

No. 769,031.

PATENTED AUG. 30, 1904.

F. STICKER.
VALVE.

APPLICATION FILED JUNE 9, 1903.

NO MODEL.

FIG. 1.

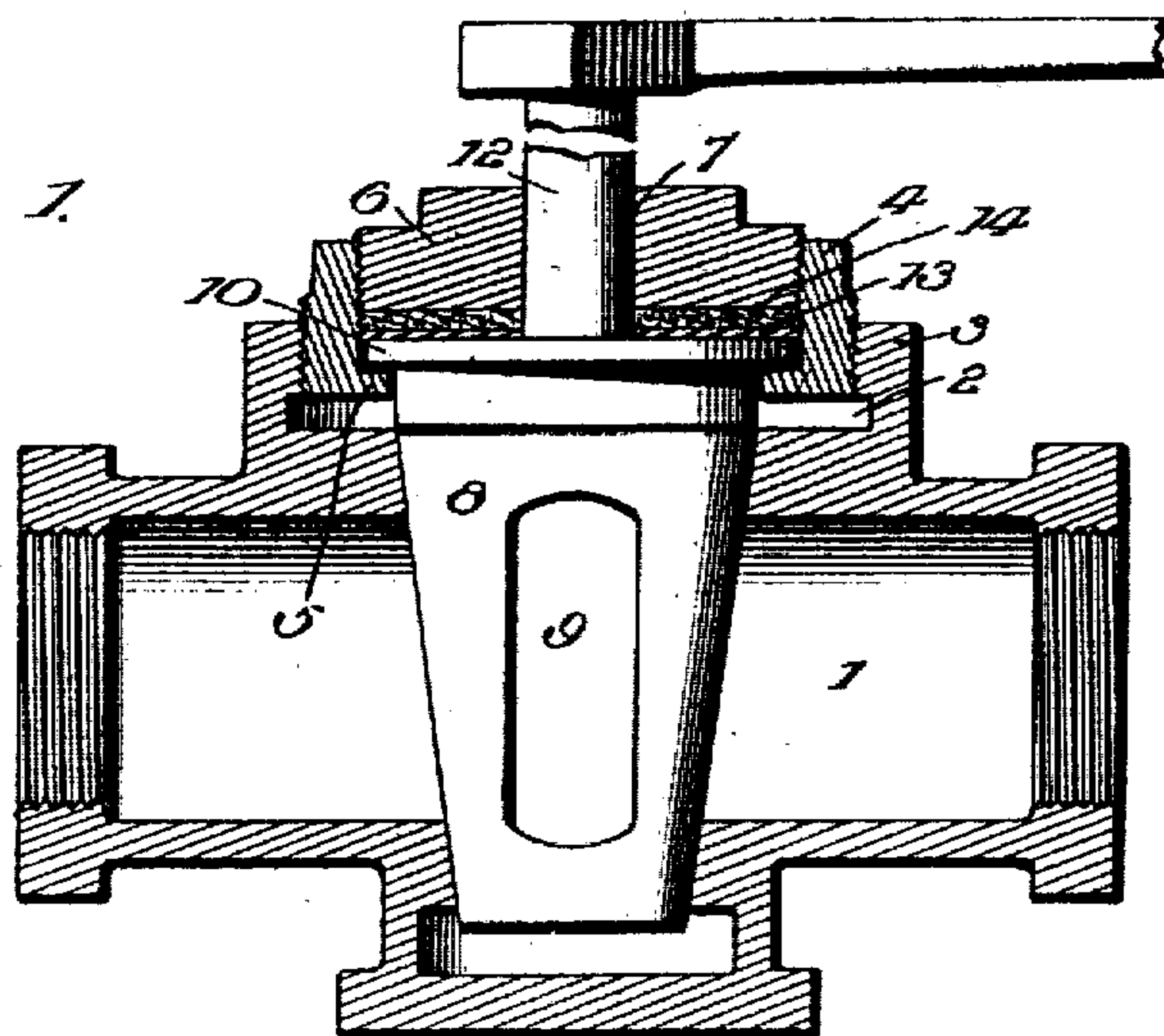


FIG. 2.

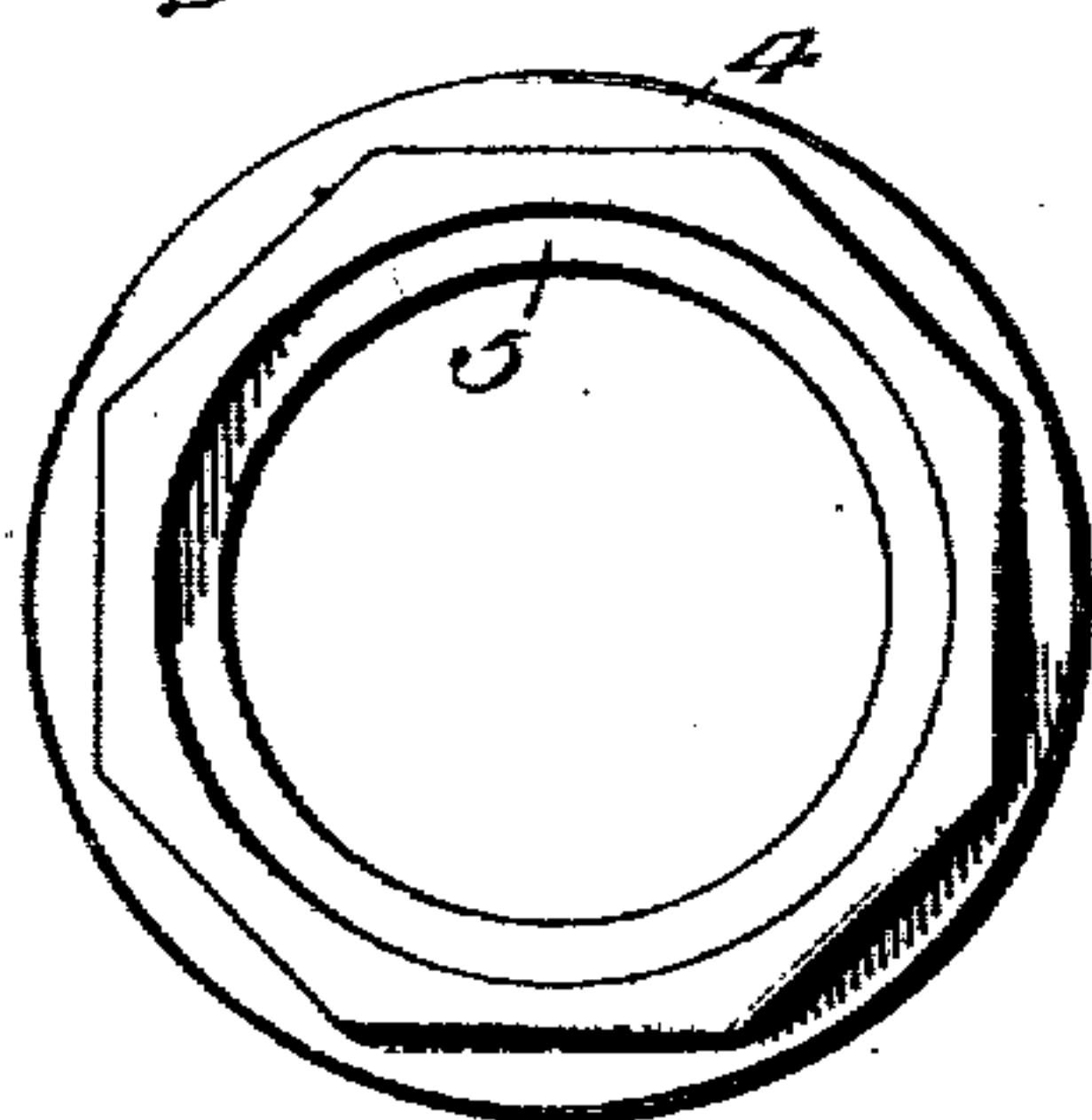


FIG. 3.

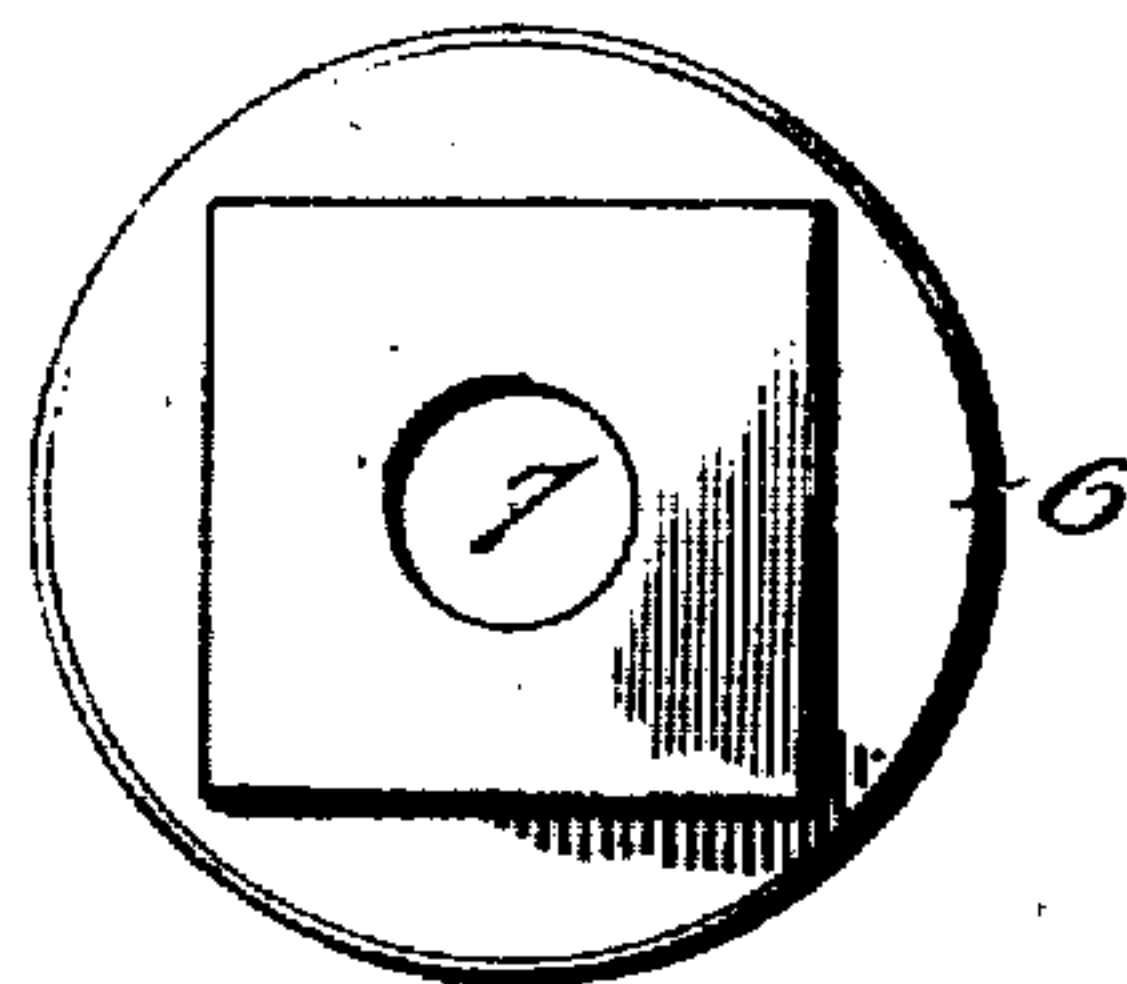
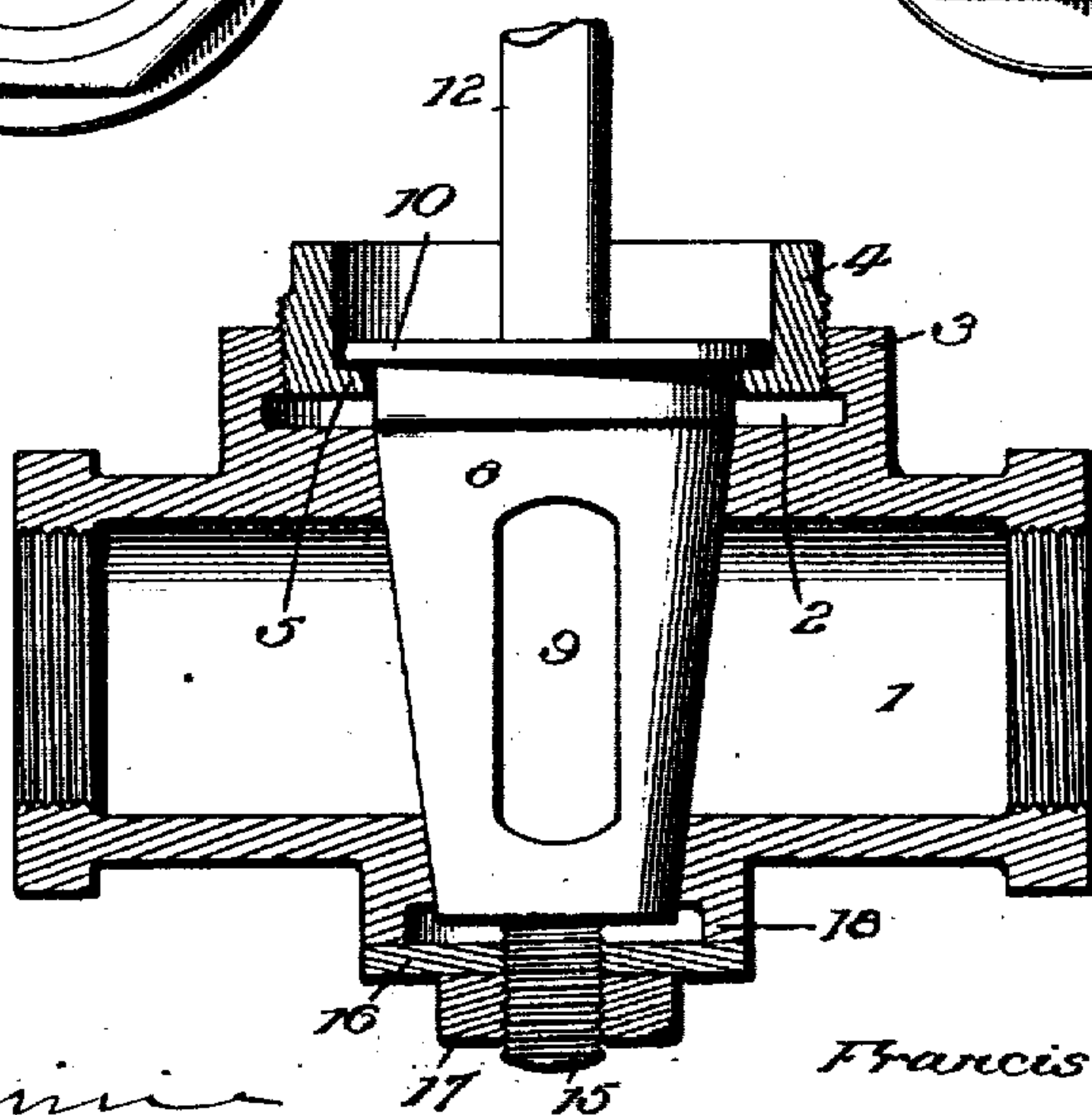


FIG. 4.



WITNESSES:

J. M. Miller
Francis S. Maguire

BY

INVENTOR
Francis Sticker
F. Sticker
Attorney

UNITED STATES PATENT OFFICE.

FRANCIS STICKER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
CHARLES A. DRUCKLIEB, OF NEW YORK, N. Y.

VALVE.

SPECIFICATION forming part of Letters Patent No. 769,031, dated August 30, 1904.

Application filed June 9, 1903. Serial No. 160,722. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS STICKER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Valves; 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.

This invention relates to that class of valves or cocks generally employed on steam and hydraulic engines equipped with means for securely holding the conical valve-body to its seat, yet readily moving the valve longitudinally to a slight extent when necessary to overcome the frictional engagement by which it may be held and permit of its being turned axially to control the passage of fluid.

The object of the invention is to provide improved means for so balancing the plug as to prevent the binding thereof and yet permit of ready longitudinal adjustment in the event of the plug sticking in its seat, such means being simple and inexpensive and effectively guarding against leakage.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view showing a valve and casing and coacting parts constructed in accordance with my invention. Figs. 2 and 3 are plan views of the sleeve and nut, respectively. Fig. 4 shows a slight modification.

Referring to the drawings, 1 designates the valve-casing, provided with a conical valve-seat extending transversely therethrough. The upper wall of the casing is formed with a chamber 2, surrounded by a concentric flange 3, the inner face of which is threaded.

4 designates a sleeve designed to be accommodated by the flange and threaded on its inner and outer faces. At its inner end the sleeve is provided with a seat or stop, shown in the form of an internal annular flange 5; but in lieu of the flange a series of studs or pins may be employed. The peripheral surface of the sleeve beyond its outer thread is square or octagonal to permit of the applica-

tion of a wrench. An externally-threaded nut 6 is designed to be accommodated by the sleeve and is formed with a central opening 7, the central thickened portion being squared, similarly to the sleeve.

8 designates the valve-plug, having a port 9 of any preferred formation. The circular top of the valve-plug extends laterally beyond the plug-body to form an annular flange or shoulder 10, which is designed to rest on the flange-seat of sleeve 4.

The stem 12 extends through the opening 7 of the nut and carries a handle on its outer end. Interposed between the top of the plug and nut 6 are a metallic washer 13 and elastic packing 14, the office of the former being to present a smooth surface to the packing, thus obviating the effect upon the latter by frictional contact with the nut and the top of the valve.

In assembling the parts sleeve 4 is positioned within chamber 2 and valve 8 then introduced within the casing and seated, after which the sleeve is rotated outwardly until its flange 5 contacts with shoulder 10 to an extent to guard against any greater contact between the valve-plug and its seat. The sleeve is then held by a wrench and nut 6 is rotated inwardly, compressing packing 14 and binding shoulder 10 against flange 5, the plug being thus balanced. When it is desired to adjust the valve axially to control the fluid-passage, the handle is operated in the usual way. If, however, the valve has become stuck in its seat, it is only necessary to slightly loosen sleeve 4, (nut 6 moving with it,) and the valve is free to be turned axially, since any outward movement of the sleeve carries the plug with it. This loosening of the sleeve need be but very slight to sufficiently release the plug. If the latter be moved too much from its seat, gritty substances will get in the finished bearings and destroy them.

In the modification shown in Fig. 4 nut 6 as an element acting within the sleeve is dispensed with and in lieu thereof a threaded post or spindle 15, projecting from the inner end of the plug and having a washer 16 and nut 17, is employed. The washer moves freely

over the flange 18, surrounding the opening in the casing, when the valve is being turned axially to control the fluid-supply, and hence no longitudinal movement of the valve results therefrom. When, however, it is desired to slightly loosen the valve-plug, nut 17 is rotated outwardly and sleeve 4 rotated as before described. Thus nut 17 simply performs the office of holding the plug and not of moving it, as it is known that the wedge action with which the conical plug is held when it becomes stuck cannot be overcome by force applied to its smaller end. Hence the office of the sleeve-seat in both the preferred and modified forms of embodiment of the invention is to balance the plug between two stops to prevent binding and allow of ready adjustment in the event of the plug sticking in its seat.

The advantages of my invention are apparent to those skilled in the art. Its embodiment is simple and effects economy in the manufacture of this class of valves. It is entirely independent in operation from the means for turning the valve axially, and consequently may be operated to move the latter longitudinally sufficiently to release it without changing its axial adjustment. The sleeve may readily be adjusted to accommodate the valve when the latter is seated, and hence when the valve becomes worn and projects farther down into the casing it is only necessary to move the sleeve to conform to the extent to which the valve projects above the opening in the casing.

It will be understood that the purpose of the packing 14 is to act as a cushion and not for the prevention of leakage, as I rely upon the fit of the plug within its seat to obviate leakage. For this reason when the modified construction is employed the packing is not essential.

While the invention is primarily applicable to blow-off cocks, its adaptability to various uses is apparent.

I claim as my invention—

1. The casing having a valve-seat extending therethrough, a valve-plug fitted in said seat and having a circumferential projection, and means for holding such plug in balance within its seat, comprising two elements, one forming a support for said projection and the other for holding such projection to such support and independent means for turning said plug axially, substantially as set forth.

2. The casing having a conical valve-seat ex-

tending therethrough, a conical rotary valve-plug fitted in said seat, means acting on the widened end of said plug for moving the latter longitudinally from its seat, such means forming a support for said plug, coacting means for holding said plug to said support and independent means for turning said plug axially, as set forth.

3. The casing having a conical valve-seat extending therethrough, a conical rotary valve-plug fitted in said seat, a sleeve mounted in said casing at the widened end of said seat forming a support for said plug and adjustable to move said plug longitudinally from its conical seat, means for binding said plug against said sleeve and independent means for turning said plug axially, as set forth.

4. The casing having a tapered opening forming a valve-seat, a chamber into which such seat opens, a sleeve fitted in such chamber and adjustable therein, such sleeve having an internal annular flange, a valve-plug axially rotatable in such seat having a circumferential shoulder designed to fit against said flange, and means for binding said shoulder against said flange, as set forth.

5. The casing having a circular chamber, an interiorly-threaded flange surrounding such chamber, a sleeve working in said flange and having an internal annular flange, a rotary valve-plug having a shoulder designed to rest on said flange of the sleeve, and a nut threaded in said sleeve and designed to bind the plug between itself and the sleeve-flange, as set forth.

6. The combination with a valve-casing having a tapered valve-opening and a chamber, an interiorly-threaded flange surrounding such chamber, and a valve-plug fitted in the opening, such plug having a shoulder on its outer end and also having a stem, of a sleeve threaded in said flange and having a seat designed to contact with the shoulder of such valve-plug, a nut threaded in said sleeve having a central opening designed to accommodate said stem, and a metallic washer and packing between said nut and the outer end of said plug, as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRANCIS STICKER.

Witnesses:

GRAFTON C. MCGILL,
FREDERICK S. STITT.