J. H. Burns,

Force Pump,

No. 46,073. Patented Jan. 31, 1865.

Fig: 1.

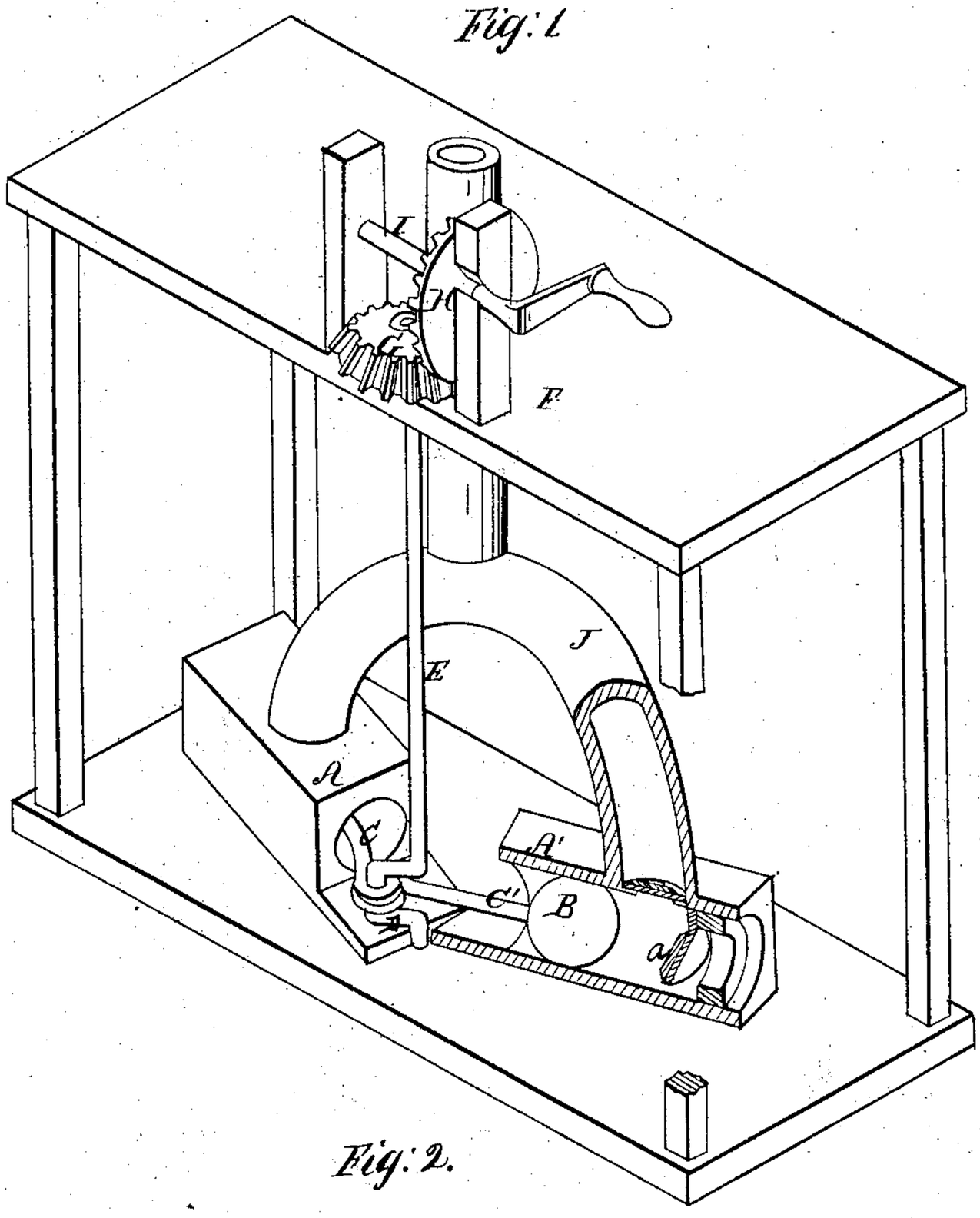
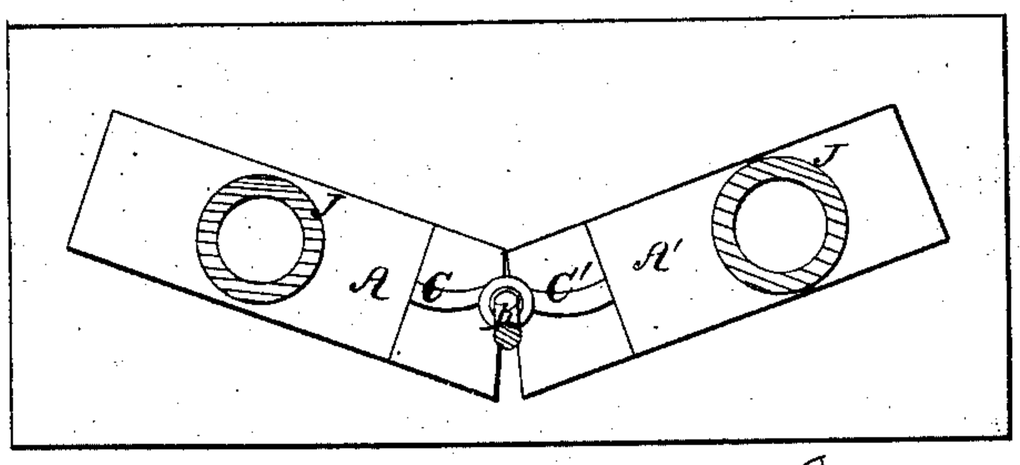


Fig: 2.



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UNITED STATES PATENT OFFICE.

JOHN H. BURNS, OF CLINTON STATION, NEW JERSEY.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **46,073**, dated January 31, 1865.

To all whom it may concern:

Be it known that I, JOHN H. BURNS, of Clinton Station, in the county of Hunterdon and State of New Jersey, have invented a new and Improved Pump; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable any person skilled in the art to make and use the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a perspective sectional view of my invention. Fig. 2 is a horizontal section of the same.

Similar letters of reference indicate like parts.

This invention relates to an improvement in double-acting pumps, with two barrels placed in an oblique or angular position, and having their plungers connected to a vertical crank-shaft, in combination with a common ascension-pipe in such a manner that by imparting to said crank-shaft a rotary motion both plungers will assume a reciprocating motion in opposite directions, and a continuous stream of water is forced up through the ascension-pipe. The plungers are made spherical to enable them to accommodate themselves to the varying position of the crank.

A A′ represent two barrels, which are made of wood or any other suitable material, and which are placed in a horizontal or any other convenient position at or near to the bottom of the well or space from which the water is to be elevated. The two barrels are in an angular position in relation to each other, so that the point where their plunger-rods intersect will be thrown far enough forward to enable the vertical driving-shaft to clear the ascension-pipe without the necessity of curving either of them. Each barrel is provided with a plunger, B, and the rods C C′ connect to a common crank, D, at the lower end of the vertical shaft E, which is stepped in a suitable socket in the bottom of the well or other space from which the water is to be elevated, and which extends up through the top F, where it bears a bevel-wheel, G, which gears in a similar cog-wheel, H, on a horizontal shaft, I, to which rotary motion is imparted by hand or any other competent power. By turning the shaft I a corresponding motion is imparted to the shaft E, and both plungers assume a reciprocating motion in opposite directions.

Valves *a* in the outer ends of the barrels admit water to the same when the plungers move toward the inner ends, and if the plungers are forced out toward the outer ends the water accumulated in the barrels ascends through the pipe J. The lower portion of this pipe branches off in two arms to connect to the two barrels, and by giving to the barrels an angular position in relation to each other, said pipe is enabled to rise straight up without coming in contact with the vertical shaft E or its attachments. Suitable foot-valves in the bottom ends of the ascension-pipe retain the water in the same and prevent a communication between the two barrels.

The plungers B are made spherical, as clearly shown in Fig. 1 of the drawings, so that the same are enabled to accommodate themselves to the variable position of the crank.

By this arrangement the rods C C′ can be firmly secured to the plungers, and much labor and fitting is saved.

This pump is operated very easy by rotating the shaft I, and it will raise the water to any desired height. It can be used with advantage in deep mines or wells, where, with ordinary pumps, it is difficult to effect a connection between the driving-power and the plungers, and it can also be used on board of vessels, and, in fact, in all places where a good and simple pump is desirable.

What I claim as new, and desire to secure by Letters Patent, is—

1. The barrels A A′, arranged at angles, as described, in combination with the vertical crank-shaft E and common ascension-pipe J, constructed and operating as and for the purpose herein shown and described.

2. The spherical plungers B, in combination with the barrels A A′ of a pump, and with the crank-shaft E, and operating substantially as and for the purpose set forth.

JOHN H. BURNS.

Witnesses:

SAMUEL HACKET,

JACOB CREGER.