

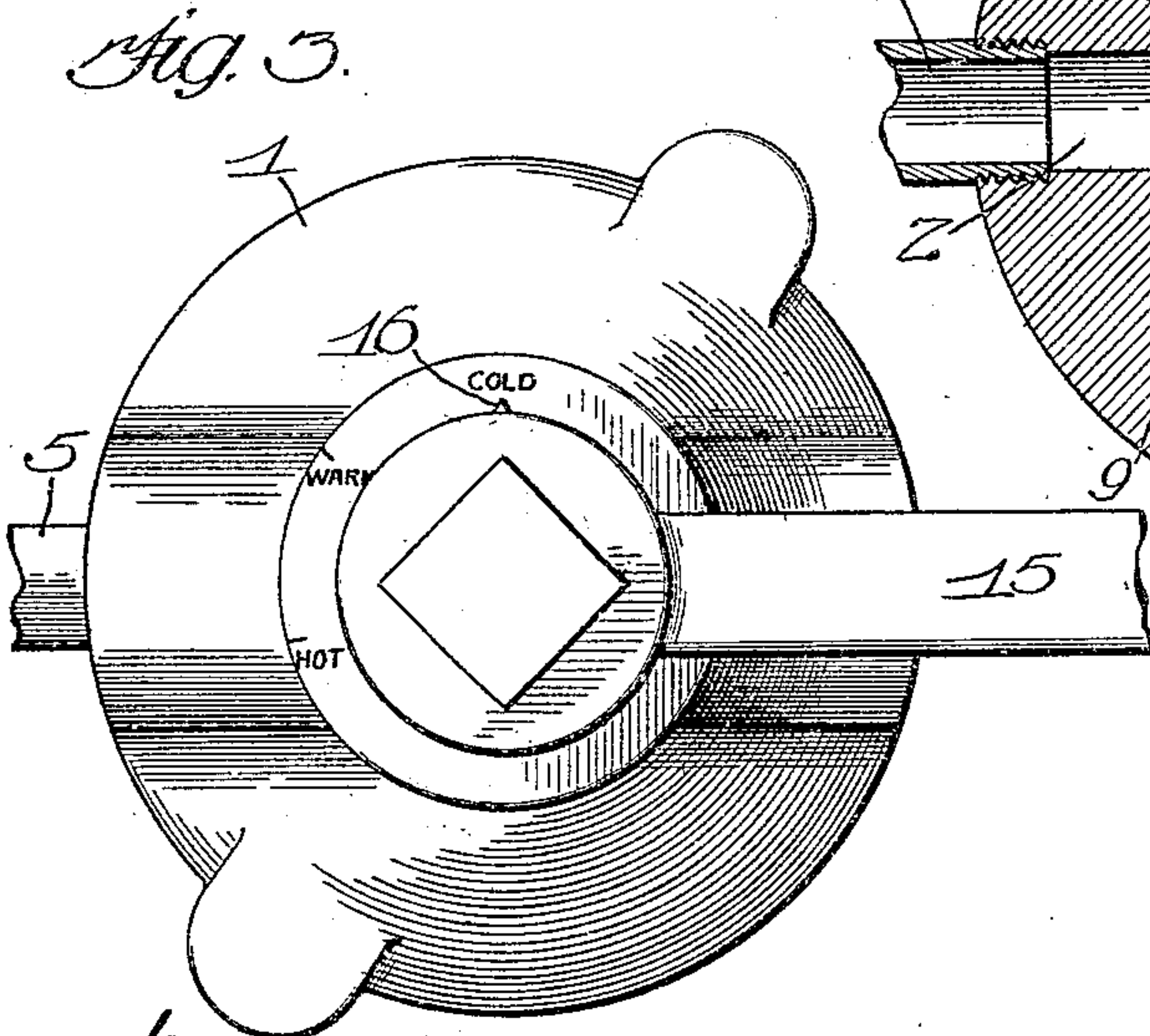
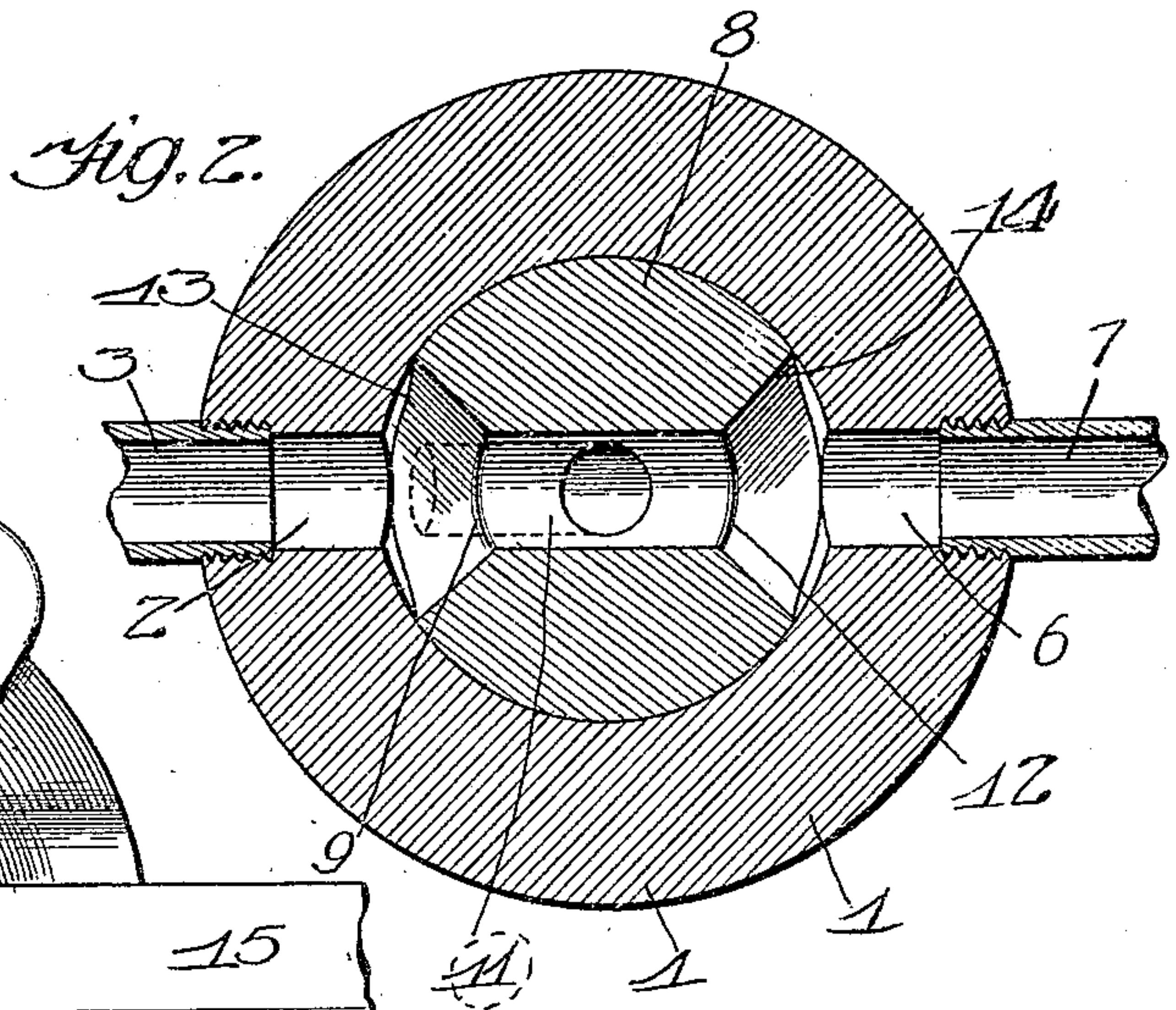
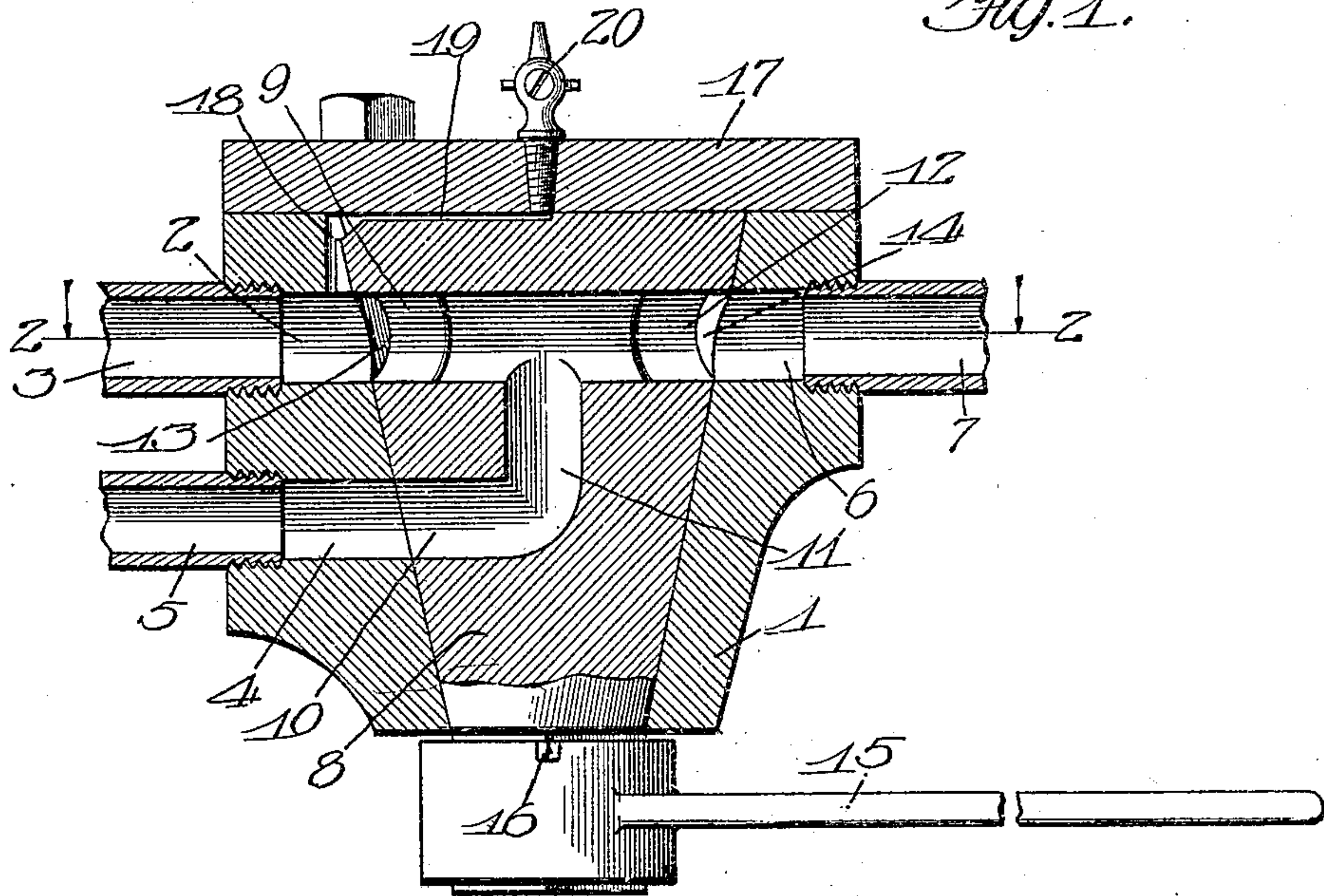
D. E. WASHINGTON.

VALVE.

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958,451.

Patented May 17, 1910.



Witnesses:
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UNITED STATES PATENT OFFICE.

DIXON E. WASHINGTON, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO CHARLES W. PATTON, OF CHICAGO, ILLINOIS.

VALVE.

958,451.

Specification of Letters Patent.

Patented May 17, 1910.

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To all whom it may concern:

Be it known that I, DIXON E. WASHINGTON, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Valves, of which the following is a full, clear, and exact specification.

My invention relates more particularly to valves especially designed for controlling hot water supply and it has for its primary object to provide an improved and efficient form of valve for this purpose in which steam and water may be mixed together in any desired proportions for raising the water to the desired temperature while it passes into or through a discharge port of the valve, a further object being to provide improved means whereby the possibility of turning on the steam before turning on the water, or shutting off the water before shutting off the steam will be precluded, and hence any danger of damage to the hose, pipe or passage leading from the discharge port of the valve, or danger of injury to the person manipulating the valve will be avoided.

With a view to the attainment of these ends and the accomplishment of certain other objects, which will hereinafter appear, the invention consists in the features of novelty which will now be described with reference to the accompanying drawings and then more particularly pointed out in the claims.

In said drawings Figure 1 is a plan view of a valve embodying this invention, half of the structure being shown in plan section. Fig. 2 is a cross section taken on the line 2—2 of Fig. 1, and Fig. 3 is a front elevation.

1 is a valve housing or shell, which is provided with a port 2 for the admission of water through a suitable supply connection 3, and with another port 4 for the admission of steam through a suitable supply connection 5. At a point removed from these two ports 2, 4, and preferably diametrically opposite, the casing is provided with a third port 6, which is the discharge port and with which may be connected the hose, pipe or passage 7 to be supplied with hot water or water of varying degrees of temperature.

Situated within the shell or housing 1, whose interior is preferably funnel shaped,

is a plug 8, which is cone-shaped, as usual, and fits accurately within the shell 1. This plug is provided in one side with two ports, 9, 10, which are adapted to register respectively with the ports 2, 4, of the shell or housing and these two ports, 9, 10, are connected together by a passage 11. In the opposite side of the plug is formed a third port 12 which communicates with both ports, 9, 10, and which is arranged to register with the port 6 in the housing. The construction, formation, or arrangement of these various ports in the housing and plugs is such that when the plug is rotated to turn on the supply through the discharge port 6, the water port 2 will be opened and communication established between the same and the port 6 before the steam port 4 is opened at all, or opened any degree. As a simple and convenient means for accomplishing this result, the water port 9 is preferably provided with a laterally extended or flaring mouth 13 and the discharge port 12 is similarly flared or extended, as shown at 14, at its outer end, the degree of lateral extension or flare of both of these ports being such that before the steam port 10 reaches or coincides to any material extent with the steam port 4 of the housing, the mouth 13 will have coincided with the water port 2 of the housing a sufficient extent to supply a material amount of cold water to the discharge port 6 to prevent the steam, when it is turned on, from burning the discharge pipe 7 or injuring the operator, and the flaring discharge end of the port 12 will have coincided with the discharge port 6 to allow the cold water to enter the pipe 7. Thus, by a continued rotation of the plug 8, the steam port 10 will eventually come into full register with the steam port 4, while the degree of coincidence between the water port 9 and port 2 will continue to increase until the port 2 is entirely uncovered. The flaring ends 13, 14 of the ports 9, 12 being extended in both directions, it will be seen that it makes no difference which way the valve plug is rotated for opening the valve, the result will always be the same and that the water will be turned on first and shut off last. It will also be seen that by gaging the opening or degree of rotation of the valve water at any desired degree of temperature, from the minimum contained in pipe 3 to the maximum capable of being pro-

duced from the full head of steam in the pipe 5, may be obtained at will from the pipe 7, since the flaring mouths of the ports 9, 12 may be such that the water port 2 will be placed in substantial registration or communication with the discharge port 6 before the steam port 4 is opened at all, hence at the first stage of the operation cold water may be drawn, if desired.

For convenience in the manipulation of the valve, the end of the housing may be provided with a scale or graduations, as shown in Fig. 3, marked respectively, "Cold," "Warm," "Hot," and the hub of the handle 15 may have a pointer or index 16 for indicating the position of the plug ports with respect to the housing ports, the words "Cold," "Warm," "Hot" being read with reference to the position of this index 16.

The opposite end of the housing 1 may be closed in any suitable way, preferably by a cap 17, and if desired the pressure contained within the valve housing may be utilized as a means of packing the valve plug and keeping it tight. If this is to be done, the water port 2 is provided with a lateral passage 18 which admits water to the space 19 between the cap and the head of the plug. Should this pressure become so great as to interfere with the rotation of the plug, it may be relieved at the time of opening the plug or valve through a small cock 20 situated in the cap 17 but this would only be necessary or desirable where the pressure is very great and the end of the plug 8 is of excessive size.

If desirable, when no hot water whatever is required, the handle 15 may be rotated through $\frac{1}{2}$ revolution and the port 12 will then coincide with water passage 3 and port 2 and the blank part of plug 8 will be presented to port 4 and water passage 5, thereby converting the valve into a single connection cold water valve.

When this valve is used on sinks and bath tubs, the operation will be reversed and water passage 3 will be hot water, while passage 5 will be cold water.

In order that the invention might be understood by those skilled in the art, the details of an exemplification thereof have been thus specifically described but

What I claim as new therein and desire to secure by Letters Patent is—

1. In a valve, the combination of a housing having spaced inlets and outlet, a plug in said housing having one port communicating with one of said inlets and the outlet in the housing and a second port having communication with the first said port and the other inlet of the housing, both ends of

the first said port in the plug being enlarged in both directions of the rotation of the plug, whereby the inlet and the housing corresponding to that port in the plug will be placed in communication with the outlet of the housing in advance of the opening of the other said port in either direction of rotation of the plug.

2. In a valve, the combination with a housing having inlets in different planes transverse to the axis of said housing and an outlet, of a plug provided with a plurality of ports for connecting each of said inlets with said outlet and adapted to mix the fluids from the different inlets, said ports being suitably shaped and disposed to insure one and the same inlet being connected first with the outlet.

3. In a valve, the combination with a housing having an inlet and an outlet oppositely disposed and a second inlet spaced from the first inlet, of a plug provided with a port adapted to connect the first inlet and said outlet and with a second port adapted to connect the second inlet with the first port, the first said port being provided with ends enlarged in the plane of its movement in such manner as to cause the first inlet to be connected with the outlet first and to be cut off therefrom last.

4. In a valve, the combination of a valve housing having two supply inlets and an outlet, a plug within the housing, said plug having three ports connected together and corresponding respectively with said inlets and outlet, said ports in the plug being so proportioned and arranged that one and the same inlet will be placed in communication with the outlet in advance of the opening of the other inlet and will be cut off after the other inlet is cut off.

5. In a valve, the combination with a housing having inlets in different planes transverse to the axis of said housing, and an outlet, said inlets and outlet being disposed in the same axial plane of the housing, of a plug provided with a plurality of ports for connecting each of said inlets with said outlet, and adapted to mix the fluids from different inlets, said ports being suitably shaped and disposed to insure one and the same inlet being connected first with the outlet.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 23rd day of March A. D. 1907.

DIXON E. WASHINGTON.

Witnesses:

FRANCIS A. HOPKINS,
CHAS. H. SEEM.