

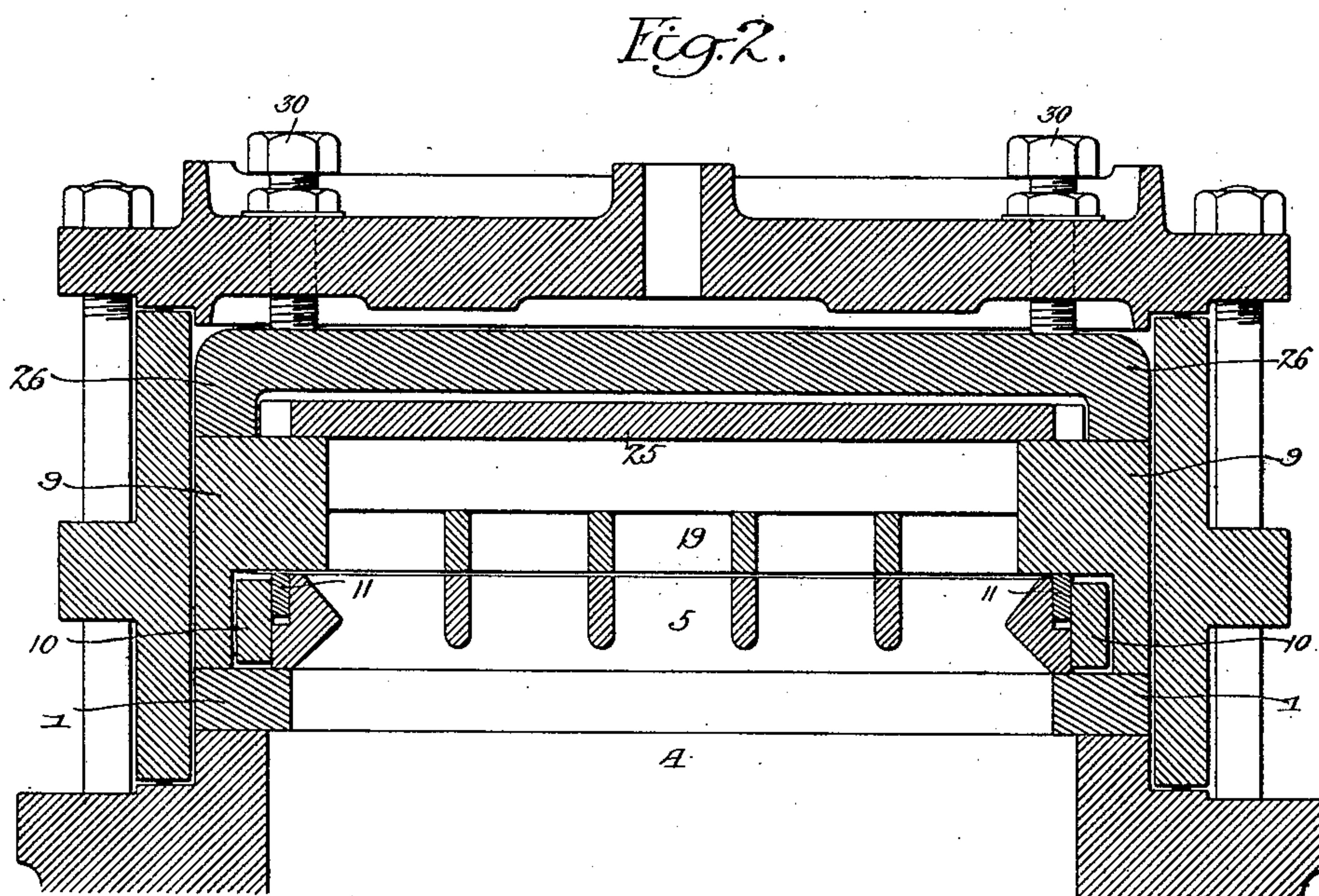
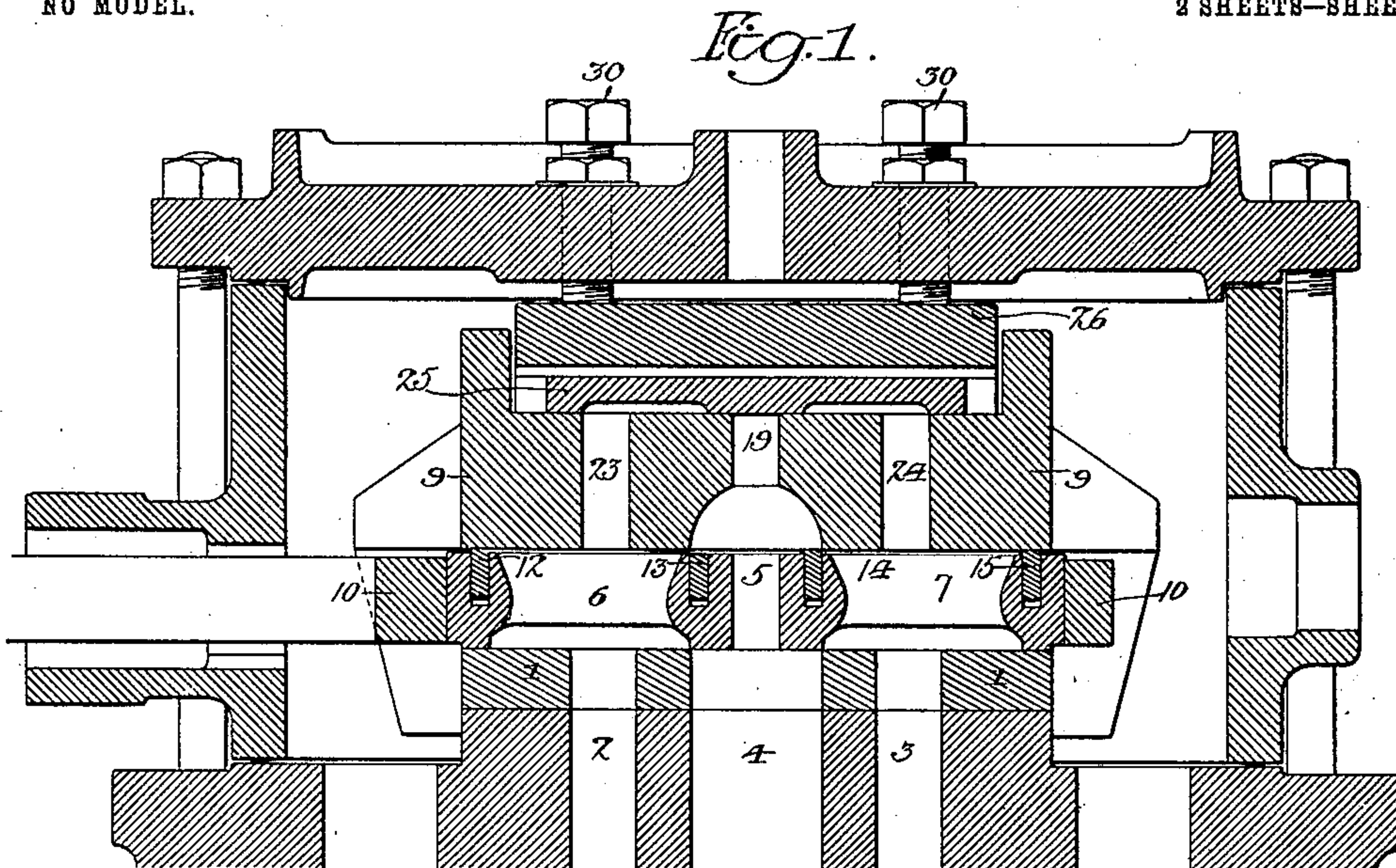
No. 763,167.

PATENTED JUNE 21, 1904.

H. D. & C. L. DUNBAR.
BALANCED SLIDE VALVE.
APPLICATION FILED MAR. 16, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
Hamilton S. Turner
Frank L. A. Graham

Inventors
Henry D. Dunbar,
Charles L. Dunbar,
by their Attorneys,
Howson & Howson

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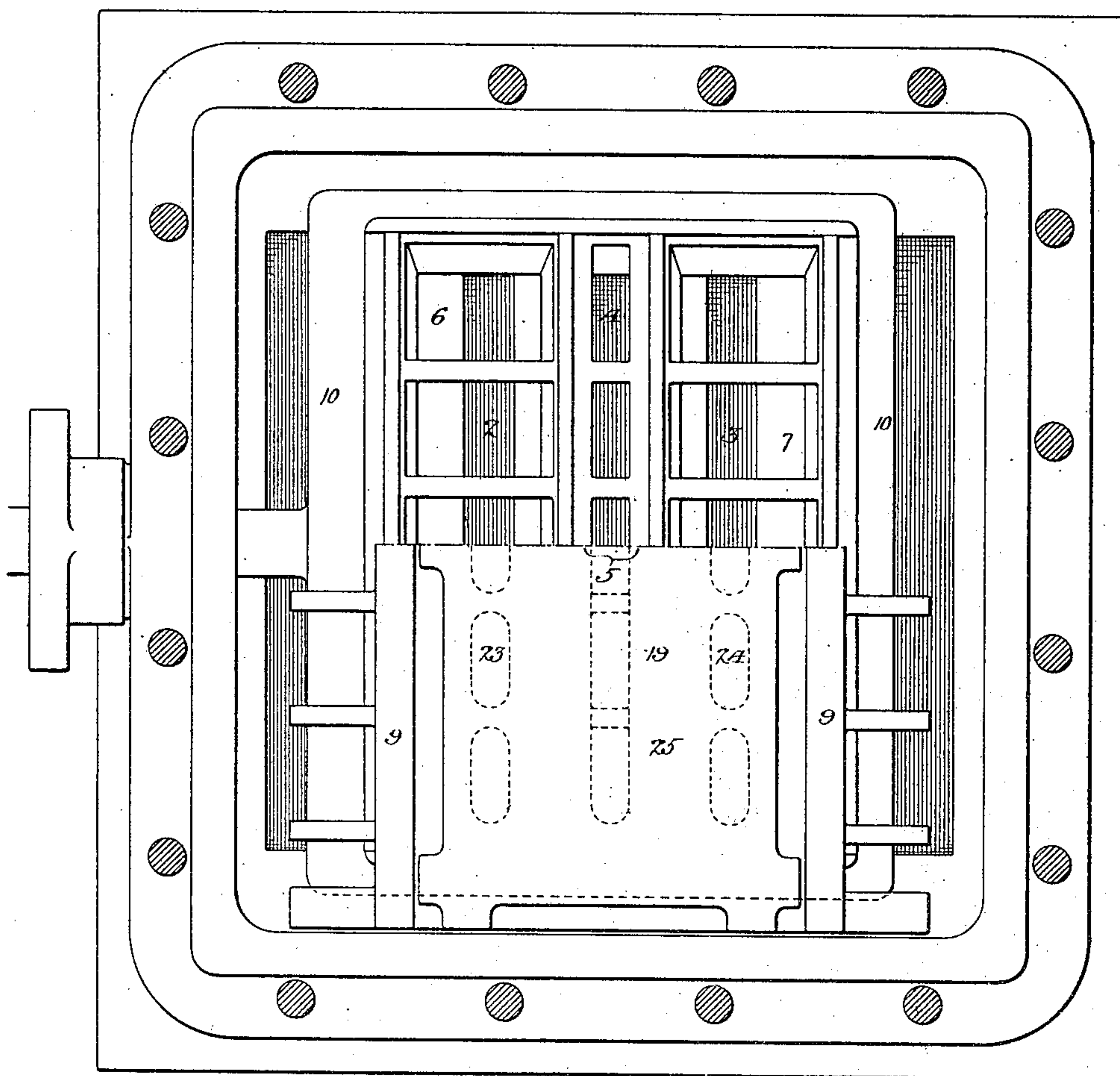
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY D. DUNBAR, OF NORTH HARTLAND, VERMONT, AND CHARLES L. DUNBAR, OF LEBANON, NEW HAMPSHIRE.

BALANCED SLIDE-VALVE.

SPECIFICATION forming part of Letters Patent No. 763,167, dated June 21, 1904.

Application filed March 15, 1904. Serial No. 198,306. (No model.)

To all whom it may concern:

Be it known that we, HENRY D. DUNBAR, residing at North Hartland, Vermont, and CHARLES L. DUNBAR, residing at Lebanon, New Hampshire, citizens of the United States, have invented certain Improvements in Balanced Slide-Valves, of which the following is a specification.

Our invention consists of certain improvements in the balanced slide-valve for which we obtained Letters Patent No. 682,921, dated September 17, 1901, the objects of our present invention being to simplify the construction of the valve structure by lessening the number of parts of the same and to provide for the better retention of the back plate forming one of the elements of said valve structure. These objects we attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal section of a valve constructed in accordance with our present invention. Fig. 2 is a transverse section of the same, and Fig. 3 is a plan view with the cover of the valve-chest removed and certain of the parts of the valve structure broken away in order to illustrate parts beneath the same.

1 represents the ported face of the valve-chest; 2, the combined induction and eduction passage leading to one end of the cylinder; 3, the induction and eduction passage leading to the opposite end of the cylinder, and 4 the exhaust-passage.

The valve is of the gridiron type, and has extending through it from top to bottom three passages 5, 6, and 7. This valve occupies a space between the ported valve-face 1 and a back plate 9, which is rigidly mounted upon the ported face of the valve-chest and confined in position thereon by means described hereinafter, so that it is maintained at a predetermined distance from the valve-face.

The valve is embraced by the usual yoke 10, which is connected to the valve-operating rod, and leakage through the valve is prevented by longitudinal and transverse packing-strips 11, 12, 13, 14, and 15 at the back of the valve.

All of the parts thus far described are simi-

lar in construction and operation to those of the valve shown in our former patent.

The back plate 9 has a central passage 19 extending through the same, and other passages 23 and 24 likewise extending through it, one in advance of the passage 19 and the other in the rear of the same, and the upper ends of all of these passages are normally closed by a valve-plate 25, resting upon the rear face of the back plate and prevented from rising beyond a predetermined distance above the same by means of a superposed yoke 26, the ends of which bear upon the back plate 9 near the ends of the same, as shown in Fig. 2, this yoke being acted upon by set-screws 30, whereby it is retained in position and caused to press the back plate firmly down against its bearings upon the ported face of the valve-chest.

The passages 19, 23, and 24 serve as relief-passages in the same manner as in the former valve, a single valve-plate 25 now taking the place of the series of valve-bars formerly used and the retaining-yoke 26 serving to limit the movement of the valve in place of the series of headed bolts formerly employed, whereby both the construction and operation of the valve are simplified as compared with the valve of the former patent. The retaining-yoke 26, serving also as a stop, may be used to advantage even with the separate valve-bars shown in the former patent, but the use of the single valve-plate is always preferred.

The valve-plate 25 is chambered on the under side, so as to increase the area exposed to pressure from the passages 23 and 24 and permit of the ready raising of the valve-plate when there is any undue pressure of water in either end of the cylinder.

As in the former valve a chamber closed at the top may replace the central passage 19, but for the same reason as given in the former patent it is preferable to employ such passage.

Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination of the ported valve-seat, the back plate rigidly mounted in respect

thereto and having passages therethrough, the ported valve, movable between the valve-seat and back plate, and a single valve-plate controlling the passages in the back plate, 5 substantially as specified.

2. The combination of the ported valve-seat, the back plate rigidly mounted in respect thereto, the ported valve, movable between the valve-seat and the back plate, a yoke bearing upon said back plate, and serving to con- 10 fine the same to the valve-seat, and set-screws for depressing said yoke, substantially as specified.

3. The combination of the ported valve-seat, 15 the back plate rigidly mounted in respect thereto and having passages therethrough,

the ported valve, movable between the valve-seat and back plate, a valve or valves controlling the passages through the back plate, and a yoke bearing upon the back plate and 20 serving to confine the same to the valve-seat and also to limit the rising movement of the valve or valves of said back plate, substantially as specified.

In testimony whereof we have signed our 25 names to this specification in the presence of two subscribing witnesses.

HENRY D. DUNBAR.

CHARLES L. DUNBAR.

Witnesses:

JAMES McMORRIS,

JOS. H. KLEIN.