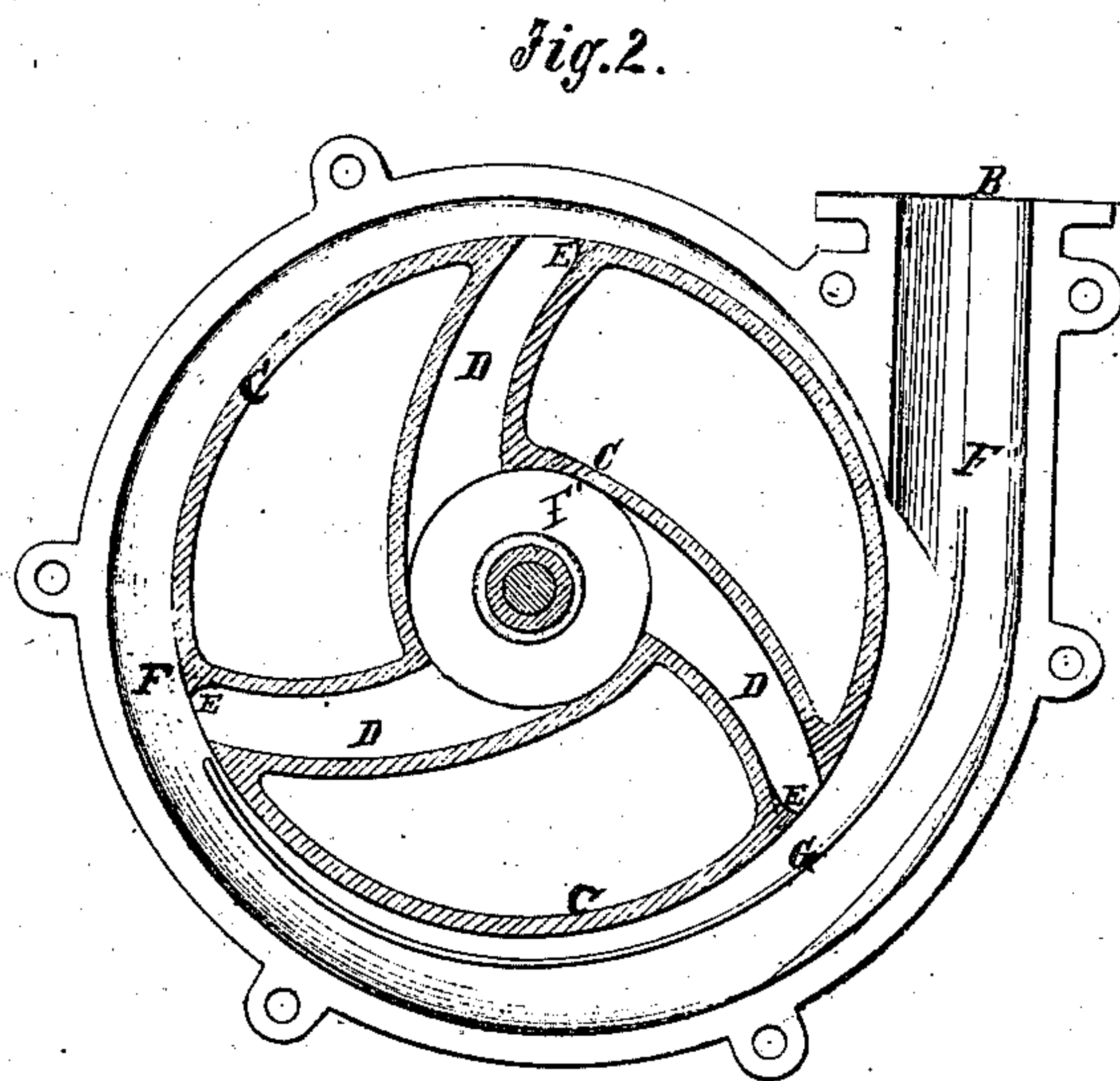
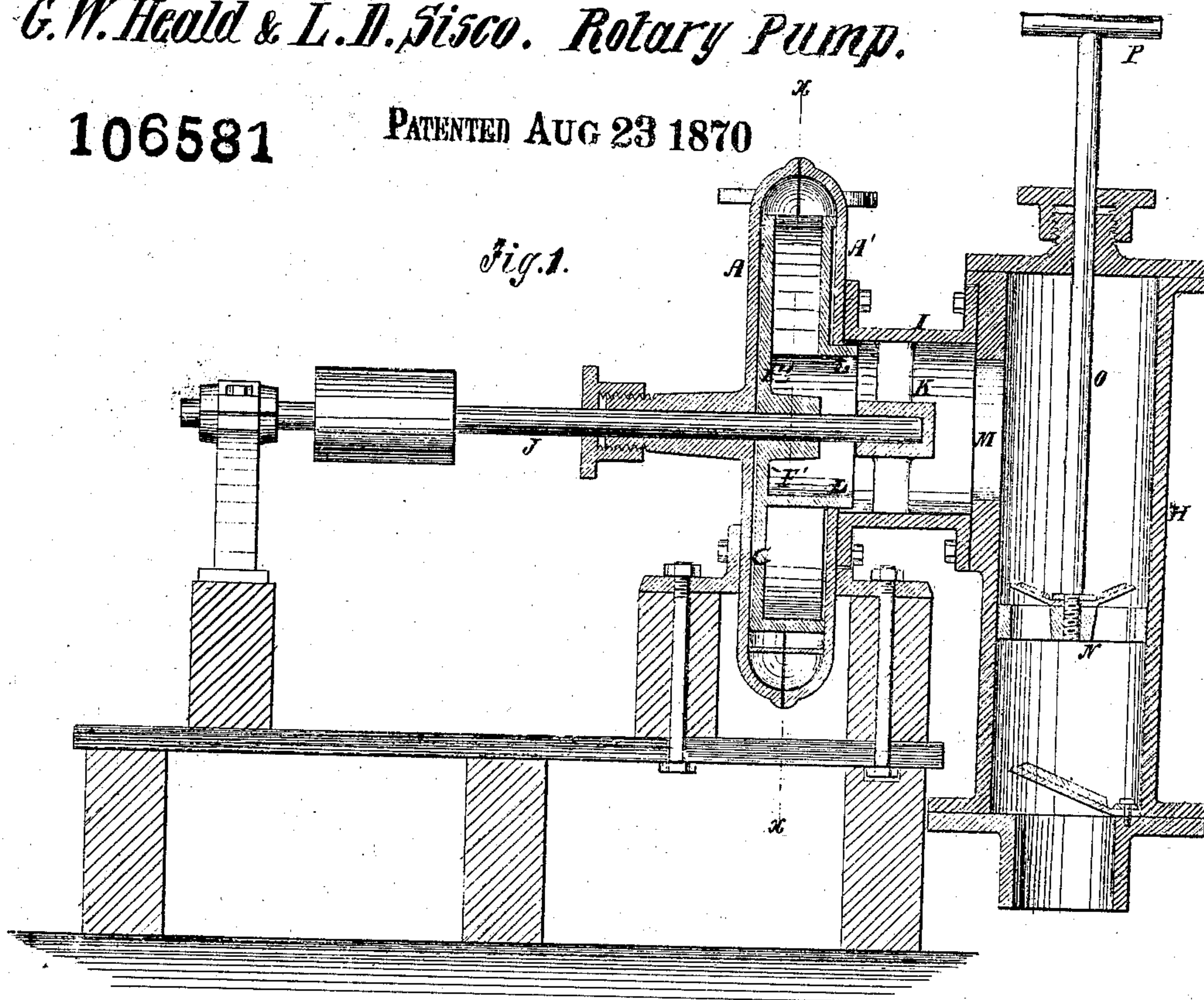


G. W. Heald & L. D. Sisco. Rotary Pump.

106581

PATENTED AUG 23 1870



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UNITED STATES PATENT OFFICE.

GEORGE W. HEALD AND LORENZO D. SISCO, OF BALDWINSVILLE, N. Y.

IMPROVEMENT IN ROTARY PUMPS.

Specification forming part of Letters Patent No. 106,581, dated August 23, 1870.

To all whom it may concern:

Be it known that we, GEORGE W. HEALD and LORENZO D. SISCO, of Baldwinsville, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Rotary Pumps; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to new and useful improvements in rotary pumps, whereby they are made more useful and more durable than they have hitherto been; and it consists in connecting a lifting or suction pump thereto for priming or filling the same; and in one or more abutments or partitions in the water-channel of the scroll-cylinder of the pump for equalizing the side pressure on the piston; and in a curve at the discharge end of the hollow revolving piston-arms; in the manner of connecting the piston-arm to the hub, and also a projecting collar, in combination with the piston, as will be hereinafter more fully described.

In the accompanying sheet of drawings, Figure 1 represents a vertical longitudinal section of a rotary pump provided with the suction-primer and embracing our other improvements. Fig. 2 is a vertical section of Fig. 1 on the line $x x$, showing the revolving piston, the curve in the discharge ends of the hollow arms, the form of the scroll-cylinder, and the position of the abutments therein.

Similar letters of reference indicate corresponding parts.

A A' represent the rotary pump-cylinder. B is the discharge-orifice thereof.

C is the rotating piston-wheel, with three (more or less) hollow curved arms, D, having short curves E at their discharge ends, for giving the water discharged into the curved crescent-shaped water-space F an additional impetus toward the mouth B of the pump.

F' is a web on one side of the piston-wheel, by means of which the hollow arms are connected into the hub. This arrangement leaves the center of the piston-wheel entirely open and unobstructed on one side.

G is an abutment or partition which divides the broader half of the water channel F

into two parts, as seen in the drawings. This partition prevents the side pressure on the piston occasioned by the greater body of water on this side of the pump. There may be more than one of these abutments in the water-space, and they may be arranged therein as may be found to be most effectual to produce the desired result.

H represents the priming-pump. This is a simple lifting-pump, the barrel of which is connected with the inner half, A', of the rotary pump-cylinder by the tubular section I.

J is the shaft of the rotary pump, to which the rotating piston-wheel C is attached. This shaft has its inner bearing on the bridge-tree K, within the section I. The part A' of the cylinder has a broad opening accurately turned out centrally with the shaft, and the central opening of the piston-wheel has a collar, L, the same being formed on the side opposite the web F', which projects from this opening and forms a tight joint, which prevents water entering the cylinder except through the piston-arms M in the opening into the priming-pump. The piston N of this pump is provided with valves, and the lower end of the barrel is also provided with a flap-valve, the arrangement being the same as in the common lifting or suction pump.

More or less difficulty has always been experienced in starting rotary pumps. Water has had to be introduced by hand, a port-valve is required, and a good deal of trouble and delay have been experienced before the rotary pump could be got fairly under way.

By means of the primer H our rotary pump is immediately put in full operation; a stroke or two of the piston N is sufficient for that purpose. This motion is given by hand by means of the rod and handle O P.

It will be seen that the induction-pipe extends from the priming-pump, and that all the water raised and thrown passes through that pump.

By means of the web F' the center of the piston-wheel is left open on the opposite side, as before stated. This mode of attaching the hollow piston-arms allows the water a free and unobstructed passage through the piston.

Letters Patent dated July 25, 1865, were granted to us for improvements in rotary

pumps. It is therefore not deemed necessary to minutely describe the said pump only so far as relates to our present improvements thereon.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. Priming or filling a rotary pump by means of a lifting or suction pump connected therewith, substantially as shown and described.

2. In combination with a rotating piston constructed and operating as above described, the collar L, substantially as and for the purposes specified.

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