

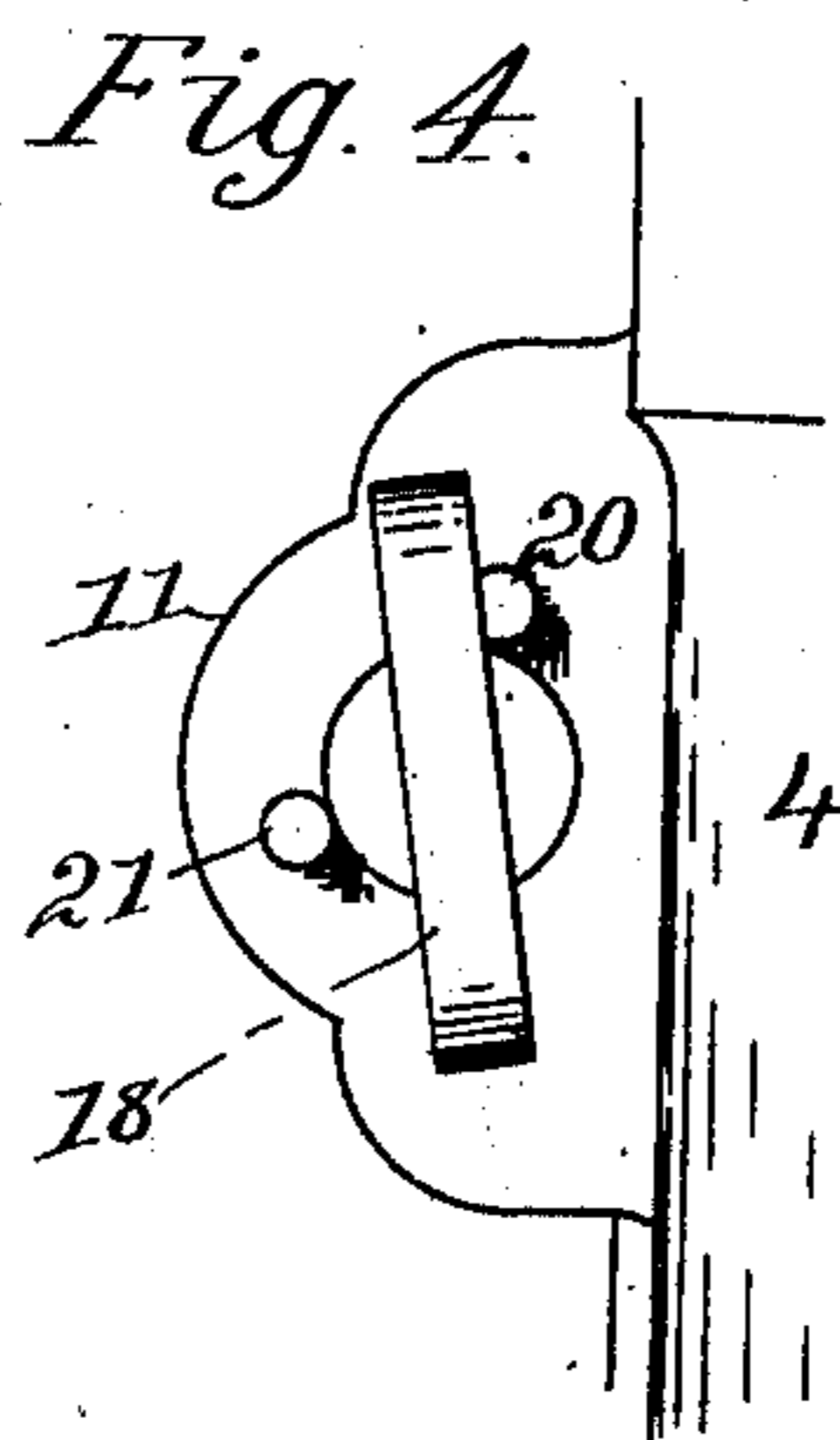
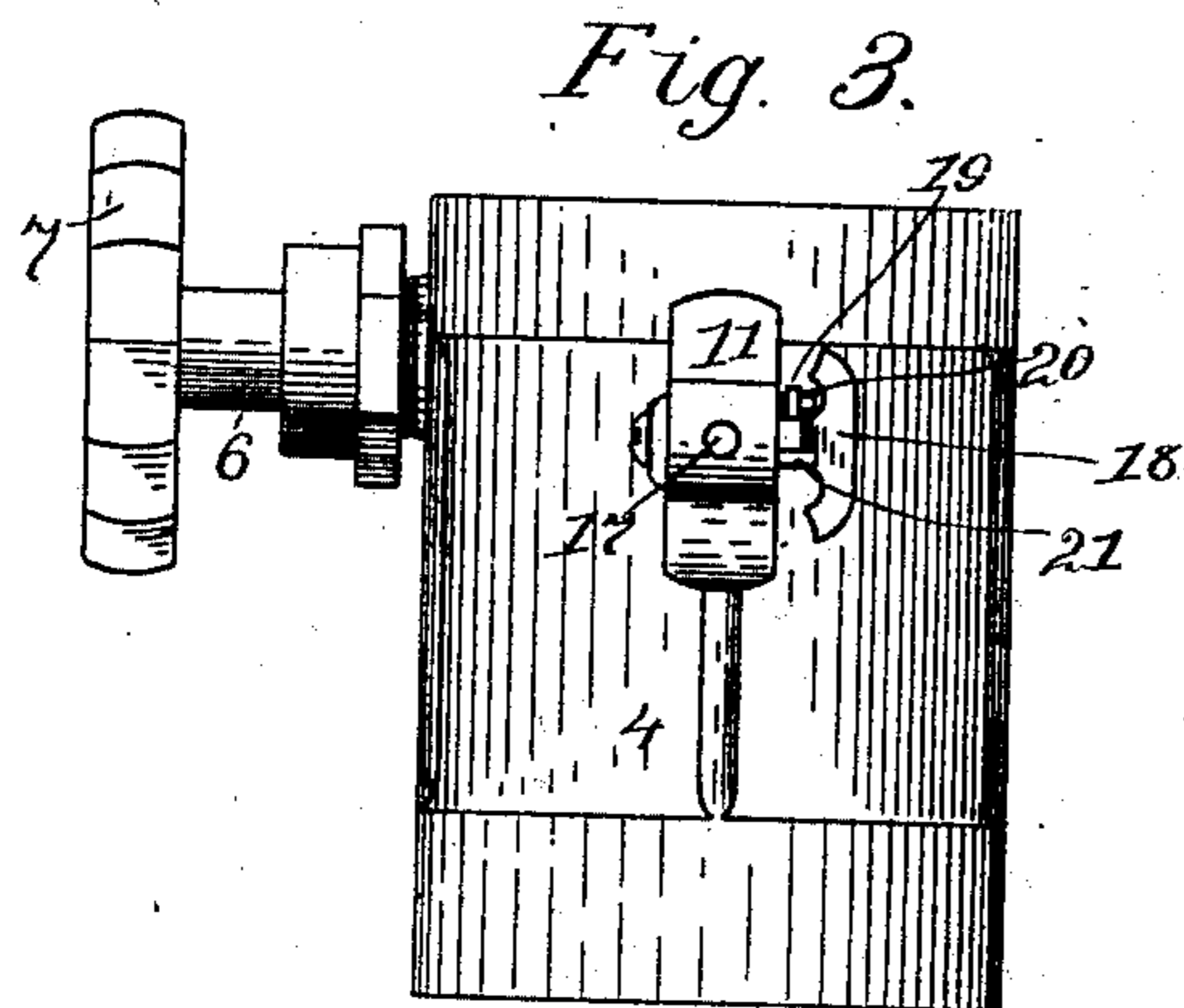
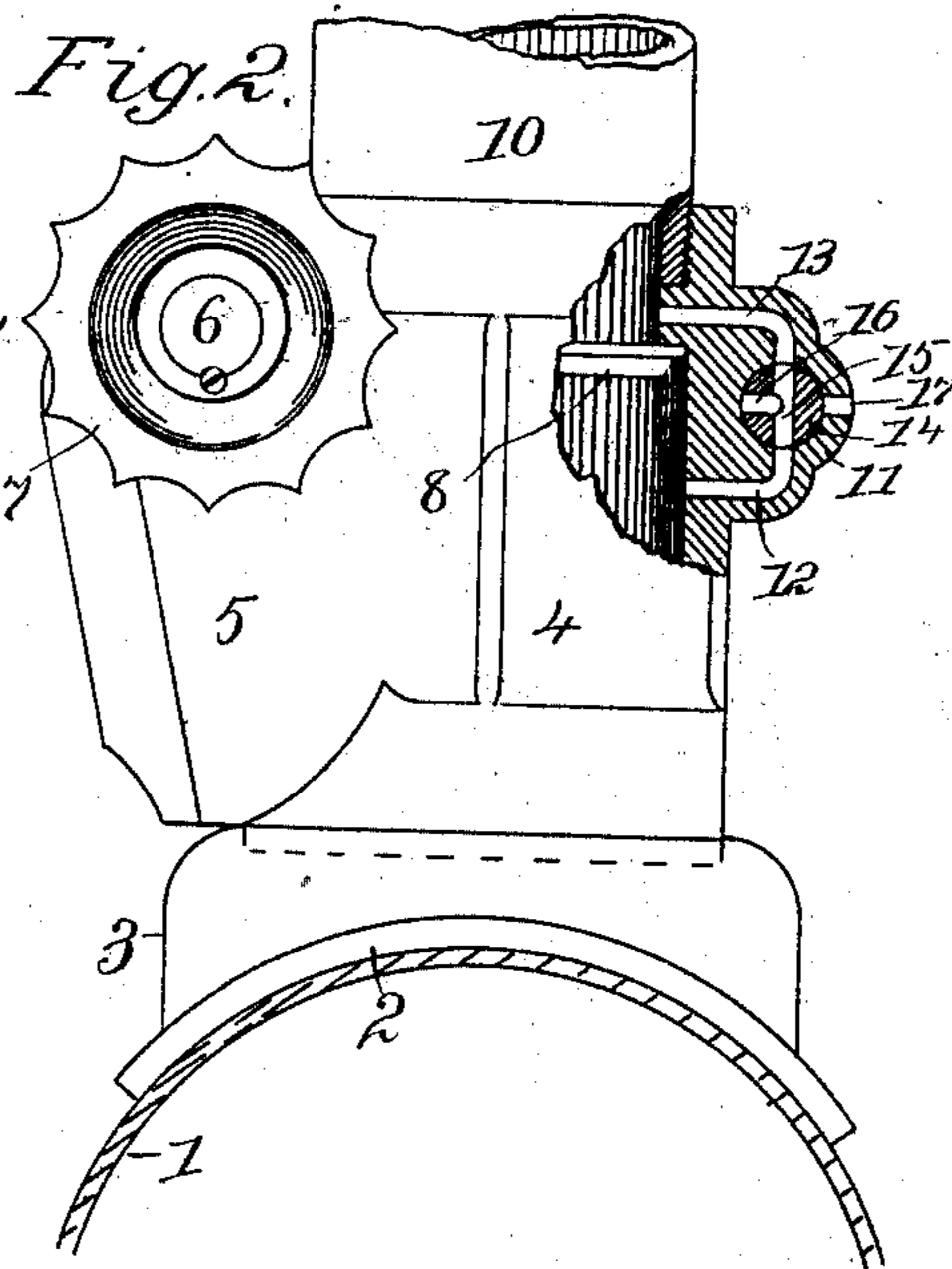
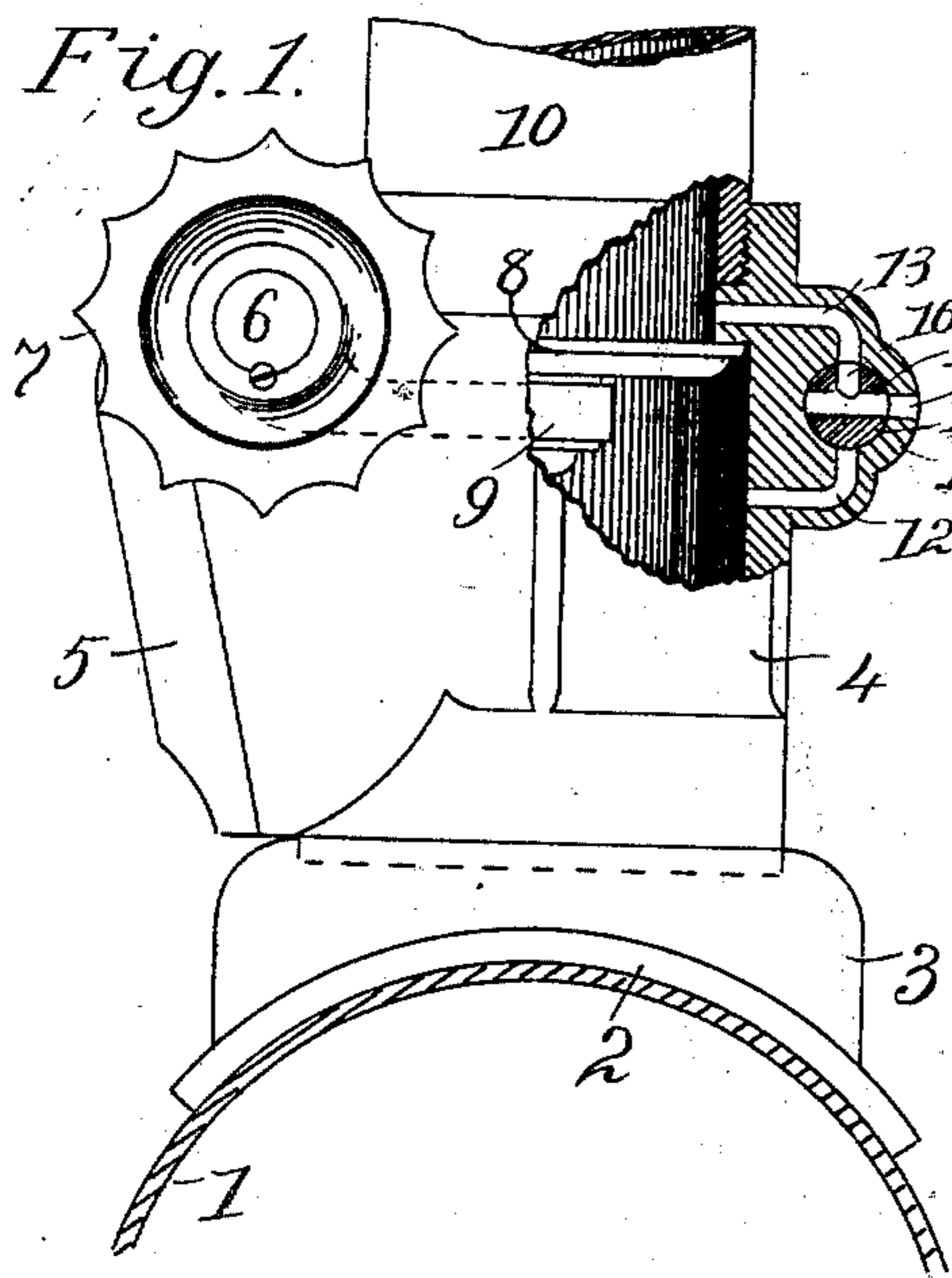
No. 660,760.

Patented Oct. 30, 1900.

O. MUELLER.
TAPPING MACHINE.

(Application filed Aug. 30, 1900.)

(No. Model.)



Witnesses,
Nora Graham.
Ina Graham.

Inventor,
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UNITED STATES PATENT OFFICE.

OSCAR MUELLER, OF DECATUR, ILLINOIS, ASSIGNOR TO THE H. MUELLER MANUFACTURING COMPANY, OF SAME PLACE.

TAPPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 660,760, dated October 30, 1900.

Application filed August 30, 1900. Serial No. 28,607. (No model.)

To all whom it may concern:

Be it known that I, OSCAR MUELLER, of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Tapping-Machines, of which the following is a specification.

This invention relates to machines for drilling, tapping, and inserting corporation-cocks in pipes in which water is under pressure, and it relates to the by-pass and relief-outlet of such machines. It is designed to simplify the construction of the by-pass and relief-outlet by combining both in one, it is designed to assure proper manipulation of the by-pass and relief-outlet by making it impossible to misuse or misadjust them, and it is also designed to lessen danger of breakage in the exposed parts of the relief-outlet and the by-pass.

The invention is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of the valve-body of a tapping-machine, a part thereof being broken away to show the combined by-pass and relief-outlet in cross-section. Fig. 2 is the same as Fig. 1, except that the position of the plug of the by-pass and relief-outlet is shown in a different position. Fig. 3 is an elevation of the valve-body with the by-pass and waste-hole turned toward the observer. Fig. 4 is a detail in side elevation of the finger-wings of the plug and the stops therefor.

A fragment of pipe is shown at 1, a gasket at 2, a saddle at 3, and a valve-body at 4. In this instance the valve-body has a gate-valve 8, attached to a stem 6 through an arm 9. The stem 6 has a hand-wheel 7, by means of which the gate is opened and closed, and the valve-body is recessed or enlarged, as shown at 5, to contain the opened gate. This construction, however, has no particular reference to my invention beyond exemplifying a valve that may be used to close the machine after the pipe has been drilled and tapped and while a cock is attached to the boring-bar in place of the drilling and tapping tool.

The valve-body, of some suitable form, rests on a saddle, as 3, the saddle is fitted against a gasket, as 2, on a pipe, as 1, and the entire

machine is fastened to the pipe in a manner well understood. A cylinder 10 extends from the upper or outer end of the valve-body, and with such cylinder suitable drilling and tapping mechanism is connected. When the machine is attached to a pipe, the gate is left open and the drilling and tapping tool is inserted through the valve-body into contact with the pipe. The upper end of the machine is closed in the customary manner, and when the drilling and tapping tool has penetrated the pipe water therefrom fills the tapping-machine and exerts pressure therein equal to the pressure in the pipe. When the drilling and tapping operation is completed, the tap is withdrawn from the pipe and raised above the gate, the gate is closed, and a part of the water above the gate is drawn off, so as to give the bottom of the gate the pressure existing in the pipe for the purpose of holding the gate closed, the boring-bar is detached from the machine by opening the machine above the gate, a corporation-cock is substituted for the drilling and tapping tool in the boring-bar, the boring-bar is replaced in the machine with the corporation-cock above the gate, and the upper part of the machine is closed. Then water is passed around the gate until the upper part of the machine is filled and pressure is equalized on both sides of the gate, the gate is opened, and the corporation-cock is set in place by the boring-bar. After this the water in the machine may be drawn off to a considerable extent, so as to do away with the flow of water that would otherwise result from detaching the machine from the pipe, and as a final act the machine is detached.

It is to the controlling of pressure on the gate and to the release of water from the upper or outer part of the machine that my invention relates, and an embodiment thereof is as follows: The wall of the valve-body 4 is thickened at 11, adjacent to the seat of the valve, and a plug 14 has a bearing crosswise of extension 11. The plug is bored diametrically at 15 to form a by-pass passage and it is bored radially at 16 to form a relief-passage. The two bores through the plug are at right angles one with the other, and together they make of the plug a three-way cock. The plug is located near the seat of the gate-valve. A passage-way 12 extends from the lower side

of the plug into the valve-body below the closed valve, and a passage-way 13 extends from the upper side of the plug into the valve-body above the closed valve. A passage-way 5 17 extends outward from the plug through the shell thereof and constitutes a waste or relief opening. The plug has a winged head 18 or other provision for turning it. A pin 19 extends radially from the stem of the plug.

10 A stop 20 controls the turn of the plug in one direction and a stop 21 controls the turn of the plug in the contrary direction. When the pin 19 or other protuberent part of the plug-stem is in contact with stop 20, the diametrical 15 bore of the plug forms a communication between passage-ways 12 and 13, and a by-pass is established around the closed valve, as shown in Fig. 2; but when the pin of the plug is against stop 21 one end of the diametrical 20 bore is in line with outlet-passage 17 and the radial bore coincides with the upper passage-way 13, as shown in Fig. 1. So whenever it is desired to form a by-pass to equalize pressure on the gate the plug is turned against 25 stop 20, and whenever it is desired to close the by-pass and relieve the pressure in the machine above the valve the plug is turned against stop 21. Whenever the by-pass is established the outlet is closed. Whenever the 30 outlet is opened the by-pass is closed, and so

it is impossible to get one adjustment right and the other wrong, as happens occasionally when the by-pass plug and the relief-valve are separately constructed and independently used.

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The shell of the plug extends away from the valve-body and the winged end of the plug is protected by such extension.

I claim—

1. In a tapping-machine, a valve-body, a 40 valve therefor, a by-pass establishing a communication between the divisions of the valve-body formed by closing the valve, an outlet-opening communicating with the by-pass, and a three-way plug in the by-pass and the out- 45 let-passage, substantially as described.

2. In a tapping-machine, a valve-body, a valve therefor, a by-pass establishing a communication between the divisions of the valve- 50 body formed by closing the valve, an outlet-opening communicating with the by-pass, a three-way plug in the by-pass and the outlet-passage and stops to limit the turn of the plug, substantially as described.

In testimony whereof I sign my name in the 55 presence of two subscribing witnesses.

OSCAR MUELLER.

Witnesses:

HAUBERT BLACK,
ERNEST SKELLEY.