

(No Model.)

2 Sheets—Sheet 1.

D. H. BROWN.
BALANCED SLIDE VALVE.

No. 535,159.

Patented Mar. 5, 1895.

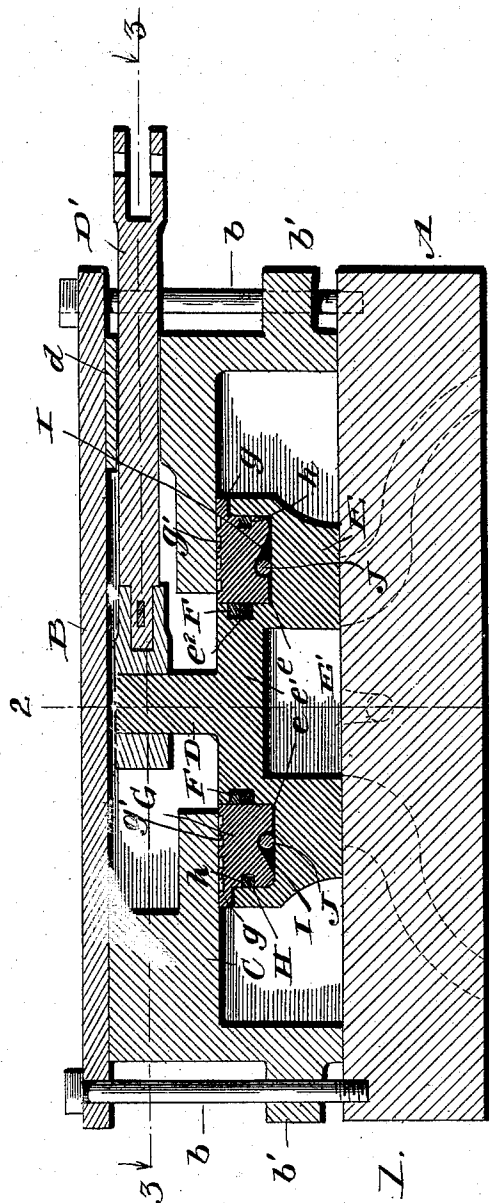


Fig. 1.

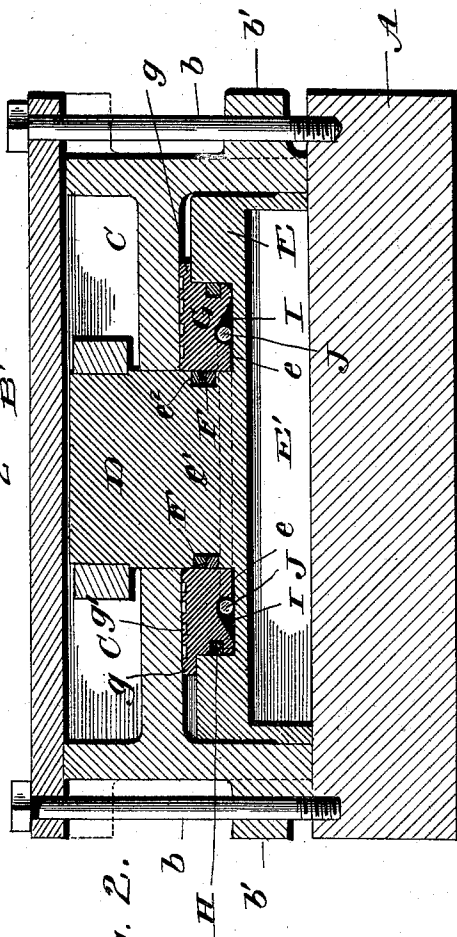


Fig. 2.

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E. A. Bond

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by E. B. Stocking
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2 Sheets—Sheet 2.

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Fig. 3.

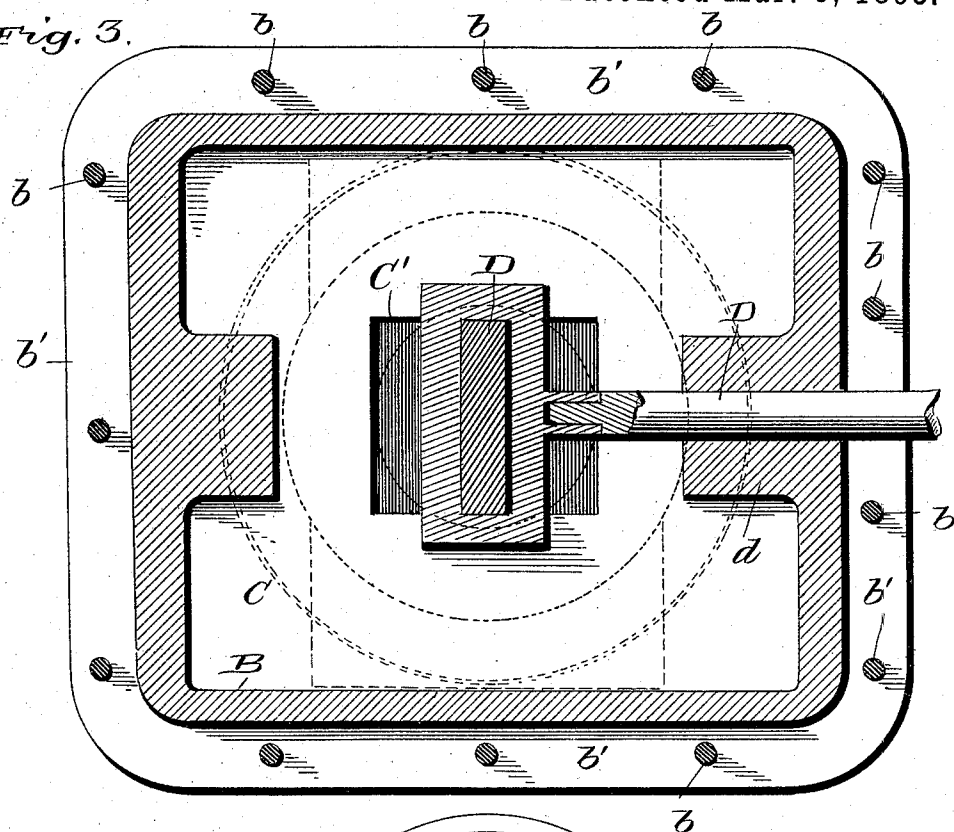
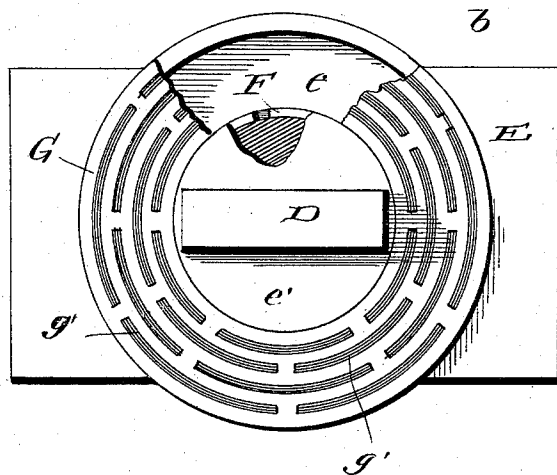


Fig. 4.



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UNITED STATES PATENT OFFICE.

DANIEL H. BROWN, OF McCOMB, MISSISSIPPI.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 535,159, dated March 5, 1895.

Application filed October 30, 1894. Serial No. 527,409. (No model.)

To all whom it may concern:

Be it known that I, DANIEL H. BROWN, a citizen of the United States, residing at McComb, in the county of Pike, State of Mississippi, have invented certain new and useful Improvements in Balanced Slide-Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in slide valves and it has for its object among others to so construct the valve and valve chest as to dispense with the necessity of a packing or stuffing box.
15 To accomplish this I provide a double steam chest or a steam chest divided by a horizontal partition or diaphragm, the valve being also of novel construction and having an extension working through a slot or opening in the said partition or diaphragm and connected
20 with the valve stem which works in the upper portion of the steam chest.

Other objects and advantages of the invention will hereinafter appear and the novel
25 features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part
30 of this specification, and in which—

Figure 1 is a vertical section through the valve and steam chest in the direction of movement of the valve. Fig. 2 is a vertical section taken at right angles to that of Fig. 1—on the line 2—2 of Fig. 1. Fig. 3 is a horizontal section on the line 3—3 of Fig. 1, looking in the direction of the arrows. Fig. 4 is a plan view of the valve with a portion of the same broken away.

40 Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates a portion of the cylinder having the usual steam passages as indicated by dotted lines in Fig. 1; or it may
45 be the base-piece upon which the steam chest is supported.

B is the steam chest mounted upon the part A in the usual or any desired manner; in this instance being shown as secured in position
50 by bolts *b* which engage threaded openings in the part A and pass through lugs or a flange

b' on the lower portion of the steam chest as shown in Figs. 1, 2 and 3, the said bolts serving also to secure the cap or cover B' in place
55 when one is employed.

The steam chest is divided into two chambers or compartments by the horizontal wall or partition C which is provided centrally with a rectangular opening C' as shown best
60 in Fig. 3. The balanced slide valve works in the lower of these compartments and the valve stem in the upper one, the valve having a vertical extension working through the opening in the diaphragm or partition to connect with the said stem as seen best in Fig.
65 1. D is the vertical extension and D' is the valve stem connected therewith in any suitable manner and working through an opening in a thickened portion *d* of the wall of
70 the steam chest near the upper end thereof as seen in Figs. 1 and 3.

E is the balanced slide valve. It has the chamber E' upon its under face and from the same projects centrally the vertical extension
75 D above described. This valve is formed with the circular recess or chamber *e* and the neck *e'* of the valve is formed with an annular groove *e''* in which is fitted a plurality of split expansion rings F as shown in Figs. 1
80 and 2.

G is an annular friction plate fitted within the chamber *e* as shown, having a surrounding flange *g* which rests upon the top face of the valve as seen best in Fig. 2 and the upper
85 face of this friction plate is formed with arc-shaped channels *g'* as seen in Figs. 1, 2 and 4, while the outer periphery of the said plate is formed with an annular groove *h* in which is located a split expansion ring H as
90 shown in Figs. 1 and 2.

The under face of the friction plate or disk or ring is formed with an annular or substantially circular inclined groove I in which is located a splint ring J as shown in Figs. 1
95 and 2. This ring serves to seat the main ring or friction plate G.

It will be seen that from the construction above described no packing for the valve stem is necessary and the cover to the steam chest may even be omitted in some cases.
100 The valve reciprocates in the usual manner over the ports of the cylinder and the stem being in an independent chamber there is no

leakage. The expansion rings keep the friction plate or main ring properly seated and prevent leakage therearound.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages. The opening in the top of the steam chest may be circular as indicated by dotted lines in Fig. 3 instead of square as shown in full lines. In this case no steam chest cover will be necessary and I can use simply a round lid or cap. So also the flange or lug *b'* at the lower edge of the steam chest may be dispensed with and the lug provided at the upper edge as indicated by dotted lines in Fig. 2.

What I claim as new is—

1. A slide valve comprising a body portion with annular chamber, neck portion and vertical extension, a friction ring fitted in said

chamber and having an inclined annular groove upon its under face, and a split ring in said groove, substantially as specified.

2. A slide valve comprising a body portion with annular groove and neck having peripheral groove, split rings in said annular groove, a friction ring with peripheral groove and annular inclined groove upon its under face, split ring in the peripheral groove of said ring, and a split ring in the groove on the under face of the friction ring for seating the latter, as set forth.

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

DANIEL H. BROWN.

Witnesses:

CHARLES R. SMITH,
P. J. SOMERS.