

3 Sheets—Sheet 1.

No. 394,087.

Patented Dec. 4, 1888.

Fig. 2.

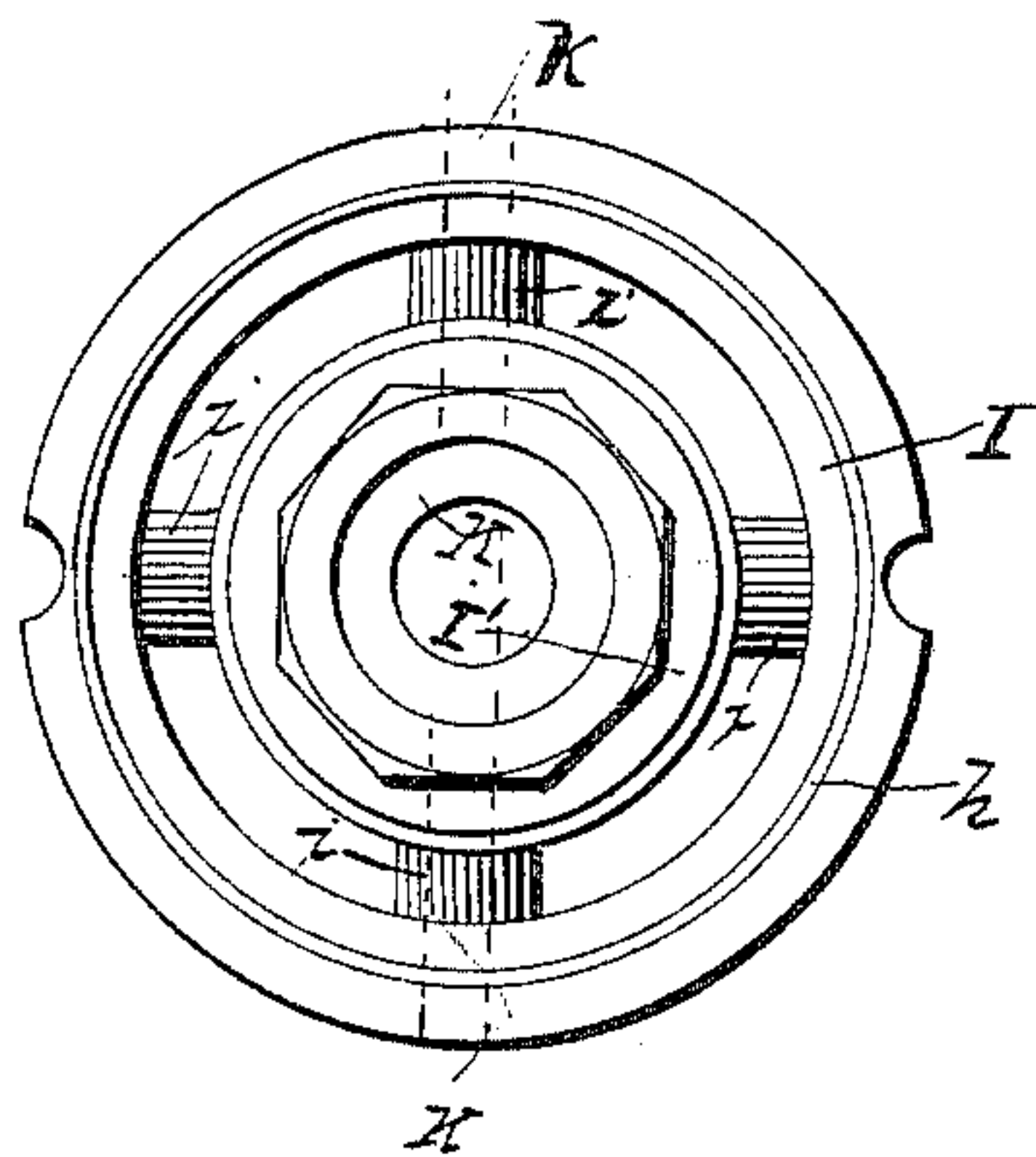
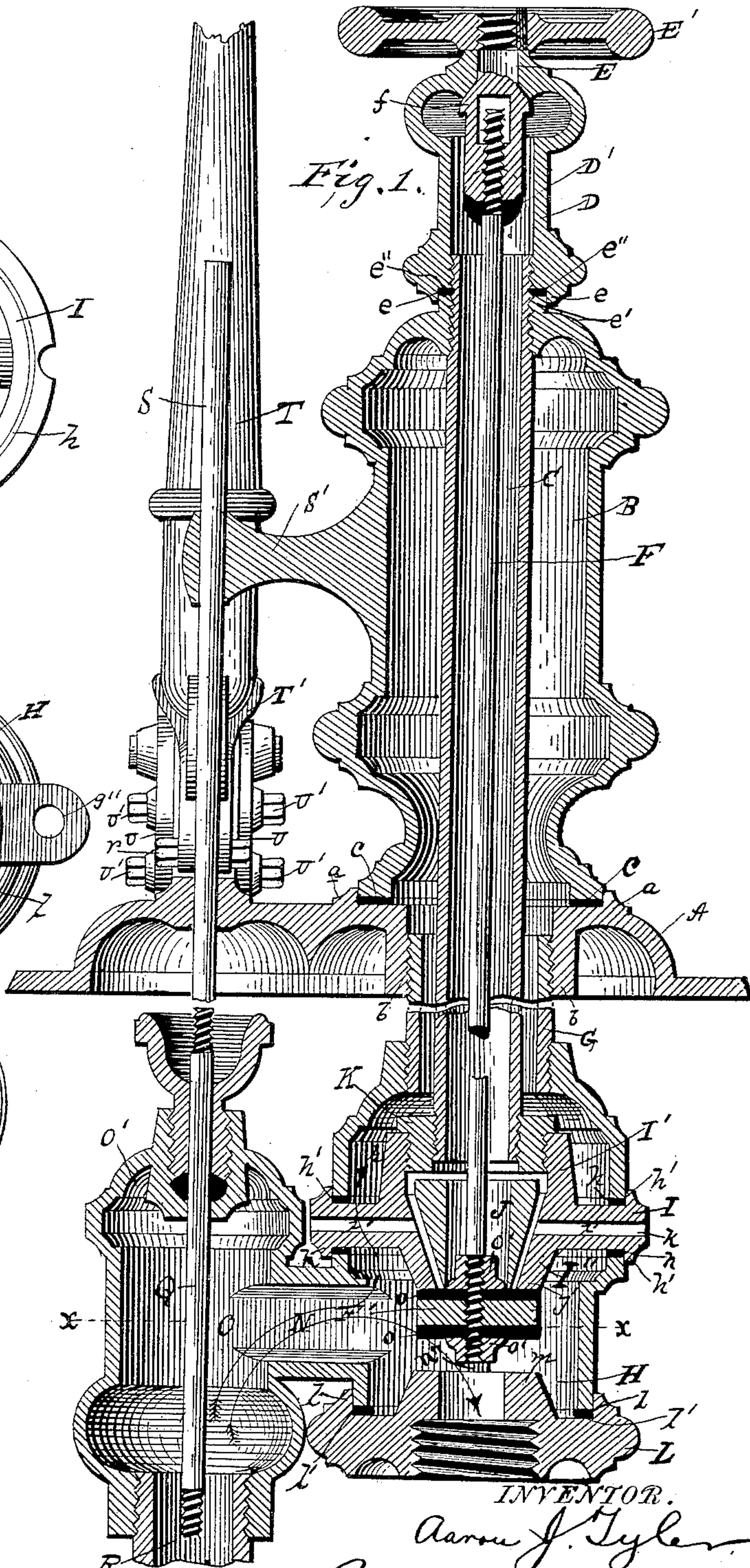
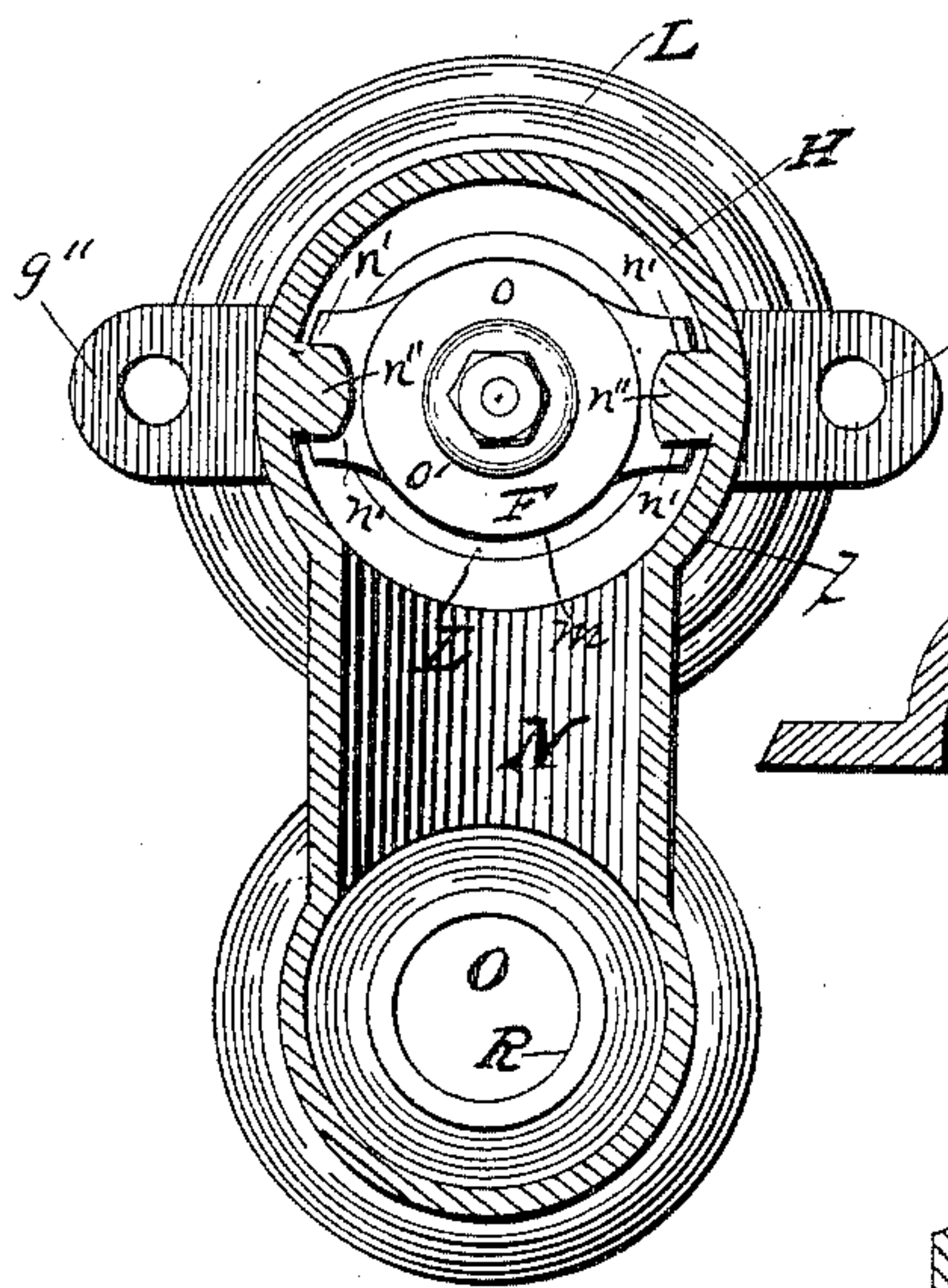


Fig. 3.



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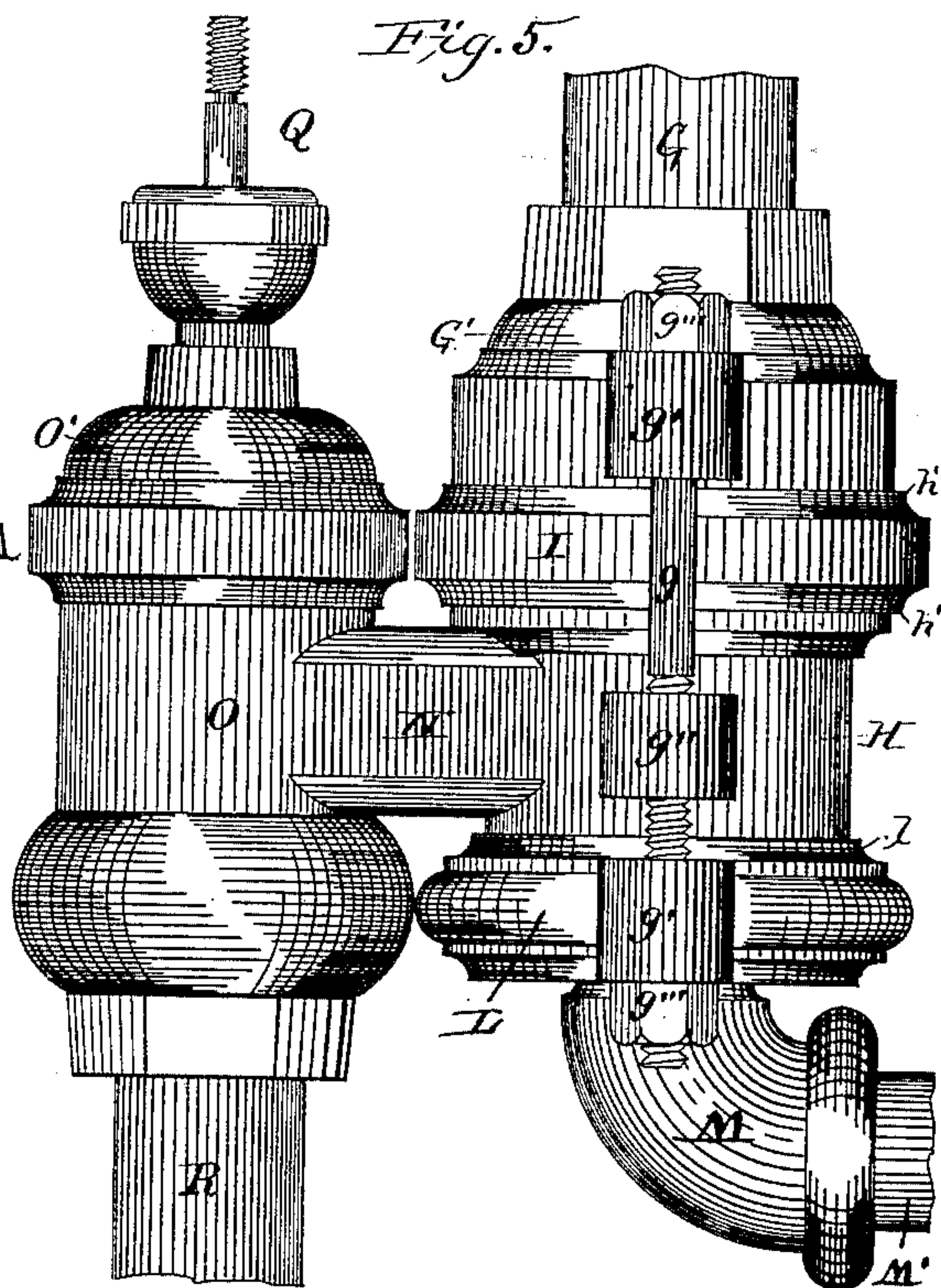
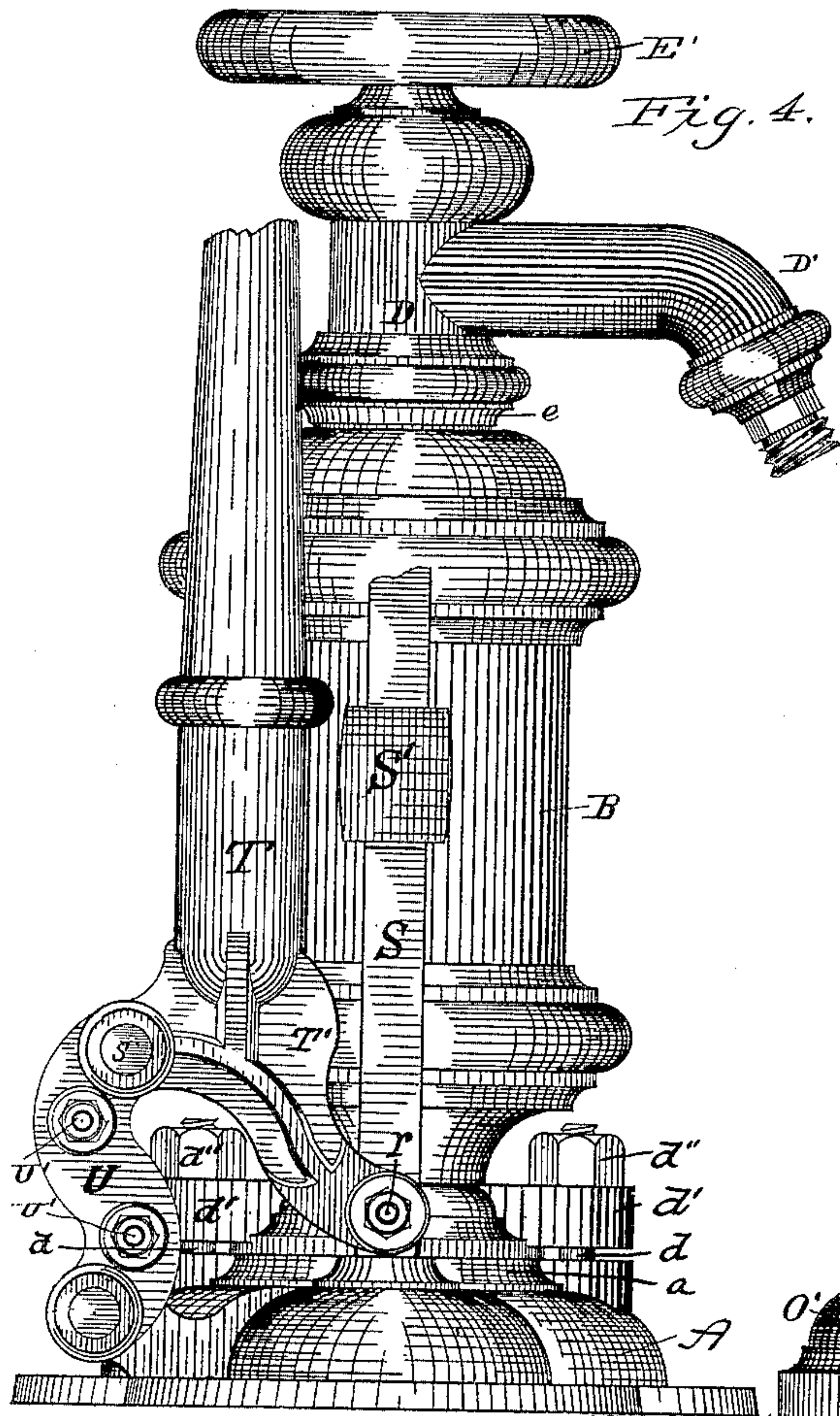
(No Model.)

3 Sheets—Sheet 2.

A. J. TYLER.
ATTACHMENT FOR PUMPS.

No. 394,087.

Patented Dec. 4, 1888.



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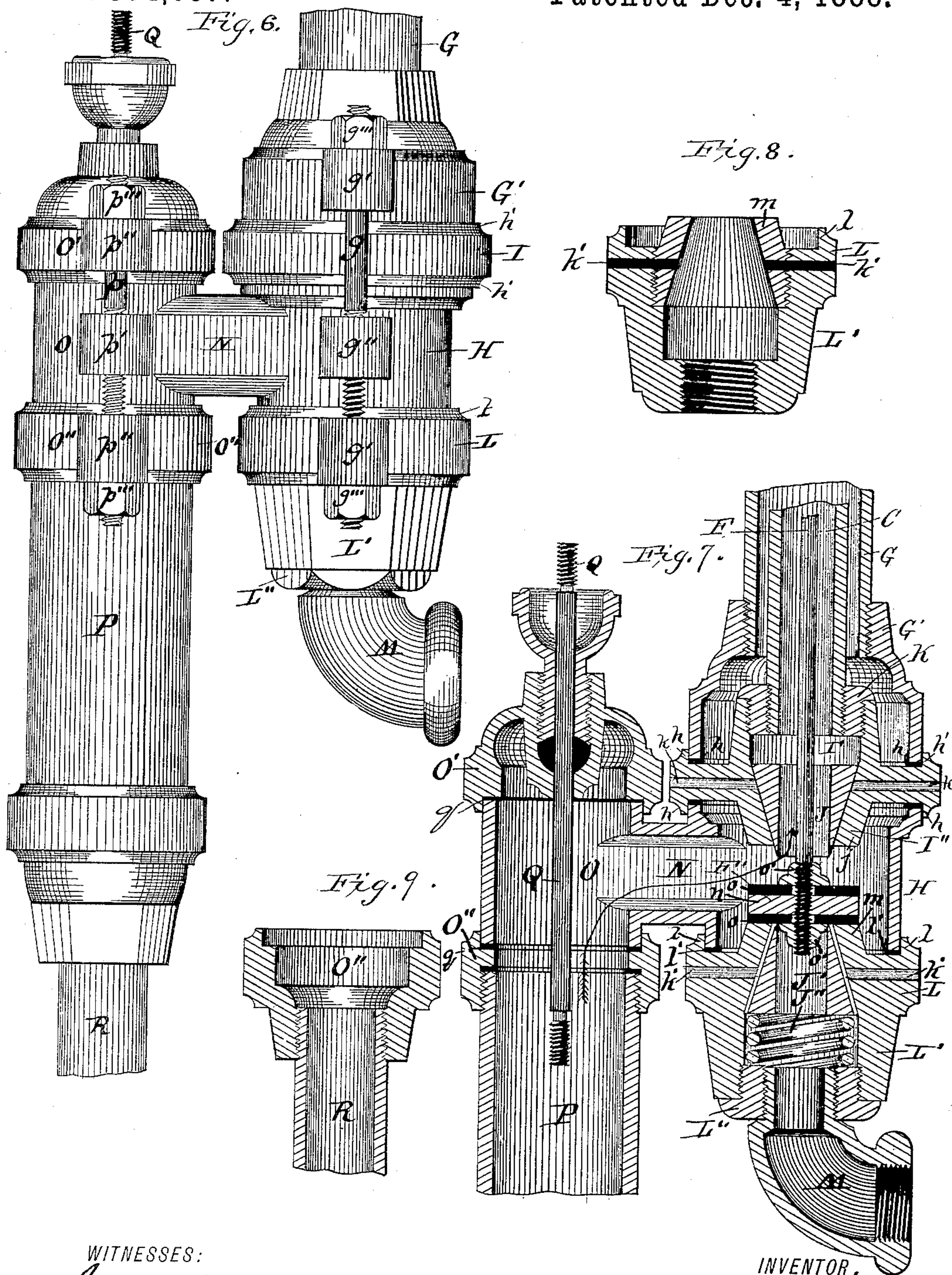
(No Model.)

3 Sheets—Sheet 3.

A. J. TYLER.
ATTACHMENT FOR PUMPS.

No. 394,087.

Patented Dec. 4, 1888.



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ATTACHMENT FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 394,087, dated December 4, 1888.

Application filed May 14, 1888. Serial No. 273,888. (No model.)

To all whom it may concern:

Be it known that I, AARON J. TYLER, a citizen of the United States, residing at Albion, in the county of Orleans and State of New York, have invented certain new and useful Improvements in Attachments for Pumps, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

10 Figure 1 represents a vertical sectional view of my improved attachment for pumps; Fig. 2, a detail plan view of a ring for supporting the upper waste-valve; Fig. 3, a horizontal sectional view taken on the line *x x* of
15 Fig. 1; Fig. 4, a side elevation of the upper portion of the attachment; Fig. 5, a side elevation of valve-chamber and connection with the water-chamber of pump; Fig. 6, a side elevation of valve-chamber, pump-cylinder, and water-chamber, showing the method of detachably connecting these parts together;
20 Fig. 7, a vertical sectional view of the parts shown in Fig. 9; Fig. 8, a vertical sectional view of the lower head of the valve-cylinder and lower valve-seat detached, and Fig 9 a sectional view of a pipe adapted to be attached to the water-chamber O instead of pump-cylinder, shown in Figs. 9 and 10.

This invention has relation to certain new and useful improvements in hydrant attachments to pumps, and it is particularly designed for attachment to that class of pumps known as "windmill-pumps," although it may be attached to other varieties, as will
35 hereinafter appear.

The object of the invention is, essentially, to provide improved and efficient means for directing and conducting the water (as it is pumped up from the well or comes from the
40 water-main) either up directly to the spout or out through a lateral pipe-connection, as may be desired; to provide the attachment with efficient automatically-closing waste-valves, whereby the waste water remaining
45 in the stand-pipe and in the lateral connections may be permitted to run off when their respective valve-openings are closed, so as to prevent the water from remaining and freezing in the pipes, and thus crippling the device, and to provide means for utilizing the
50 attachment and connected tubing as an air-

chamber, as will be more fully hereinafter set forth.

The invention also has other minor objects in view, which will be fully explained in the 55 course of this specification.

These objects I accomplish by the means illustrated in the accompanying drawings, in which the letter A designates the base of the attachment, this base being of any suitable 60 shape and configuration and provided with a circular flange, *a*, on its upper side, and on its lower side with a tubular internally-screw-threaded extension, *b*, surrounding the opening in the base. 65

Inserted in the flange *a* and adapted to fit snugly therein is the lower end of the air-chamber or casing B, a packing, *c*, being interposed between the lower end of the chamber and the base A to insure an air-tight 70 joint. The chamber is detachably connected to the base by means of bolts *d*, which pass through perforated ears *d'* on the air-chamber, and are provided with nuts *d''* on their upper ends. 75

Passing up centrally through the air-chamber B, and screwed into a screw-threaded opening in the top of the same, is the stand-pipe C, the upper screw-threaded end of which projects a little above the top of the 80 air-chamber.

Screwed on the projecting end of the stand-pipe is the water-chamber D, provided with a circular flange, *e*, on its lower side, which embraces a circular enlargement or projection, *e'*, 85 on the top of the air-chamber, a packing-ring, *e''*, being interposed between the bottom of the water-chamber and the top of air-chamber to insure an air-tight connection. This water-chamber is provided with the usual spout, D'. 90

Journaled centrally in the head of the water-chamber is a spindle, E, provided with an operating hand-wheel, E', the said spindle being also provided with an inverted conical enlargement, *f*, adapted to fit closely a conical 95 seat in the under side of the head of the water-chamber.

Screwed into a screw-threaded axial opening in the lower end of the spindle is the externally-screw-threaded upper end of the 100 valve-rod F, this rod being provided at its lower end with a double-seated valve, F'.

When the spindle is rotated, the valve-rod will move up or down, according to which way the spindle is turned, as is evident. When the valve F' is pressed against its lower seat and the water is allowed to flow up through the stand-pipe to the spout, the upward pressure on the valve-rod will press the conical enlargement *f* closely into its conical seat in the head of the air-chamber, and thereby prevent the water from leaking out around the spindle.

The letter G designates a depending tube, of suitable length, screwed into the tubular extension *b* of the base, this tube having in turn screwed to its lower end a cap, G'.

Attached to the cap G' by means of vertical screw-threaded bolts *g* is the valve cylinder or chamber H, a removable metallic ring, I, being clamped between the upper end of the same and the lower end of the cap G', packing-rings *h h* being interposed between the parts to insure a tight joint. This ring I is preferably provided with circular flanges *h' h'*, which embrace closely the respective ends of the cap G' and cylinder H. Supported centrally within the ring I by means of integral radial arms *i* is a short tube, I', internally screw-threaded at its upper end and having its lower portion, I'', contracted, forming a hollow cone, the lower end of this cone forming a valve-seat, *j*, against which the valve F' is adapted to close. The ring I, the radial arms *i*, and the tube I' are all preferably constructed in a single piece, as shown.

Inserted in the tube I' and adapted to fit the hollow cone I'' is the hollow conical waste-valve J, the lower tapering end of which projects normally a little below the valve-seat *j*, as shown in Fig. 7. This valve J, when in its normal position, is adapted to close the lateral waste-apertures *k*, extending from the interior of the tube I' to the exterior of the ring I, passing through the radial arms *i*, and when it is raised, as shown in Fig. 1, by the valve F', these openings *k* are opened, permitting any water that may be in the stand-pipe to run off back into the well.

By connecting the ring I to the tube I' by means of arms it will be observed that the water will be permitted to pass freely up into the cap G' and pipe G, compressing the confined air therein and in the chamber B above, thus utilizing both the tube G and the chamber B as air-chambers, thereby causing the outflowing water to flow in a steady continuous stream, as is evident. The lower screw-threaded end of the stand-pipe C is screwed into a removable bushing, K, screwed into the upper end of the tube I'. It is evident, however, that any other means may be employed for connecting the stand-pipe to the tube I' without departing from my invention. For instance, a screw-threaded cap may be employed.

Secured over the lower open end of the valve-cylinder, by means of the aforesaid bolts *g*, is a lower head, L, provided with a circular flange, *l*, which embraces the said cylinders, a pack-

ing-ring, *l'*, being interposed between the end of the cylinder and the head. This head L is provided with a raised central valve-seat, *m*, which surrounds the central inlet-opening in the head, this valve-seat *m* being a short distance below and coincident with the upper valve-seat, *j*, so that when the valve F' leaves one seat it will immediately close on the other.

The vertical bolts *g* are screw-threaded at both ends (the lower screw-threads extending about midway their length) and are passed loosely through the perforated ears *g'* on the cap G' and lower head, L, and are tapped into ears *g''* on opposite sides of the intermediate cylinder, H, tightening-nuts *g'''* being applied on the screw-threaded ends of the said bolts to bind all the parts together. By this arrangement it is evident that all the parts may be detached at will by simply removing the nuts *g'''*. The particular advantage of this method of securing the parts together is that the cap G' and the ring I may be removed without disturbing or removing any of the lower parts of the pump in the least; also that the lower head may be removed independently of the cylinder and upper parts of the pump by simply unscrewing the nuts *g'''*.

The head L, as shown in Figs. 6 and 7, is provided with a tubular extension, L', interiorly screw-threaded for the reception of a screw-threaded bushing, L'', and into this bushing is screwed the elbow M of a lateral conducting-pipe, M', shown in Fig. 5, this pipe being extended off to any point of deposit desired, such as a watering-trough, tubs, tanks, &c.

In the head L is placed an inverted hollow conical waste-valve, J', similar in form to the upper waste-valve, J, this waste-valve J' being held normally upward against its conical seat in the head, preferably by means of a spiral spring, J''. This lower waste-valve extends normally a little above the lower valve-seat *m*, and normally closes the lateral waste-apertures *k'*, extending from the interior to the exterior of the head L, as shown in Fig. 7. When the main valve F' is closed on its lower seat, *m*, the lower waste-valve, J', will be automatically opened, permitting any water that may be in the vertical portion of the pipe M' to run off through the waste-outlets *k'* back into the well, thus avoiding danger from the water freezing in the pipes. In case this lower waste-valve is not desired or needed, I simply form the head L with a central screw-threaded opening for the attachment of the elbow M direct, as shown in Figs. 1 and 5.

In Fig. 8, which shows a detail view of the lower head, L, I show that I may do away with the bushing L'', the elbow being screwed directly to the tubular extension L'; also that the lower valve-seat, *m*, (the interior of which serves as a seat for the lower waste-valve) may be made separate and screwed into the head L instead of forming it integral therewith, as shown in the other figures.

The valve F' may be of any suitable con-

struction; but in this instance I have shown it constructed of a metal disk, *n*, provided with lateral ears *n'*, which embrace ways *n''*, formed on the interior of the cylinder, and serve to
5 guide and steady the valve in its vertical movements.

The disk or plate *n* is screwed on the lower screw-threaded end of the valve-rod, and has secured on its upper and lower faces leather
10 disks *o*, which bear against their respective valve-seats, nuts *o' o'* being placed on the screw-threaded portion of the valve-rod to hold these leather disks in place.

Preferably formed integral with the valve-chamber *H*, and communicating therewith by a lateral passage, *N*, is a water-chamber, *O*, upon the upper end of which is secured the flanged cap *O'* by means of bolts *p*, a packing-ring, *q*, being interposed between the con-
20 tacting parts to insure a close joint.

Bolted to the lower end of the water-chamber, by means of the above-mentioned bolts *p*, is a flanged ring, *O''*, another packing-ring, *q*, being interposed between this ring and the
25 lower end of the pump-cylinder. Screwed into this ring or formed integral with it is the upper end of an ordinary pump-cylinder, *P*, and passing through a suitable oil-cup and stuffing-box in the cap *O'* is the plunger-rod
30 *Q*, the plunger itself not being shown. The securing-bolts *p* are screw-threaded, like the bolts *g*, and are tapped into screw-threaded lugs *p'*, formed on the chamber *O*, and pass through the perforated ears *p''*, formed, re-
35 spectively, on the cap *O'* and ring *O''*, nuts *p'''* being provided for binding all the parts together. The object in thus securing the cap and ring to the chamber *O* is to enable them to be removed from the chamber inde-
40 pendently of each other, it being evident that all that is necessary to remove either of these parts is to unscrew either of the nuts *p'''*.

When the cylinder *P* of the pump requires to be located down farther in the well, the
45 supply-pipe *R* of the pump is screwed directly into the lower end of the water-chamber, as shown in Fig. 1, and the ring *O''* is done away with. Instead of thus screwing the supply-pipe *R* directly into the bottom of the water-
50 chamber, as shown in Fig. 1, it may be screwed into the ring *O''*, as shown in Fig. 9.

The cap *O'* may be formed integral with the water-chamber, as shown in Fig. 1, instead of forming it separate and bolting it thereto, as
55 shown in Figs. 6 and 7, in which case the bolts *p* would not be used.

The operation of the attachment is as follows: When it is desired to have the water flow out of the spout, the valve *F'* is forced
60 down upon the lower seat, *m*, thus cutting off communication with the elbow *M* and permitting the upper waste-valve, *J*, to automatically close over the lateral waste-outlets *k*. Now, as the plunger (not shown) in the cyl-
65 inder *P* is operated, the water will flow freely up the stand-pipe to the spout, a portion of the water passing up into the cap *G'* and pipe

G and compressing the confined air therein and in the chamber *B*, thereby giving a steady and continuous stream of outflowing
70 water. When the valve *F'* is closed against its upper seat, *j*, the upper waste-valve, *J*, is automatically opened to permit the water in the stand-pipe to run off into the well, and if the pumping operation be continued the
75 flow of water will be directed out through the lower head, *L*, into the elbow *M*, the air-chamber still continuing to operate as before.

The letter *S* designates the upper portion of the pump-rod, which may be connected to the
80 plunger-rod *R* by any convenient means. This rod *S* is guided vertically by means of a guide, *S'*, cast integral with or attached to the casing *B*, the rod also passing through an aperture in the base *A*. The rod *S* is connected
85 in the usual manner to the operating-rod of the windmill when such power is employed. In order to operate this rod by hand-power when the windmill is not in operation, I employ a hand-lever, *T*, provided with a curved
90 arm, *T'*, at its lower end, the forward end of this arm being pivotally connected to the pump-rod *S* by means of a pivotal bolt, *r*, and its rear end being pivotally connected to fulcrum-links *U*, pivoted to the base *A*. These
95 fulcrum-links *U* are connected together and held in place by means of transverse bolts *U' U'*.

I do not in this application lay claim to these devices for operating the pump-rod, for the
100 reason that they are fully claimed and described in an application filed by me on the 4th day of September, 1888, and numbered 284,525.

It will be observed that the head *L* may be made solid and the inlet-passage *N* connected
105 to a water-main and the attachment used as an ordinary hydrant without departing from my invention. In this case, of course, the pump-cylinder *P*, water-chamber *O*, lower waste-valve, &c., would not have to be used
110 at all.

I do not wish to confine myself to the exact construction shown and described, as it is evident that modifications may be designed without departing from my invention in the
115 least.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the base having a
120 circular flange, *a*, the base being provided with an opening inside of this flange *a*, an air-chamber, *B*, having its lower end inserted in the flange *a* and held therein by means of bolts *d*, a stand-pipe, *C*, passing up centrally
125 through the said air-chamber and base and screwed into a screw-threaded opening in the head of the former, a water-chamber screwed on the projecting end of the stand-pipe, packing-rings *e''* and *c*, interposed, as described,
130 and a supply tube and chamber, substantially as set forth.

2. The combination, with a stand-pipe, an air-chamber, *B*, a base for supporting the air-

chamber, a tube, G, connected with the air-chamber, a cap, G', secured on the lower end of the tube G, a valve-cylinder, H, bolted to the cap G', a valve-seat, *j*, attached to the lower end of stand-pipe, the said seat supported centrally within the valve-cylinder, a valve-rod, and a valve, the latter adapted to close upon the said seat *j*, the said cap G', tube G, and chamber B serving as an air-chamber, substantially as herein set forth.

3. The combination of a stand-pipe, a supporting-base, a tube, G, depending from the base, a cap, G', attached to the tube G, a valve-cylinder, H, attached to the cap G', this valve-cylinder being provided with a water-inlet, and a ring, I, clamped between the cap G' and valve-cylinder H and provided with arms *i*, a short tube, I', supported by the arms *i* of the ring and connected to the stand-pipe, this tube I' having a tapering portion, I'', and a valve-seat, *j*, an automatic tapering waste-valve, J, working in the tapering portion I'' and normally closing the lateral waste-outlets *k*, a valve-rod, and a valve adapted to close upon the seat *j* and at the same time open the said waste-valve, substantially as described.

4. The combination of a base, a stand-pipe supported thereon, a tube, G, depending from the base, a cap, G', upon the lower end of the tube G, a valve-cylinder, H, attached to cap G and communicating with a water-supply pipe by means of a lateral passage, N, a flanged head, L, attached over lower end of valve-cylinder, this head being provided with a central opening and valve-seat, *m*, a removable ring, I, clamped between the cylinder H and cap G', this ring being provided with inwardly-projecting arms *i*, a short tube, I', connected to the lower end of stand-pipe and supported by the said arms *i*, the lower portion of this tube forming a valve-seat, *j*, coincident with the lower valve-seat, *m*, a double-seated valve, F', adapted to alternately close against the said valve-seats *j* and *m* and valve-rod, substantially as described.

5. The combination, with caps G' and L, each cap being provided with lateral perforated ears *g'*, a cylinder, H, clamped between the said caps and provided with lateral internally-screw-threaded ears *g''*, of clamping-bolts *g*, provided with screw-threads at both ends, the screw-threads on one end of each bolt being extended approximately half

its length, these bolts being passed freely through the ears *g'* on the caps and tapped into the ears *g''* on the interposed cylinder, and nuts *g'''*, applied on the ends of the bolts, whereby either one of the said caps may be removed without loosening or disturbing the other, substantially as herein set forth.

6. The combination of a base, a depending tube, G, provided with a cap, G', this cap being provided with perforated ears *g'*, cylinders H and O, connected together by a lateral passage, N, both cylinders being provided with internally-screw-threaded ears, head L, provided with perforated ears *g'*, cap O', and ring O'', provided with perforated ears *p''*, screw-threaded bolts *p* and *g*, tapped into the ears on the cylinders H and O and passing through the said perforated ears *g'* and *p''*, and nuts applied on the ends of the said bolts, substantially as described.

7. The combination of the valve-cylinder having a lateral inlet, and lower head, L, secured to this cylinder and provided with a valve-seat, *m*, a tubular extension, L', and lateral waste-outlets, *k'*, an elbow connected with the said tubular extension L', a spring-actuated hollow conical valve, J', adapted to normally close the waste-outlets *k'*, a stand-pipe, a tube, I', attached to lower end of stand-pipe and forming a valve-seat, *j*, coincident with the lower valve-seat, *m*, a valve, F', adapted to alternately open and close on the said valve-seats, and a valve-rod, substantially as described.

8. The combination of the stand-pipe, a tube, I', attached to lower end of stand-pipe and having its lower portion contracted, as at I'', forming a valve-seat, *j*, a conical hollow waste-valve inserted in and adapted to fit the contracted portion I'' and project normally a little below the valve-seat *j*, this waste-valve being also adapted to normally close the lateral waste-apertures *k*, formed through the said portion I'', the valve and valve-rod, and the valve-chamber provided with a water-inlet, substantially as described.

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

AARON J. TYLER.

Witnesses:

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CHAS. D. JOST.