

T. J. BARBRE.
LUBRICATING VALVE.
APPLICATION FILED JUNE 10, 1909.

970,292.

Patented Sept. 13, 1910.

Fig. 1.

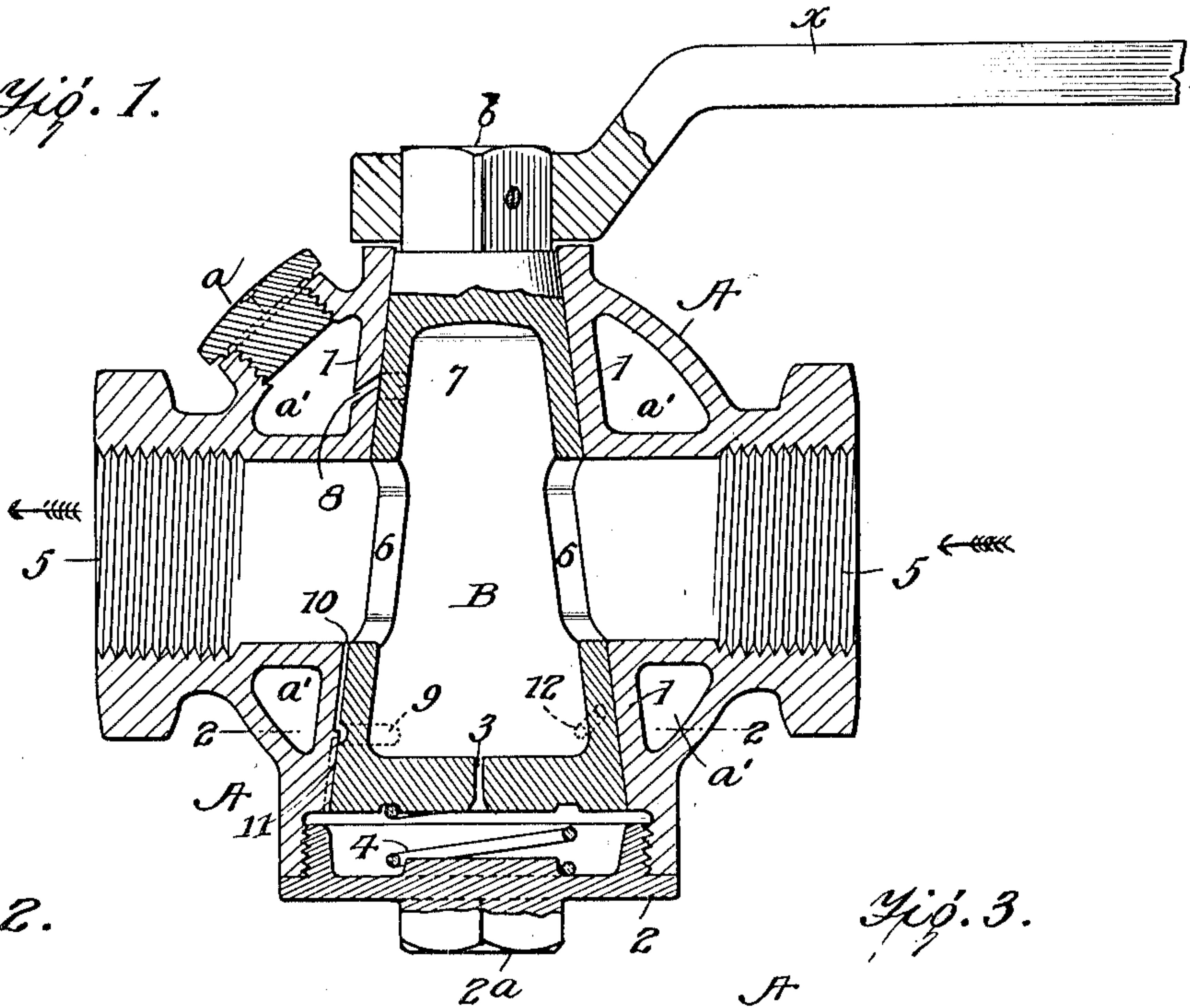


Fig. 2.

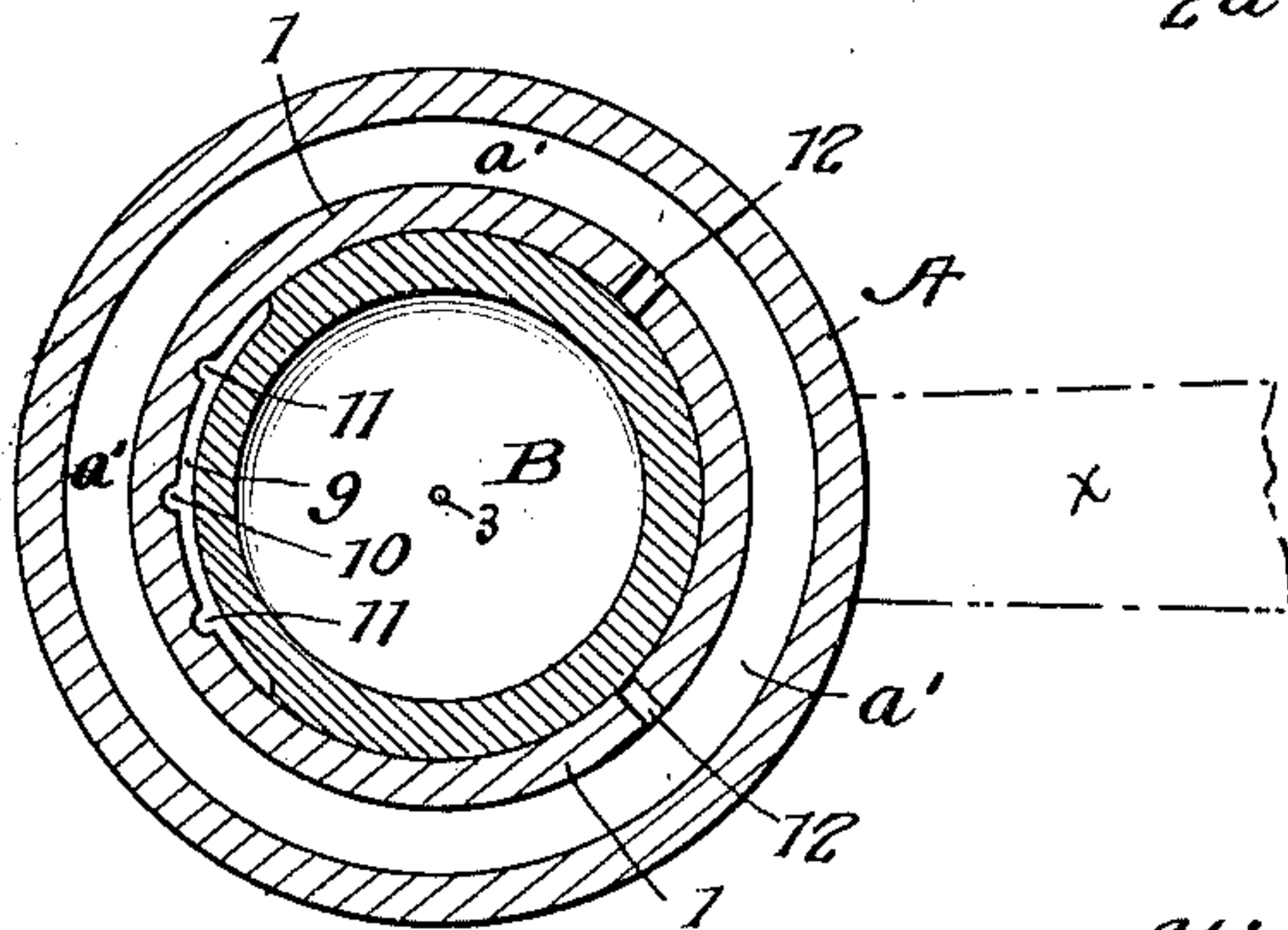


Fig. 3.

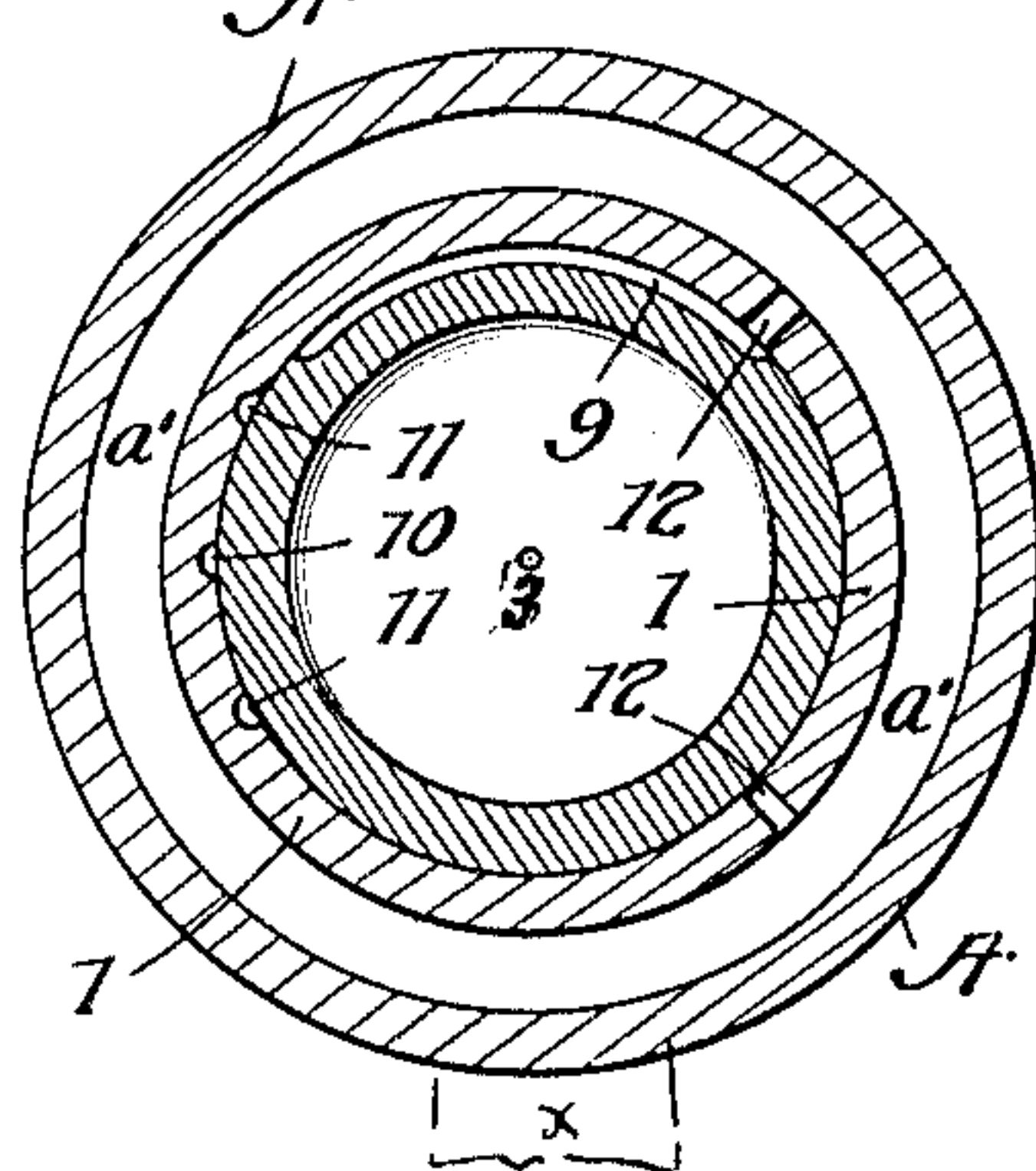


Fig. 4.

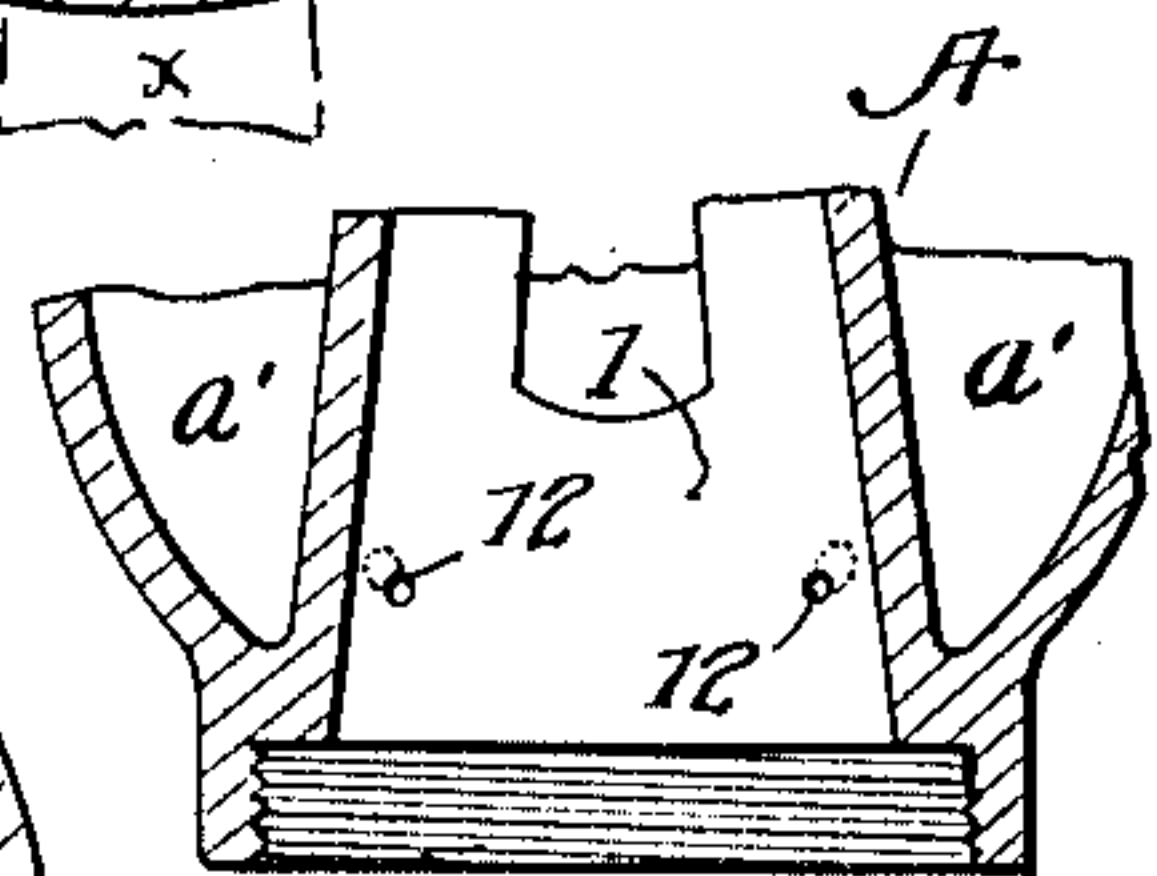
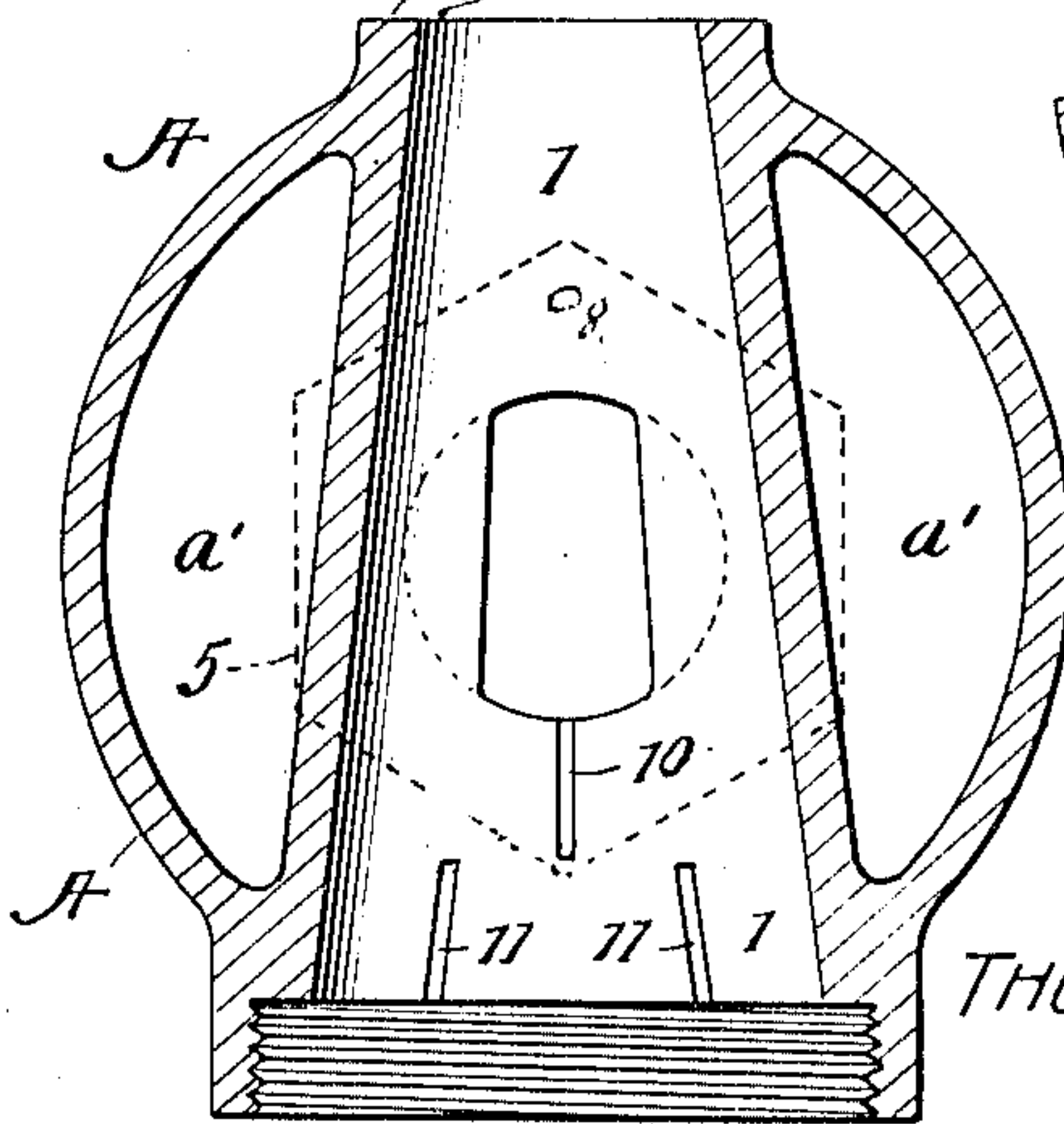
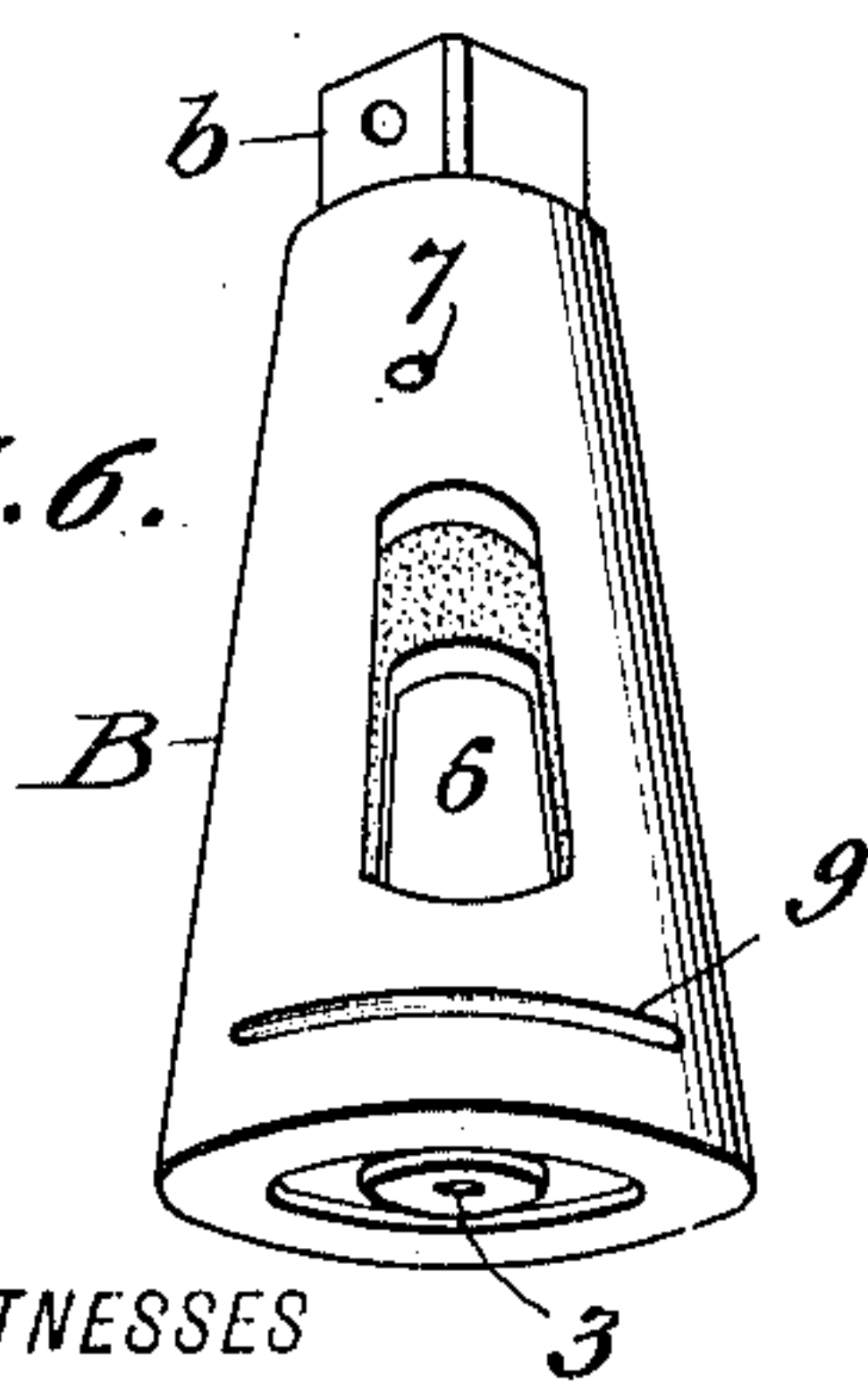


Fig. 5.

Fig. 6.



WITNESSES

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LUBRICATING-VALVE.

970,292.

Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed June 10, 1909. Serial No. 501,296.

To all whom it may concern:

Be it known that I, THOMAS JULIAN BARBRE, a citizen of the United States, residing at Denver, in the county of Denver, State of Colorado, have invented an Improvement in Lubricating-Valves, of which the following is a specification.

The invention is a stop-cock or throttle-valve particularly adapted for use as an attachment of a pipe line supplying fluid under pressure to a rock-drill or like device, the valve serving to control the flow and pressure of the fluid, and also for controlling the admission of a lubricant to the pipe-line by which it is conveyed to the drill or other device. The latter may be steam, compressed air, or a liquid.

The valve is more particularly an improvement upon that for which Letters-Patent, No. 857,484, were granted to the Rankin Lubricating Valve Co. of Cripple Creek, Colo., June 18, 1907.

The details of construction, arrangement, and combination of parts producing the improved valve are as hereinafter described, and illustrated in the accompanying drawing in which—

Figure 1 is a central vertical section of the valve with the plug or valve proper adjusted with its side openings in communication with the passage through the body of the valve casing. Fig. 2 is a horizontal section on the line 2—2 of Fig. 1. Fig. 3 is a horizontal section on the same line as the section 2—2, but showing the plug or valve proper adjusted in closed position. Fig. 4 is a vertical central section of the casing. Fig. 5 is a sectional view of the casing showing that portion of the inner side of the working valve which is opposite the one shown in Fig. 4. Fig. 6 is a perspective view of the plug or valve proper.

A indicates a hollow, globular casing which holds the oil or other fluid lubricant, and B is the hollow conical plug or valve. Oil is introduced into the casing A through a hole provided with a screw-plug *a*, and the casing A is provided interiorly with a tapered portion 1 which constitutes the working barrel wherein the plug B is fitted and adapted to rotate. The plug is inserted through the lower open end of the casing, which is closed for use by means of a flanged screw-cap 2, the same having a prolonged head 2^a adapted for application of a wrench *x*. The head *b* of the plug is

similarly adapted for application of the same wrench. A small central opening 3 is formed in the base of the plug or valve and permits the flow of air therethrough, and a spiral spring 4 is introduced between the valve and the screw-cap 2. Thus an air-chamber is formed between the base of the plug and the said cap.

The casing A is open on the side at diametrically opposite points, and provided with screw threads 5 whereby it is adapted for attachment to a pipe-line; and when the plug B is adjusted with its openings 6, in alinement with the openings of the casing, as shown in Fig. 1, a continuous air passage is formed through the valve.

When the valve is being opened or closed, the opening 7 in its upper portion and an opening 8 in the barrel 1, register for an instant, and air is thus admitted to the oil chamber *a*'.

The lower portion of the plug or valve B is provided with a horizontal groove 9 which is located about midway between the base of the valve and one of the side openings 6 therein. As shown in Figs. 1 and 6, this groove 9 is on the same side as the air-port 7. The said groove serves to receive and temporarily hold a small quantity of the lubricant, as will be further explained. The working barrel 1 of the casing has, interiorly, three longitudinal grooves 10, 11, 11, as shown best in Fig. 4. The groove 10 leads down from one of the side openings of the barrel, and the grooves 11 are separated equi-distantly from the groove 10. The adjacent ends of these grooves are practically in the same horizontal line, so that when the plug B is turned into the position shown in Figs. 1 and 2, the groove 9 communicates with all three grooves 10, 11, 11.

In the lower portion of the working barrel 1, and diagonally opposite the air-port 8, there are formed two oil-ports or passages 12, which are located in the same horizontal plane with the groove 9 in the plug B, and nearly the same distance apart as the length of said groove. It will now be seen that when the plug B is adjusted to the closed position, that is to say, when turned a quarter around from the position indicated in Figs. 1 and 2, the groove 9 will communicate with one of the oil-ports 12 and thus become charged with oil under pressure.

When the valve closes, air is left under

some pressure in the oil chamber α' and also in the body of the valve and in the chamber below it. When the valve is turned, to open it, before the opening 7 comes into communication with the passage 8, the groove 9 of the valve having been in communication with one of the oil ports 12 and thus become filled with oil, the said groove 9 communicates with the vertical grooves 10 and 11, and the air in the chamber below the bottom of the plug being under pressure traverses one of the grooves 11 and forces the oil up through the groove 10 into the air passage of the pipe or conductor whenever the exit of groove 10 is in that side of the valve where pressure was reduced, or on the side to which the pneumatic motor is attached, the direction of flow of air being from right to left, Fig. 1, as indicated by arrows. The oil is fed to the drill or other machine by induction due to the flow of the motor fluid through the valve. In other words, such motion of the fluid tends to suck up oil and carry it along to the machine that is being operated.

It may be noted that, by admission of air into the chamber between the plug B and the screw-cap 2, pressure is equalized, and the spring 4 thus serves to hold the plug to its seat at all times whether open or closed. It is obvious that this equalization of pressure eliminates all danger of the plug collapsing by pressure on the outer surface thereof.

What I claim is:

1. In a lubricating valve of the type indicated, the combination with a chambered casing having a tapered working barrel and a direct air passage through the same transversely, said barrel having also two lubricat-

ing passages in the lower portion which are spaced apart horizontally and three longitudinal grooves 10, 11, 11 arranged in the side of barrel opposite such passages and spaced apart horizontally, one of said grooves being located in a plane above the other two and communicating with the aforesaid transverse air passage, of a tapered plug or valve having a direct air passage corresponding to the one in the casing and air ports at top and bottom, also a horizontal oil groove 9 below the direct air passage, such groove being located with reference to the three grooves as described, and operating as specified, a removable cap closing the lower end of the barrel and spaced from the valve, and a spring arranged in the air chamber thus formed, substantially as described.

2. The combination, with a hollow casing having a tapered working barrel and a direct air passage through the same, of a tapered plug or valve fitted to said barrel and having a horizontal oil groove 9 in its lower portion, a removable cap closing the lower opening of the casing, a spring supporting the valve, the latter having an air-port in its base, and the barrel having longitudinal grooves 11 spaced apart and communicating with the air chamber in which the spring is located, and the barrel provided in its lower portion with oil ports 12, spaced apart horizontally and arranged for communication with the groove 9 in the barrel when the valve is rotated to the closed position, as shown and described.

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Witnesses:

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