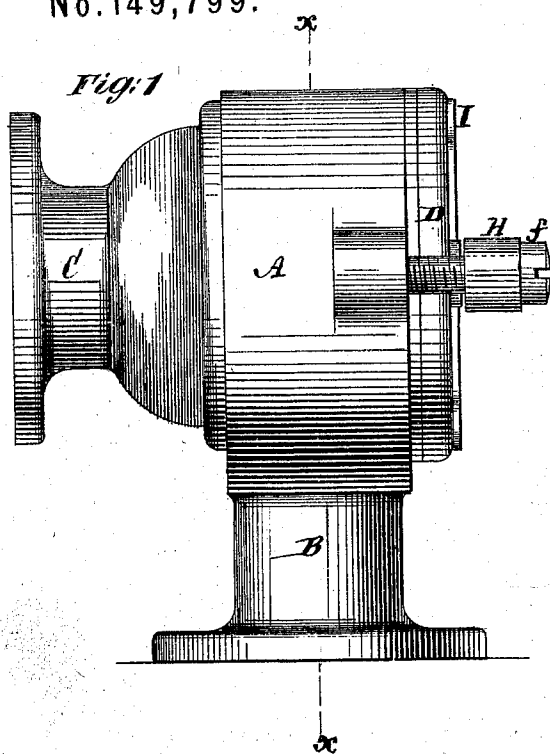


W. J. SILVER.

Pump-Valve Box Arrangements.

No. 149,799.

Patented April 14, 1874.



Witnesses:
Michael Ryan
Fred Barnes

Wm. J. Silver
By his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

WILLIAM J. SILVER, OF SALT LAKE CITY, UTAH TERRITORY.

IMPROVEMENT IN PUMP-VALVE BOX ARRANGEMENTS.

Specification forming part of Letters Patent No. 149,799, dated April 14, 1874; application filed March 10, 1874.

To all whom it may concern:

Be it known that I, WILLIAM J. SILVER, of Salt Lake City, in the Territory of Utah, have invented certain Improvements in Pump-Valve Box Arrangements, of which the following is a specification:

The general object of this invention is to adapt steam and other pumps to work in different positions without inverting or changing the normal position of either the suction or delivery valves, or both, whereby the action of the valve or valves is similar, and equally perfect or easy in different positions of the outer case of the pump, that may accordingly be arranged to work horizontally, vertically, or at any intermediate inclination. This will be found of great service in pumps used for mining purposes, as when sinking shafts, either vertical or inclined, or for working in a horizontal drift. The invention consists in a valve-box, fitted to turn on or around its axis within the pump case or chamber thereof, and in an annular, eccentric, or other suitably-shaped passage in said chamber or case and around the valve-box, whereby, in all positions of the pump, a free communication is established between the inlet and the under or inner side of the valve, while its upper or opposite side is closed to such communication. The invention also consists, in combination with such construction of the valve-box and its chamber, of an index, which may either be a rib or mark on the outside of the valve-box, to show the position of the valve from the outside within its turning valve-box, for the purpose of facilitating the adjustment of the valve and valve-box to different positions of the pump.

In the accompanying drawing, Figure 1 represents a side view of a pump-case, in parts, with valve-box and valve constructed in accordance with my invention; Fig. 2, a rear or end elevation of the same; Fig. 3, a section on the line *x x*, and Fig. 4 a section on the line *y y*.

A is the valve box, case, or chamber of a pump, having an inlet or suction passage, B, and outlet C, arranged at right angles to each other, or thereabout. Said case A is constructed with circular collars or bearings *b b* at its ends, to receive within them from the outside a cylindrical valve-box, D, made to

form a close but free fit with said bearings, but leaving an annular or eccentric chamber, E, all around the body of the valve-box between its bearings *b b*, to establish free communication in all changed positions of the pump between the inlet B and under or inner side of the valve G, which is arranged to open and close a lateral opening, *d*, in the body of the valve-box, said valve opening upward, or within a chamber, *e*, in the valve-box. This chamber *e* is open at the back or inner end of the valve-box, so as to be in free communication at all times with the outlet C. A clamp or cross-bar, H, applied to the back or outer end of the valve-box, and secured by screws *f, f*, serves to keep the latter in place.

It will be evident that, by turning the valve-box on or around its axis, the valve may always be made to preserve its normal position in all changed positions of the pump-case, from the two extremes of a horizontal to a vertical position, or any intermediate one. To facilitate this adjustment, and to indicate the position of the valve when changing the position of the pump-case, the valve-box D is provided on its outside with an index, I, which may either be a rib, or raised mark, or a depression, but which serves to indicate the direction of the valve's action or position of the valve.

I claim—

1. The valve-box, made capable of adjustment on or around its axis within its case or chamber, and fitted with a valve for operation in relation with a side aperture and end passage in the valve-box, whereby the valve may be made to retain its normal position in various or changed positions of the pump-case, substantially as specified.

2. The combination, with the axially adjustable or turning valve-box D, of the passage E in the case A, arranged to surround said box, essentially as and for the purpose herein set forth.

3. The combination of this index or marker I with the axially adjustable or turning valve-box D, the case A, and passages C D, substantially as shown and described.

WM. J. SILVER.

Witnesses:

WILLIAM B. BARTON,
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