

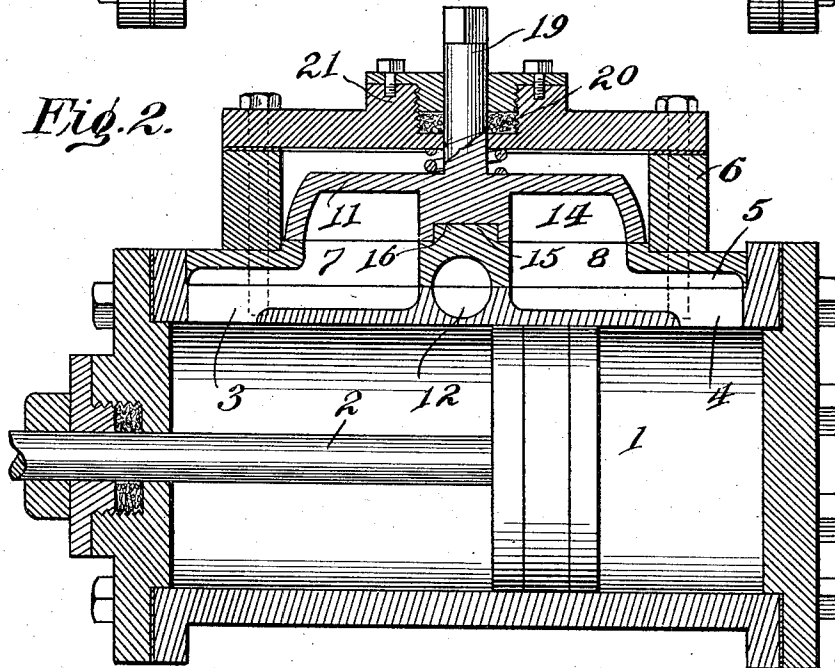
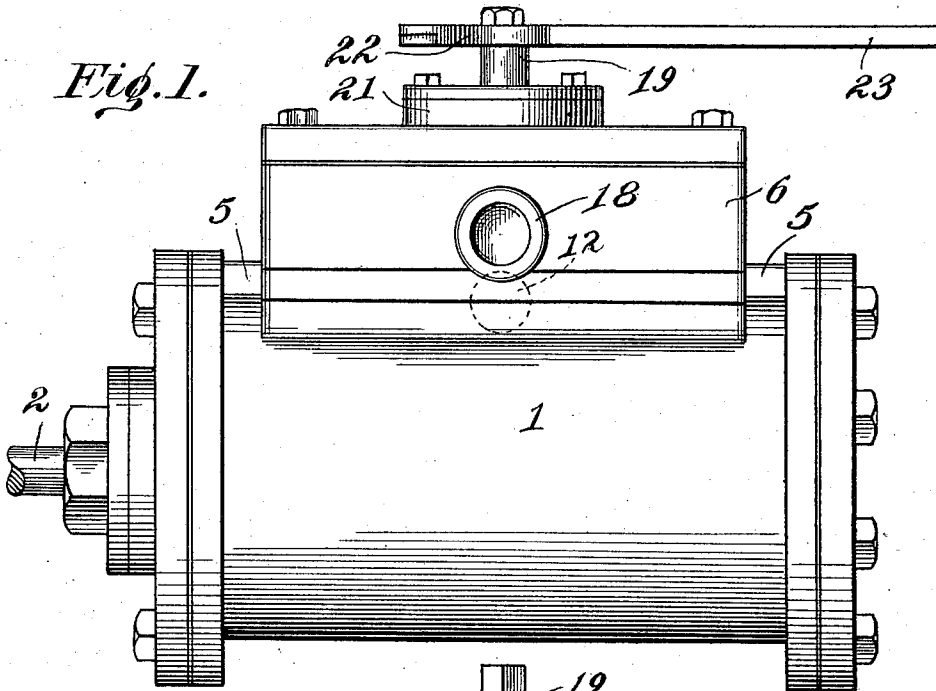
L. E. FINDAHL.
VALVE.

APPLICATION FILED MAY 25, 1910.

Patented Jan. 16, 1912.

2 SHEETS—SHEET 1.

1,015,159.



Inventor

Lawrence E. Findahl

Witnesses

H. H. Lybrand
Edwards

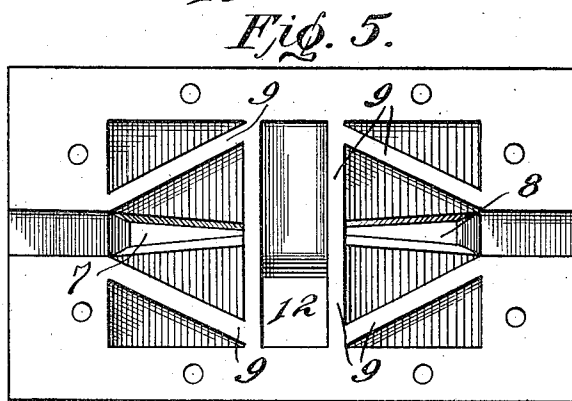
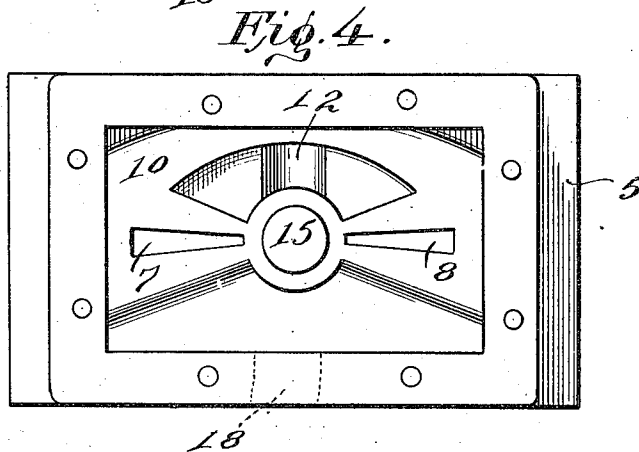
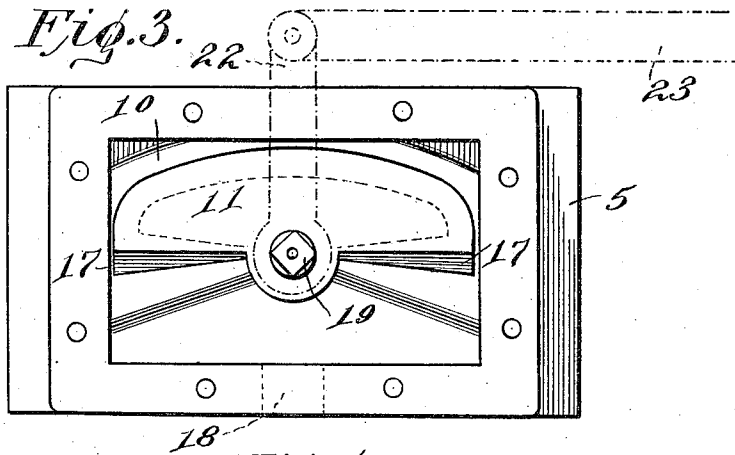
By *Victor J. Evans*
Attorney

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2 SHEETS—SHEET 2.



Inventor

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UNITED STATES PATENT OFFICE.

LAWRENCE E. FINDAHL, OF SHERIDAN, WYOMING.

VALVE.

1,015,159.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed May 25, 1910. Serial No. 563,354.

To all whom it may concern:

Be it known that I, LAWRENCE E. FINDAHL, a citizen of the United States, residing at Sheridan, in the county of Sheridan and State of Wyoming, have invented new and useful Improvements in Valves, of which the following is a specification.

This invention relates to steam valves and particularly to that type which are adapted for the control of the steam to reciprocating engines.

The object of the invention is the provision of an oscillating valve and its associated chest which may be placed upon the ordinary reciprocating cylinder to take the place of the common slide valve now in use, and which will be much more efficient in operation.

A further object of the invention is the provision of an oscillating valve which is balanced so that small inertia will have to be overcome in moving the valve from one of its positions to the opposite.

Further objects of the invention will appear as the following specific description is read in connection with the accompanying drawings which form a part of this specification, and in which:

Figure 1 is a top plan view of a reciprocating steam engine cylinder showing the eccentric rod connected to the lever. Fig. 2 is a horizontal section taken through the center of the valve chest. Fig. 3 is an elevation with the top of the valve chest removed. Fig. 4 is a similar elevation with the top of the valve chest and the valve removed. Fig. 5 is a rear elevation of the valve chest removed from the cylinder.

Referring more particularly to the drawing, 1 represents the cylinder of a reciprocating engine, and 2 the piston which travels therein. Secured to the side of the cylinder immediately over its inlet ports 3 and 4 is a plate 5 to which the steam chest 6 is attached. This plate has openings in it which correspond with the openings 3 and 4 and are here designated by the reference numerals 7 and 8. The plate 5 is slightly separated from the cylinder 1 by ribs 9 which may be either formed integrally with the plate or separately and riveted thereto. The openings 3 and 4 and 7 and 8 correspond with each other and preferably are tapering throughout their length to slightly increase in size toward the outer ends of the cylinder. On the inner side of the plate

there is a raised boss 10 which is ground on its upper face to make an even fit with the valve 11. The cylinder is provided as usual with the ordinary exhaust port 12 and the valve 11 is so constructed approximately in the form of a crescent with its forward sides 13 extending radially from its center and with a portion of its body hollowed out to form a recess 14 which overlaps the apertures 7 and 8 and is continuously in communication with the exhaust opening 12. The central part of the plate 5 is provided with a raised boss 15 which is adapted to enter a circular recess 16 in the center of the valve so as to position the same properly upon the raised boss 10. Extending laterally from the socket 16 are fan-shaped portions 17 which, when the valve is in normal or inactive position, cover the ports 7 and 8 so that steam entering the chest through the pipe 18 cannot gain access to the cylinder. Projecting centrally above the recess is the valve stem 19 which is preferably integral with the valve and is ground to fit the opening 20 in the valve chest through which it passes. Secured upon the valve chest is any suitable sort of packing gland 21 to prevent the escape of steam from around the valve stem. The outer end of the stem is squared so as to receive the crank 22 which is connected to the eccentric rod 23.

In the operation of the device; when the valve is reciprocated over the boss 10, we will say that for instance the opening 8 is first exposed by the recession of the part 17, thus admitting steam through the opening 8 and the opening 4 in the cylinder to the upper end thereof. When the valve is oscillated, the port 7 is uncovered, by the opposite portion 17, and steam enters through the port 7 and port 3 to the forward portion of the cylinder, thus driving it in the opposite direction. In this movement of the valve, and simultaneously with the uncovering of the port 7, the port 8 is placed in communication with the recess 14 and as said recess is continuously in communication with the exhaust port 12, the steam exhausts from the head of the cylinder, in the ordinary manner. It will be noticed that the valve is equally balanced and in order to hold the same against the boss 10, so as to provide a steam-tight joint, I surround the valve stem 17 with a spiral spring which is interposed between the cover or top of the valve chest and the valve.

Having thus described the invention, what is claimed is—

5 In a device of the class described, the combination with a steam cylinder, having inlet ports at its opposite ends and a central exhaust port, of a valve chest secured thereto and having a steam inlet, and ports to correspond with the inlet and outlet ports of the cylinder, ribs for separating said ports
10 carried by the steam chest, a boss formed in the steam chest between the inlet ports, a socketed valve adapted to oscillate on said boss and having a socket therein, in constant

communication with the exhaust port, and means to alternately uncover one of the inlet ports and to connect the opposite inlet port with the exhaust port through the socket in the valve, together with means for holding the valve upon its seat. 15

In testimony whereof I affix my signature 20 in presence of two witnesses.

LAWRENCE E. FINDAHL.

Witnesses:

JACOB WREN,
A. H. KENISTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
