

A. Hemmingway,

Balanced Valve.

No. 100625.

Patented Mar. 8. 1870.

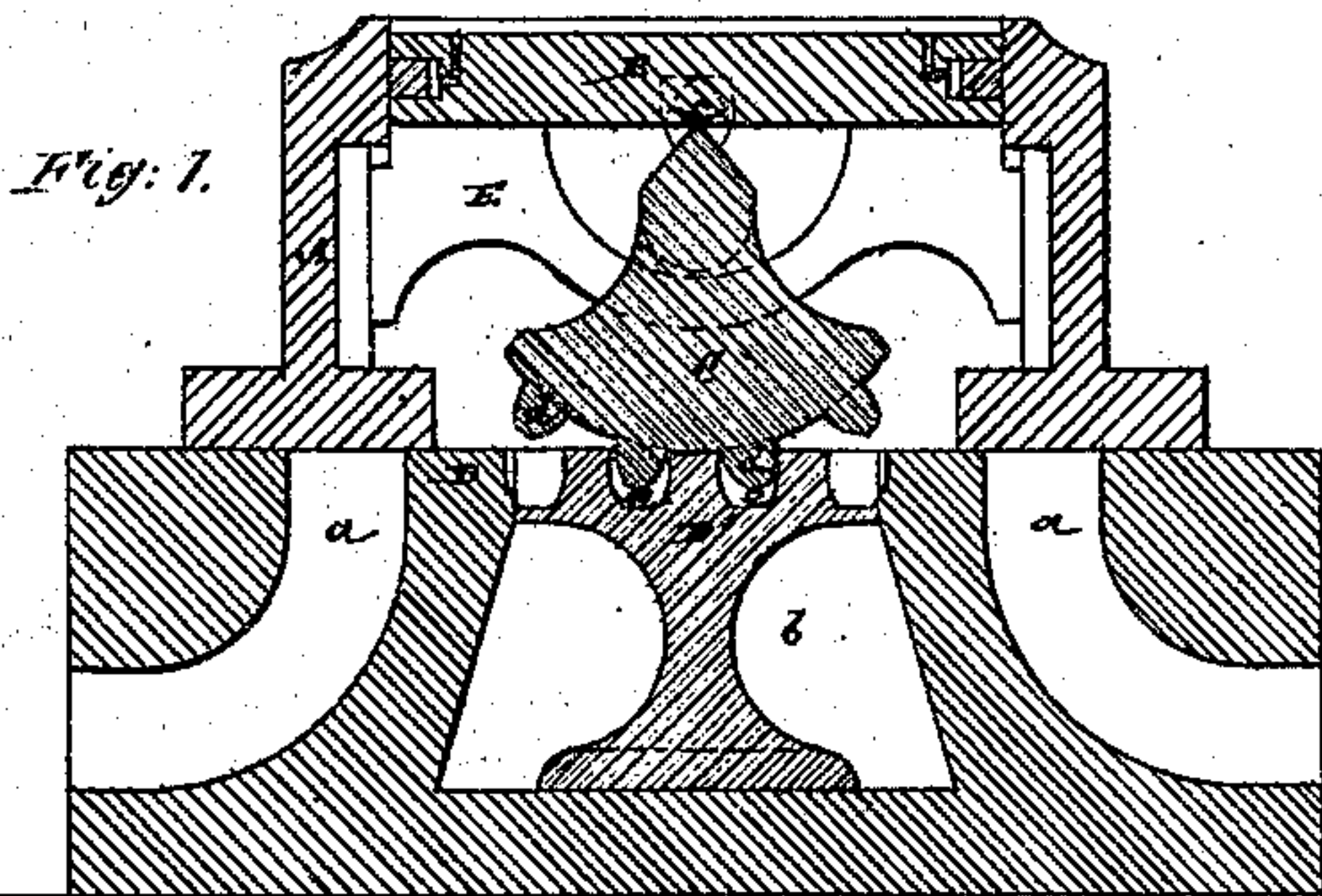


Fig. 2.

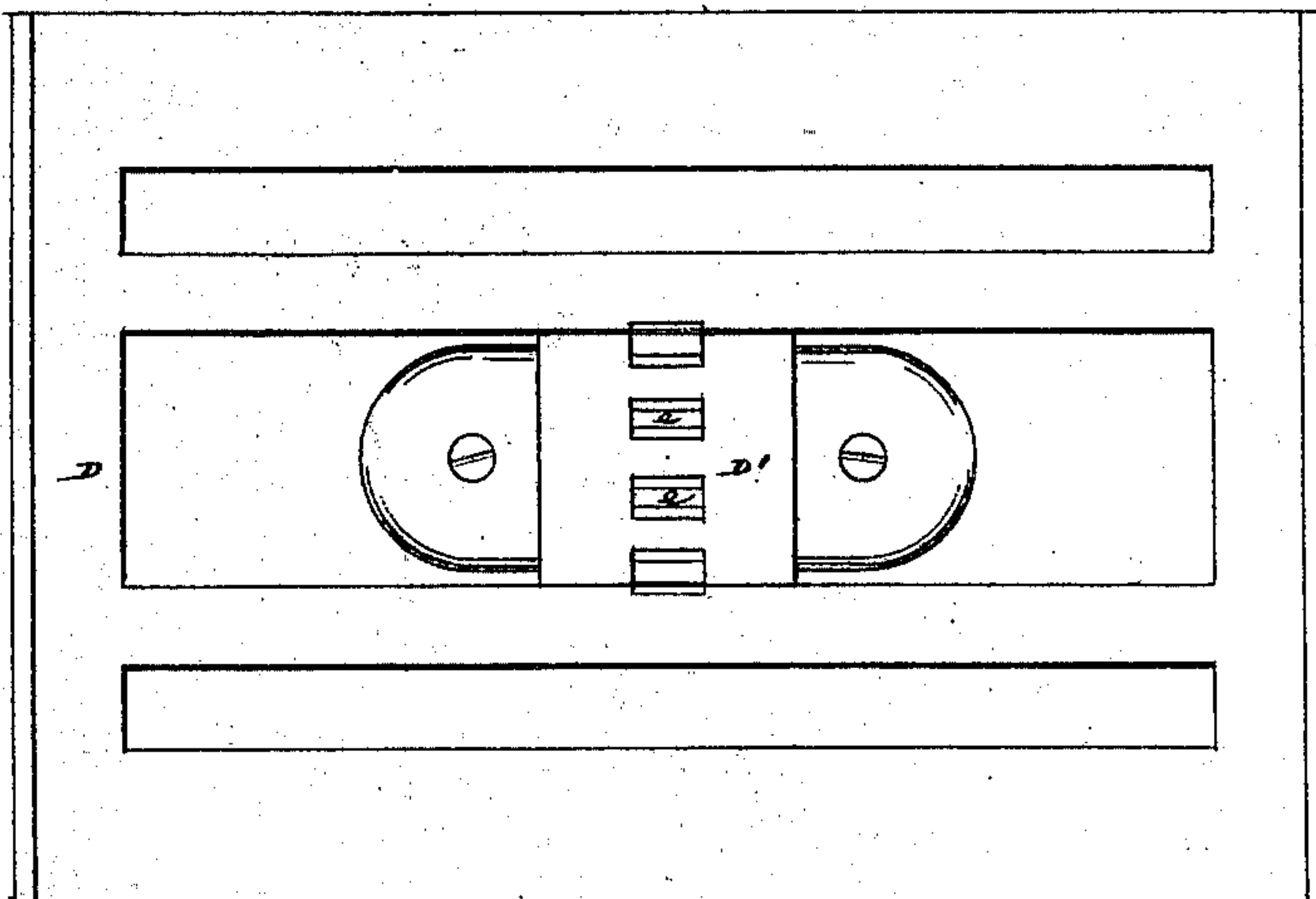


Fig. 3.

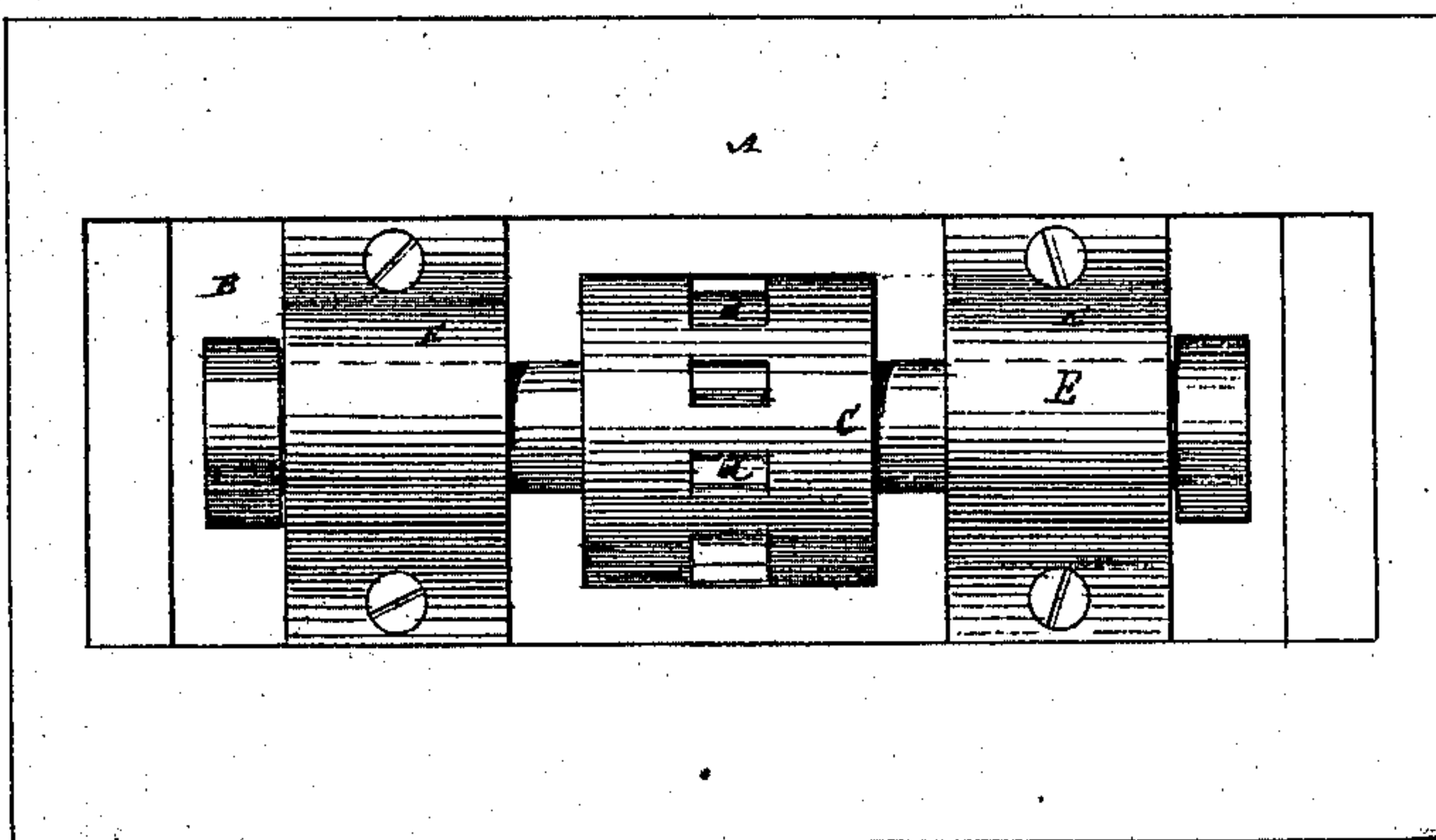
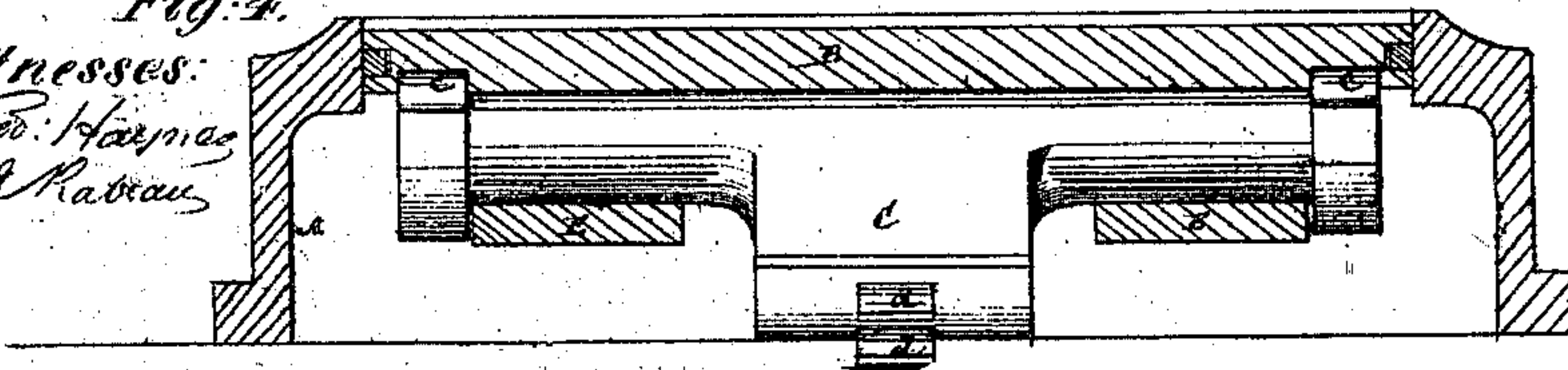


Fig. 4.

Witnesses:
Geo. H. Hays
R. R. Hays



United States Patent Office.

ABRAHAM HEMINGWAY, OF NEW YORK, N. Y.

Letters Patent No. 100,625, dated March 8, 1870.

IMPROVEMENT IN SLIDE-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ABRAHAM HEMINGWAY, of the city, county, and State of New York, have invented a new and useful Improvement in Relieving Slide-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a central transverse section of a slide-valve and its seat, constructed in accordance with my invention;

Figure 2, a plan of the valve-seat;

Figure 3, a face view of the valve; and

Figure 4, a longitudinal section of said valve.

Similar letters of reference indicate corresponding parts.

My improvement has reference to slide-valves, in which the same are relieved of the greater portion of the steam pressure on their backs due to the area under exposure to the fluid or vapor; and

The invention consists, first, in a certain combination with a loose or piston-like back to the valve of a loose curved rocker, arranged to rest upon the valve-seat or other plain bearing-surface, and supporting or carrying the loose back, whereby the valve is relieved of sliding friction on its seat, and a smooth and easy yet close action is secured to the valve, that, by means of the loose rocker, requires but little power to move or reciprocate it; and

The invention further consists, under such a construction and arrangement of parts, in providing the rocker with teeth and its seat or bearing-surface with corresponding indentations, to give a guiding and steadying action to the valve.

Referring to the accompanying drawing—

A represents the slide-valve, of an ordinary hollow or bonnet-like shape, and fitted with a loose or piston-like back, B, which may be provided with packing at or around its edges, forced out by springs or by steam admitted through orifices in the back, or by both forces combined. Although here shown of parallelogramic form, said loose back, as also, if preferred, the valve-body generally, may be of circular or any other desired shape.

D is the valve-seat, over which the valve reciprocates or travels, to cover and uncover alternately the opposit steam-ports *a a*, for the purpose of establishing their communication successively with the steam in the valve-chest and with the exhaust-cavity in the valve that communicates with the exhaust-port or passage *b*, as in other slide-valve arrangements.

The loose or piston-like back B of the valve is sup-

ported or carried by a loose rocker, C, of arched or curved form, where it rests upon the valve-seat or other plain bearing surface D'.

This rocker is arranged to run centrally under the back B, and is in a loose or free rocking connection with it, as at *c c*. By this mode of sustaining the loose back to the valve, a free rolling support is secured to it during the play or reciprocating action of the valve, which relieves the latter of friction or sliding pressure on its seat, and allows of the valve being worked with or by very little power, yet in no way interferes with its close fit.

E E are brackets or caps for holding the rocker in place when lifting the valve from its seat, but not serving as bearings to the rocker in the operation of it.

If desired—and such provision is especially applicable to vertical or other than horizontal positions of the valve—the curved traveling surface of the rocker C may be constructed with teeth *d*, arranged to gear with or enter indentations *e* in the valve-seat or bearing-surface D, as said rocker, in or during the movement of the valve, rolls or travels with the mouth portion of its surface resting on the plain surface of the seat, to carry the load produced by the pressure of the steam on the back B, while the teeth *d* serve to guide or steady the rocker and valve, and to prevent the valve from being twisted or tipped away from its seat, either as caused by water in the cylinder or as due to some particular position of the valve.

Although the invention is here described as an improvement in slide-valves applicable to the working of steam, it, of course, is equally applicable to valves used to control water, or, in fact, any fluid, gas, or vapor.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The combination with the loose or piston-like back B to the valve, of the loose rocker C, of arched or curved form, where it bears upon the valve-seat or other plain supporting-surface D', and arranged in relation to and in free connection with said back, for operation on or over its seat in or during the reciprocating movement of the valve, substantially as specified.

2. The combination with the indented bearing-surface D' of a toothed, freely-hung rocker C, and loose or piston-like back B to the valve, all arranged for operation in relation to each other and the valve-seat, essentially as described.

ABRM. HEMINGWAY.

Witnesses:

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R. E. RABEAU.