

No. 894,739.

PATENTED JULY 28, 1908.

T. A. JOHNSTON.  
ROD PACKING.

APPLICATION FILED DEC. 28, 1907.

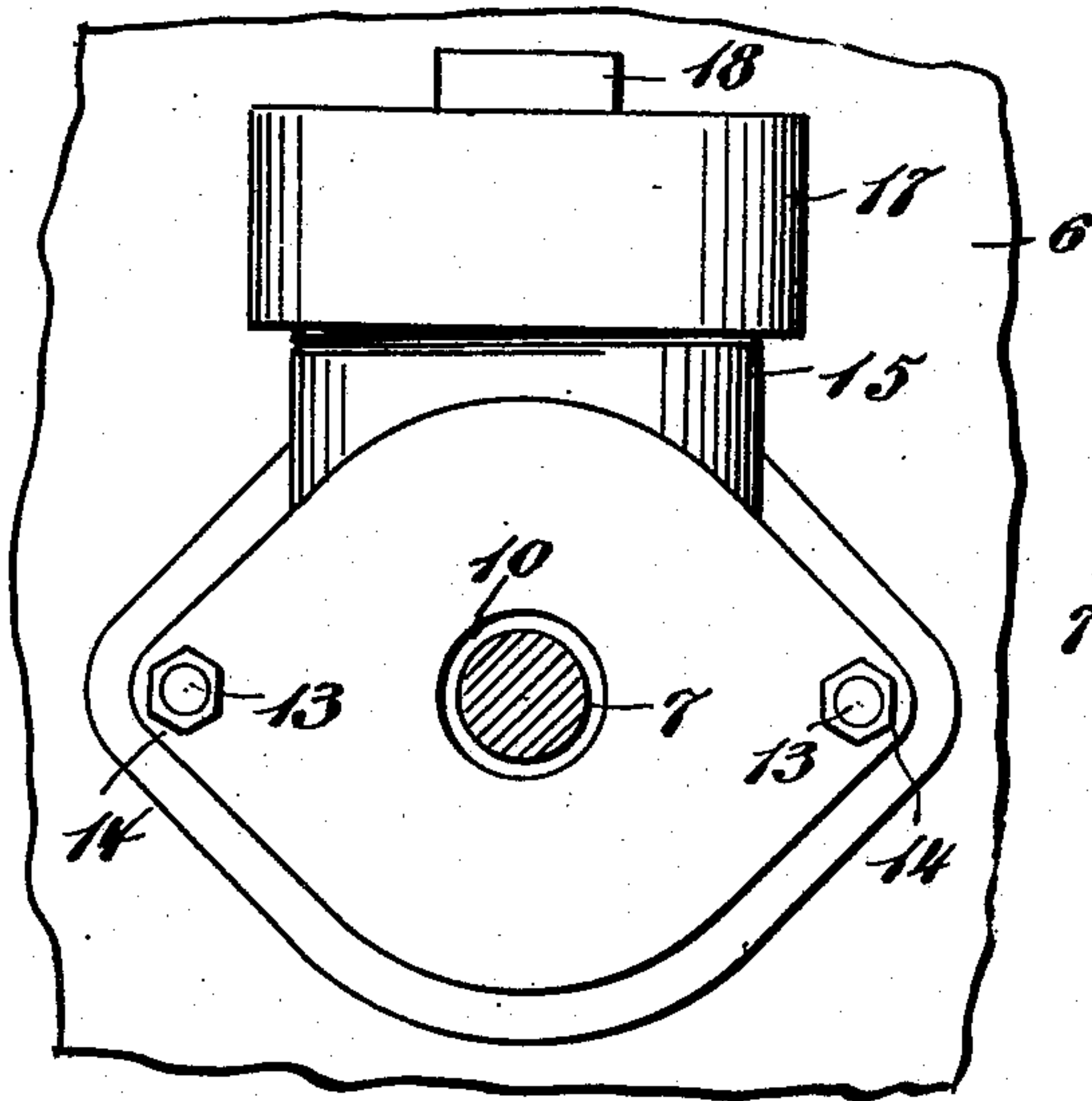


Fig. 1.

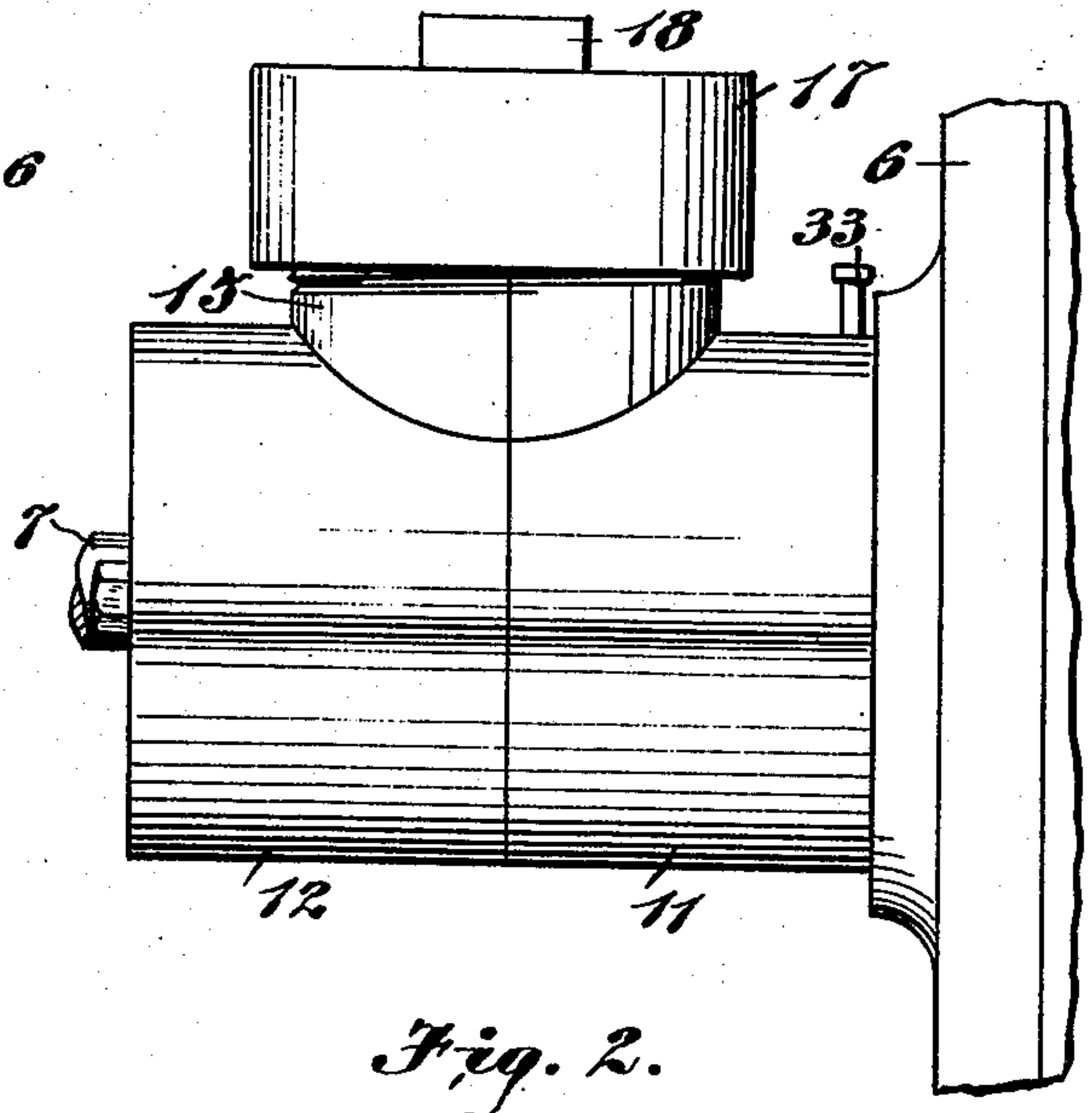


Fig. 2.

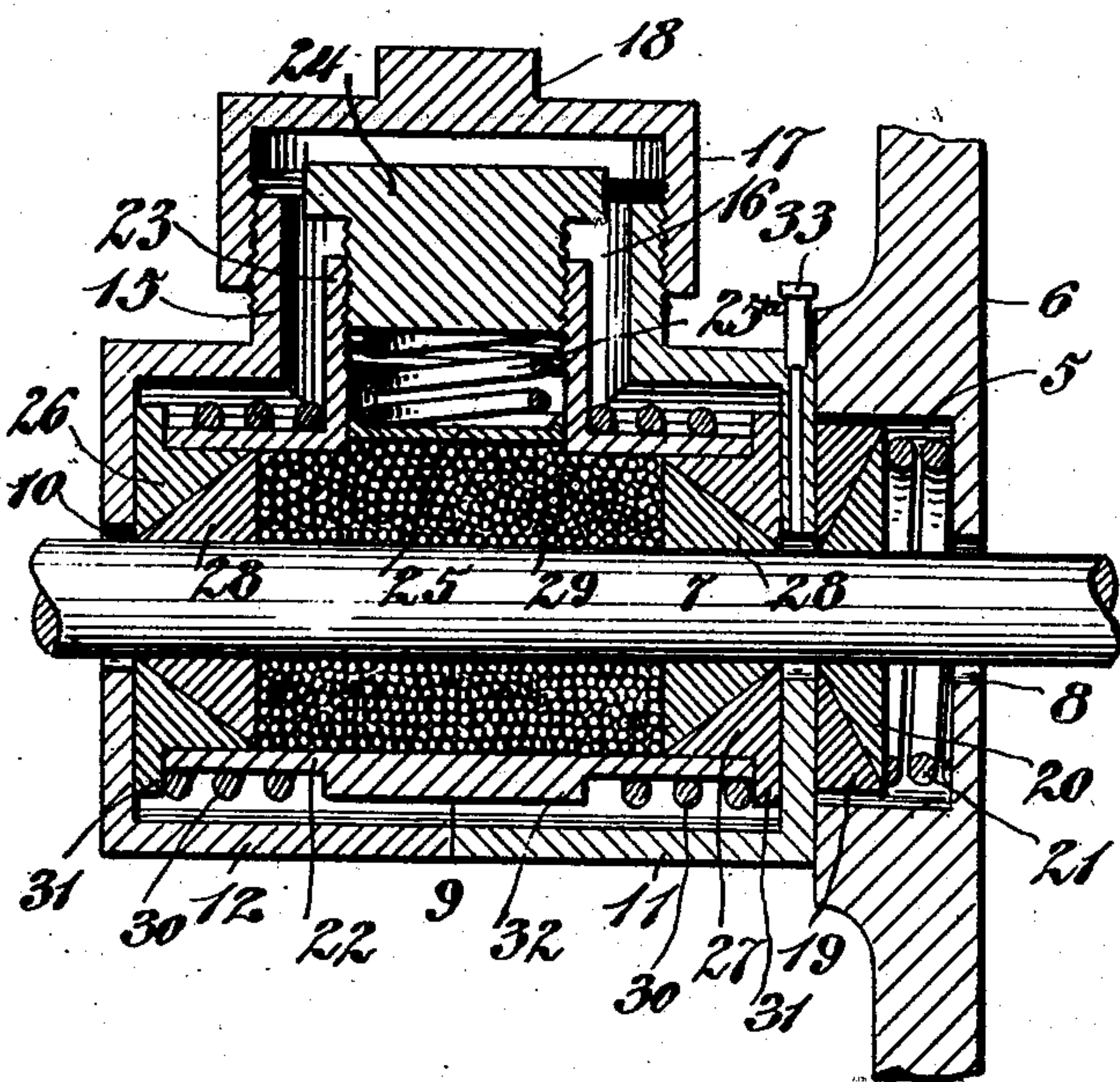


Fig. 3.

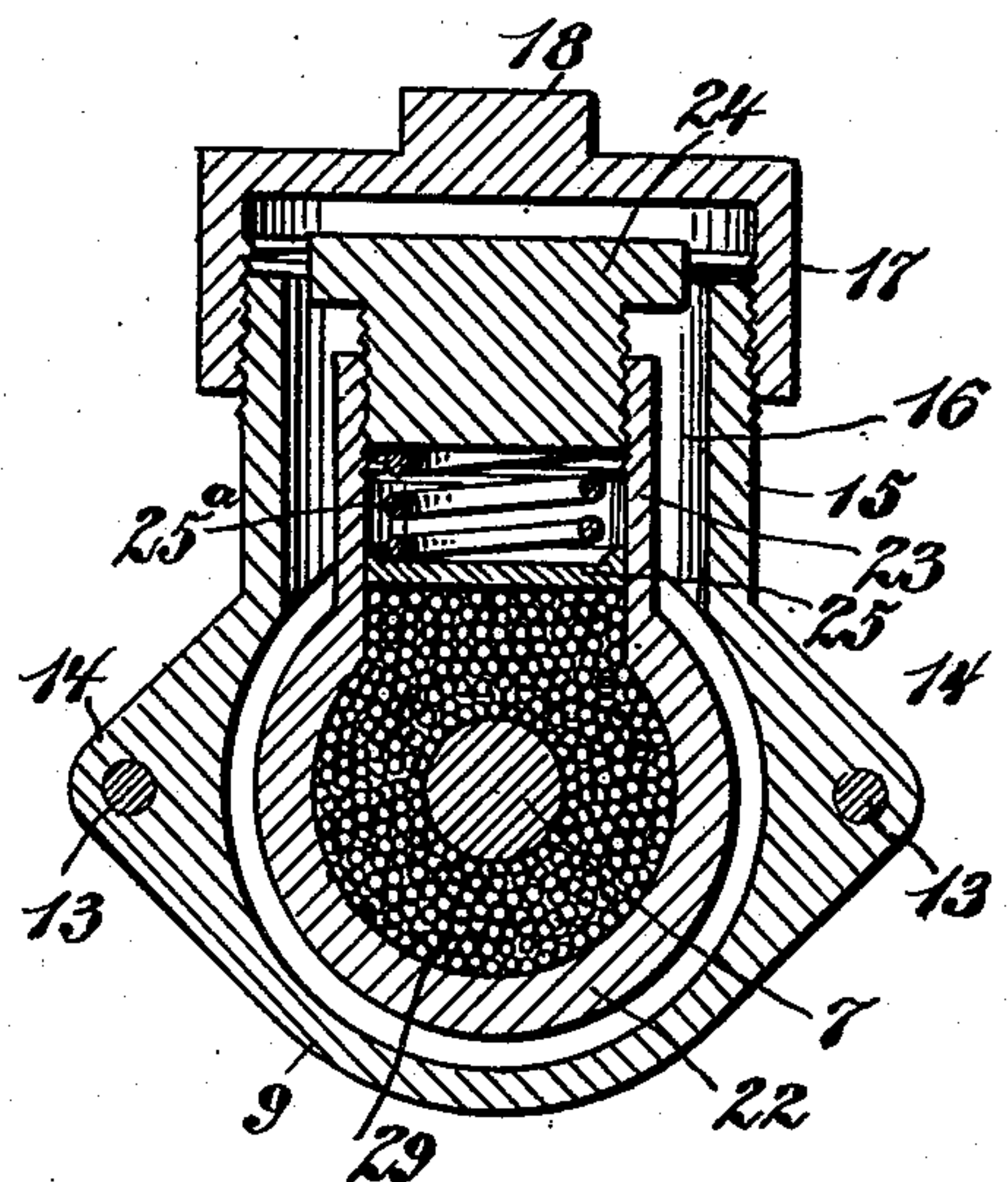


Fig. 4.

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# UNITED STATES PATENT OFFICE.

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## ROD-PACKING.

No. 894,739.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed December 28, 1907. Serial No. 408,345.

*To all whom it may concern:*

Be it known that I, THOMAS A. JOHNSTON, a citizen of the United States, residing at Chadron, in the county of Dawes and State of Nebraska, have invented certain new and useful Improvements in Rod-Packing, of which the following is a specification.

This invention relates to a rod-packing, and has for its object certain novel improvements over the construction disclosed in my Patent No. 872,132, dated Nov. 26, 1907, as will appear more fully hereinafter.

In the accompanying drawing, Figure 1 is an end view of the invention. Fig. 2 is a side elevation. Fig. 3 is a longitudinal section. Fig. 4 is a vertical section.

Referring specifically to the drawing, 5 denotes a stuffing-box on the cylinder-head 6 through which the rod 7 passes. The opening 8 in the cylinder-head through which the rod passes into the stuffing-box is made large enough to permit vibration of the rod. On the outside of the cylinder-head is secured a casing 9 which forms a second stuffing-box. The inner end wall of the casing fits over the outer open end of the stuffing-box 5 and closes the same. In the end walls of the casing are openings 10 through which the rod 7 passes, and said openings are large enough to permit vibration of the rod.

As in Patent No. 872,132, the casing 9 is in two sections which are indicated at 11 and 12, respectively. The two sections are connected by bolts 13 passing through flanges 14 formed on the sections, and they are fastened to the cylinder-head 6 by screwing said bolts thereinto, or in any other suitable manner. On one side of the casing 9 is a neck 15 having an opening 16 which communicates with the inside of the casing. The neck is threaded on the outside to receive a cap 17 for closing it. On the top of the cap is a lug 18 to form the hold for a wrench for putting on or taking off the cap. The neck 15 is also in two sections or halves, one of which is on the part 11, and the other on the part 12 of the casing. The threads on the neck sections are so arranged that their continuity will not be interrupted when the stuffing-box sections are assembled. The cap also assists to hold the sections together.

Inside the stuffing-box 5 are packing-rings 19 and 20, respectively. The ring 19 has one of its ends in contact with the inner end wall of the casing 9, and on the other end it is cup-

shaped. The ring 20 is conical and fits snugly in the cupped portion of the ring 19. Between the ring 20 and the inner wall of the stuffing-box is a coiled spring 21 which presses the two rings together and holds the ring 20 tightly against the end wall. The diameter of the rings 19 and 20 is slightly less than that of the stuffing-box 5 in order that the rings may vibrate with the rod 7.

Within the stuffing-box 9 is arranged a cylindrical casing 22 which is open at both of its ends and encircles the rod 7. This casing has a tubular stem 23 extending into the opening 16 of the neck. The stem is threaded on the inside to receive a closing plug 24, and it also contains a spring-pressed follower 25, the spring 25<sup>a</sup> being interposed between the follower and the bottom of the plug 24. The plug also serves to regulate the tension of the spring. The casing 22 is spaced from the inner walls of the stuffing-box so that it may vibrate therein with the rod 7.

Inside the casing 22 and encircling the rod 7, are packing-rings 26 and 27, respectively. The packing-ring 26 fits on one side against the outer end wall of the casing 9 and the ring 27 fits on one side against the inner end wall of said casing. The opposite ends of both of said rings are cup-shaped as clearly shown in Fig. 3. The cupped ends of the rings are on the inside of the casing 22 and against said ends are placed to fit snugly thereagainst conical packing-rings 28 encircling the rod 7. The inside of the casing 22 not occupied by the packing-rings herein described, will be filled up to the follower 24 with small shot or spheres 29 mixed with graphite. The shot or spheres will be of suitable anti-friction metal or graphite and the like. The spring-pressed follower 24 compresses the shot around the rod 7 and takes up wear of that portion which is in contact with the rod.

The rings 26 and 27 project beyond the ends of the casing 22 and are held tightly against the end walls of the casing 9 by means of springs 30. On the outside of the casing 22 the rings have flanges 31 and said casing is formed with a flange 32. The springs are coiled around the casing 22 and their respective ends abut against the flanges 31 and 32. The spring-pressed spheres also serve to press the cup-shaped and conical packing-rings together.

The parts inside the stuffing-box 9 form a



steam-tight packing for the rod and effectually prevent leakage, but if any such should take place it would be held in the casing. As the casing 22 is loose in the stuffing-box 5 9, it is free to move with the rod if the latter should have any lateral motion or vibration, and such movement of the casing will not impair the efficiency of the packing. The stuffing-box is made in two sections, as described in order that the parts inside thereof 10 may be put in place, and access to the casing for the purpose of replenishing the shot or otherwise may be readily had upon removing the cap 17 and the plug 24.

15 As the opening 8 is large enough to permit vibration of the rod 7 steam will readily enter the stuffing-box 5 but its escape to the stuffing-box 9 is to a large measure prevented by the packing-rings 19 and 20. Any 20 steam that escapes past the packing-rings 19 and 20 will be barred by the packing within the stuffing-box 9.

If desired, the stuffing-box 9 may be fitted with a lubricating device 33 communicating 25 with the opening 10 for the purpose of lubricating the rod 7. In some cases the conical packing-rings may be dispensed with. The cap 17 may be fastened by bolts if desired instead of being screwed on as shown in the 30 drawing. The rod is lubricated by keeping the space between the two stuffing-boxes filled with a lubricant.

In my former Patent No. 872,132 the spring for pressing the packing against the 35 end walls of the stuffing-box is on the inside of the loose casing among the spherical packing which has a tendency to interfere with the proper function of the latter. This objection is entirely overcome by placing the 40 springs 30 on the outside of the loose casing and forming the packing rings 27 with the circumferential terminal flanges 31 which are engageable by said springs for pressing the rings against the end walls of the stuffing-

box. This arrangement leaves the spherical 45 packing 29 free to perform its proper function.

I claim:—

1. A rod-packing comprising a stuffing-box, a casing loose therein and surrounding 50 the rod, a packing around the rod inside the casing and projecting from the ends thereof, and means located on the outside of the casing for holding the projecting ends of the packing in contact with the end-walls of the 55 stuffing-box.

2. A rod-packing comprising a stuffing-box, a casing loose therein and surrounding the rod, a packing inside the casing around the rod and projecting from the ends thereof, 60 and springs outside the casing bearing against the projecting ends of the packing for pressing the same against the end walls of the stuffing-box.

3. A rod-packing comprising a stuffing- 65 box, a casing loose therein and surrounding the rod, spaced packing-rings inside the casing around the rod and projecting from the ends of the casing, springs engageable with the projecting ends of the rings for 70 pressing the same against the end-walls of the stuffing-box, and a packing of spheres inside the casing around the rod between the rings.

4. The combination with the stuffing-box 75 of a cylinder-head, of a casing fitting over the open end thereof and having openings through which the rod passes, packing-rings inside the stuffing-box encircling the rod, means for holding said rings in contact with 80 the end of the casing, and a packing inside the casing.

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

THOMAS A. JOHNSTON.

Witnesses:

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