

(No Model.)

2 Sheets—Sheet 1.

H. C. BEHR.

BALANCED ROTARY VALVE.

No. 305,132.

Patented Sept. 16, 1884.

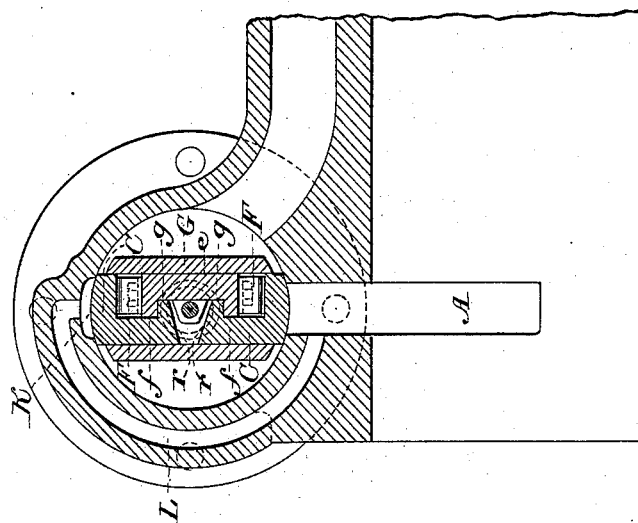
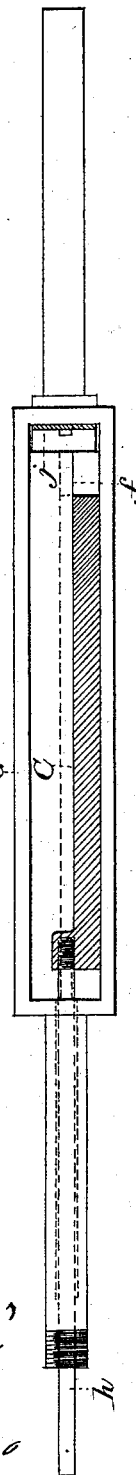


Fig. 1.

Fig. 3.



Witnesses,
Geo. H. Strong,
J. B. House.

Inventor,
Hans C. Behr
By
Dunaway & Co
attorneys

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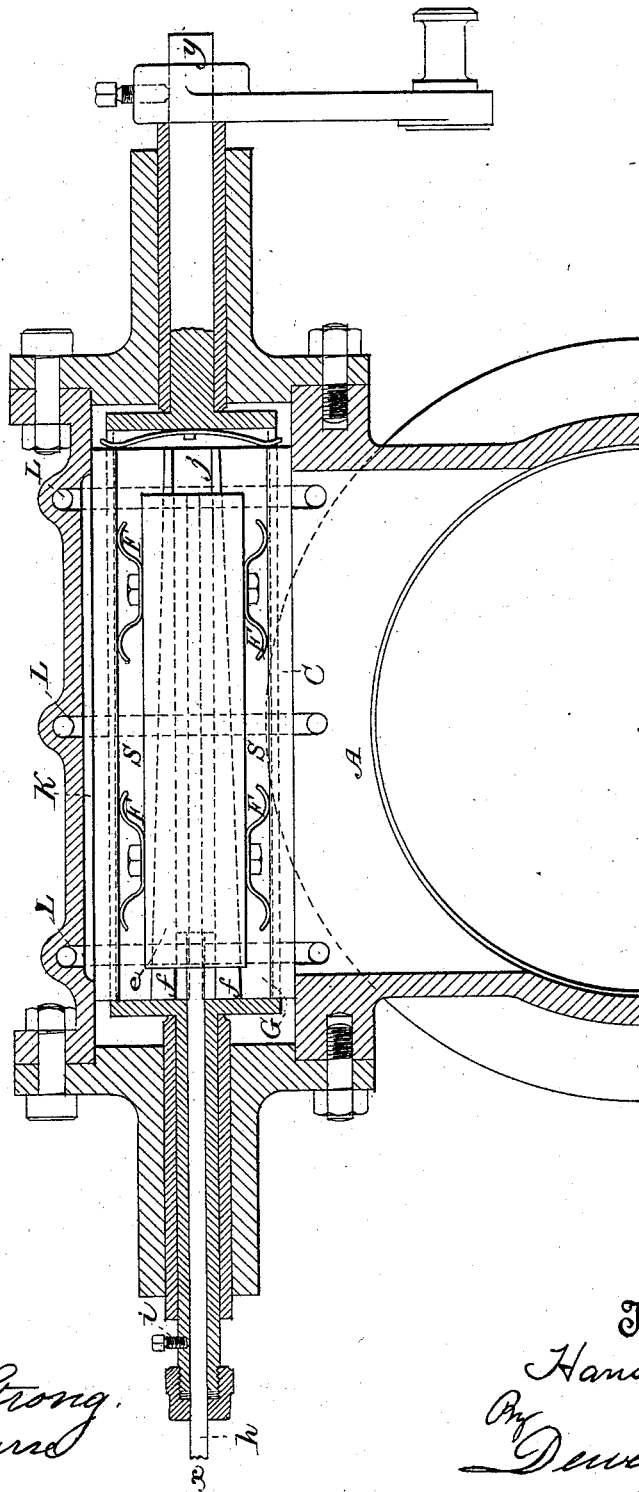
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Fig. 2.



Witnesses,
Geo. H. Strong.
J. H. Strong

Inventor,
Hans C. Behr
By
Dewey & Co.
Attorneys

UNITED STATES PATENT OFFICE.

HANS C. BEHR, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF
TO W. I. SALKELD, OF SAME PLACE.

BALANCED ROTARY VALVE.

SPECIFICATION forming part of Letters Patent No. 305,132, dated September 16, 1884.

Application filed January 17, 1884. (No model.)

To all whom it may concern:

Be it known that I, HANS C. BEHR, of the city and county of San Francisco, and State of California, have invented an Improvement in
5 Balanced Rotary Valves; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in that class of valves which fit a concave cylindrical seat and vibrate or oscillate
10 about their longitudinal axes, so as to open and close the steam-ports in the valve-face.

It consists of a two-part valve the opposite faces of which fit opposite sides of the cylindrical seat and control ports, through which
15 steam may act equally upon both faces to balance the valve. This valve is supported in a rectangular opening in the trunnion-bar, by which it is oscillated, and a wedge-piece is fitted into the same opening, and is movable longitudinally between the two parts of the valve,
20 having a mechanism for moving it, so as to adjust the two parts of the valve to or from the valve-seats, and relieving-springs, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section of the valve and adjusting-wedge, taken transversely to the axis of the valve. Fig. 2 is a section through
30 the valve-chamber in a plane cutting the axis longitudinally, showing the valve, adjusting-wedge, and springs. Fig. 3 is a top view of the trunnion-bar, showing the wedge and half of the valve within it.

In the present case the valve C is shown in two parts, held together by a wedge-piece, *e*. The valve and the wedge-piece are fitted into the opening through the trunnion-bar G, by which the valve is caused to oscillate upon its
40 axis. The valve-chamber has a shallow port, K, formed in the side opposite to the port A, and connected with it by passages L L, so that the pressure of the steam will be equal in both ports.

The valve, as before stated, is made in two parts, one of which covers the port A and the other the balance-port K, so that the pressure upon both valve-faces will be equal under all

conditions. The two halves of the valve are formed with projections *g g*, extending the full
50 length of the valve, and these engage with similar projections, *f f*, upon the wedge-piece *e*. The bearing-faces *r r* of the projections are inclined to the axis *x y* of the valve, so that the two halves of the valve will approach to
55 or recede from each other when the wedge-piece *e* is moved in the direction parallel with the axis. To keep the surfaces *r* of the projections *f* and *g* in contact, the springs F F are inserted in the spaces S S between the halves
60 of the valve and the wedge-piece *e*. The adjustment of the wedge-piece *e* is effected by the rod *h*, which passes through a hole longitudinally in one of the trunnion-bars, and is held in position by the set-screw *i*. A spring, *j*,
65 holds the two halves of the valve C against one end of the slot in the trunnion-bar G. This valve remains balanced as long as the valve-faces are kept from actual or frictional contact with the valve-seats. There will also be no
70 pressure upon the trunnions on account of the two opposite equal valve-faces acted upon by steam-pressure.

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

1. A cylindrical valve-chamber with steam-ports upon opposite sides, in combination with a longitudinally-divided valve having a central wedge-piece fitting within the trunnion-bar, and projections which engage corresponding projections upon the two parts of the valve, and means, substantially as described, for moving said wedge-piece longitudinally to adjust the parts of the valve, substantially as
80 specified.

2. A cylindrical valve-chamber having ports on opposite sides communicating by passages L, in combination with a longitudinally-divided valve having a central wedge-shaped
90 piece fitting within the trunnion-bar, and projections which engage corresponding projections upon the two parts of the valve, means, substantially as described, for adjusting said parts, and an end spring, substantially as set forth.

3. A cylindrical valve - chamber having ports on opposite sides, a shallow longitudinal port, and annular ports L, in combination with a longitudinally-divided valve having a central wedge-shaped piece constructed and arranged as shown, with means for adjusting it, as described, and all substantially as and for the purpose specified.

4. A two-part valve having an adjusting wedge-piece fitted within an open trunnion-bar, with means for adjusting said wedge-piece, and lateral springs on both sides thereof, and an end spring, j, all arranged as and for the purpose set forth.

5. A cylindrically-shaped valve-chamber having steam-ports diametrically opposite to each other, a valve divided longitudinally and fitting a slotted trunnion-bar, by which it is driven, a wedge-shaped piece within the trunnion-bar, between the two parts of the valve, and having lugs or projections which engage similar projections upon the two parts of the valve, and a mechanism, substantially as described, by which the wedge-shaped piece may be moved longitudinally between the two parts of the valve, in combination with springs F

between the wedge-piece and the valve-sections, whereby they are allowed to move from their seats, substantially as herein described.

6. A two - part valve with an adjusting wedge-piece fitted within an open trunnion-bar, with means for adjusting, and interposed springs, as shown, in combination with the end spring, j, substantially as herein described.

7. A valve fitting a concave cylindrical valve-seat and the opposite side of the valve-chamber, composed of two parts with angular longitudinal projections which engage similar projections upon a central wedge-piece in the trunnion-bar, by which the valve is oscillated upon its seat, and a mechanism, substantially as described, by which the valve is adjusted to or from its seats by the longitudinal movement of the wedge-shaped piece on itself, substantially as herein described.

In witness whereof I have hereunto set my hand.

HANS C. BEHR.

Witnesses:

S. H. NOURSE,
C. D. COLE.