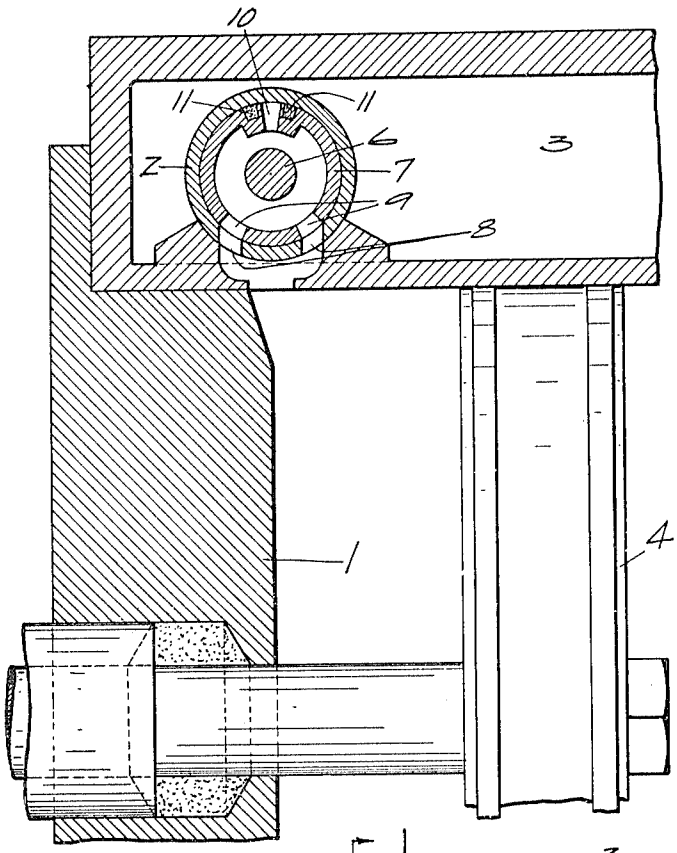
C. G. BURTON.

VALVE FOR CORLISS ENGINES AND THE LIKE.

APPLICATION FILED MAR. 8, 1911.

1,072,308. Patented Sept. 2, 1913.

FIG. 1.



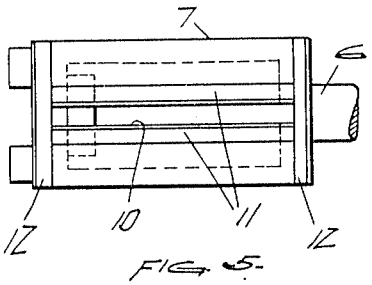


FIG. 5.

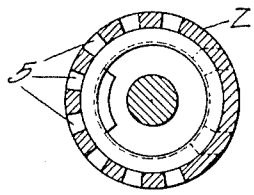


FIG. 2.

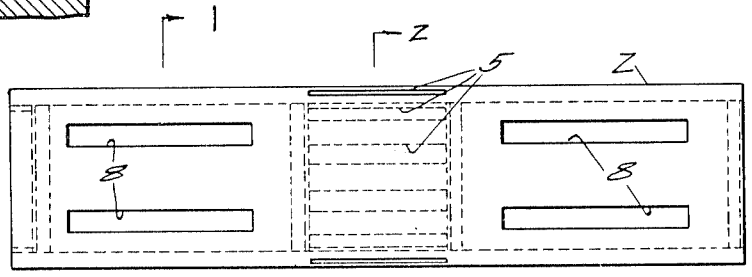


FIG. 3.

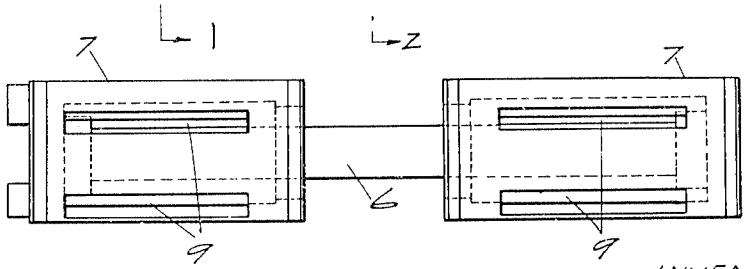


FIG. 4.

WITNESSES:

Jno. F. Oberlin

INVENTOR

Charles G. Burton

BY

J. B. Fay

ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES G. BURTON, OF LAKEWOOD, OHIO, ASSIGNOR OF ONE-HALF TO ROBERT D. BEATTY, OF CLEVELAND, OHIO.

VALVE FOR CORLISS ENGINES AND THE LIKE.

1,072,308. Specification of Letters Patent. Patented Sept. 2, 1913.

Application filed March 8, 1911. Serial No. 613,138.

To all whom it may concern:

Be it known that I, CHARLES G. BURTON, a citizen of the United States, and a resident of Lakewood, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Valves for Corliss Engines and the Like, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

It is a well known fact that more or less difficulty has always been encountered in the operation of the valves in Corliss engines, due to a tendency for them to stick so as to remain open when they should be closed, and thus correspondingly waste power in the form of steam. An adjustment of the operating mechanism, which, as well understood, involves the use of gravity-actuated parts including a dash-pot, so as to secure proper operation of the valve under one condition of pressure and load does not insure such operation under a different pressure and load, and so far as I am aware, no attempt to overcome this difficulty has heretofore succeeded. By the construction, however, which constitutes the present invention, I have secured entirely successful operation in the particular noted, such construction consisting of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 is a broken central longitudinal section of the cylinder of a Corliss engine showing a valve therefor constructed in accordance with the present invention; Fig. 2 is a similar section of such valve, but on a plane spaced from that of Fig. 1 as indicated by the lines 1—1 and 2—2, Fig. 3, which respectively indicate the planes of the two sections in question; Fig. 3 is a side elevational view of the valve within its casing; Fig. 4 is a similar view of the valve by itself; and Fig. 5 shows a portion of the valve as viewed in the opposite direction from that of Fig. 4.

Referring to the more or less general view of Fig. 1, it will nevertheless be noted that only so much of the engine cylinder 1 is illustrated as is necessary to show the housing or seat 2 for the valve, and the steam chamber 3 from which the steam is admitted into the cylinder through such housing and the valve seated therein. While the piston 4 is shown, the other appurtenant parts of the cylinder, as well as the actuating mechanism for the valve itself, have been omitted, since they are not a part of the invention in hand and may be of any approved construction. It may also be explained that while the housing 2 for the valve in the present instance is shown as a separate casing or sleeve, suitably fitted into the walls of the steam chest aforesaid, it may be cast integrally with such walls and then bored out if desired. Such casing is of cylindrical form and substantially mid-way between its ends is provided with a series of slits, or apertures 5, through which the steam gains entrance into its interior from the steam chest 3.

The valve proper comprises in addition to the stem 6, two cup-like cylindrical members 7 mounted upon said stem with their open ends directed inwardly, as shown in Fig. 4. As a result of this construction the steam admitted in the fashion just described into the interior of the casing, is also equally free to enter within the hollow valve portions. Its escape thence into the engine cylinder is controlled by ports 8 and 9 respectively formed in the walls of the casing and such valve portions, which ports register in certain positions of the valve, angularly about its axis, but are closed in other positions of the valve. Oscillation of the valve to thus bring the ports in question into register is effected by actuating mechanism of the usual construction, and for this reason not shown, as has already been explained. Such mechanism will, of course, be directly connected to one end or the other of the valve, or to a prolongation of its stem.

In addition to the ports 9 in the valve portions, which are thus adapted to register with the ports 8 in the casing that open into the engine cylinder proper, I provide a port 10 substantially directly opposite the aforesaid ports in each valve part (see Figs. 1 and 5). These ports 10 open against the blank wall of the casing 2 and are sur-

rounded by strips 11 of suitable packing which are seated in grooves or recesses, one on each side of the port. In addition, encircling rings 12 of packing are similarly held adjacent to each end of the respective valve portions. As a result of the arrangement of ports 10 last described, and the packing strips 11 and 12, the steam under pressure is obviously allowed to contact with the interior face of the casing and thus to counterbalance not only the effect of the pressure in the opposite direction, but also the weight of the valve so that the latter is held floating as it were within the casing. By having the ports run longitudinally, the packing strips may be placed close to either edge of such ports and thereby prevent any possibility of unbalancing effect such as might arise were the steam to gain entrance on the top of the valve, as it is termed. The circular rings it should furthermore be remarked do not revolve with the valve but fit the cylindrical casing snugly and remain stationary, thereby preventing any steam leakage past the inner ends of the valve portions.

It need scarcely be stated, by way of conclusion, that my improved valve construction is not necessarily limited to the particular field of use hereinbefore referred to in describing the same; for it may be advantageously employed wherever it is desirable to secure a nice balancing of action in a valve of the type in hand.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. Valve mechanism, including a cylindrical casing having in its periphery an inlet port and an outlet port; and a hollow cylindrical valve oscillatory in the casing and having an open end adapted to afford communication between the interior of said valve and the inlet port of the casing, the valve having a discharge port adapted to establish communication between its interior and the outlet port of the casing, and having substantially opposite its discharge port, a port constantly opening from its interior against the blank wall of the casing.

2. Valve mechanism, including a cylindrical casing having in its periphery an inlet port and two outlet ports; and a hollow cylindrical valve oscillatory in the casing and having an open end adapted to afford communication between the interior of said valve and the inlet port of the casing, the valve having two spaced discharge ports adapted to register with the outlet ports of the casing and thereby establish communication between the interior of the valve and the outlet ports of the casing, the valve also having, substantially diametrically opposite the space between the discharge ports, a port constantly opening from its interior against the blank wall of the casing, the aggregate area of the discharge ports being slightly greater than the area of the opposite port.

Signed by me this 2nd day of March, 1911.

CHARLES G. BURTON.

Attested by—
ANNA L. GILL,
JNO. F. OBERLIN.