

No. 886,285.

PATENTED APR. 28, 1908.

J. BARNES.
WATER COOLED REVERSING VALVE.
APPLICATION FILED JULY 3, 1905.

Fig. 2.

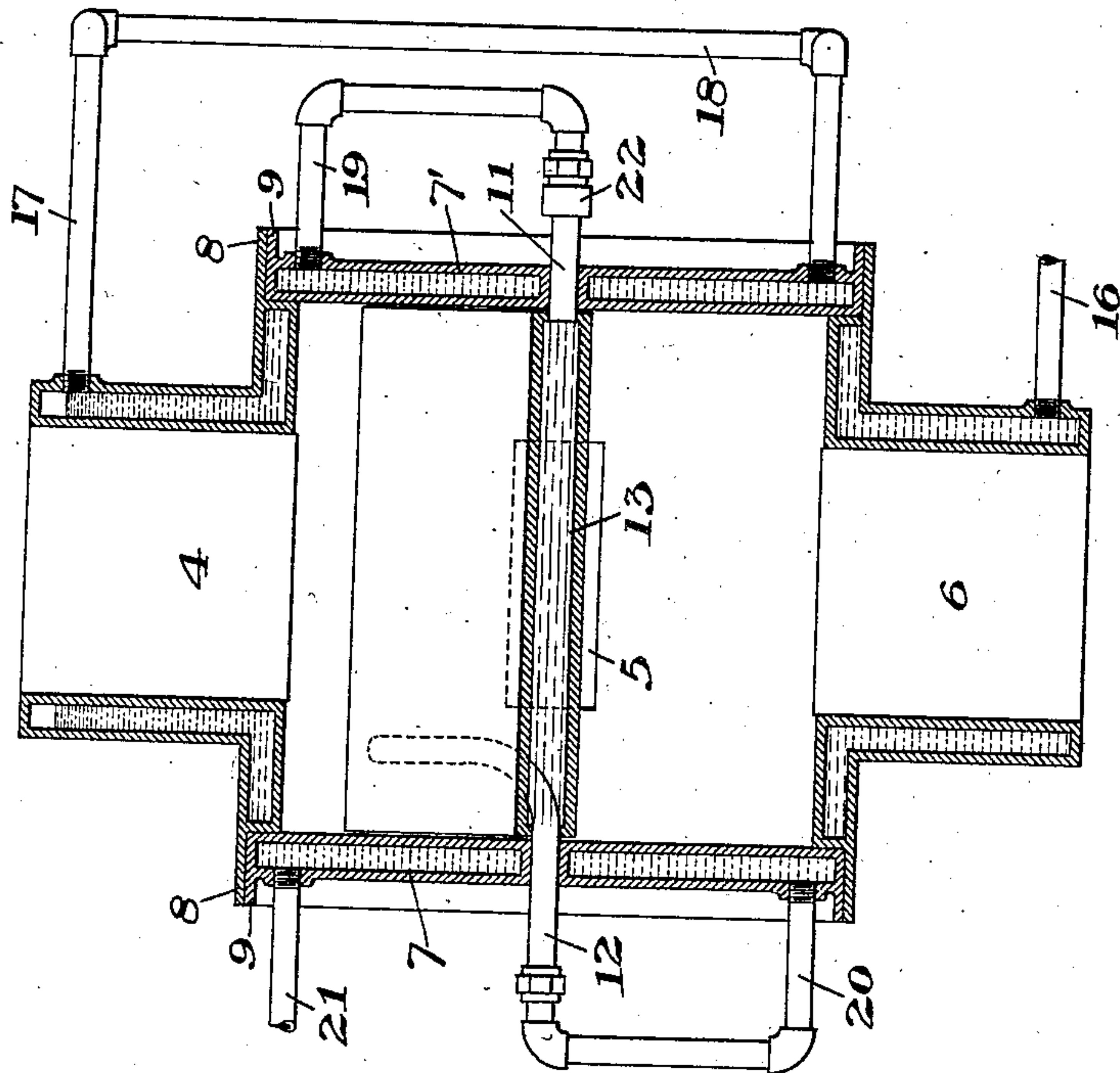


Fig. 1.

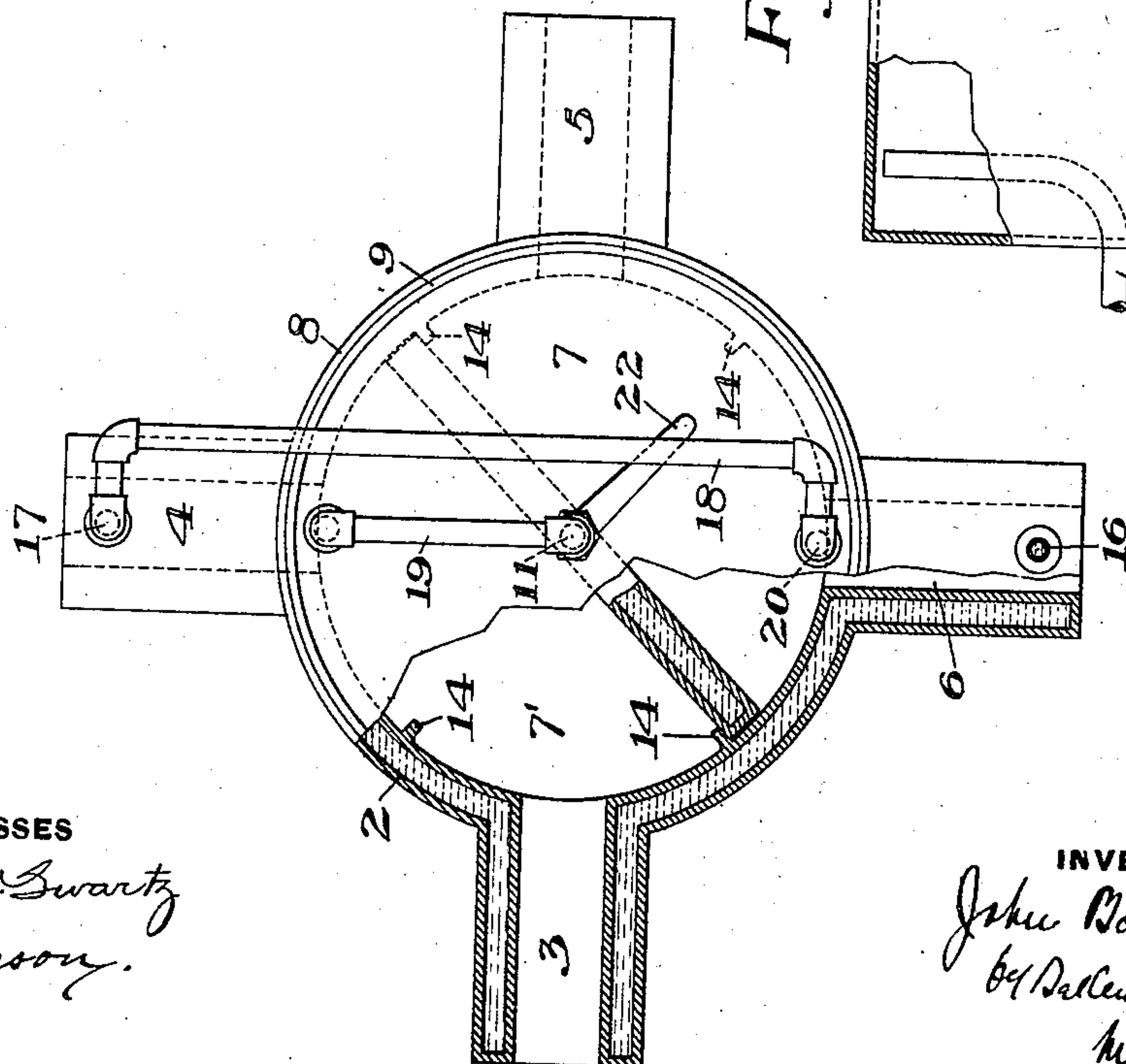
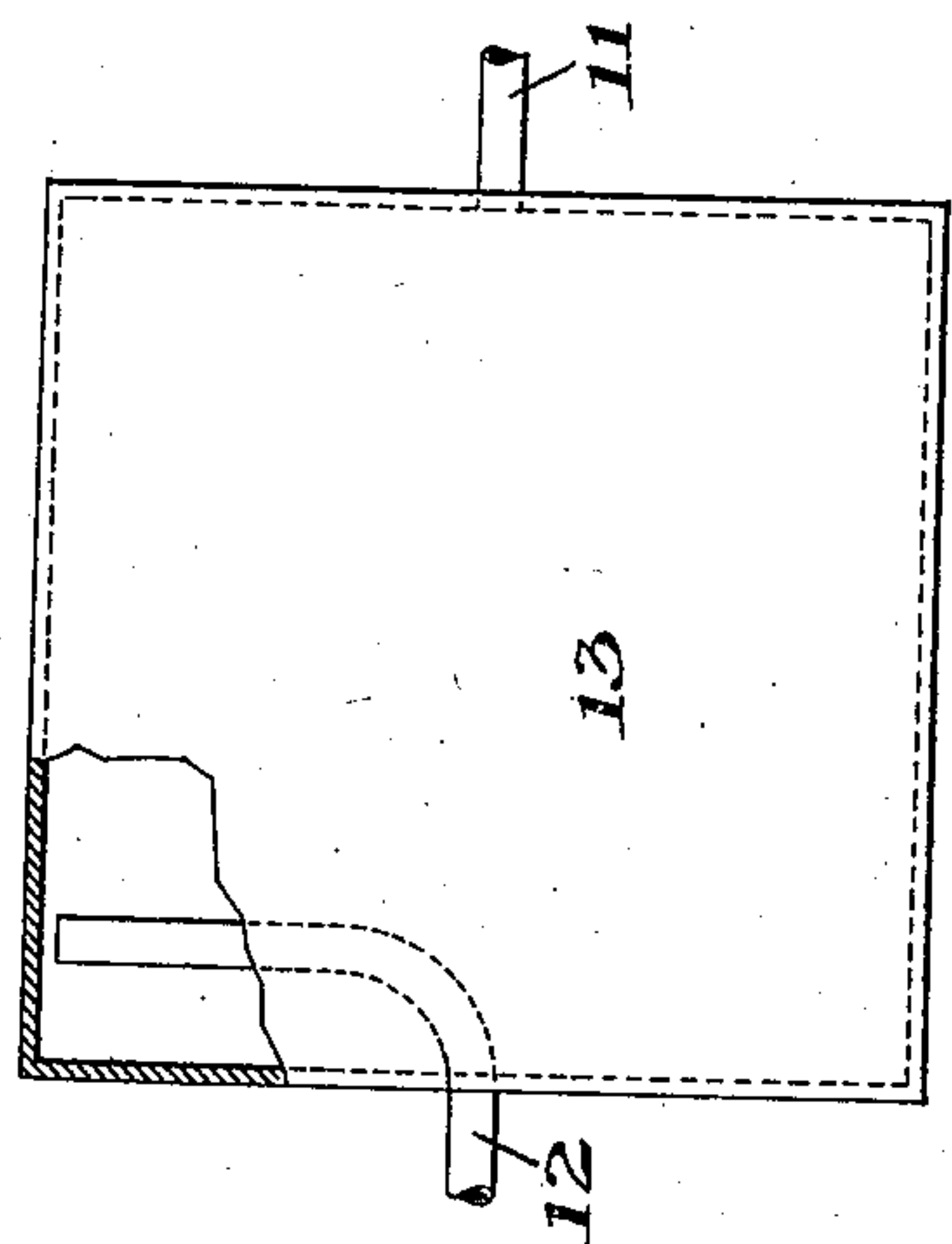


Fig. 3.



WITNESSES

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INVENTOR

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his attys

UNITED STATES PATENT OFFICE.

JOHN BARNES, OF PORTVUE, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO HARRY WOODS
AND ONE-THIRD TO CHARLES ZIMMERMAN, OF STEUBENVILLE, OHIO.

WATER-COOLED REVERSING-VALVE.

No. 886,285.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed July 3, 1905. Serial No. 268,070.

To all whom it may concern:

Be it known that I, JOHN BARNES, of Port-
vue, Allegheny county, Pennsylvania, have
invented a new and useful Water-Cooled Re-
versing-Valve, of which the following is a
full, clear, and exact description, reference
being had to the accompanying drawings,
forming part of this specification, in which—

Figure 1 is an end elevation partly in sec-
tion of my improved valve; Fig. 2 is a verti-
cal longitudinal section; and Fig. 3 is a
broken detail view of the valve proper.

My invention relates to the class of re-
versing valves for regenerative furnaces; and
is designed to improve such valves by wa-
ter-cooling all the parts thereof, preventing
any substantial leakage of gas, and giving
them longer life.

In the drawings, 2 represents a cylindrical
double-walled casing having four double-
walled ports or channels 3, 4, 5 and 6 leading
through its curved walls. The cavity be-
tween the concentric walls of the main cham-
ber preferably communicates freely with the
annular spaces in the double-walled ports.

The ends of the main chamber are closed
by hollow water-cooled plates 7 and 7'.
These may be secured in place in any desir-
able manner, and I have shown them as
seated within rings or flanges 8 on the casing
to which they may be bolted through inter-
fitting flanges 9 on the covers. Each of
these covers is shown as being of circular
form, and is provided with a central plug or
post through which the pipes 11 and 12
forming the trunnions for the valve 13 ex-
tend. The valve is of the butterfly type, is
hollow, and its outlet pipe 12 is curved with-
in the valve and extends nearly to its upper
edge, so as to insure the valve being practi-
cally full of water at all times. I have
shown the inner wall of the chamber as pro-
vided with ribs 14 against which the edges of
the valve seat in its two positions.

The water connections for maintaining the
circulation may be arranged in many differ-
ent forms. In the form shown the amount
of water supplied enters the wall of the
lower port 6 through the inlet 16. Water

flows out through the casing and through the
outlet pipe 17 in the top port, and thence is
led through pipe 18 into the lower portion
of the head 7. From the upper part of the
head 7 the water passes through outlet pipe
19 into pipe 11 which feeds the water into
the valve proper. It then flows out through
pipe 12 and thence through pipe 20 into the
lower part of the opposite head 8. It then
flows from the upper part of this head
through outlet 21. The valve may be
swung by any suitable connections, such as
the hand lever 22 connected to one of the
pipe trunnions.

The advantages of my invention result
from the simplicity and complete water cool-
ing of the valve in the casing. The casing
may be placed in many different positions
either vertically or horizontally. The water
connections may be separate for different
parts, and many other changes may be
made without departing from my invention.

I claim:—

1. A reversing valve having a double
walled casing formed with a plurality of port
openings, the walls of said openings extend-
ing beyond the casing and having annular
water spaces therein which communicate
with the space between the double walls of
the casing, and means for circulating water
through the said spaces, some of the circu-
lating connections being made directly to the
spaces in the port walls; substantially as de-
scribed.

2. A reversing valve, having a double
wall casing with port-openings therethrough,
the port openings also having extended
double walls which are integral with the ad-
jacent casing wall, and the interior spaces of
which communicate with the interior spaces
of the casing walls, substantially as de-
scribed.

In testimony whereof, I have hereunto set
my hand.

JOHN BARNES.

Witnesses:

JOHN MILLER,
H. M. CORWIN.