

No. 665,581.

Patented Jan. 8, 1901.

R. ROE, JR. & T. E. ROE.
ROTARY PUMP.

(Application filed Oct. 20, 1900.)

(No Model.)

Fig. 1.

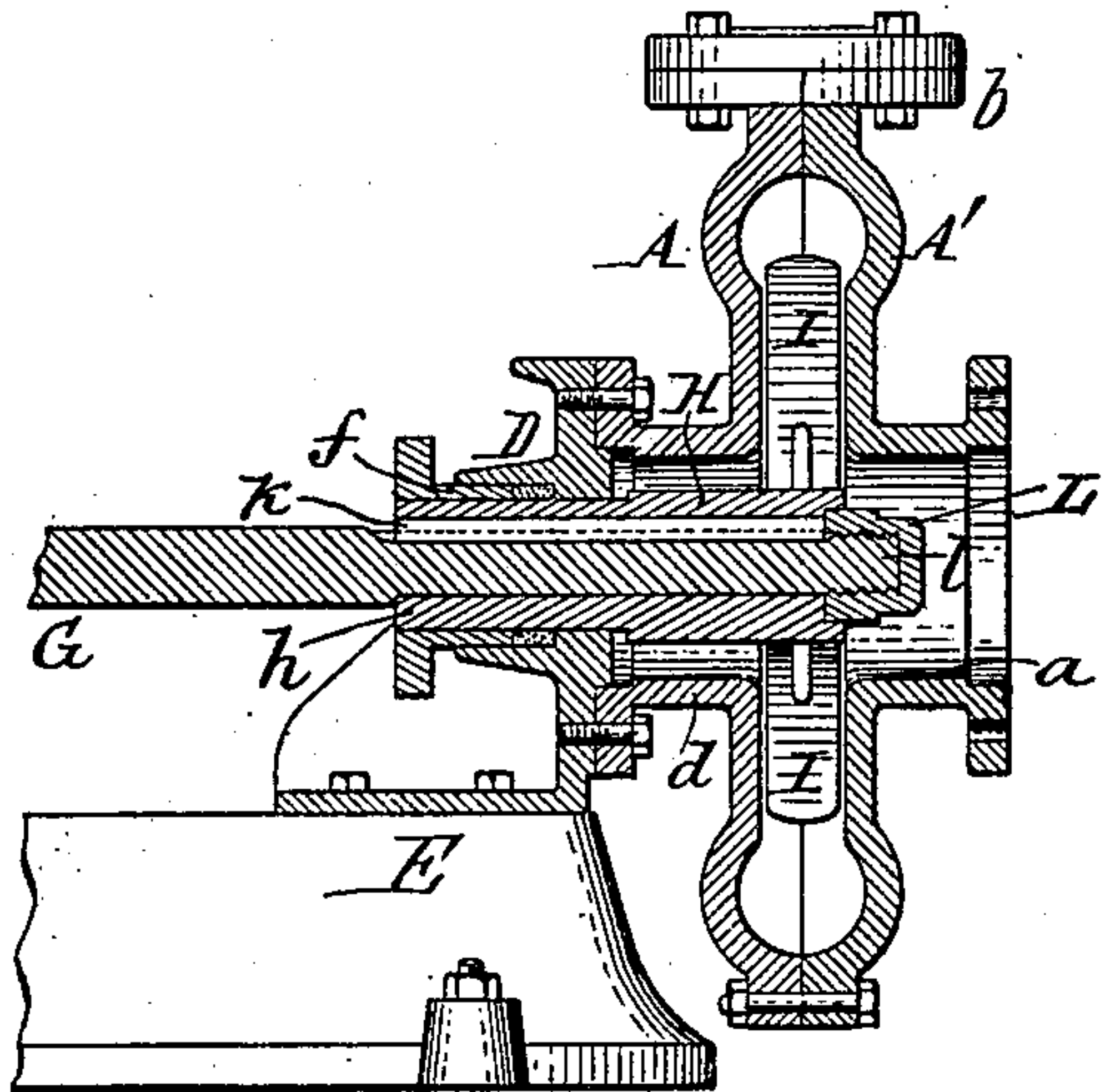


Fig. 2.

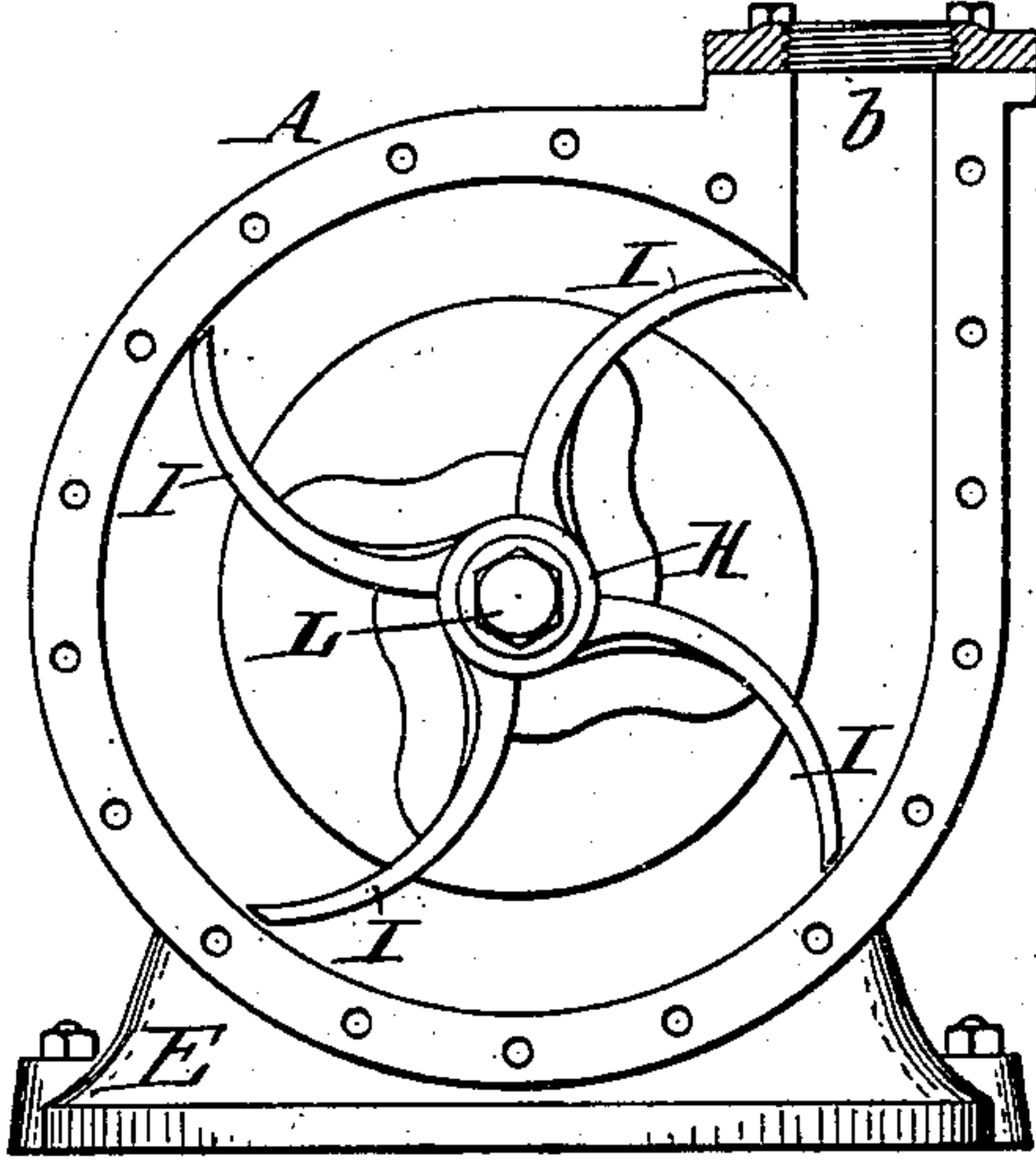
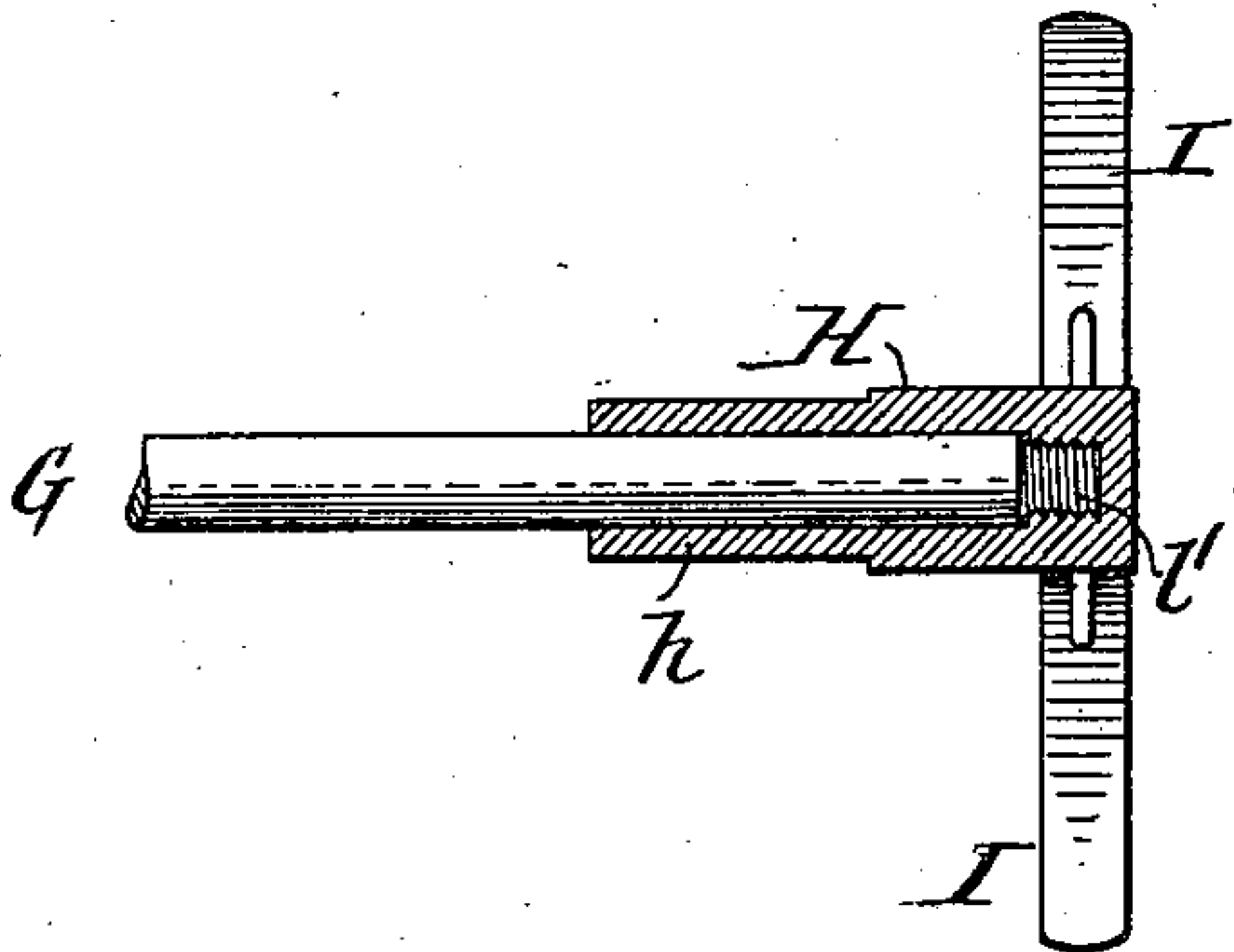


Fig. 3.



Witnesses:

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ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 665,581, dated January 8, 1901.

Application filed October 20, 1900. Serial No. 33,671. (No model.)

To all whom it may concern:

Be it known that we, ROBERT ROE, Jr., and THOMAS E. ROE, citizens of the United States, and residents of Parsons, in the county of Tucker and State of West Virginia, have invented a new and useful Improvement in Rotary Pumps, of which the following is a specification.

In centrifugal pumps the casing, the rotary wings or blades, and the hub to which the latter are secured are usually made of cast-iron or bronze, while the shaft is usually made of steel. When such a pump is used for pumping a liquid which attacks steel, but does not affect cast-iron or bronze injuriously, the steel shaft soon becomes unfit for use and must be renewed, while the cast parts remain serviceable. The bleach liquor used in the manufacture of soda pulp, for instance, is very destructive to steel, but has little, if any, detrimental effect upon cast-iron or bronze, and a pump of this kind, which is used for pumping this liquor quickly, becomes unserviceable by the corrosion of the shaft.

The object of our invention is to protect the steel shaft of such a pump by the cast parts in such manner that the liquid is prevented from coming in contact with the shaft, thereby protecting the shaft against the destructive effect of the liquid.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a centrifugal pump provided with our improvement. Fig. 2 is an end elevation of the pump with the outer part of the casing removed. Fig. 3 is a longitudinal sectional view of the hub which carries the rotary wings and that part of the shaft to which the hub is secured, showing a modified construction of said hub.

Like letters of reference refer to like parts in the several figures.

A A' represent, respectively, the inner and outer parts of the casing of a centrifugal pump.

a is the induction-pipe, which is formed centrally on the outer part A' of the casing, and b the eduction-pipe, which is formed partly on each of the parts A A' and projects upwardly therefrom, as usual.

D is the stuffing-box, which is supported on a bed-frame E and to which the central tubular portion d of the inner part A of the casing is secured. f is the gland of this stuffing-box.

G represents the shaft of the pump, which extends through the stuffing-box into the casing.

H represents the hub, which carries the wings or blades I within the casing. This hub is provided with an outward tubular extension h, which extends into the stuffing-box and is packed by the latter. The extended or elongated hub H h is secured to the shaft G, as shown in Fig. 1, by a key k. The shaft extends from end to end of the elongated hub and is provided with a screw-threaded end piece l, which projects beyond the hub. L represents a screw-cap of cast metal, which is applied to this end piece and which makes a tight joint with the end of the hub. The hub is preferably recessed, as shown, for the reception of this cap, and a suitable packing-washer may be placed between the cap and the hub, if desired. The cap covers the end of the shaft and prevents access of the liquid to the shaft at the inner end of the latter. The elongated hub incloses the shaft within the casing, and as it extends into the stuffing-box the liquid is prevented from reaching the shaft at any point within the casing.

In the modified construction (represented in Fig. 3) the shaft does not extend through the hub, but the latter is closed at its inner end and provided with a screw-threaded socket, by which it is screwed upon the screw-threaded end piece l' of the shaft.

We claim as our invention—

1. The combination with the shaft of a rotary pump and the casing provided with a stuffing-box through which said shaft passes, of a hub which carries the rotary pumping device within said casing and which is adapted to be applied to said shaft from the inner end thereof and provided with means for inclosing the inner end of said shaft, said hub having an outward tubular extension which surrounds said shaft and projects into said stuffing-box, and a fastening device whereby

said hub is detachably secured to said shaft, substantially as set forth.

2. The combination with the shaft of a rotary pump, of a casing having a stuffing-box
5 through which said shaft passes, a hub which carries the rotary pumping device within said casing and which is provided with an outward extension which projects into said stuffing-box, and a protecting-cap arranged at the

inner end of said hub and covering the inner end of said shaft, substantially as set forth.

Witness our hands this 13th day of October, 1900.

ROBERT ROE, JR.
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Witnesses:

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