

No. 630,013.

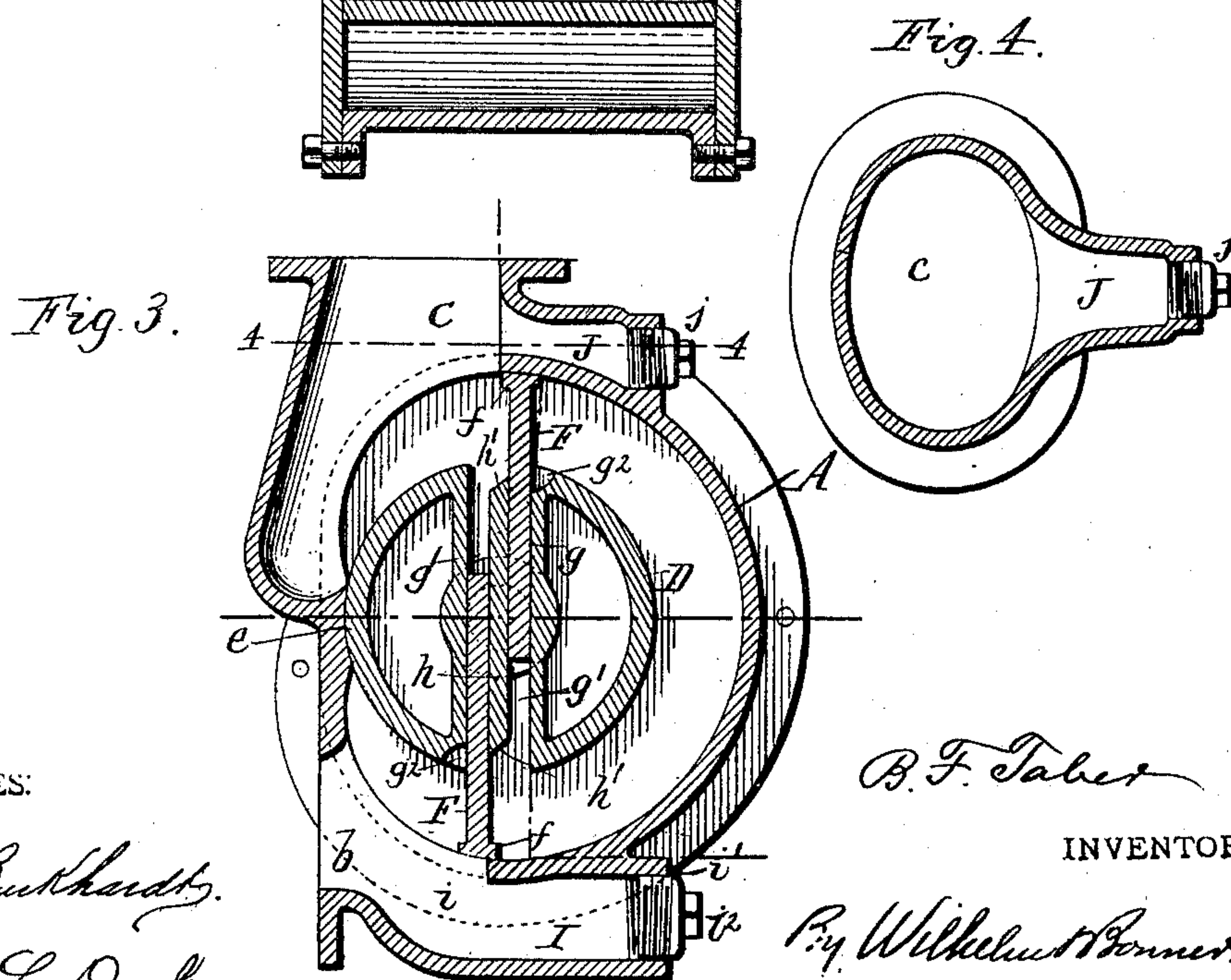
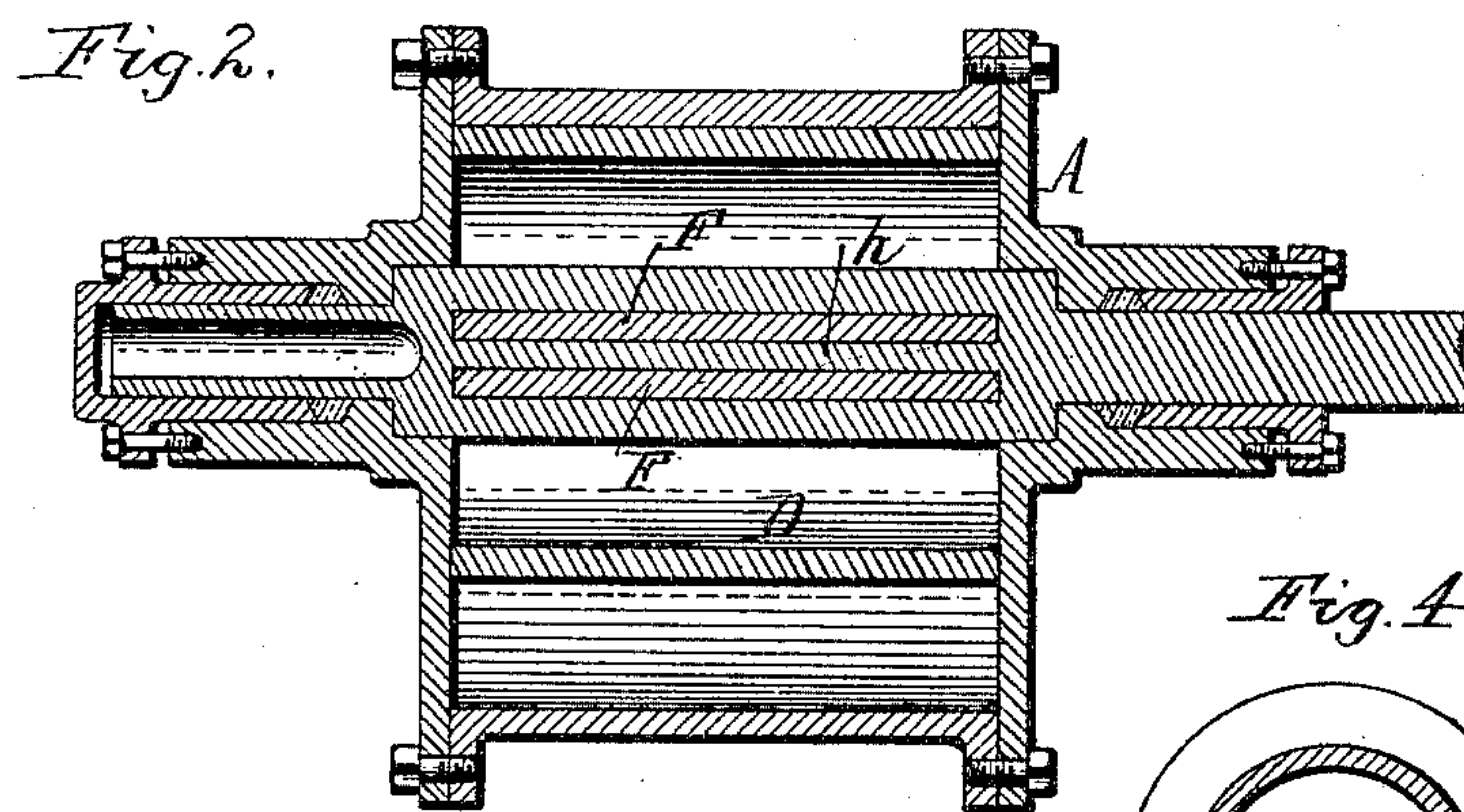
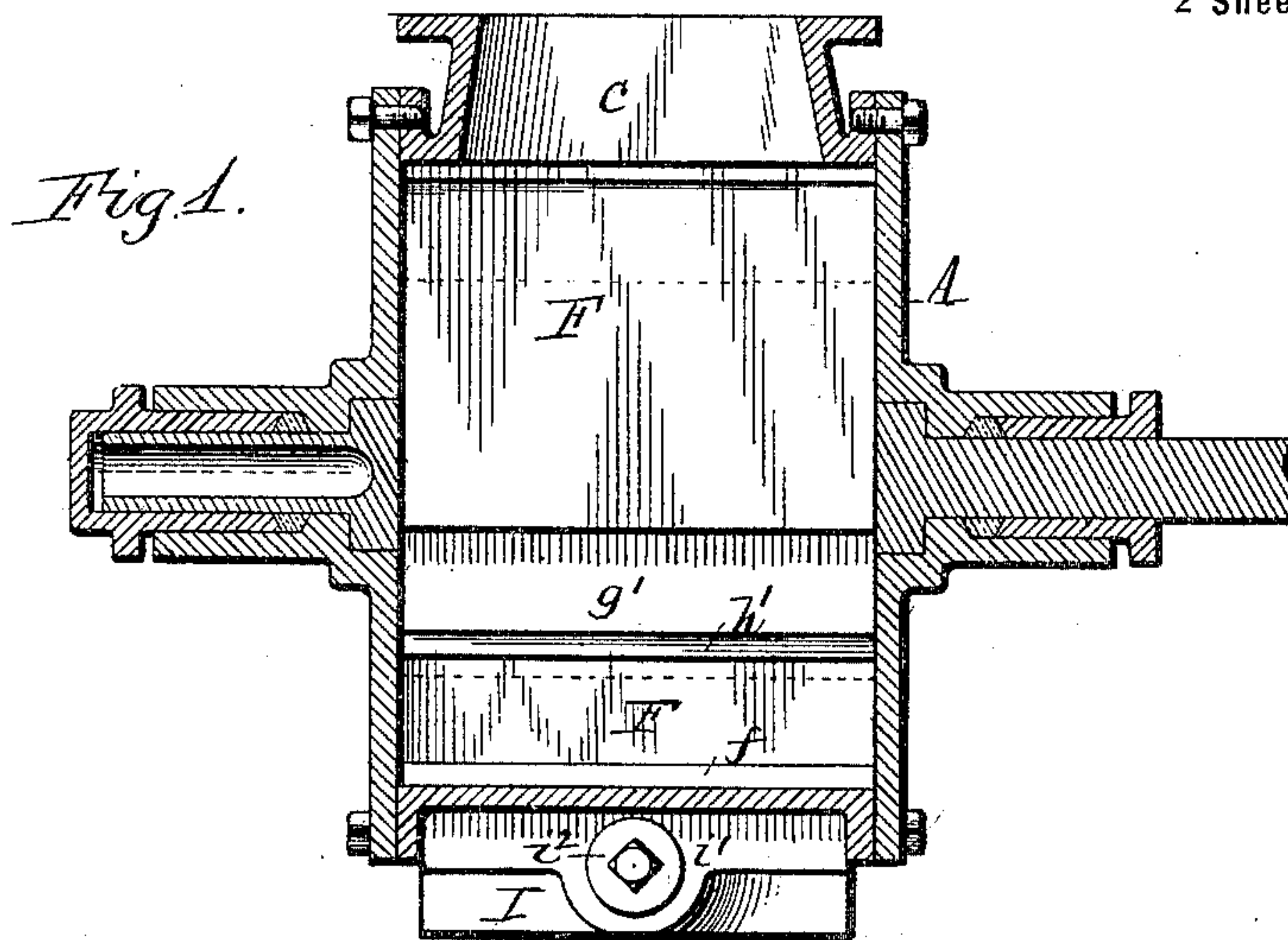
Patented Aug. 1, 1899.

B. F. TABER.
ROTARY PUMP.

(Application filed Sept. 13, 1895.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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B. F. Taber

INVENTOR.

By Wilhelm F. Bonner.

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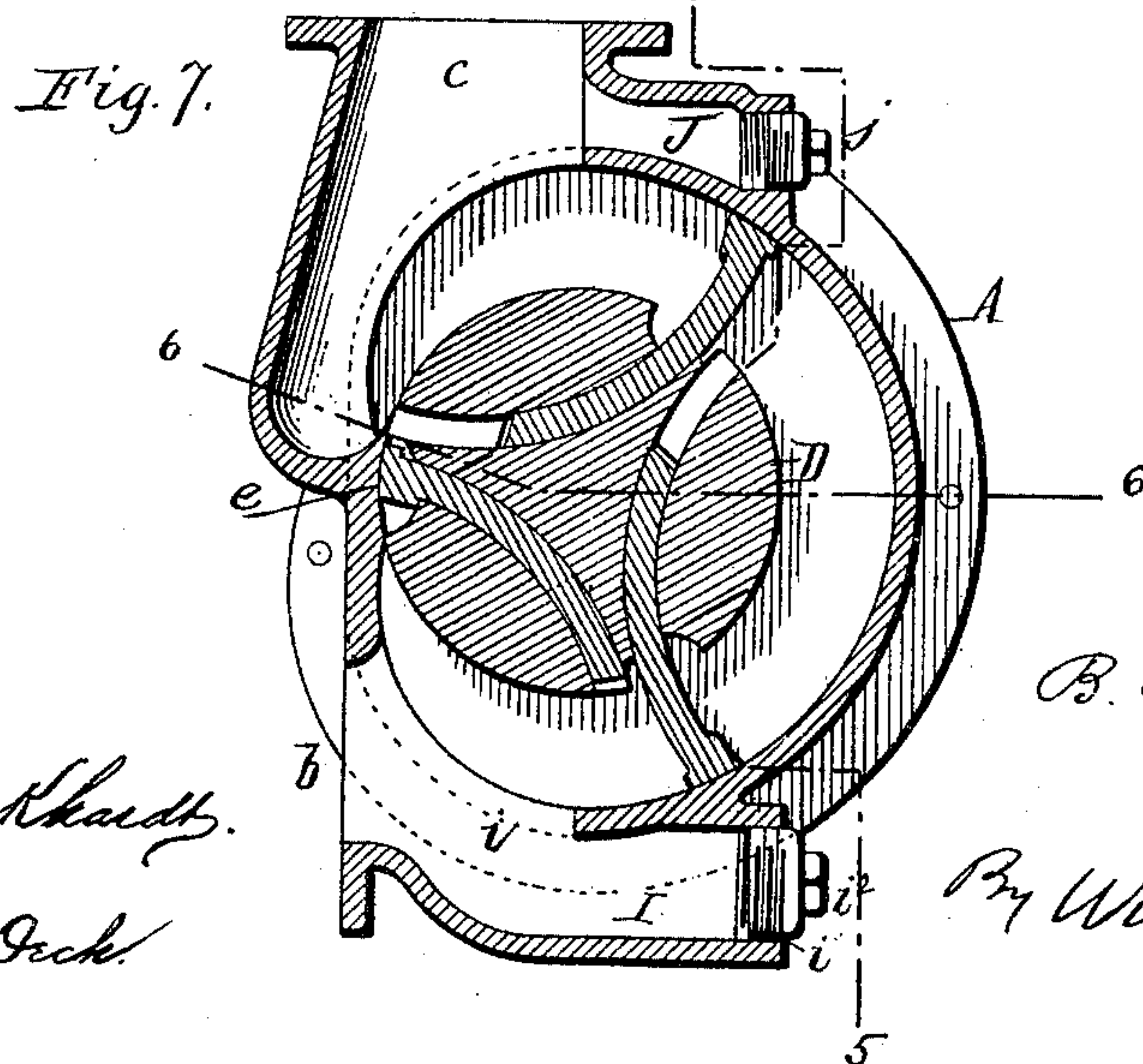
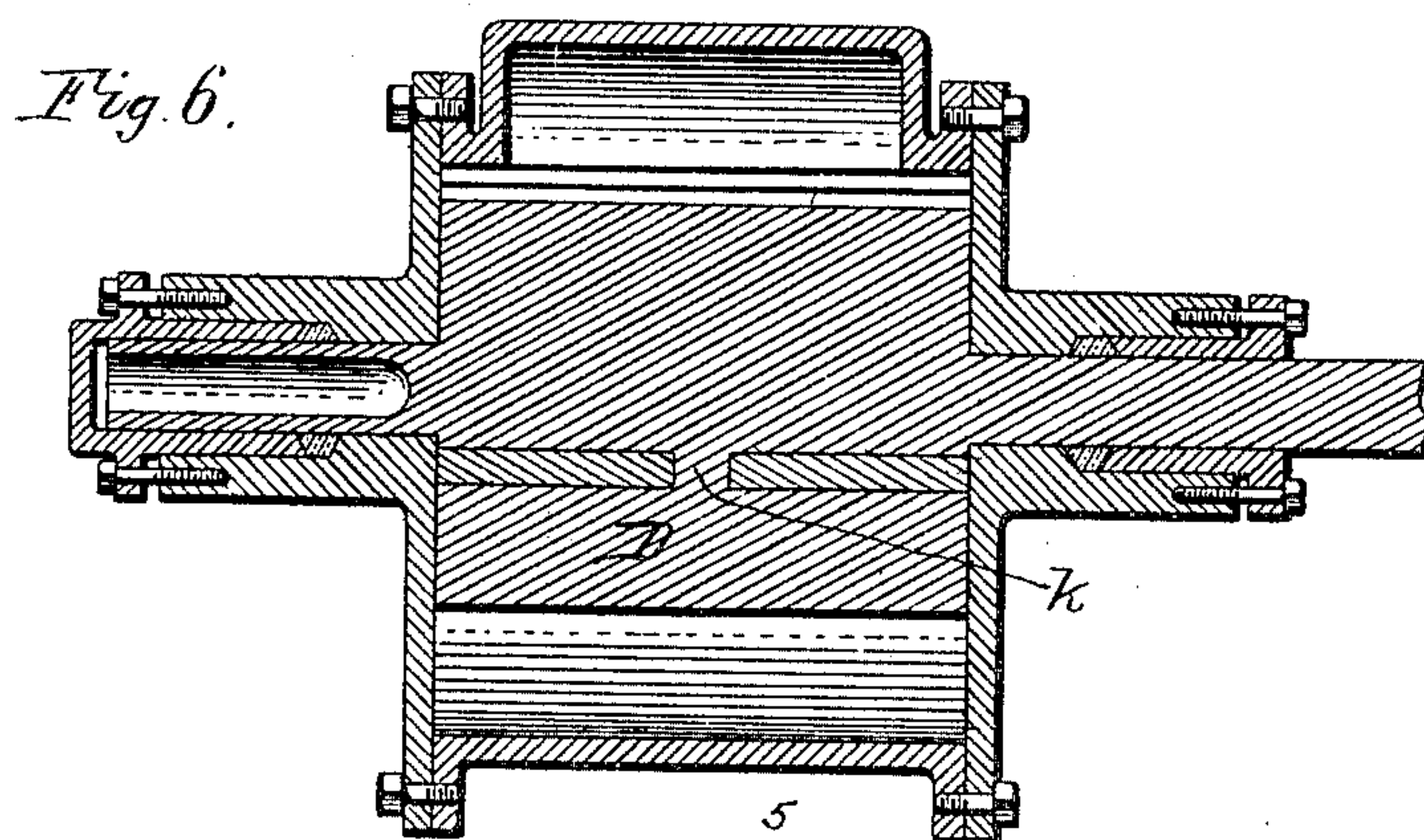
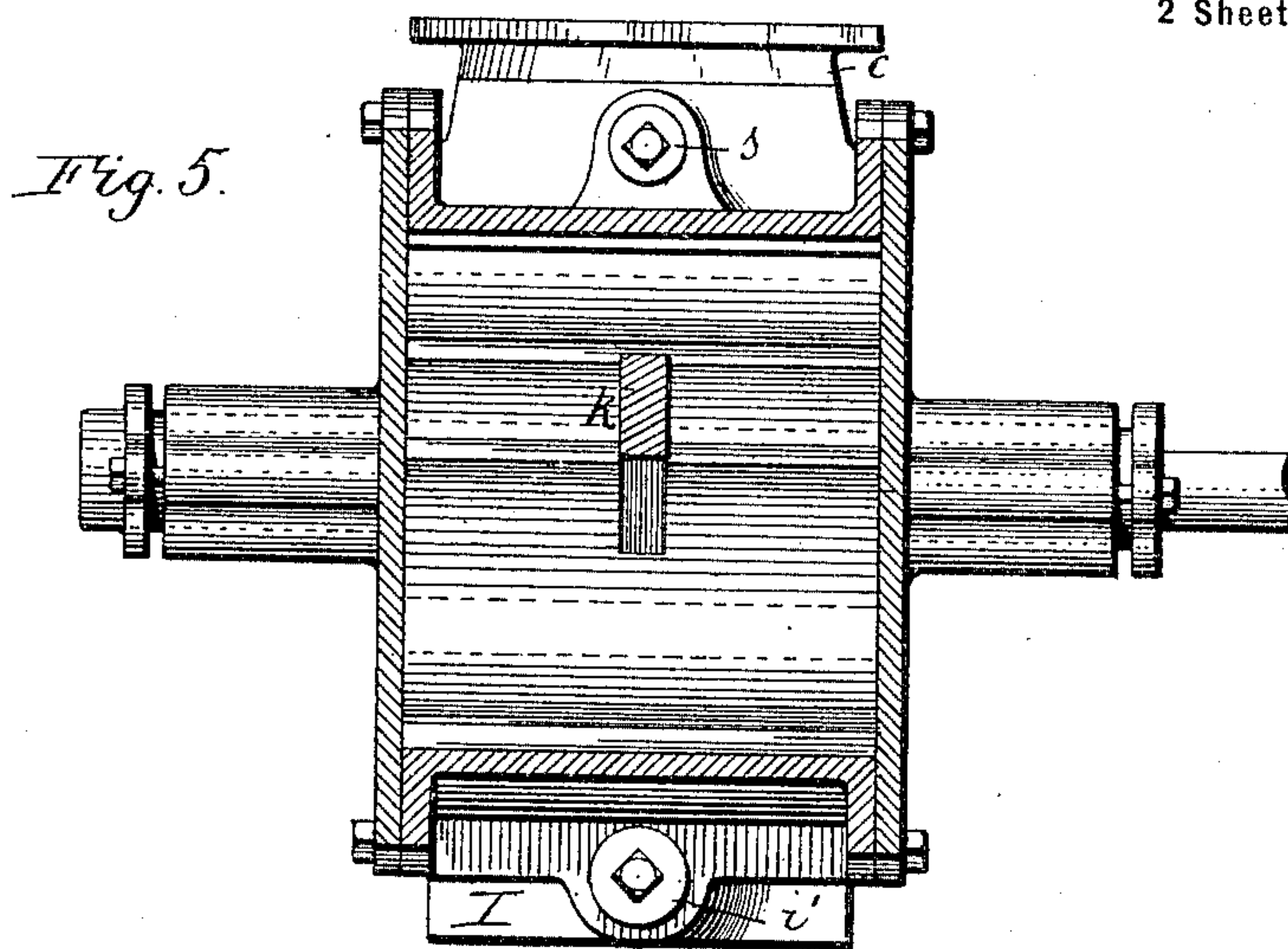
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WITNESSES.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. TABER, OF BUFFALO, NEW YORK, ASSIGNOR TO BRIGHT C. TABER, OF SAME PLACE.

ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 630,013, dated August 1, 1899.

Application filed September 13, 1895. Serial No. 562,378. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. TABER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Rotary Pumps, of which the following is a specification.

This invention relates to that class of rotary pumps which are provided with a rotating cylinder arranged eccentrically in the shell or case and having sliding pistons which revolve with the cylinder. Such pumps are used, among other purposes, for pumping soap-maker's stock, molasses, and similar liquids. These liquids frequently contain hard foreign substances—such as nails, gravel, &c.—which are liable to enter between the cylinder or pistons and the abutment of the case and injure the pump or impair its action.

My invention has for its object to provide the cylinder with simple means for preventing injury to the pump by such hard substances.

In the accompanying drawings, consisting of two sheets, Figure 1 is a longitudinal section of my improved pump. Fig. 2 is a similar view thereof at right angles to Fig. 1. Fig. 3 is a central cross-section of the same. Fig. 4 is a horizontal section in line 4 4, Fig. 3. Fig. 5 is a longitudinal section of a modified construction of the pump in line 5 5, Fig. 7. Fig. 6 is a similar section in line 6 6, Fig. 7. Fig. 7 is a central cross-section of said modified construction.

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

Referring to the construction shown in Figs. 1 to 4, A represents the inclosing shell or case of the pump, having the usual inlet or suction nozzle *b* and outlet or discharge nozzle *c*.

D is the rotary cylinder, arranged eccentrically in the case, and *e* the usual abutment against which the adjacent side of the cylinder bears.

F represents the sliding pistons, which are arranged in slots or ways *g*, formed in the cylinder. In the drawings two pistons are shown, which are arranged on opposite sides of the cylinder and which slide, preferably, in independent parallel slots or ways, which are separated by a longitudinal partition *h*, so as

to avoid grinding of the pistons against each other. Each piston consists of a flat smooth-sided plate provided at its outer edge on its front side with a lip or stop *f*, which limits its inward movement by striking the adjacent edge of the partition *h*, the edges of the latter being located at a sufficient distance inwardly from the periphery of the cylinder to permit the pistons to recede fully into their slots or ways. Each of the slots extends from side to side of the cylinder, so that the unoccupied portion of the slot in rear of the inner edge of the corresponding piston opens into the case and forms a pocket or recess in front of the piston sliding in the other slot, as shown at *g'*, which pockets are adapted to receive nails and other hard foreign substances contained in the liquid. These pockets extend inwardly from the periphery of the cylinder to the inner or rear edges of the pistons, said inner edges forming the bottom of the pockets.

*g*² represents auxiliary pockets for hard foreign substances, arranged in the periphery of the cylinder immediately in rear of the sliding pistons.

I is a chamber or receptacle arranged in the bottom of the pump-case and communicating with the latter by a passage *i*. This chamber receives the nails or other foreign substances from the pockets of the cylinder and is provided with a nozzle or hand-hole *i'*, through which such accumulated substances may be removed from time to time. During the operation of the pump this hand-hole or nozzle is closed by a screw-plug *i*².

The revolving pistons after passing by the abutment *e* move outwardly beyond the periphery of the cylinder, and in passing from the inlet toward the discharge nozzle of the case lift the liquid and expel it from the case in a well-known manner. Any solid foreign substances contained in the liquid, such as a nail, which is too heavy to be discharged with the current of liquid, is carried around the case by one of the extended pistons until it reaches the upper side of the cylinder, when it drops into the pocket *g'* immediately in front of said piston. The nail or other hard substance remains by gravity in the pocket until the piston passes the abutment, when

the increasing inclination of the pocket allows the nail to fall into the pocket or chamber I in the bottom of the case. The hard substances are thus retained in the pockets of the cylinder in the intervals during which the sliding pistons pass by the abutment and all danger of injuring the parts of the pump by the entrance of such substances between the abutment and the pistons or the cylinder is therefore averted.

In order to prevent nails or other hard objects from lodging on the edges of the partition *h*, each of said edges is beveled or inclined toward the adjacent pocket, as shown at *h'* in Fig. 3, to cause the objects to slide into the pockets. In case such objects should, however, lodge on these edges the forwardly-projecting lips of the pistons will crowd the same into the pockets upon the inward stroke of the pistons, the beveled edges of the partition compelling the dislodgment of the hard substances under the pressure of the receding piston-lip without causing injury to the piston and cylinder.

When the outer edges of the pistons become worn, small nails or other hard substances are liable to pass between the pistons and the surrounding casing, and in order to catch such substances the cylinder is provided with the auxiliary pockets *g*², which latter receive the substances and deposit the same into the chamber I.

If desired, my improvements may be applied to a pump having curved or segmental pistons, as shown in Figs. 5, 6, and 7, as well as to a pump having straight or flat pistons. In that case the guideways of the pistons are correspondingly curved, as shown in Fig. 7, and are arranged equidistant, three ways and pistons being shown in the drawings. The rear ends of the ways open into the case, as in the first-described construction, and the curved pistons are slotted or bifurcated transversely, as shown in Fig. 6, to clear the webs *k* of the cylinder.

The open slots or ways *g* of the pistons permit the pressure of the column of discharging liquid to be exerted against the backs or inner edges of the pistons, thereby forcing the latter outward against the surrounding wall of the case and rendering their action more reliable than is the case when their outward movement depends on gravity alone.

J is a flushing passage or nozzle which communicates, preferably, with the top of the pump-case and through which steam may be delivered into and through the case for cleaning the pump in the event of its becoming

clogged, which is liable to occur in pumping soap-maker's stock or similar thick liquid. The outer end of this flushing-passage is normally closed by a screw-plug *j*, and in flushing the pump the plugs of said passage and the nail-collecting receptacle I are removed, so that the dislodged substances are blown off through the receptacle I.

I claim as my invention—

1. The combination with the inclosing case, of the rotary cylinder provided with sliding pistons and pockets for the reception of foreign substances arranged in the cylinder adjacent to said pistons, substantially as set forth.

2. The combination with the inclosing case, of the rotary cylinder provided with guide slots or ways, extending from side to side of the cylinder, and sliding pistons arranged in said slots, the open rear portion of each of said slots forming a pocket adjacent to the piston sliding in the other slot, substantially as set forth.

3. The combination with the inclosing case, of the rotary cylinder provided with guide slots or ways extending from side to side of the cylinder and separated by a partition having beveled edges, and sliding pistons arranged in said slots, the open rear portion of each of said slots forming a pocket adjacent to the piston sliding in the other slot, substantially as set forth.

4. The combination with the inclosing case, of the rotary cylinder having guide slots or ways extending from side to side of the cylinder and separated by a partition having beveled edges, and pistons sliding in said slots and provided with lips or stops adapted to strike against said beveled edges, substantially as set forth.

5. The combination with the inclosing case, of the rotary cylinder provided with sliding pistons, and pockets for the reception of foreign substances arranged in the periphery of the cylinder on the front and rear sides of the pistons, substantially as set forth.

6. The combination with the inclosing case, provided in its bottom with a receptacle having a hand-hole, of a rotary cylinder provided with sliding pistons, and peripheral pockets arranged adjacent to said pistons, substantially as set forth.

Witness my hand this 29th day of August, 1895.

BENJAMIN F. TABER.

Witnesses:

JNO. J. BONNER,
KATHRYN ELMORE.