No. 733,006. PATENTED JULY 7, 1903.

J. S. CHAMBERS.

THROTTLE VALVE.

APPLICATION FILED JULY 17, 1902.

NO MODEL.

Fig. 4.

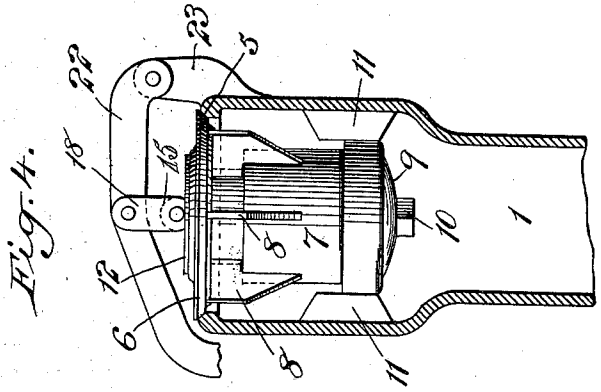


Fig. 1.

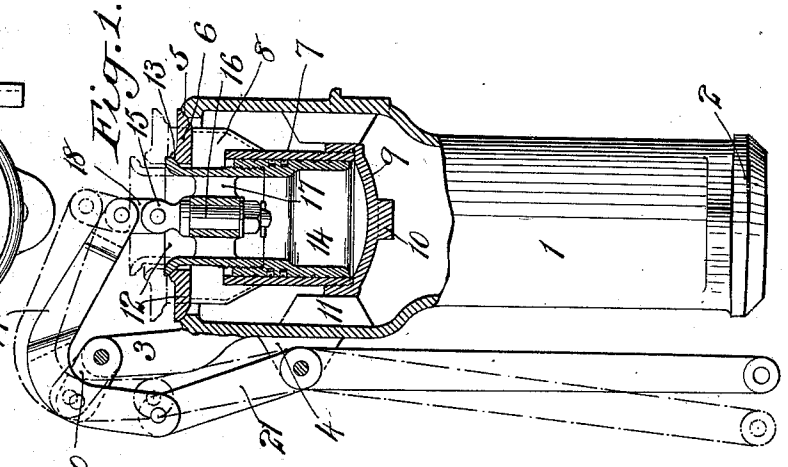


Fig. 3.

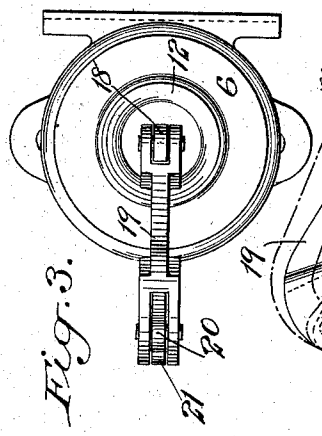
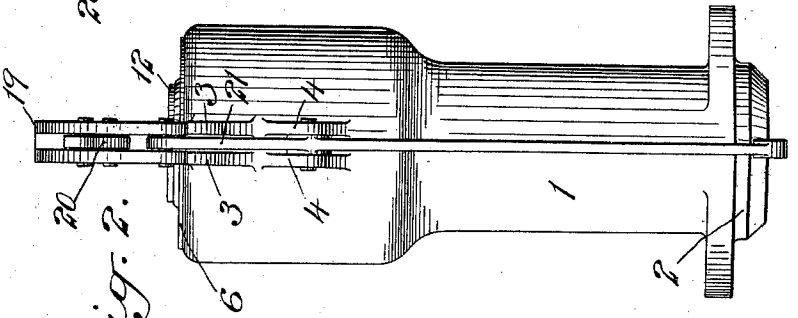


Fig. 2.



Witnesses:-
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No. 733,006. Patented July 7, 1903.

UNITED STATES PATENT OFFICE.

JOHN S. CHAMBERS, OF WILMINGTON, NORTH CAROLINA.

THROTTLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 733,006, dated July 7, 1903.

Application filed July 17, 1902. Serial No. 115,889. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. CHAMBERS, a citizen of the United States, and a resident of Wilmington, in the county of New Hanover and State of North Carolina, have invented a new and useful Improvement in Throttle-Valves, of which the following is a specification.

My invention relates to an improvement in throttle-valves, with the object in view of simplifying the structure and balancing the parts of a duplicate valve.

My present invention is directed more particularly to a structure in which the stand-pipe in the boiler is utilized as the casing for the outer part of the duplicate valve and the outer part of the duplicate valve is used as a casing for the inner part of the said duplicate valve.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the valve in vertical section, certain of the parts being shown in elevation. Fig. 2 is a view in elevation. Fig. 3 is a top plan view; and Fig. 4 is a view in vertical section, partly in elevation, of a modified form and arrangement of the valve-operating lever.

The stand-pipe is denoted by 1. It is provided at its base with suitable flanges 2 for securing it in position within the boiler, and its upper end, where the valves are located, is preferably enlarged and provided with brackets, in the present instance located one (denoted by 3) at the upper edge of the enlarged portion of the stand-pipe and the other (denoted by 4) located below the bracket 3.

The top of the stand-pipe is fitted with a valve-seat 5, on which the outer part 6 of the duplicate valve is adapted to rest when the valve is closed. The valve 6 is annular in form, and a cylinder or barrel 7 is fixed to and held depending from the valve 6 by means of legs 8, in the present instance six in number, arranged at equal intervals apart.

The lower end of the cylinder or barrel 7 is closed by a cap 9, fitted to screw onto the end of the barrel and conveniently provided with a fixed projection 10 for the reception of a wrench in screwing the cap on. The periphery of the cap 9 has a sliding engagement with the inner faces of a series of wings 11, extending inwardly from the wall of the stand-pipe, and serves to center the outer part 6 of the valve during its reciprocating movement.

The inner part of the duplicate valve is denoted by 12. It is made in the form of a hollow cylinder with its upper edge flanged and is constructed to seat on a valve-seat 13, formed on the inner edge of the outer part 6. The outer face of the body of the part 12 of the valve has a sliding engagement with the inner faces of the upper portions of the legs 8, the latter being offset inwardly over the top of the barrel 7. The cylindrical body portion of the part 12 of the valve is of less diameter than the interior of the barrel 7, attached to the outer part 6, leaving an annular space between the body of the part 12 and the interior of the band 7, which space is bridged by the offset portions of the legs 8. A hollow cylindrical piston 14 is secured on the lower end of the body of the part 12 and fits steam-tight within the barrel 7, the latter being preferably grooved to form steam-packing.

The valve-operating rod 15 is swiveled in the hub 16 of a spider, the arms 17 of which connect the hub 16 with the inner wall of the body of the valve part 12. The rod 15 is connected by a link 18 with one end of a bent lever 19, fulcrumed on a link 20, pivoted to the bracket 3, the opposite end of the bent lever 19 being pivotally connected with one end of an operating-lever 21, fulcrumed in the bracket 4.

The inner part 12 of the duplicate valve is permitted a short sliding movement within the barrel of the outer part 6 before the upper end of the piston attachment 14 engages the offset on the legs 8, when the continued upward movement of the inner part 12 will lift the outer part 6. The inner part is balanced by the free admission of steam-pressure against the lower end of the piston attachment 14, and the outer part is balanced by the steam-pressure on its under side just as soon as the inner part is opened. The inner part may be employed alone where a comparatively small quantity of steam is required, and when an increased amount is required beyond the limit of the opening of the

inner part the further movement of the valve-rod will open the outer part and furnish the supply. Whether the steam be admitted by the opening of the inner part or by the opening of both inner and outer parts, the steam will be caused to pass over the top of the casing and hence will be liable to take little, if any, water along with it, while the use of the stand-pipe itself as a casing simplifies the structure and internal fittings and reduces the cost.

In Fig. 4 I have shown another arrangement of valve-operating lever in which the lever 22 is fulcrumed at one end on the bracket 23 and is connected with the valve-rod 15 intermediate of its fulcrum and free end by the link 18.

In both structures the parts are very readily assembled by screwing the piston attachment 14 onto the body of the inner part 12 before the cap 9 is attached to the barrel 7 and then dropping the two assembled parts into position in the stand-pipe.

What I claim is—

1. A throttle-valve comprising a stand-pipe forming the valve-casing and provided with a valve-seat at its top and with valve-guiding surfaces on its interior, an outer valve adapted to seat on the stand-pipe and provided with a valve-seat, a balanced inner valve adapted to seat and with a depending portion in position to engage the said valve-guiding surfaces on the outer valve and means for successively opening the valves.

2. A throttle-valve comprising a stand-pipe forming the valve-casing and provided with a valve-seat at its top and with guide-wings projecting from its inner wall, an outer valve adapted to seat thereon and provided with a depending barrel spaced from the valve proper and arranged to engage the wings, an inner valve adapted to seat on the outer valve and provided with a piston attachment, arranged to engage the interior of said barrel and means for operating the valves in succession.

3. A throttle-valve comprising a valve-casing and provided with a valve-seat at its top, an outer valve adapted to seat thereon and provided with a barrel portion depending therefrom, a removable cap for the lower end of said barrel portion, an inner hollow valve arranged to seat on the outer valve and having its body extended into and spaced from the interior of said barrel, a piston attached to the body of the inner valve and fitted to the interior of the said barrel, and means for successively moving the valves.

4. A throttle-valve comprising a valve-casing provided with a seat at its top, an annular outer valve provided with legs offset toward the central axis and with a barrel attached to the legs, an inner valve arranged to seat on the outer valve and provided with a hollow body depending into and spaced from the said barrel, a piston attached to said hollow body portion and adapted to engage the said offset legs after a predetermined upward movement and means for operating the valves.

In testimony that I claim the foregoing as my invention I have signed my name, in the presence of two witnesses, this 12th day of July, A. D. 1902.

JOHN S. CHAMBERS.

Witnesses:

CHAS. M. BUTLER,

W. W. LEMEN.