

(No Model.)

G. J. KELLER.
SUBMERGED METALLIC PUMP.

No. 438,163.

Patented Oct. 14, 1890.

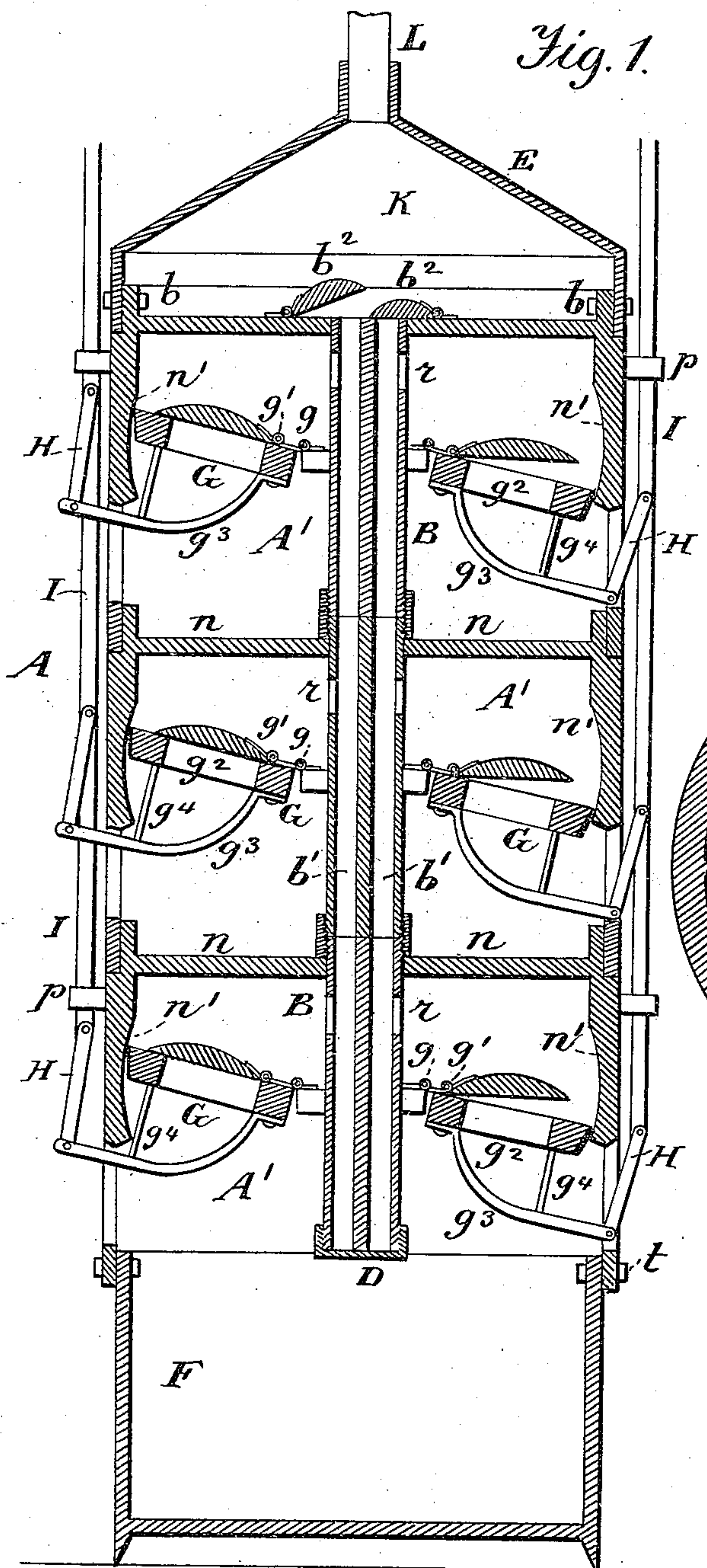
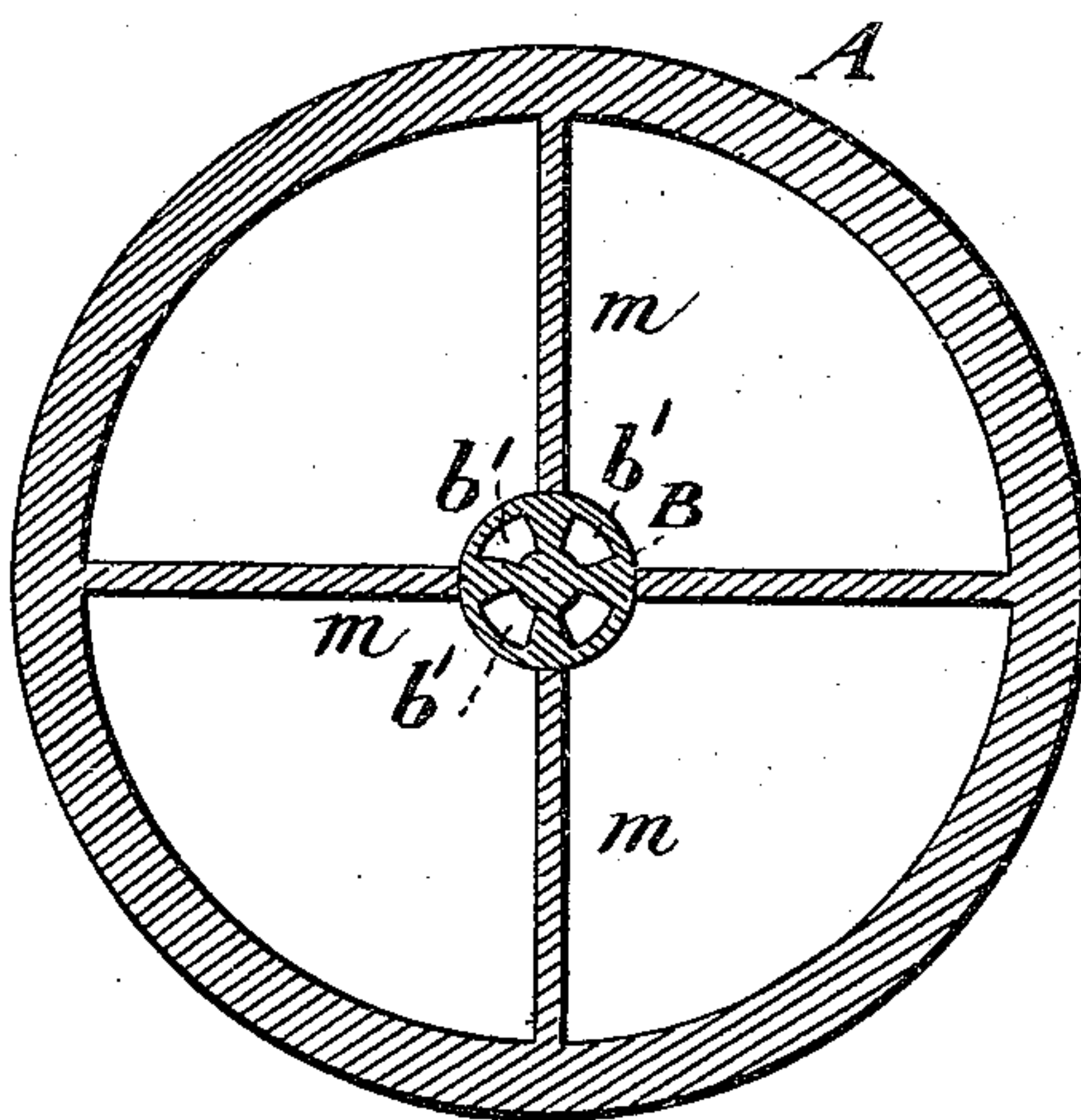


Fig. 2.



Witnesses.
A. Ruppert
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UNITED STATES PATENT OFFICE.

GEORGE J. KELLER, OF OSCEOLA, NEBRASKA.

SUBMERGED METALLIC PUMP.

SPECIFICATION forming part of Letters Patent No. 438,163, dated October 14, 1890.

Application filed July 7, 1890. Serial No. 357,987. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. KELLER, a citizen of the United States, residing at Osceola, in the county of Polk and State of Nebraska, have invented certain new and useful Improvements in Submerged Metallic Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to submerged metallic lift-pumps, and the special object of the invention is to improve the pump patented to me December 31, 1889, by taking in and lifting a large quantity of water with a very short stroke of the piston-rod, whereby a very short lever or handle will be required between the standard and piston-rod.

Figure 1 of the drawings is a vertical diametrical section of my submerged pump, and Fig. 2 a top plan view.

In the drawings, A represents the pump-cylinder having a top cover E, fitting an external rabbet and secured by the screws *b*, while the bottom thereof is open. The cylinder A is divided into compartments A' by the radial partitions *m* and the horizontal partitions *n*. In each compartment is a piston hinged at *g*, and having a valve hinged thereto at *g'*. The piston G is open at *g*², and this opening is covered by the valve when closed. At the under side of the back of each piston is fastened one end of a rod *g*³, while from the front extends down the rod *g*⁴ to connect with it. The end of the rod *g*³ is connected by a pivoted rod H with the piston-rod I. J is the water-inlet in which works the end of rod *g*³ and the rod H. The cylinder is made with a concave *n'*, corresponding to the arc in which the piston moves. It will thus be perceived that each piston moves but a short distance to lift the water and compel it to pass through the outlet *r*.

B represents a central discharge-pipe divided so as to make a separate pipe *b* for each vertical row of compartments A' and opening at *r* into each compartment. Over the upper open end of each sub-pipe *b* is located a hinged valve *b'*, which the upward pressure of water opens, while they close by their own gravity, the suction caused by the downward

movement of the piston and also by the pressure of the superincumbent water. The bottom of the pipe B is closed by a screw-cap D. Two opposite vertical rows of compartments have pistons which move in opposite directions, so that the water from one-half the compartments A' is passing into the chamber K while the pistons in the other chambers are moving down to take water for the next lift. In this way a constant stream of water will be flowing up through the delivery-pipe L.

The piston-rods I may be operated by any suitable mechanism and by any preferred power.

Of course I do not confine myself to any particular number of compartments A', and may use any suitable packing for the pistons and valves.

F represents a frame connected with the bottom of the cylinder by the screws *t* to support it on the bottom of the well, while *p* are guides for the piston-rods. The pipe B may be central or at one side.

Having thus described all that is necessary to a full understanding of my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In submerged pumps, a top-closed and bottom-open cylinder divided by vertical and horizontal partitions into vertical rows of compartments A', each provided with a hinged piston having an upwardly-opening valve, in combination with a vertical pipe divided vertically and arranged centrally or otherwise, each sub-pipe *b* connecting by an opening *r* with each compartment in a vertical row and having at the top an upwardly-opening valve, whereby each piston moves a very short distance, but all co-operate to fill one receiving-chamber K, as set forth.

2. The combination, with the straight piston-rod I and the pistons G, arranged one above another in chambers A', of the rods *g*³ and the rod H, the latter pivoted to the rods I *g*⁴, as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE J. KELLER.

Witnesses:

OSCAR N. KELLER,
I. M. KELLER.