

(No Model.)

P. LEEDS.  
BALANCE SLIDE VALVE.

No. 339,438.

Patented Apr. 6, 1886.

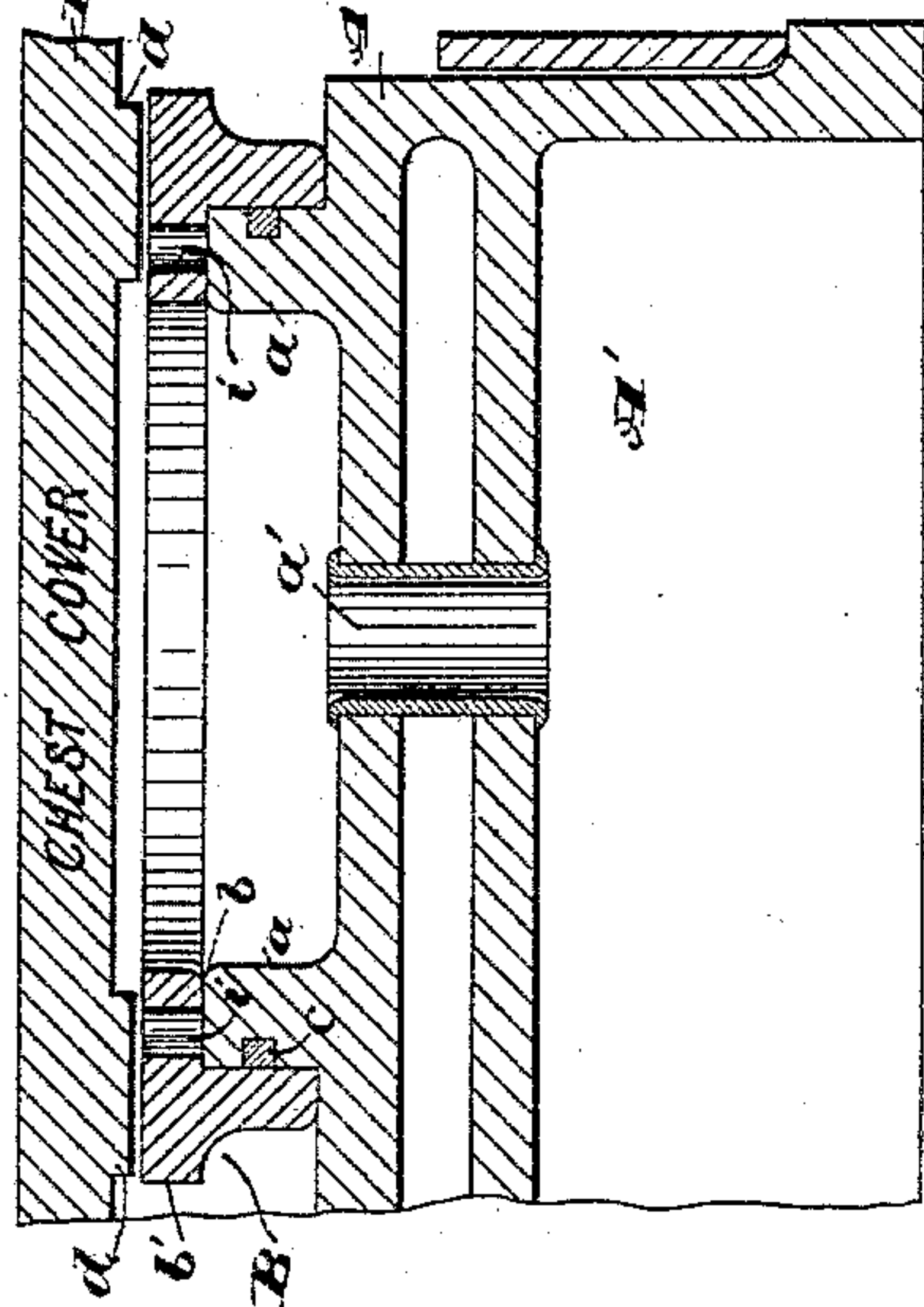


FIG. 2

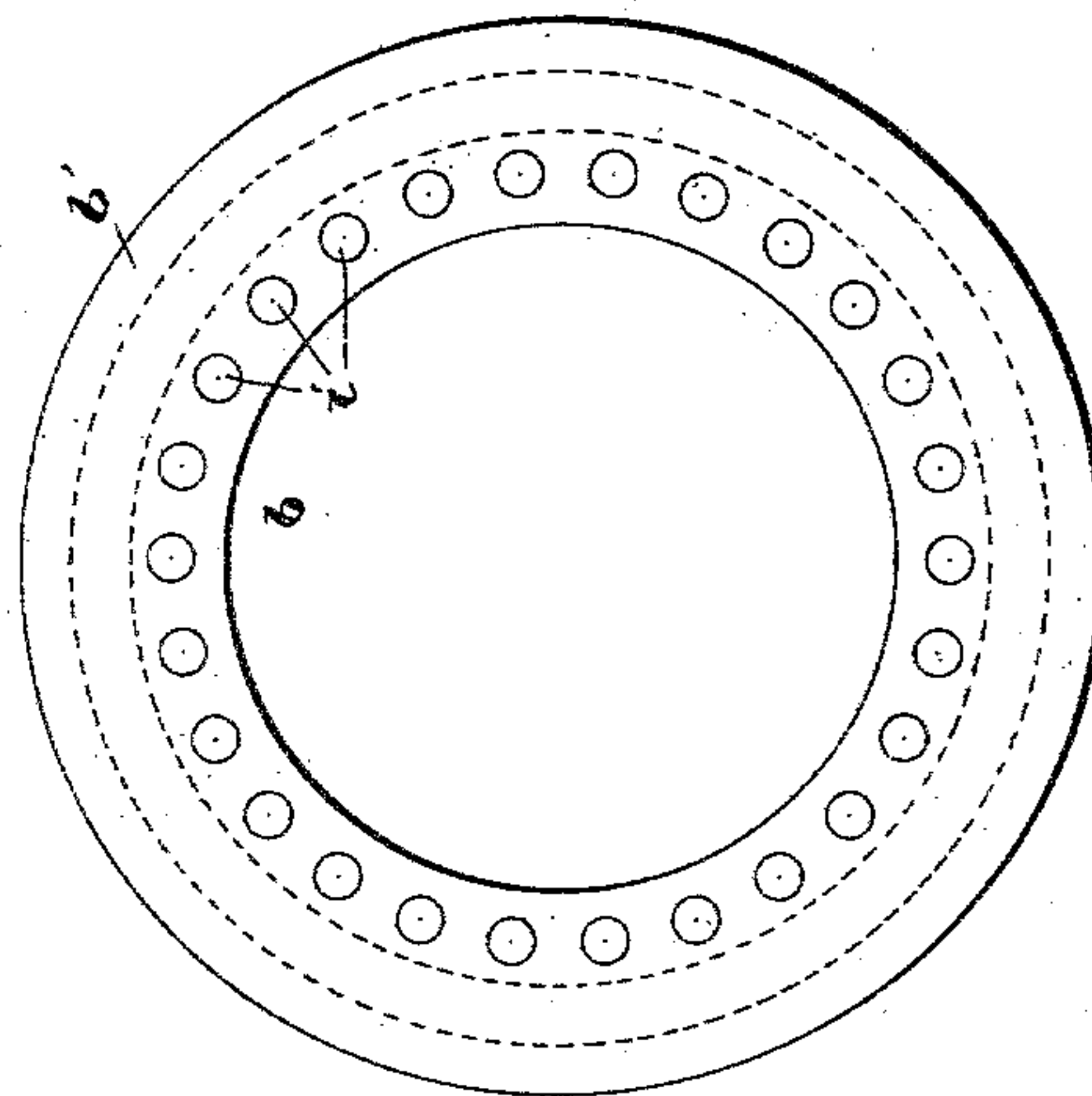


FIG. 5

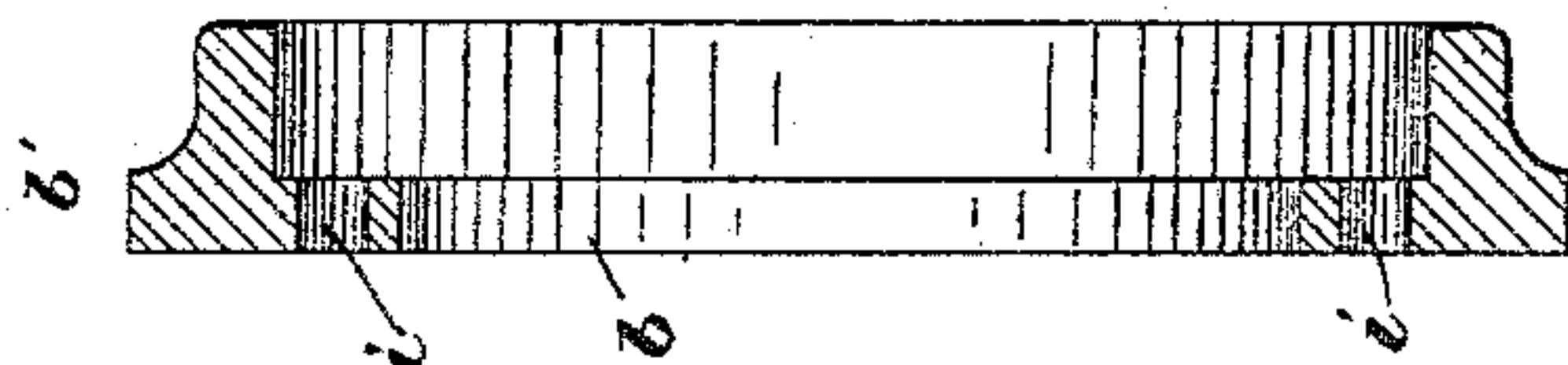


FIG. 4

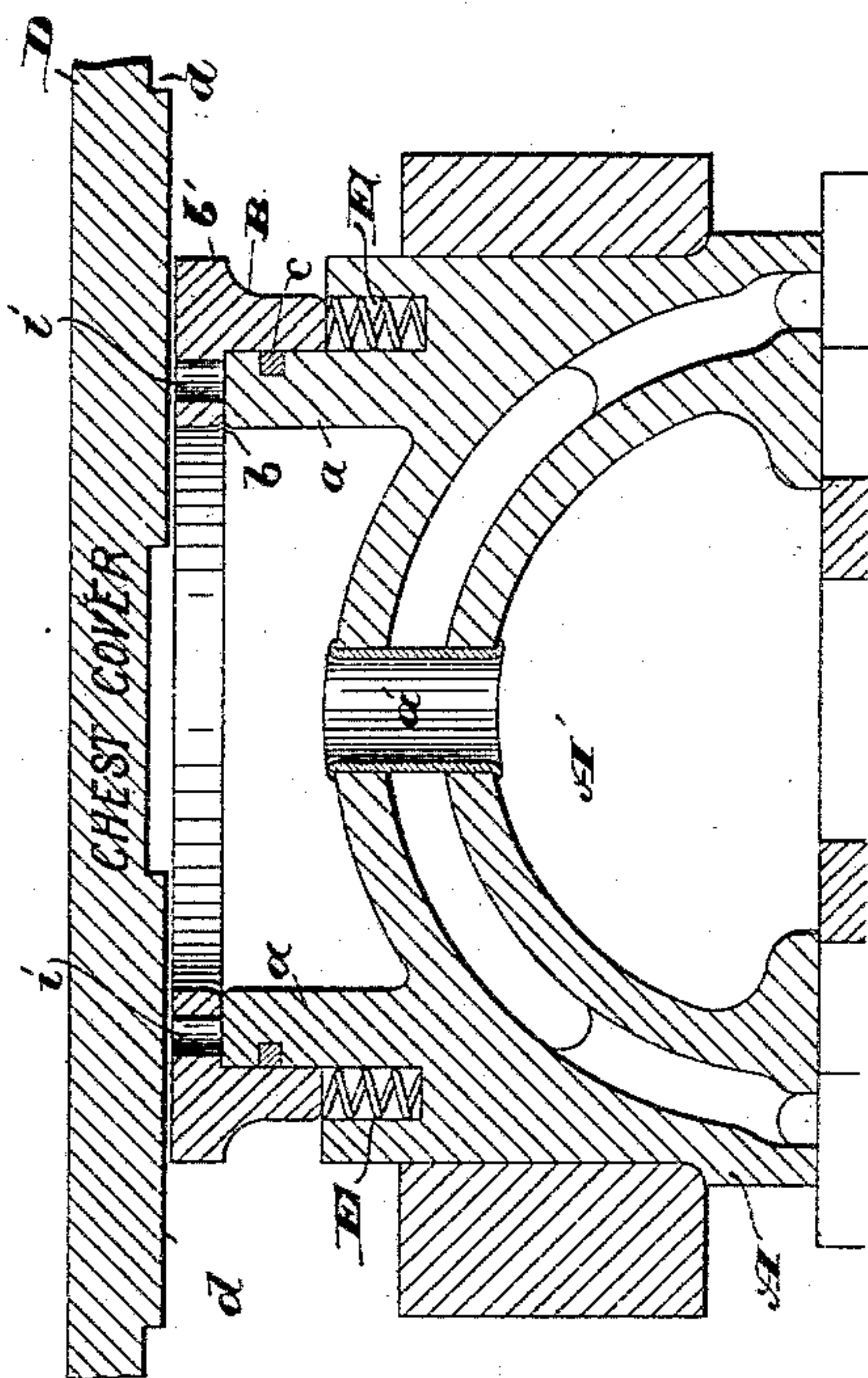


FIG. 1

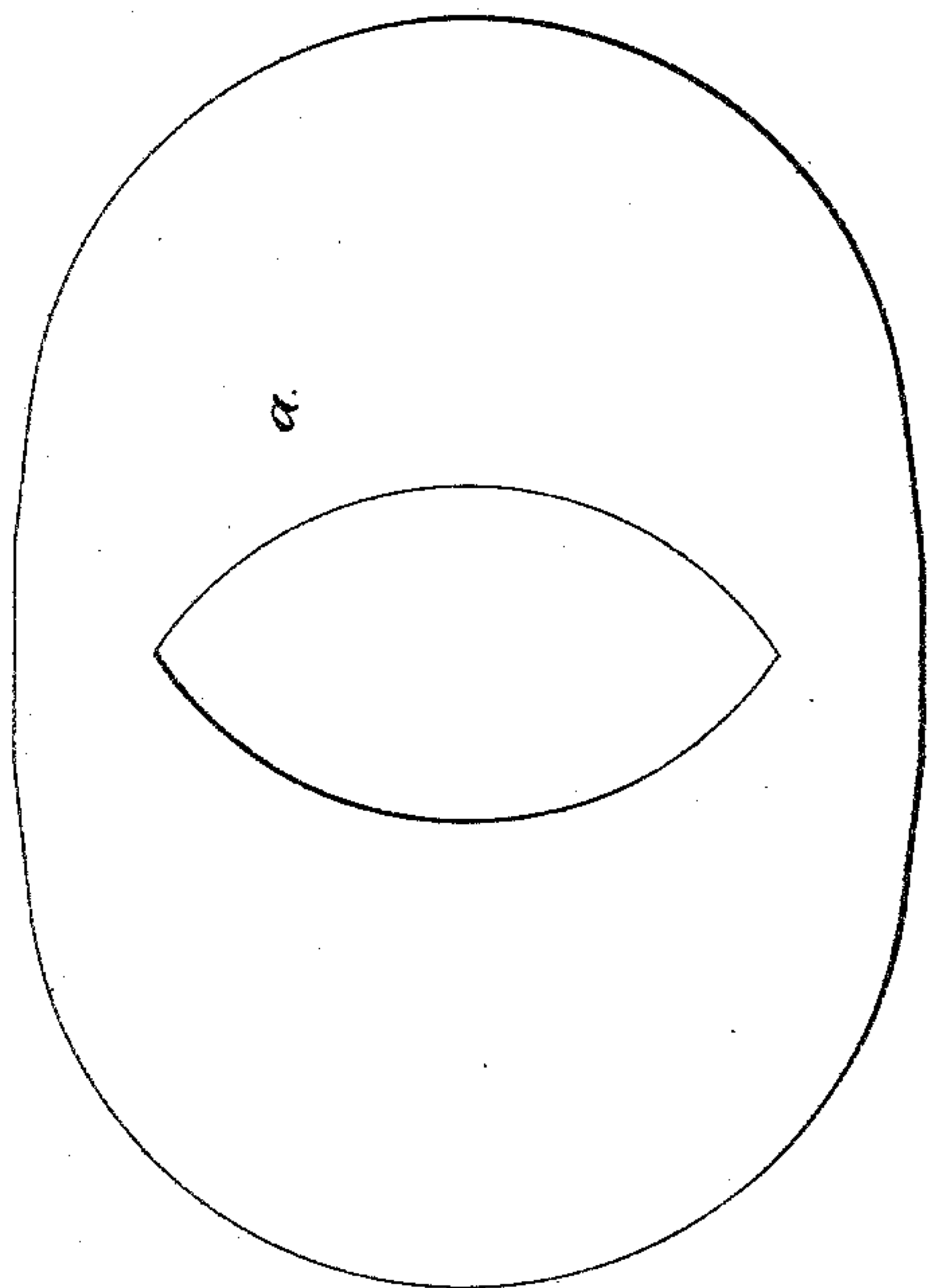


FIG. 3

WITNESSES:

Wm M. Monroe,

Geo. W. King,

INVENTOR

Pulaski Leeds

BY Leggett and Leggett,

ATTORNEYS



# UNITED STATES PATENT OFFICE.

PULASKI LEEDS, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO THE RAILWAY  
SPEED RECORDER COMPANY, OF KENT, OHIO.

## BALANCE SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 339,438, dated April 6, 1886.

Application filed December 26, 1885. Serial No. 186,740. (No model.)

*To all whom it may concern:*

Be it known that I, PULASKI LEEDS, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Balance Slide-Valves; and I do hereby 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 pertains to make and use the same.

My invention relates to improvements in balance slide-valves in which the wearing-face of the balance-ring has a series of perforations (instead of the grooves heretofore employed) for equalizing the wear of said ring.

My invention is designed as an improvement on balance-valves for which United States Letters Patent were granted to James B. Miller, July 24, 1883, No. 281,907.

In the accompanying drawings, Figure 1 is a side elevation, in section, of a balance slide-valve embodying my invention. Fig. 2 is an end elevation, in section, of one half of the valve. Fig. 3 is a bottom plan of the rubbing-surface of the steam-chest cover. Fig. 4 is a section of the balance-ring, taken through the center thereof. Fig. 5 is a plan of the balance-ring.

A represents a slide-valve of modern but well-known construction with which I have chosen to illustrate my improvements, although my improvements may be applied to any balance slide-valve. The valve has one or more upwardly-projecting annular rims, *a*, integral with the valve, or made separate and bolted or otherwise secured to the valve, as may be preferred. For narrow valves, one such rim is sufficient; but for broad valves—such, for instance, as are usually employed on locomotive-engines, and illustrated in the drawings—two such rims may be provided.

B is the balance-ring, that is fitted nicely around the rim *a*, so that the ring may move easily, and a steam-tight joint between the rim and ring is secured by means of the pack-

ing-ring *c*. The upper face of the ring B is broadened, having an internal flange, *b*, that extends more or less on the rim *a*, and an external flange or projection, *b'*, the latter having sufficient area to insure the ring being held by the pressure of steam with sufficient force against the seat *d* of the steam-chest cover D. Springs E are usually employed to hold the ring B against the seat *d* when steam is shut off. An opening, *a'*, is had from the chamber B', inside the ring B, to the exhaust A' of the valve.

The operation of the balance-valve is fully described in the aforesaid Letters Patent to Miller. It is found that the ring B rotates more or less, and consequently the outer side of the face thereof abutting the seat *d*, having further to travel, wears faster than the inner portion of the face.

In place of the annular groove described in the aforesaid Letters Patent for equalizing the wear, I provide a series of holes, *i*, made through the flange *b*. These holes cut away so much of the metal and so reduce the wearing-surface at this part of the balance-ring that a tight joint between the outer portion of the face thereof and the seat *d* is always insured. These holes are cheaper to make, and I find give better results, than the aforesaid annular grooves described in the Miller patent.

What I claim is—

In a balance slide-valve, a balance-ring arranged to slide on the valve-chest cover or on a seat connected to said cover and provided with a flange, the latter having continuous series of holes through the same, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 11th day of December, 1885.

PULASKI LEEDS.

Witnesses:

JOHN L. BANICKMAN,  
W. J. MARTIN.