(No Model.)

J. R. & L. T. FISHER.

PUMP.

No. 300,702. Patented June 17, 1884.

Fig. 1.

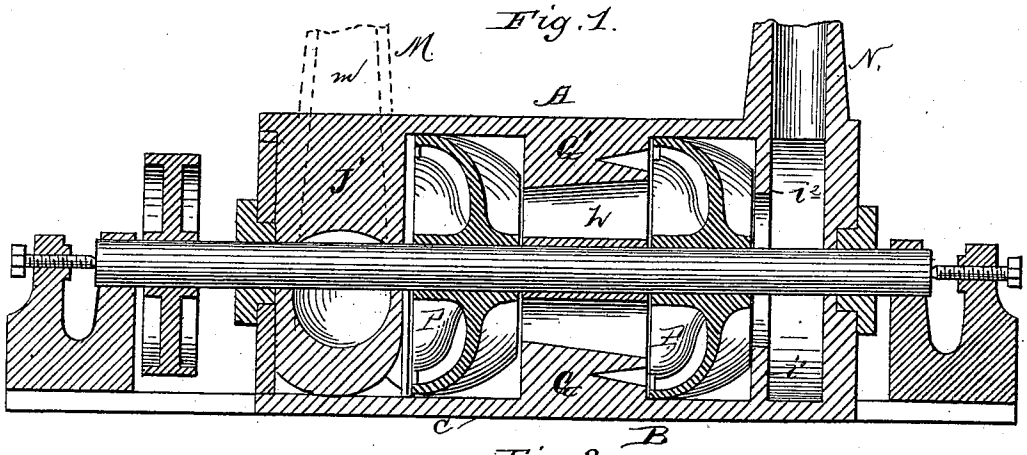


Fig. 2.

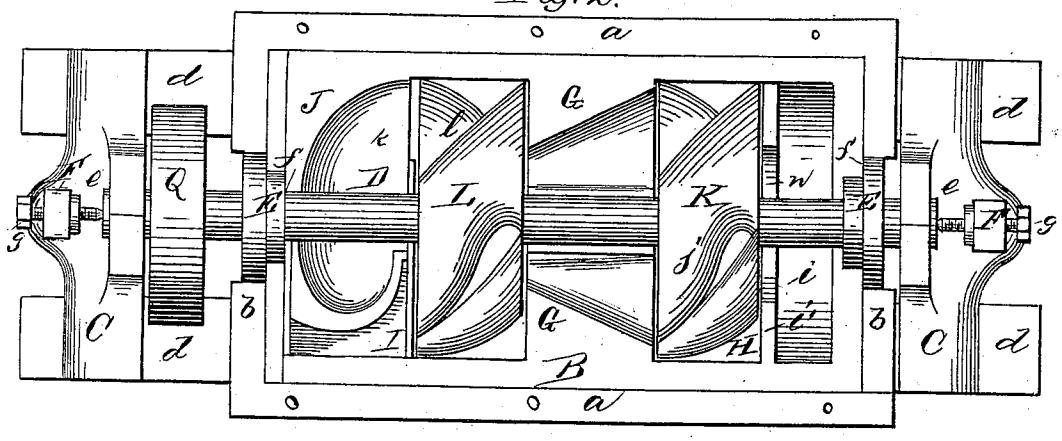
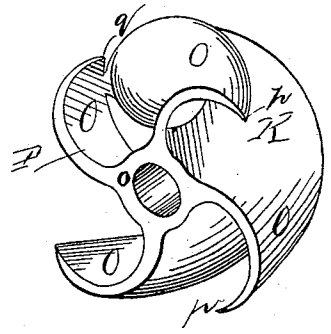


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN R. FISHER AND LEANDER T. FISHER, OF KNOBNOSTER, MISSOURI.

PUMP.

SPECIFICATION forming part of Letters Patent No. 300,702, dated June 17, 1884.

Application filed October 18, 1883. (No model.)

To all whom it may concern:

Be it known that we, JOHN R. FISHER and LEANDER T. FISHER, citizens of the United States of America, residing at Knobnoster, in the county of Johnson and State of Missouri, have invented certain new and useful Improvements in Pumps; and we 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Our invention relates to propeller-pumps; and it consists in the improved construction and combinations of parts hereinafter described, whereby the pumping capacity of this class of machines is greatly improved, and the general structure strengthened and simplified.

In the accompanying drawings, Figure 1 is a longitudinal section of a pump constructed in accordance with our improvements. Fig. 2 is a sectional plan, the propelling-wheels being illustrated complete; and Fig. 3 is a perspective view of one of the propelling-wheels.

The pump-casing consists of two sections—an upper section, A, and a lower section, B. The lower section, B, consists of side portions, *a*, end portions, *b*, and bottom *c*. It is further provided with extensions *d* at each end, parallel with each other, and adapted to support at each end of the lower section, B, a bearing-block, C, supporting one end, *e*, of a shaft, D, which runs longitudinally through the machine, and bears in depressions *f* therefor in the ends *b* of the lower section, B, stuffing-boxes E, resting in recesses therefor in the faces of the ends *b*, rendering water-tight the portion of the lower section at the points where the shaft D pierces the same. Ears F on the bearing-blocks C carry screws *g*, which bear against the ends of the shaft D, and prevent any longitudinal movement of the same, but serve as a means of longitudinally adjusting said shaft when necessary. The interior of the lower section, B, is concave, and contains at or near its center a block, G, which contains a central depression, in which a portion of the shaft D rests, a channel, *h*, formed in the upper face of the block on each side of the depression thereof, being of larger proportion at the rear side of said block, but contracted at the front side thereof. The location of this block G within the chamber of the lower section, B, divides said chamber into two compartments—a rear compartment, H, and a front compartment, I. The rear compartment, H, is by a partition, *i'*, subdivided into two compartments, *i j*, the compartment *j* being the larger. A block, J, located in the forward end of the front compartment, I, contains a recess, *k*, which communicates at one end with a space, *l*, formed between said block J and block G, the said recess then curving up in an incline transverse to the length of the machine, as seen in Fig. 2. Two propeller-wheels, K L, are rigidly mounted on the shaft D, so as to turn therewith, when the same is revolved, and are so arranged thereon that the lower half of the wheel K will rest within the compartment *j*, and the lower half of the wheel L within the space *l*. The upper section, A, is also provided with a concave chamber, which contains a partition, i^2, located immediately above the partition, *i'*, a block, G', immediately above the block G, and channeled to register with the channels in the said lower block, and with a block, J', immediately above the block J, the said block J' being provided with a vertical post, *m*, which communicates with the curved recess of the block J at the upper inclined side thereof, the said vertical opening *m* terminating in a short pipe, M, which projects from the upper side of the upper section, A, of the casing. The partitions *i'* and i^2 are cut away, as seen in Fig. 1, to form conjointly a central aperture, *n*, which establishes communication between the compartments *i j* of the casing. A short pipe, N, located on the top section, A, communicates with the compartment *i*, and is threaded for the attachment of a hose or pipe. Each of the propeller-wheels K L consists of a central hub, *o*, from which radiate a series of curved blades, O, formed with front points, *p*, and with rear points, *q*, each rear point, *q*, being soldered or otherwise joined to the center of the front edge of the blade next adjacent, so as to not only re-enforce the blades of the wheel, but

practically present an obstructing-face against back-current of the water. The spaces between the blades constitute spiral channels P, which, by reason of the curved form of the blades, extend rearward in a downward direction, facilitating the passage of the water in that direction, the current of which receives an increased impetus by reason of the contraction of the channels P at the rear side of the wheel, which occurs at that point.

When the pump is in operation, the shaft D is revolved from any suitable source of power by means of a belt passing around a pulley, Q, located on the shaft D, this revolution of said shaft causing the wheel L to force the water from the inclined recess *k*, which passes thereto through the pipe M, the water thence passing through the channels *h* of the blocks G G′ to the spaces P of the wheel K, through the aperture *n* to the compartment *i*, and thence through the discharge-pipe N. By a reverse movement of the shaft D water may be forced from the compartment *i* through the pipe M. What is more, when the pump is worked so as to constitute the pipe M a discharge-pipe, the curved form of the recess *k* enables water to be forced up to the pipe M with but little friction.

We claim—

1. The combination, in a pump, of a casing provided with two compartments, each containing a propeller consisting of a hub mounted on a horizontal shaft, said hub being provided with a series of radial curved blades, the rear end of one blade being attached or connected to the succeeding blade, substantially in the manner and for the purpose described.

2. The combination, in a pump, of a casing consisting of upper and lower sections, A B, forming conjointly a central chamber containing perforated partitions *i′ i²*, channeled blocks G G′, and recessed and perforated blocks J J′, together with the supply and exhaust passages, and a shaft passing longitudinally through the casing and carrying propeller-wheels, substantially as herein set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN R. FISHER.
LEANDER T. FISHER.

Witnesses:
WM. WAMPLES,
D. W. SPRENKLE.