(No Model.)

J. B. LYONS.

MINING PUMP.

No. 347,724. Patented Aug. 17, 1886.

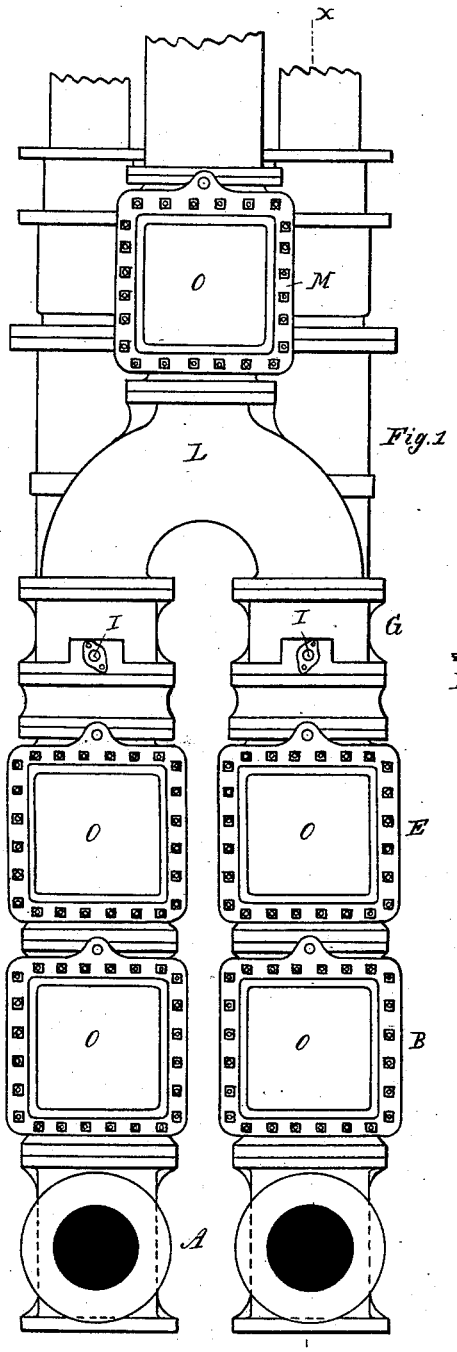

Fig. 1

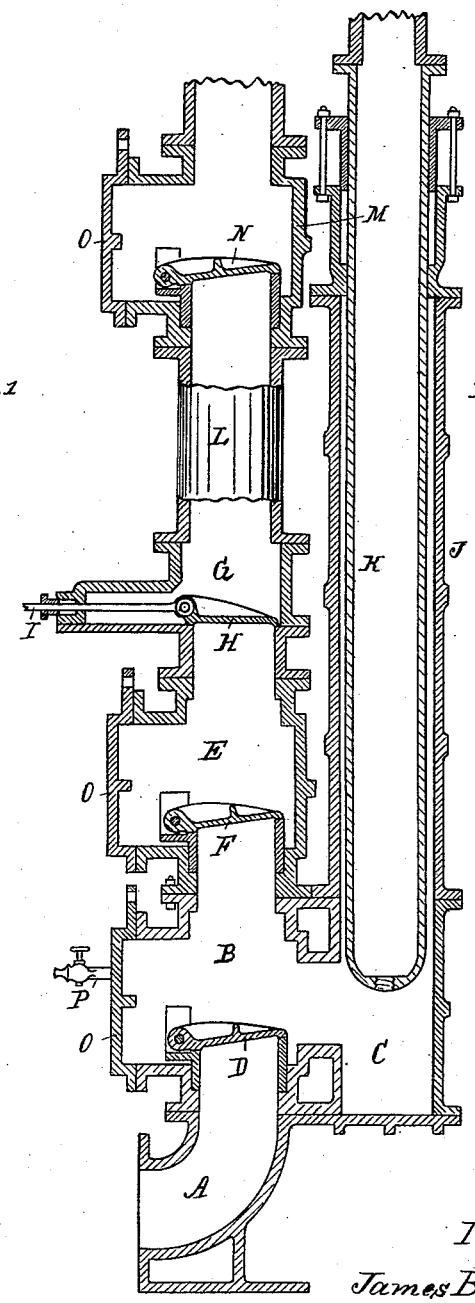

Fig. 2

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UNITED STATES PATENT OFFICE.

JAMES B. LYONS, OF NORWAY, MICHIGAN.

MINING-PUMP.

SPECIFICATION forming part of Letters Patent No. 347,724, dated August 17, 1886.

Application filed February 4, 1886. Serial No. 190,775. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. LYONS, of Norway, in the county of Menominee and State of Michigan, have invented new and useful Improvements in Mining-Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in mining-pumps of that class wherein two cylinders are placed adjacent to each other—as in a compound pump—discharging through the delivery-pipe common to both; and the invention consists in the peculiar construction and arrangement of check-gates, whereby facilities are obtained for closing off the action of one cylinder without disturbing the effective operation of the other, in case repairs are necessary, and in the peculiar construction, arrangement, and various combinations of the parts, all as more fully hereinafter set forth.

Figure 1 is a front elevation of my improved pump. Fig. 2 is a central vertical longitudinal section through one of the pumps on the line *x x* in Fig. 1.

In the accompanying drawings, which form a part of this specification, A represents the suction-elbow sections, to the lower end of which is secured the suction-pipes, (not shown,) while to their upper ends are secured the lower valve-sections, B, commonly called by mechanics the "H-pieces," from the fact that the lower valve-section and foot C of the pump-cylinder are cast in one piece, and in the valve-section B there is properly secured the valve D.

Surmounting the section B is a valve section, E, in which is located a valve, F, and on top of this section E is a section, G, in which is located a cut-off valve, H, adapted to be operated by the stem I.

Above or on top of the foot-section C is secured the pump-cylinder J, in which the plunger K is reciprocated by any suitable means, (which I do not show and which form no part of this application.)

So far in the construction both of the pumps are alike, receiving their supply from independent suction-pipes.

Upon the upper sections, G, is secured a Y-connection, L, upon the upper end of which is secured a section, M, in which is located a valve, N.

Each of the sections, B, E, G, and M, above described, are provided with removable door-plates, O, through which access can be had to their respective chambers for the purpose of making repairs.

The pumps being in operation, the water is drawn into the lower section, A, in the up-stroke of the plunger, causing the valves D to open. In the return-stroke of the plunger, this valve is seated upon its seat, while the water is forced through the water-way into the next or discharge section immediately above, and so on until the water is finally discharged through the Y-connection into the upper section, M, from whence it passes into the discharge-pipe common to both; and when both pumps are working, the check-valves or gates are withdrawn from over the respective water-ways through their sections.

In case it becomes necessary to repair one of the pumps—as for instance, to remove a chip or other obstruction from beneath one of its valves—the operator pushes in upon the stem I, causing its gate H to slide over the water-way. He then opens a cock, P, in the door-plate of the lower section, which allows air to be drawn in by the suction caused in the reciprocation of the plunger; hence, having destroyed the vacuum, there is no water drawn from the suction-pipe of that pump, notwithstanding the continued operation of its plunger. The door-plate of either section A and E, or both, may then be removed, the obstructions taken out, or old valves replaced with new ones without affecting the operation of the companion pump. When repaired, the door-plates are replaced, the cock closed, and the check-gate is withdrawn to its original position, the pump now being ready to perform its work, and without the necessity of priming.

A mining pump constructed substantially as described, having two plungers alternately working up and down, and discharging the water in one column, the two pump-rods being of the same weight, does away with the necessity of "balancing" the pumps, as is required in the ordinary constructions.

It will be observed that my cut-off valves H

are entirely independent of the working-valves of the pumps, and are not in use when the pumps are both in operation; hence there is comparatively little wear on the same.

What I claim as my invention is—

1. The combination, with two pumps having a common discharge, of cut-offs—one for each pump—independent of the working-valves thereof, and cocks—one for each pump—between the suction and cut-off, substantially as and for the purpose specified.

2. The combination, with the two pumps provided with independent suctions and common discharge, of sliding cut-offs—one for each pump—independent of the working-valves thereof, and a cock, P, between the suction and the cut-off, substantially as and for the purpose specified.

3. The combination, with the two pumps provided with common discharge and independent suction-pipes, of the sections G, the Y-connection L, connecting said sections, the section M upon the upper end of the connection L, and provided with valve N, and the cut-off valves H in said sections G near the base of the connection L, and a cock between the said cut-off valve and the suction, substantially as herein shown and described.

4. In a pump, the elbow-sections A, valve-sections B, secured thereto, valves D in said sections B, valve-sections E, surmounting the sections B, valve F in section E, section G on the section E, and sliding cut-off valves H in the sections G and provided with handles I, Y-connection L, uniting the sections G, chamber M above the connection L, and valve N in said chamber M, each of said sections being provided with removable plates O, and all arranged for joint operation, substantially as and for the purpose specified.

JAMES B. LYONS.

Witnesses:
H. S. SPRAGUE,
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