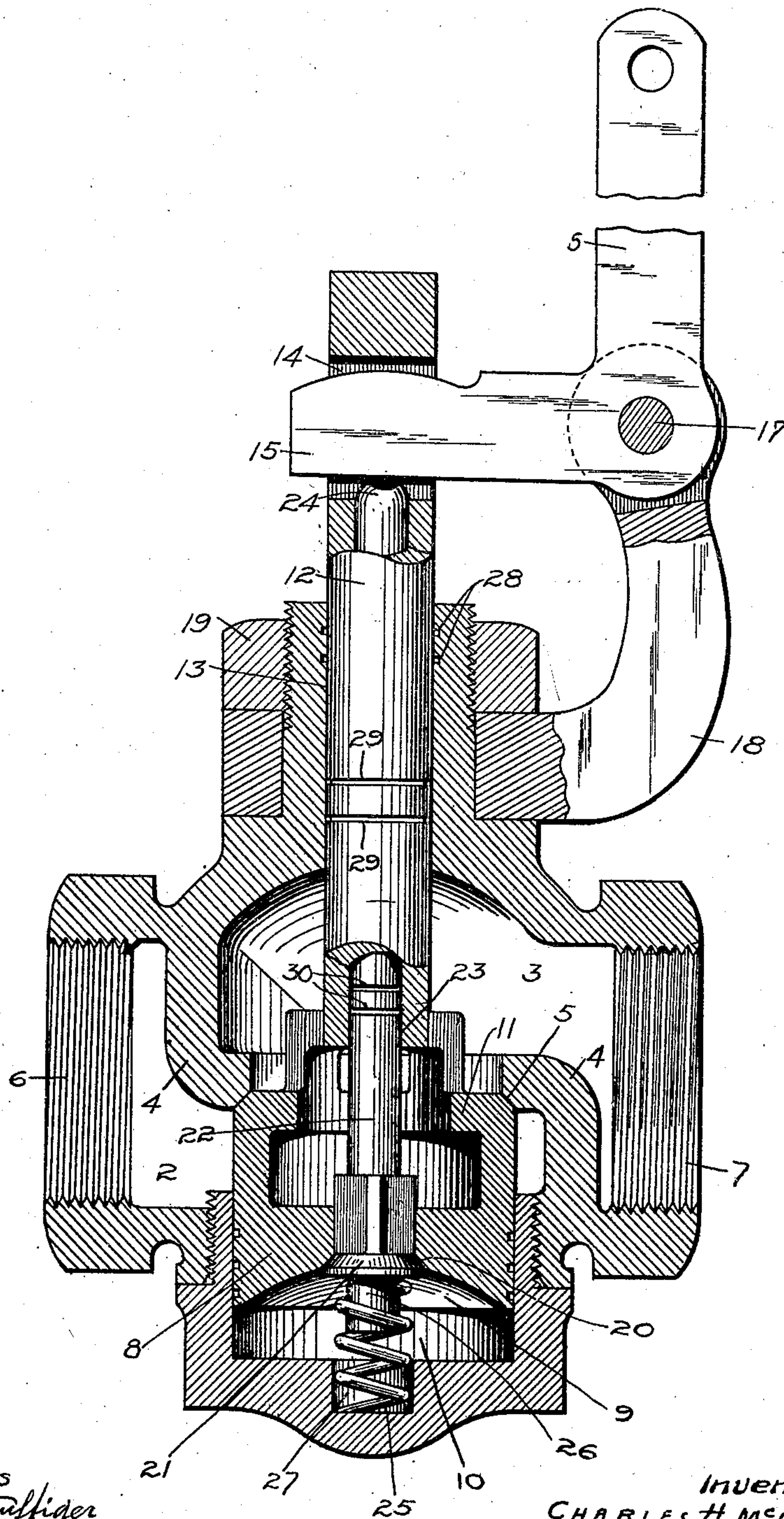


C. H. McCUTCHEON.
STEAM VALVE.
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915,467.

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Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES H. McCUTCHEON, OF BUFFALO, NEW YORK.

STEAM-VALVE.

No. 915,467.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES H. McCUTCHEON, citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Steam-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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in steam valves and more particularly to that type specially designed for operating boat, factory and other whistles.

The object of my invention is to reduce the necessary pressure on the operating lever or wheel, to a minimum.

To that end my invention consists of certain details of construction, all of which will be fully hereinafter described and claimed.

The figure of the drawing is a central longitudinal section of my improved steam valve.

Referring to the drawing, 1 is the valve casing with main steam-chamber divided into the compartments 2 and 3, by the partition-wall 4, provided with the valve-seat 5. The inlet-orifice 6 opens into the compartment 2 and the outlet-orifice 7 opens into the compartment 3 of the main steam-chamber. The main piston-valve 8 has its forward concave end 9 fitting snugly within the cylindrical auxiliary steam-chamber 10, its rear end 11 being adapted for opening and closing engagement with the valve-seat 5 in the partition-wall 4. The piston-rod 12 of the main valve 8 is seated and reciprocates within the cylindrical chamber 13, its outer projecting end being provided with the vertical socket 14, adapted for the loose reception of the short arm 15 of the operating lever 16, pivoted at 17 in the goose-neck 18, held rigid upon the valve casing, by the tightening-nut 19. Centrally located in the concave inner end 9 of the main valve 8 is the valve-seat 20 and 21 is the auxiliary valve fitted to the seat 20. The auxiliary piston-rod 22 of valve 20 is reciprocated within the central cylindrical chamber 23 of the piston-rod 12, its inner end 24 projecting into the vertical socket 14 of the piston-rod 12, when the valve 21 is in closed position, as shown in the drawing.

This valve 21 is held normally closed by the spiral spring 25, one end of which encircles the pin 26, integral with valve 21, its other end resting loosely within the socket 27, in the outer end wall of the auxiliary steam-chamber 10. Annular packing-grooves 28, 28, in the cylindrical chamber 13 and similar grooves 29, 29 and 30, 30, in the piston-rods 12 and 22, serve to prevent the escape and waste of steam.

In operation, when the lever 16 is depressed, its short arm 15 is first thrown into contact with the projecting end 24 of the auxiliary piston-rod 22, which causes the auxiliary valve 21 to recede from its valve-seat 20, thus throwing the auxiliary steam-chamber 10 into communication with the compartment 3 of the main steam-chamber. As the movement of the short arm 15, of lever 16, is continued, it moves the main piston-rod 12, which causes the main valve 8 to recede from its seat 5. The admitted steam then rushes into the compartment 3 of the main steam-chamber and through the main valve 8, into the auxiliary steam-chamber 10, thus instantly effecting a perfect steam balance on both sides of the main valve 8. In this manner, a very slight pressure of the lever 16 is required to operate the valve.

While specially designed to operate steam whistles, my improved construction is equally effective as a throttle-valve.

I claim.

1. The combination of a valve-case having inlet and outlet chambers, a passage connecting the same and an auxiliary chamber arranged within said inlet-chamber, a main valve controlling said passage and fitted in said auxiliary chamber, said valve having a relief-passage connecting the auxiliary chamber with the outlet-chamber of the case and a hollow stem extending through the wall of the case, a relief-valve of smaller diameter than the main valve arranged in the auxiliary chamber controlling said relief-passage and having a stem arranged in the stem of the main valve, and a common operating device for said stems arranged to act upon the relief-valve stem in advance of the main-valve stem, substantially as set forth.

2. The combination of a valve-case having inlet and outlet chambers, a passage connecting the same and an auxiliary chamber arranged within said inlet-chamber, a main valve controlling said passage and fitted in said auxiliary chamber, said valve having a

relief-passage connecting the auxiliary chamber with the outlet-chamber, a relief-valve of smaller diameter than the main valve controlling said relief-passage, and a spring arranged in the auxiliary chamber for closing the relief-valve, and means for opening said valves, substantially as set forth.

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

CHARLES H. McCUTCHEON.

Witnesses:

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GEO. H. FISHER.