

No. 756,053.

PATENTED MAR. 29, 1904.

M. T. QUIGLEY.
VALVED PIPE COUPLING.
APPLICATION FILED FEB. 24, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

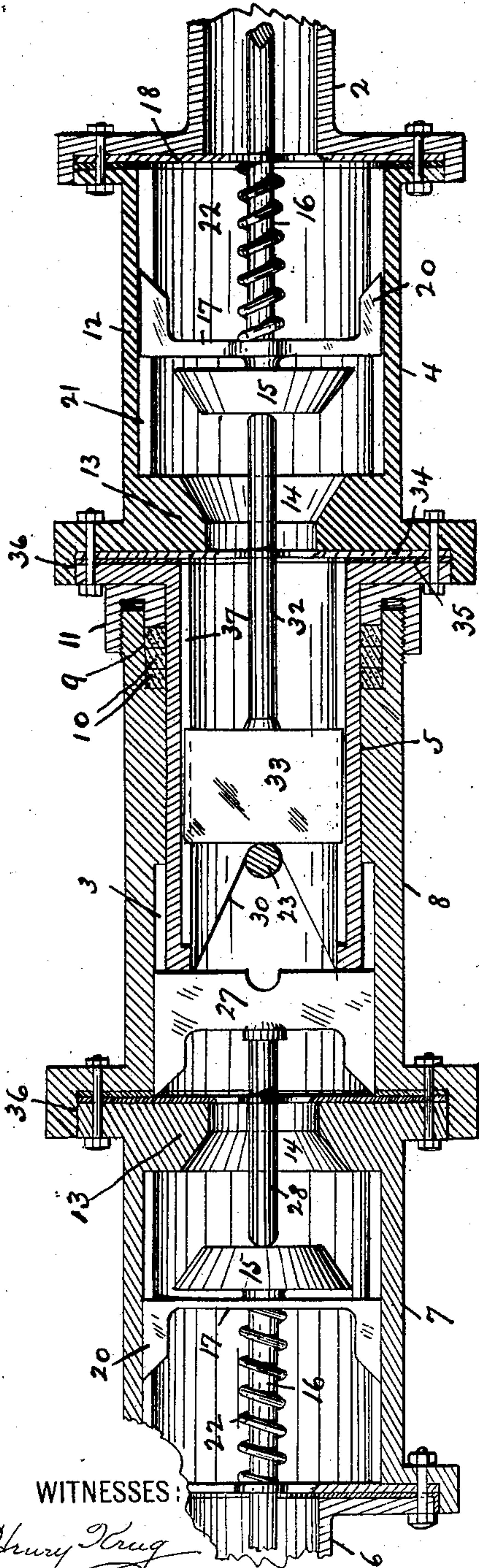


Fig. 1.

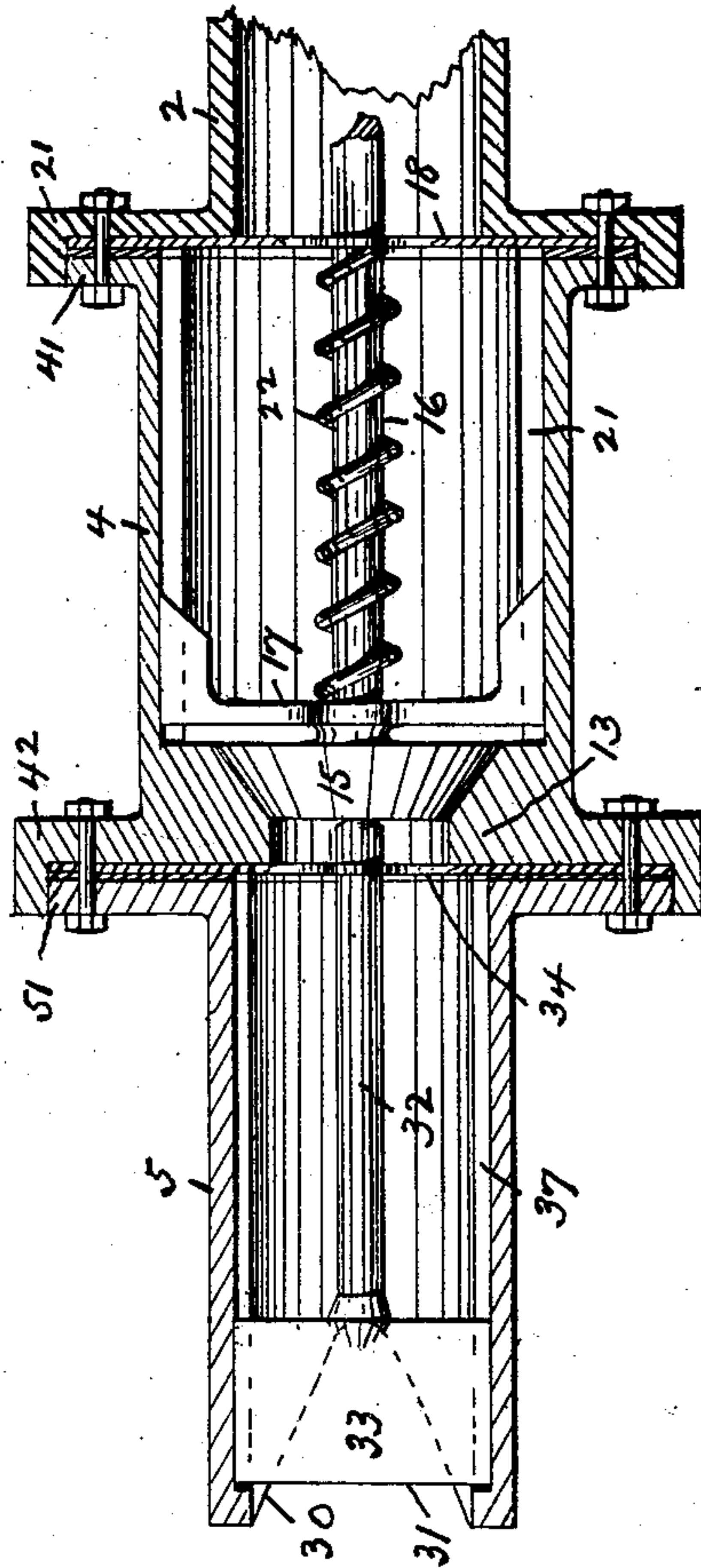


Fig. 2.

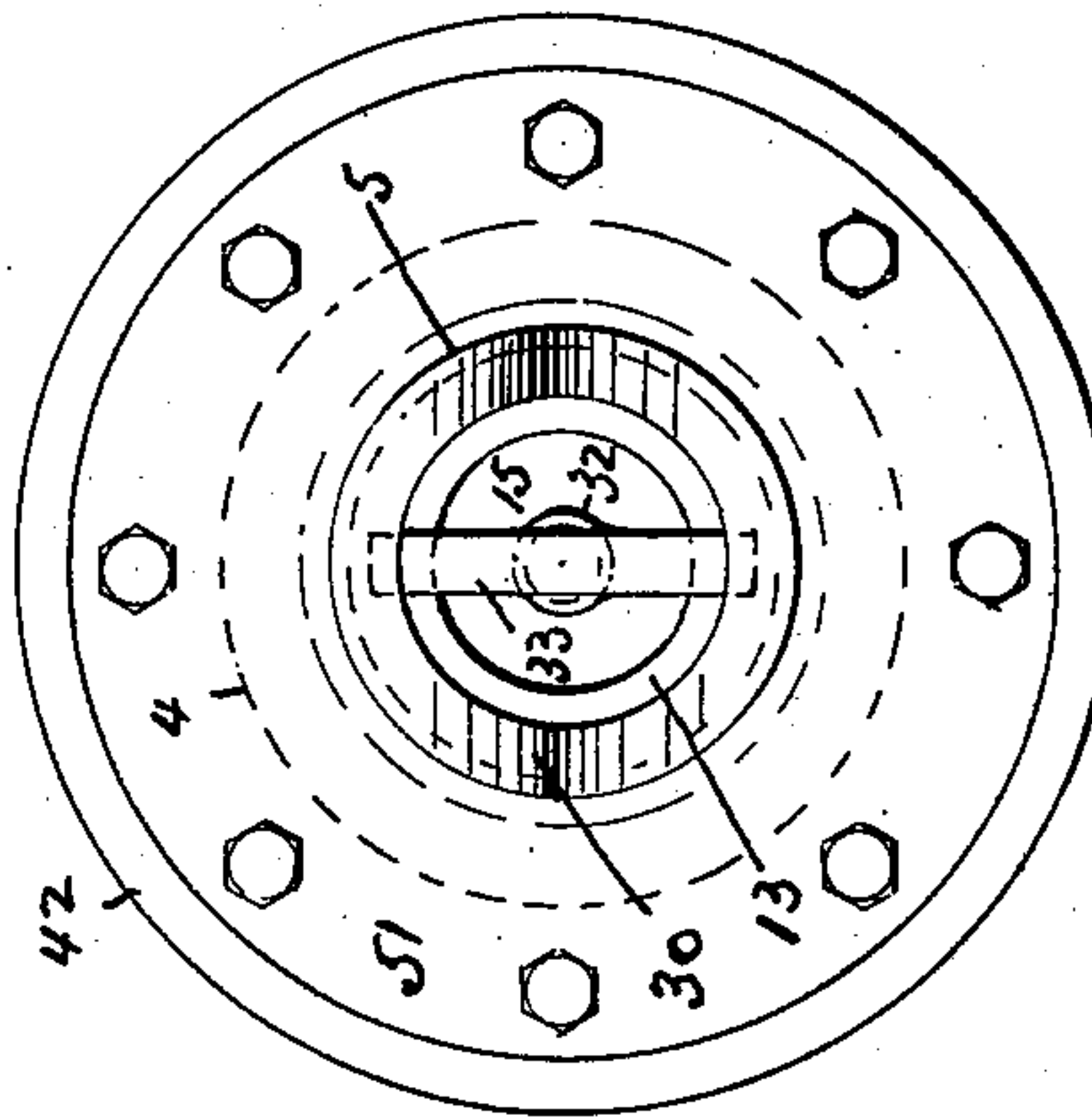


Fig. 3.

WITNESSES:
Henry Krug
Russell M. Everett

INVENTOR:
Matthew T. Quigley
BY
Drake & Co.
ATTORNEYS.

No. 756,053.

PATENTED MAR. 29, 1904.

M. T. QUIGLEY.
VALVED PIPE COUPLING.

APPLICATION FILED FEB. 24, 1902.

NO MODEL.

2 SHEETS—SHEET 2.

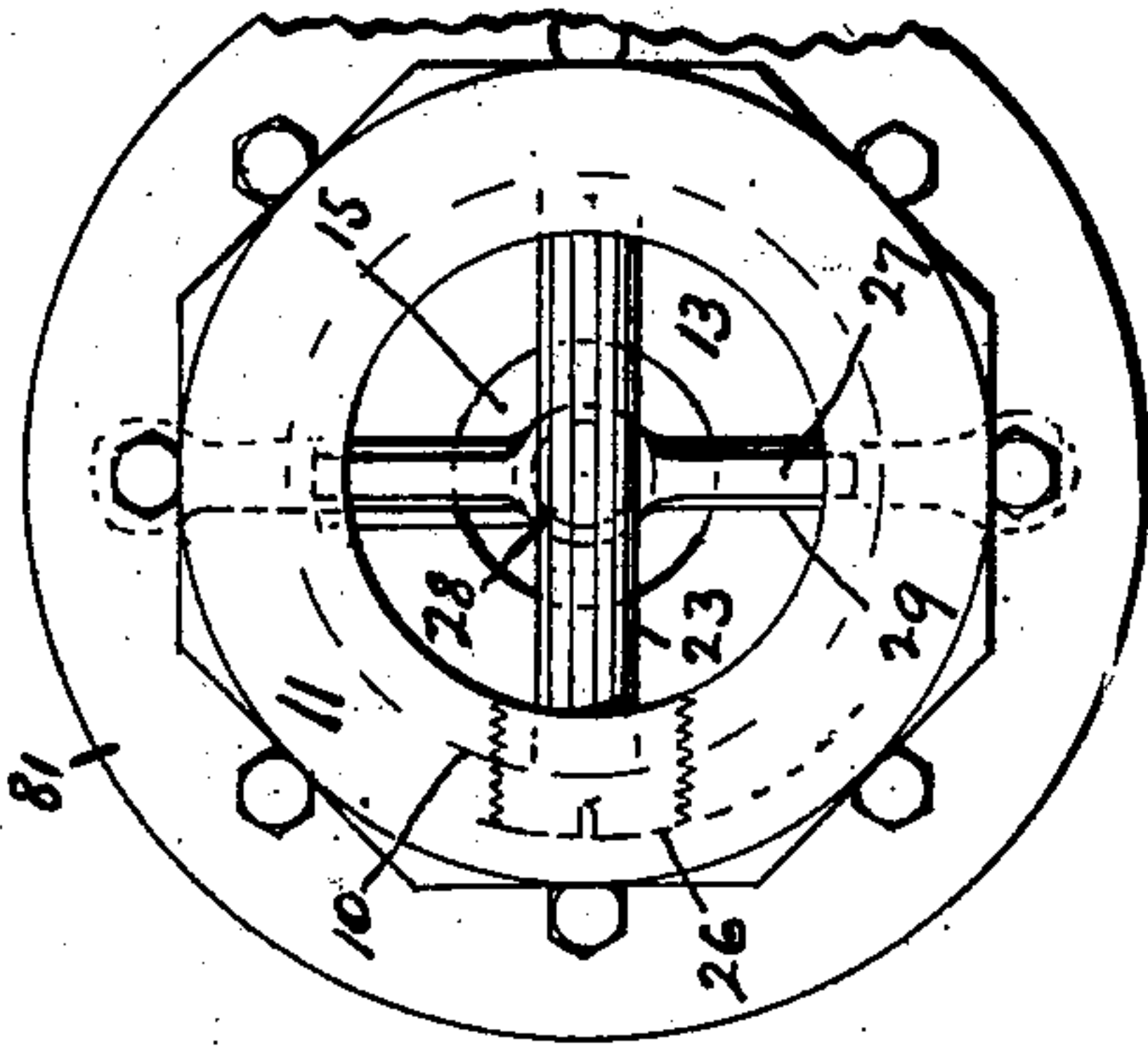


Fig. 5.

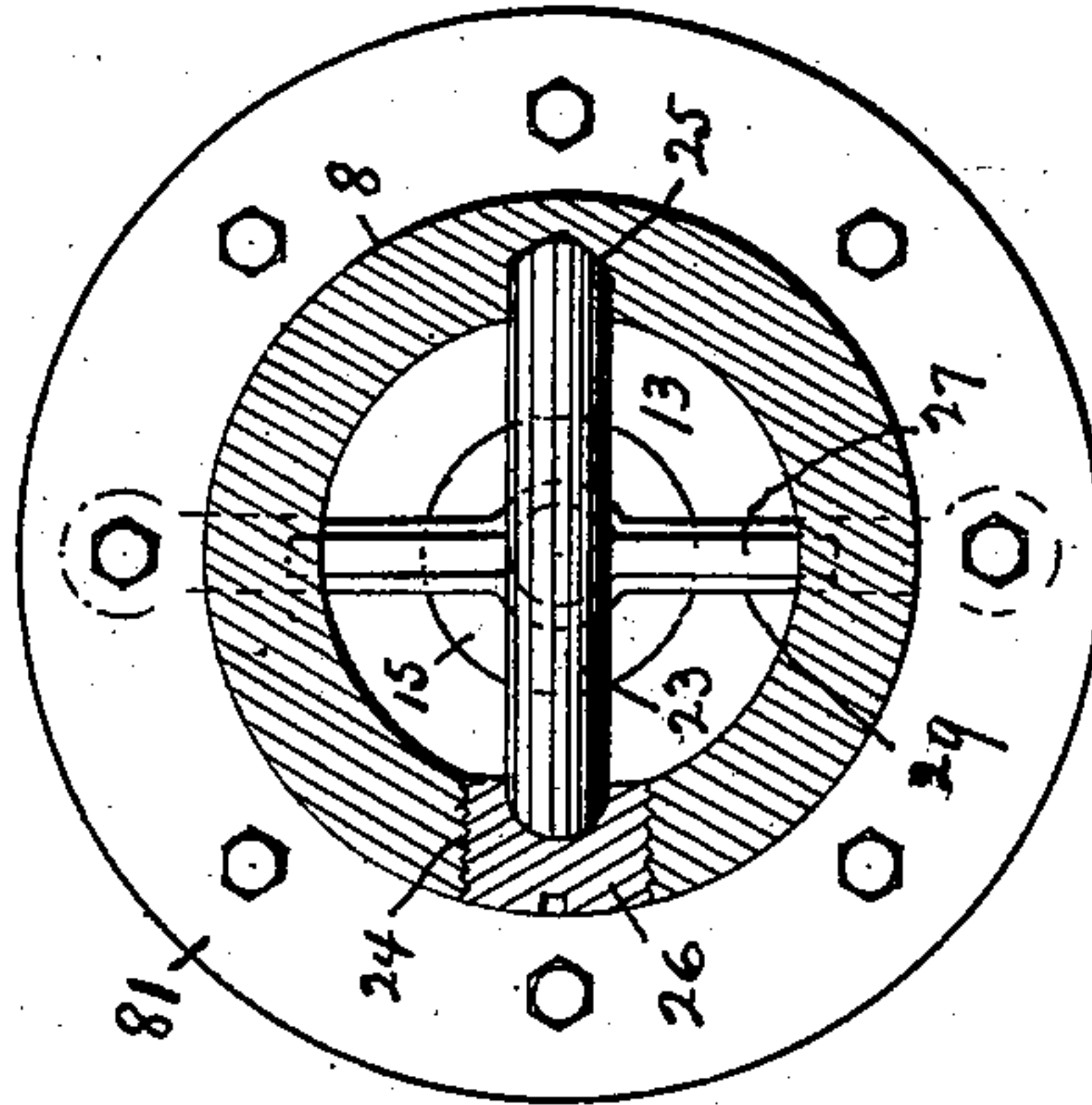


Fig. 6.

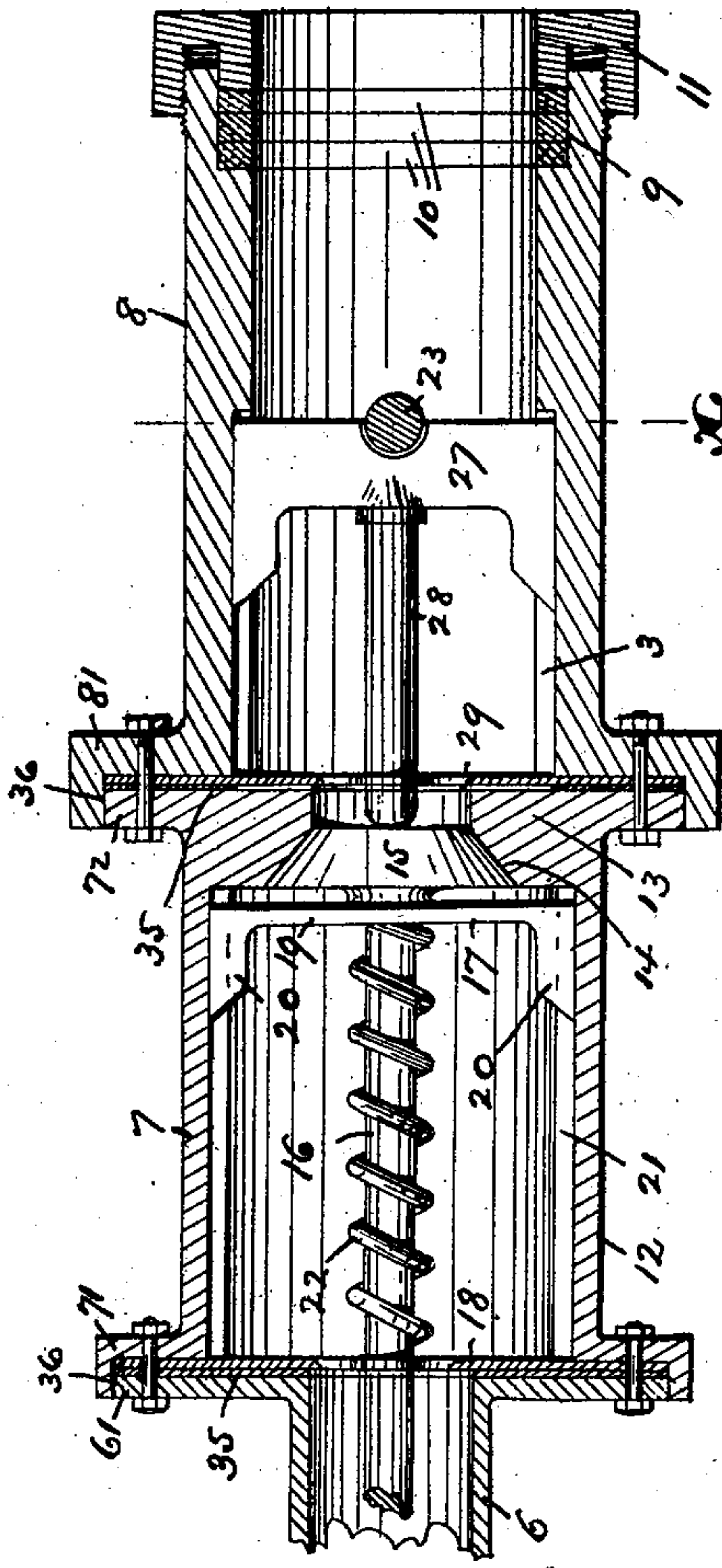


Fig. 4.

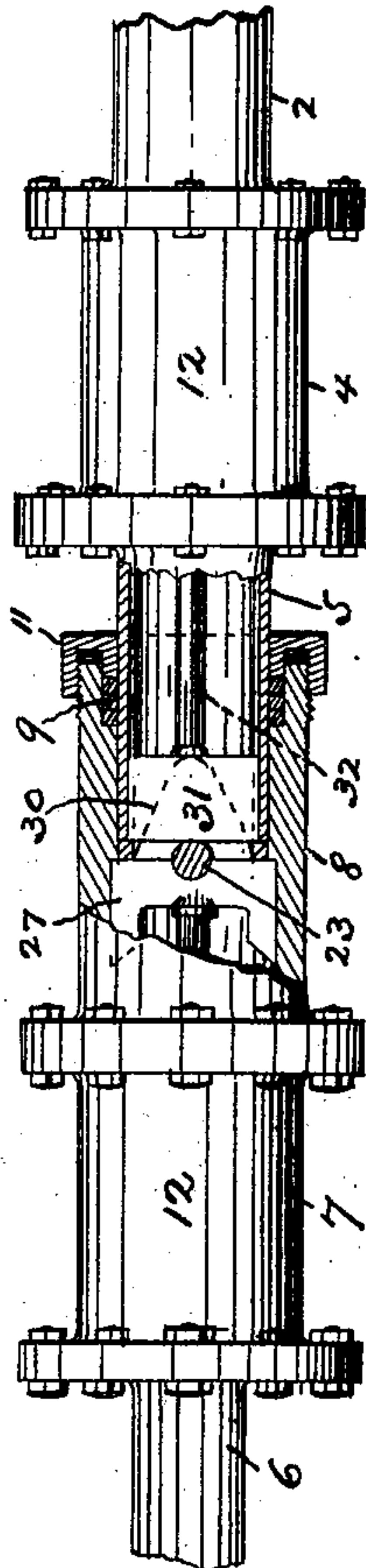


Fig. 7.

WITNESSES:

Henry Thug

Russell M. Everett

INVENTOR:

Matthew T. Quigley,

BY

Drake & Co.

ATTORNEYS.

UNITED STATES PATENT OFFICE.

MATTHEW T. QUIGLEY, OF NEWARK, NEW JERSEY.

VALVED-PIPE COUPLING.

SPECIFICATION forming part of Letters Patent No. 756,053, dated March 29, 1904.

Application filed February 24, 1902. Serial No. 95,239. (No model.)

To all whom it may concern:

Be it known that I, MATTHEW T. QUIGLEY, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Valved-Pipe Couplings; and I 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 figures of reference marked thereon, which form a part of this specification.

The objects of this invention are to enable two pipes or ducts, one or both of which are provided with closing-valves at their meeting ends and are receiving at their other ends some fluid under pressure—as water, steam, or air—to be coupled together at said meeting ends, and their interiors thereby placed in communication with each other; to secure an automatic opening and closing of the valves as the pipes are connected or disconnected; to obtain a prompt action of the valves and a location of said valves close to the extreme ends of the pipes; to enable the coupling to be separated by a straight pull; to secure a simple construction and at the same time one which shall be positive in its action, and to obtain other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved valved-pipe coupling and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like figures of reference indicate corresponding parts in each of the several figures, Figure 1 is a longitudinal central section of two pipe ends connected by my improved coupling and opened into communication with each other. Fig. 2 is a similar sectional view of the male member, and Fig. 3 is a front end view of the same. Fig. 4 is a longitudinal central section of the female coupling member. Fig. 5 is a front end view of the same,

and Fig. 6 is a cross-section on line *x*, Fig. 4. Fig. 7 is a view, partly in section, of two pipe ends entering into coupled relation.

In said drawings, 2 indicates one pipe to which is bolted by union-flanges 21 41 a tubular valve-section 4, and to the opposite end of said valve-section 4 is similarly bolted, as by flanges 42 51, a male coupling-section 5. Another pipe 6 is shown fitted with a valve-section 7 like the one 4 above referred to and having bolted to said valve-section a female coupling-section 8. Said coupling-section 8 has a smooth tubular bore to telescopically receive the male member 5, and at its outer end its walls are provided with an interior recess 9 to receive packing 10, an annular nut 11 being adapted to screw onto the said end of the female member and compress said packing, as is common in stuffing-boxes.

The male coupling member 5 comprises a tubular section of proper outside diameter to slide into the said female member, being smoothly finished and fitted for this purpose.

Between each coupling member, male and female, and the pipe end to which it is applied is a valve-section, which valve-sections are exactly alike, so that a description of one will suffice for both. Each comprises a tubular casting 12, having flanges at its opposite ends for bolting to the pipe on one side and coupling member on the other, respectively. At the forward end of the said casting 12 is an interior annular flange 13, which may be either inserted or integral and in which is formed a rearwardly-flaring ground-seat 14 for a conical valve 15. Said valve 15 has a stem 16 extending backward along the central longitudinal line of the valve-section and provided next to the valve itself with a slide 17, engaging the interior walls of the valve-section, while its rear end passes through a guide 18, comprising an apertured cross-bar gripped and held at its ends in the union of the valve-section and pipe 2 (or 6.) The said slide 17 may be any usual form of spider, but preferably comprises a simple cross-piece 19, having feet 20, working in longitudinal grooves or channels 21 in the inner walls of the valve-section. A spiral spring 22 around the valve-stem 16 and bearing at its opposite ends against the slide

17 and guide 18, respectively, may be employed to insure a prompt and positive seating of the valve, although it is evident that the pressure of the contents of the pipe would tend to do this anyway. It will be understood, therefore, that when the meeting pipe ends provided with my improved couplings are apart that the valves 15 close tightly at the ends of the pipes, so that the contents of said pipes are retained.

My invention further provides in each coupling member means adapted to be operated by the act of coupling and effect an opening of communication between the two pipes by opening the valves 15. In this it is desirable that the means for opening one valve be independent from those for opening the other in event of different pressures in the two pipes against which the valves are to be opened. To this end I place in the female coupling 8 at a suitable point—as, for instance, half-way between its ends—a cross pin or bar 23, which is preferably inserted through an aperture 24 at one side of the coupling member into a recess 25 in the opposite wall, the aperture 24 being then closed by a screw-plug 26, recessed at its inner end to receive the end of the cross-pin. Back of said cross-pin 23 or between it and the valve-section 7 is a slide 27, of any suitable construction, but preferably similar to the particular valve-slide 19 above described, and this slide 27 has a rearwardly-projecting stem 28 passing through a central guide 29, clamped between the coupling and valve-section. When the valve 15 closes or seats itself, it abuts against the stem 28 and pushes the slide 27 forward nearly to the cross-pin 23 under normal uncoupled condition. The male coupling member is slotted or recessed, preferably in V shape, at its forward end, as at 30, and thus adapted to straddle the pin 23 of the female member and with its two points or projections on either side of said slot push the slide 27 of the female member, and thus open the valve behind said member as the pipe ends are forced into coupled relation. At the same time the said male member carries close to its forward end an interior slide 31, having a rearward stem 32, reaching nearly to the valve 15 back of said male coupling member. The said slide preferably consists of a diametrically-disposed plate 33, resting at its ends in longitudinal grooves or channels 37 in the inner walls of the coupling member, and the rear end of the stem is supported by a guide 34, clamped between the coupling member and valve-section. The said piece 33, comprising the slide 31, is arranged across the slot 30 in the end of the male coupling member, and thus as the male and female coupling members are brought together said slide strikes the cross-pin 23 of the female member and is pushed rearward to open the valve 15 back of the male coupling member simultaneously with the

opening of the valve behind the female coupling member, as above described.

Obviously only one of the two pipes being connected may be valved, if desired, without affecting the action of the coupling members, and, furthermore, any suitable form of slides or pushing means other than those specifically shown and described may be employed in the coupling members.

Gaskets 35 are placed between the unions of the different sections, as is common, and preferably one flange of each union is recessed to take the other, as at 36, and secure a better finish.

By the construction thus described I enable a simultaneous connection and communication to be effected between two pipe ends normally closed by valves, and, furthermore, I enable the communication to be promptly and positively shut off upon the pulling apart of the connection. Again, the valves are located close to the extreme ends of the pipes, so that there is little loss of contents on separation, and, moreover, said valves are automatic in their action, both upon connection and disconnection.

Having thus described the invention, what I claim as new is—

1. The combination of two pipe ends provided with cooperating male and female coupling members, respectively, and having normally closed inwardly-opening valves adjacent to said coupling members and being adapted to both contain fluid under pressure, and valve-releasing means in each coupling member adapted upon connection of the pipe ends, to be each engaged simultaneously by the other coupling member, whereby the two valves are opened at equal pace, said valve-releasing means being entirely inclosed and protected by the coupling members when disconnected.

2. In a pipe-coupling, the combination of two tubular coupling members adapted to be telescopically pushed together, each of said members having an interior slide forming a permanent part thereof, and each member providing a fixed interior portion adapted to engage the said slide on the other member when coupling is effected and move the same.

3. The combination with a pipe end, of a coupling member and an outwardly-closing valve back from said coupling member, means within said coupling member for opening said valve inwardly, said means being a permanent feature of the coupling members, a cooperating coupling member, and means therein for engaging the said valve-operating means on the first-mentioned coupling member, said second valve-operating means being also a permanent feature of the last-mentioned coupling member.

4. The combination with pipe ends and valves therein, of tubular coupling members rigidly attached one to each pipe end and adapt-

ed to be pushed telescopically together, slides in said coupling members adapted to engage said valves, and interior fixed stops or rests on the coupling members adapted to independently engage said slides, said slides and stops being wholly inclosed by the coupling member when disconnected.

5. The combination with a pipe, of a tubular valve-section bolted to the end thereof and having an outwardly-converging conical valve-seat, a sliding valve for said seat and a spring to seat said valve, a tubular push coupling member bolted to the said valve-section, and a slide therein abutting against the said valve and adapted to be engaged and operated by a cooperating coupling member.

6. The herein-described pipe-coupling, comprising a tubular male member slotted at its end and having an interior valve-operating slide, a tubular female member adapted to telescopically receive said male member and having interiorly a fixed transverse pin and valve-operating slide, and a valved pipe connected to each coupling member.

7. The combination with meeting pipe ends, each provided with an inwardly-opening valve, of tubular male and female coupling members connected one to each pipe end and adapted

to telescopically connect with each other, the male member being slotted at its extremity and the female member having an interior fixed transverse pin adapted to enter said slot, and slides in said coupling members adapted to be pushed oppositely apart and open the pipe-valves upon connection of the coupling members.

8. The combination with two pipe ends and valves, of tubular coupling members rigidly attached thereto and adapted to be pushed telescopically together, an interior transverse pin in one of said coupling members, a valve-operating slide in the other coupling member and adapted to be engaged by said pin as the coupling is effected, and a second slide in the coupling member having said transverse pin and adapted to be engaged and operated by the end of the other member as coupling is effected, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 13th day of February, 1902.

MATTHEW T. QUIGLEY.

Witnesses:

JOHN CAFFREY,

RUSSELL M. EVERETT.