

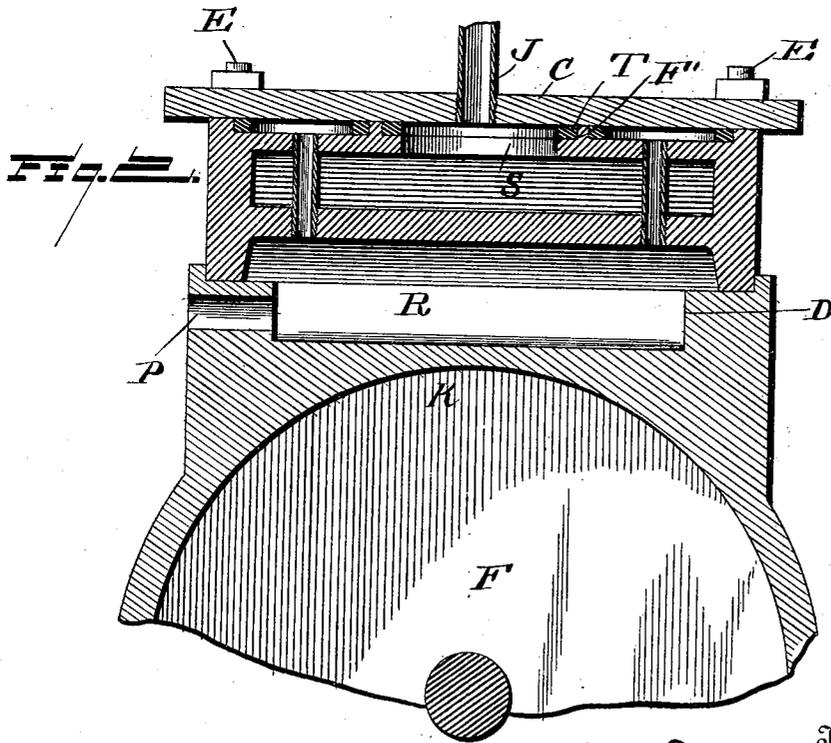
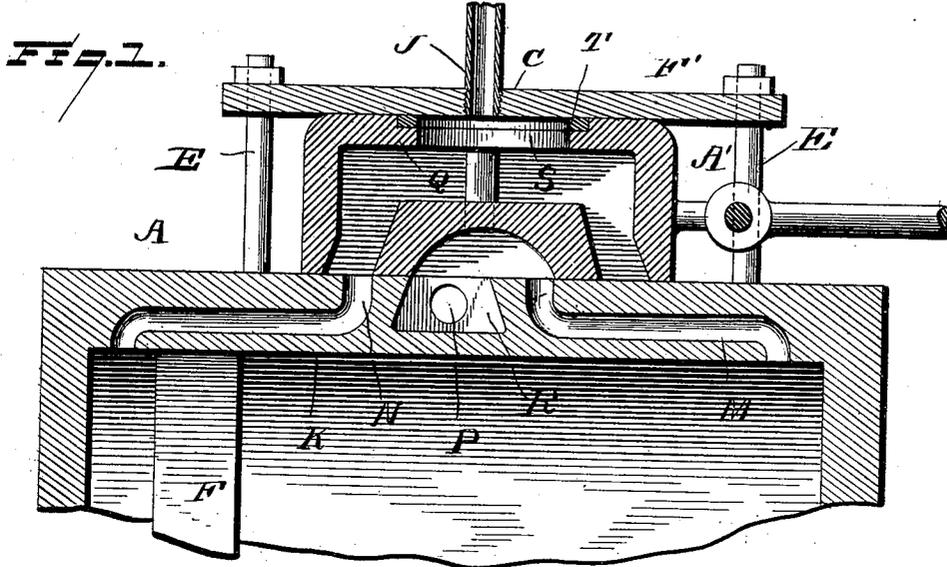
No. 651,302.

Patented June 5, 1900.

A. C. DU SOUCHET.  
BALANCED SLIDE VALVE.

(Application filed Nov. 20, 1899.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 651,302, dated June 5, 1900.

Application filed November 20, 1899. Serial No. 737,683. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER CAMPBELL DU SOUCHET, a citizen of the United States, residing at Paducah, in the county of Me-

5 Cracken and State of Kentucky, have invented certain new and useful Improvements in Balanced Slide-Valves; and I do 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 the letters of reference marked thereon, which form a part of this specification.

15 This invention relates to new and useful improvements in steam-engine valves, and especially to a slide-valve and steam-chest combined, whereby the pressure on opposite sides of the valve is equalized, provision being made to allow for the escape of any of the live steam which may happen to leak between the reciprocating slide-valve and chest combined and the upper plate through which the supply-pipe leads.

25 More specifically, the invention consists in the provision of a steam-chest to which is connected an eccentric-rod, which chest is hollow and provided with ports at opposite sides which are adapted to be alternately made to register with ducts leading to the steam-cylinder, and in the formation of recesses in the opposite faces of the slide and steam-chest combined, said recesses on opposite sides of the chest being connected by pipes or ducts, allowing any steam which might leak about the connection or joint between the steam-feeding pipe and the upper face of the sliding steam-chest to escape through to the recess on the opposite face of the chest and out

30 through the exhaust-pipe.

To these ends and to such others as the invention may pertain the same consists, further, in the novel construction, combination, and adaptation of parts, as will be hereinafter more fully described and then specifically defined in the appended claim.

My invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part

35 of this application, and in which drawings

similar letters of reference indicate like parts throughout both the views, in which—

Figure 1 is a vertical central sectional view through the steam-cylinder and sliding steam-chest. Fig. 2 is a vertical sectional view

40 transversely through the steam-chest and cylinder.

Reference now being had to the details of the drawings by letter, A designates the combined slide-valve and steam-chest, to one side of which is an eye A', to which an eccentric-rod B is connected to reciprocate the chest. Said chest is confined between the two plates C and D, which plates are held together with stud-bolts E. Near the center of the upper

45 face of the slide-valve and steam-chest combined is an aperture F for the admission of steam, and on the opposite face of the chest are the two ports H H near the longitudinal edges of the chest and extending, preferably, the entire length of the latter, through which the steam is allowed to pass to the steam-cylinder K when said ports are brought alternately in registration with ducts in the lower plate which separates the steam-chest from the steam-cylinder. This steam-cylinder is of the usual construction and carries the reciprocating piston and plunger, as shown. The ducts leading through the lower plate are lettered in the drawings N and M.

The supply-pipe J passes through the plate C at a location directly over the steam-port F, which is always in registration therewith.

In the upper surface of the steam-chest are recesses Q Q, and on the opposite face of the chest and between the ports H H is a recess R, and communication is had between the recesses Q and recess R by means of the ducts S. These recesses and ducts are provided so as to equalize the pressure of the exhaust-steam on opposite sides of the steam-chest, also to allow any steam that might escape about the steam-supply pipe and the upper face of the chest to pass through the ducts S and out of the exhaust-pipe. To guard against the leakage of steam, it is my purpose to provide packing-rings T, which are seated in the recesses in the upper face of the chest and on a shoulder F' in the aperture F. These packing-rings are spring-actuated and effectually

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prevent the escape of any amount of live steam.

The operation of my invention will be clearly understood, as it works in the usual manner of reciprocating slide-valves. The steam enters through the pipe J into the steam-chest and passes out through which-ever duct is brought into registration with a port or duct leading to the steam-chest, and the exhaust will escape from the recess on the under face of the chest through the pipe P. A portion of the exhaust will also pass through the ducts into the recesses on the upper face of the chest, thus equalizing the pressure of said exhaust on opposite sides of the chest. Any steam which escapes about the supply-pipe will pass into the recesses, and thence pass to the exhaust-pipe and out.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

In a balanced slide-valve, the combination with the steam-cylinder having suitable feed

and exhaust ports, the hollow slide-valve chest adapted to slide on said cylinder, and guided between ribs on the opposite edges of the upper face of the cylinder, a steam-chest cover between which and said cylinder the valve is designed to work, said valve-chest having an elongated dome-shaped exhaust-compartment disposed over the exhaust-port of the cylinder, exhaust-pockets, formed in the upper outer face of the chest, and on either side of the steam-feeding port S of the chest, packing-rings seated in said pockets and bearing between the bottom of the pockets and the lower face of the chest-cover, communicating passage-ways between said pockets and said dome-shaped exhaust-compartment, as set forth.

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

ALEXANDER CAMPBELL DU SOUCHET.

Witnesses:

A. H. PATTON,  
JOSIAH HARRIS.