

No. 756,306.

PATENTED APR. 5, 1904.

H. J. WESSINGER.
BACK PRESSURE VALVE.
APPLICATION FILED SEPT. 4, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

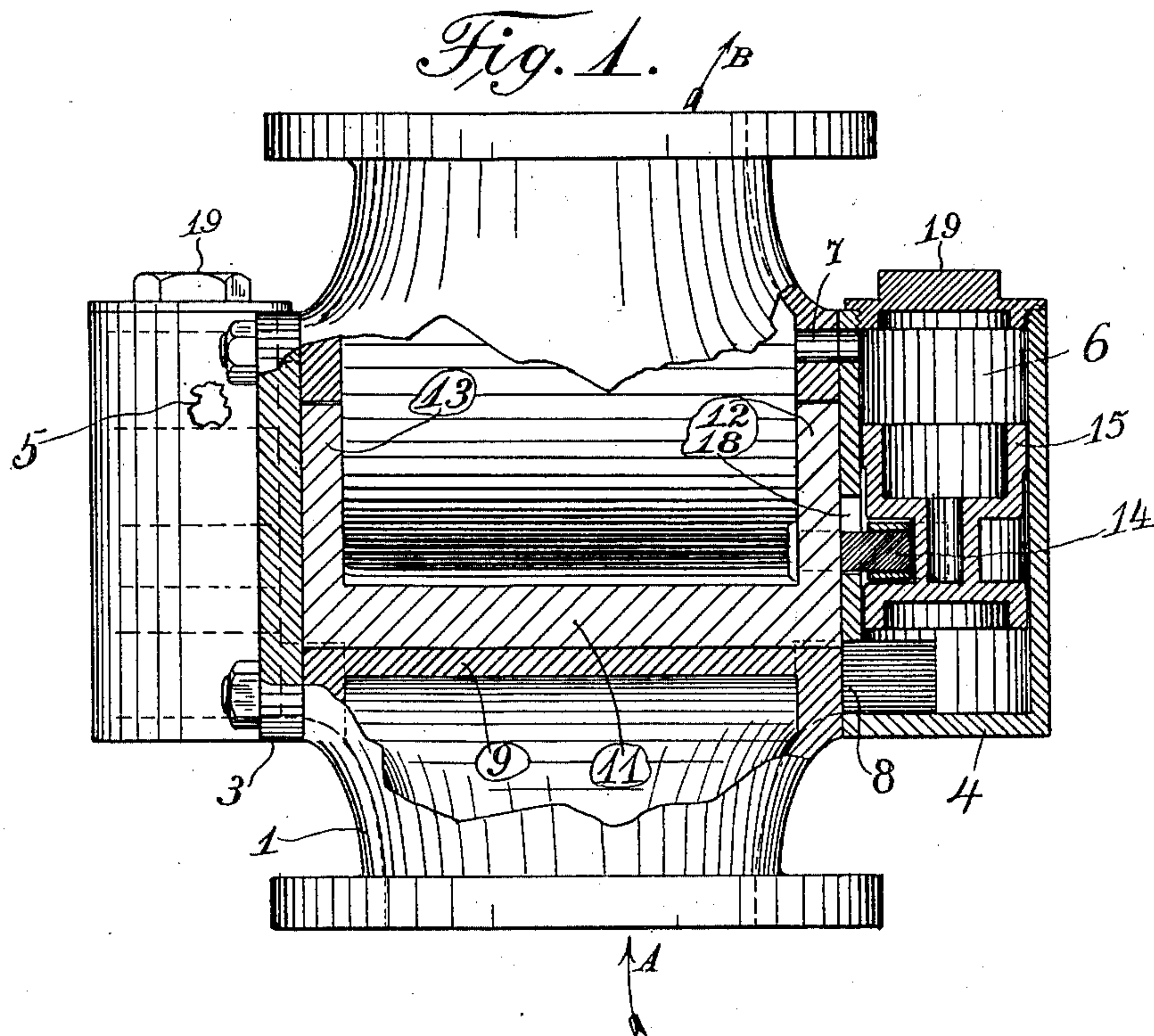
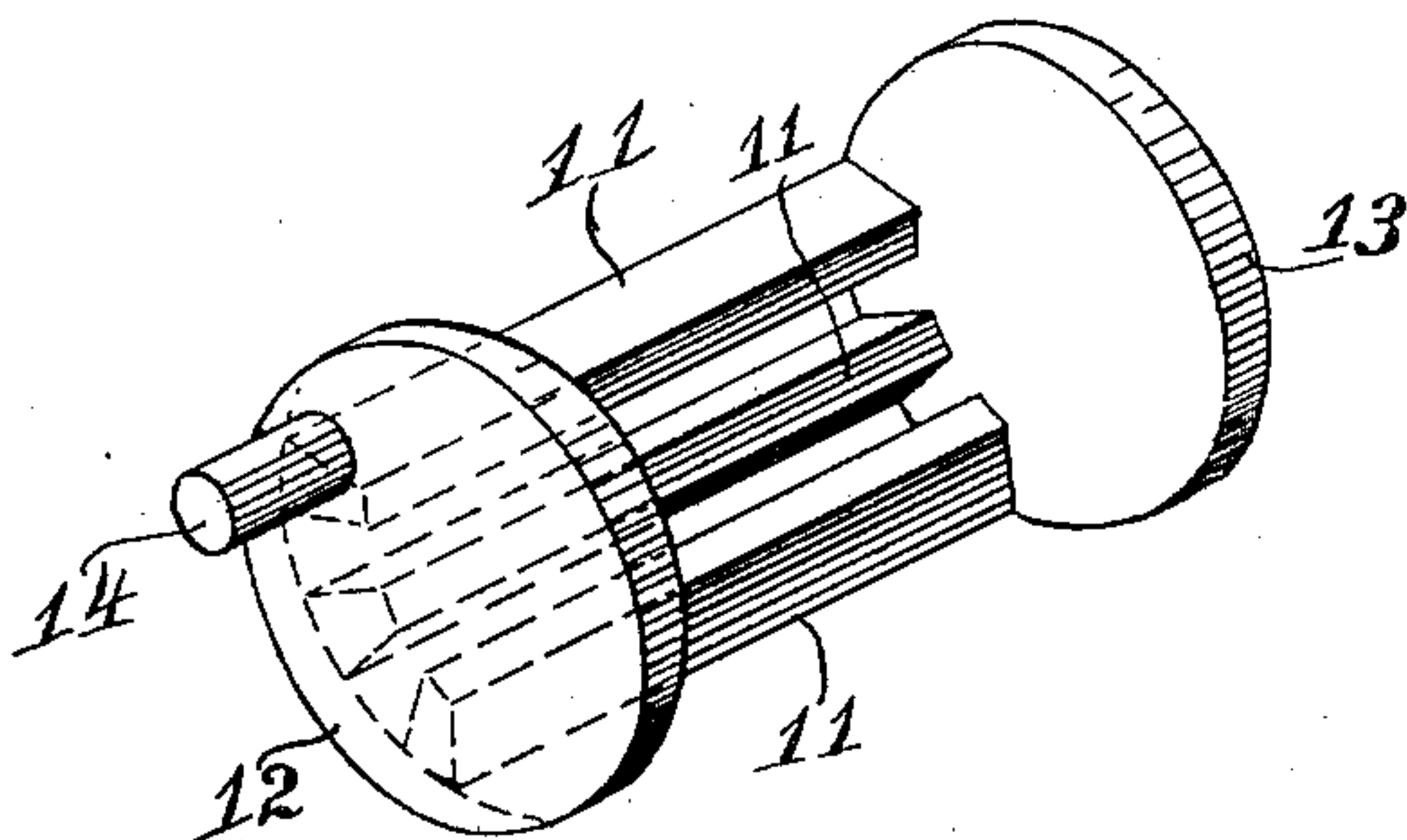


Fig. 2.



Witnesses:
Wellington W. Blewett
G. H. Jackson

Inventor.
Henry J. Wessinger
By James Watson
his Attorney.

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2 SHEETS—SHEET 2.

Fig. 4.

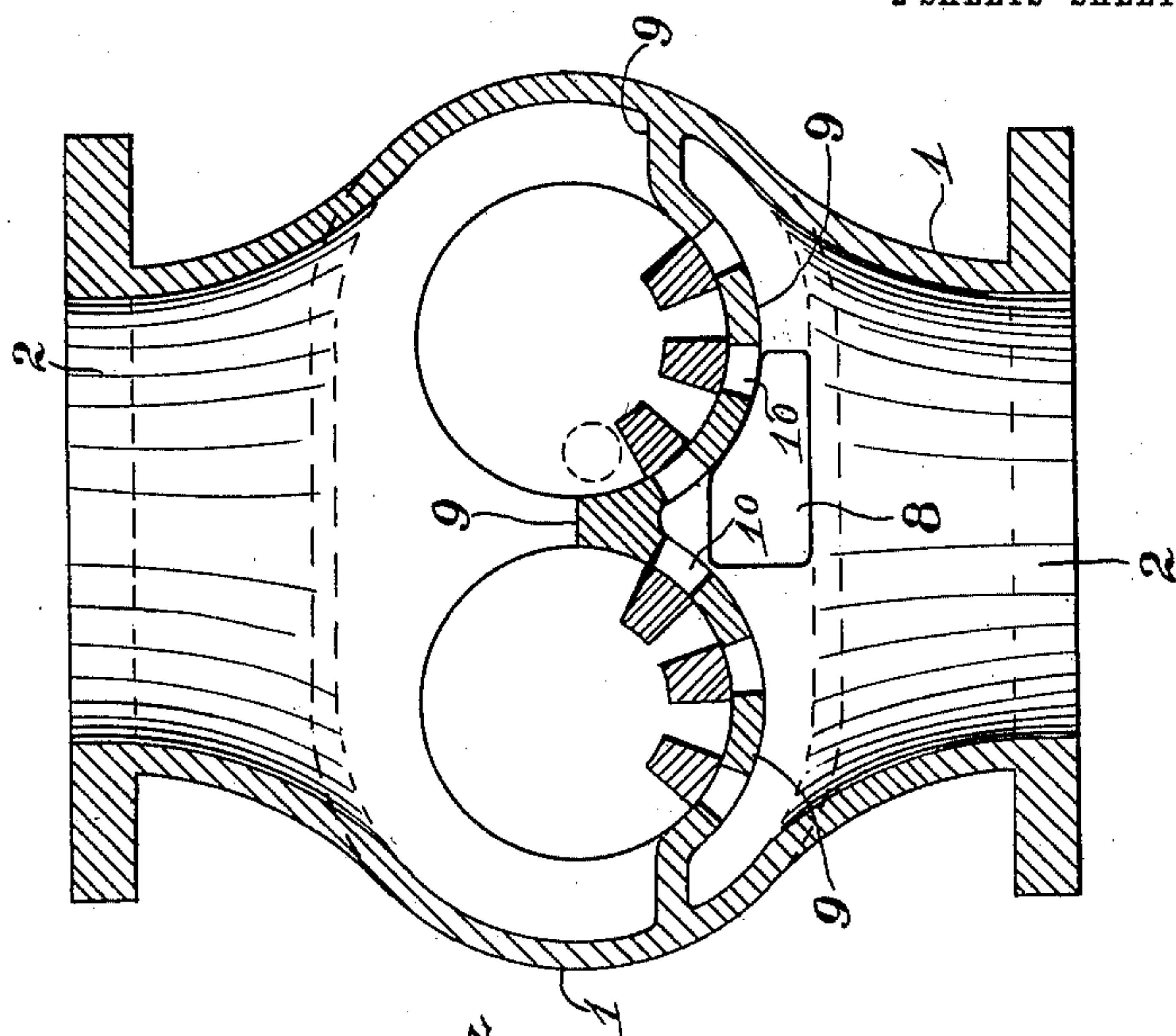
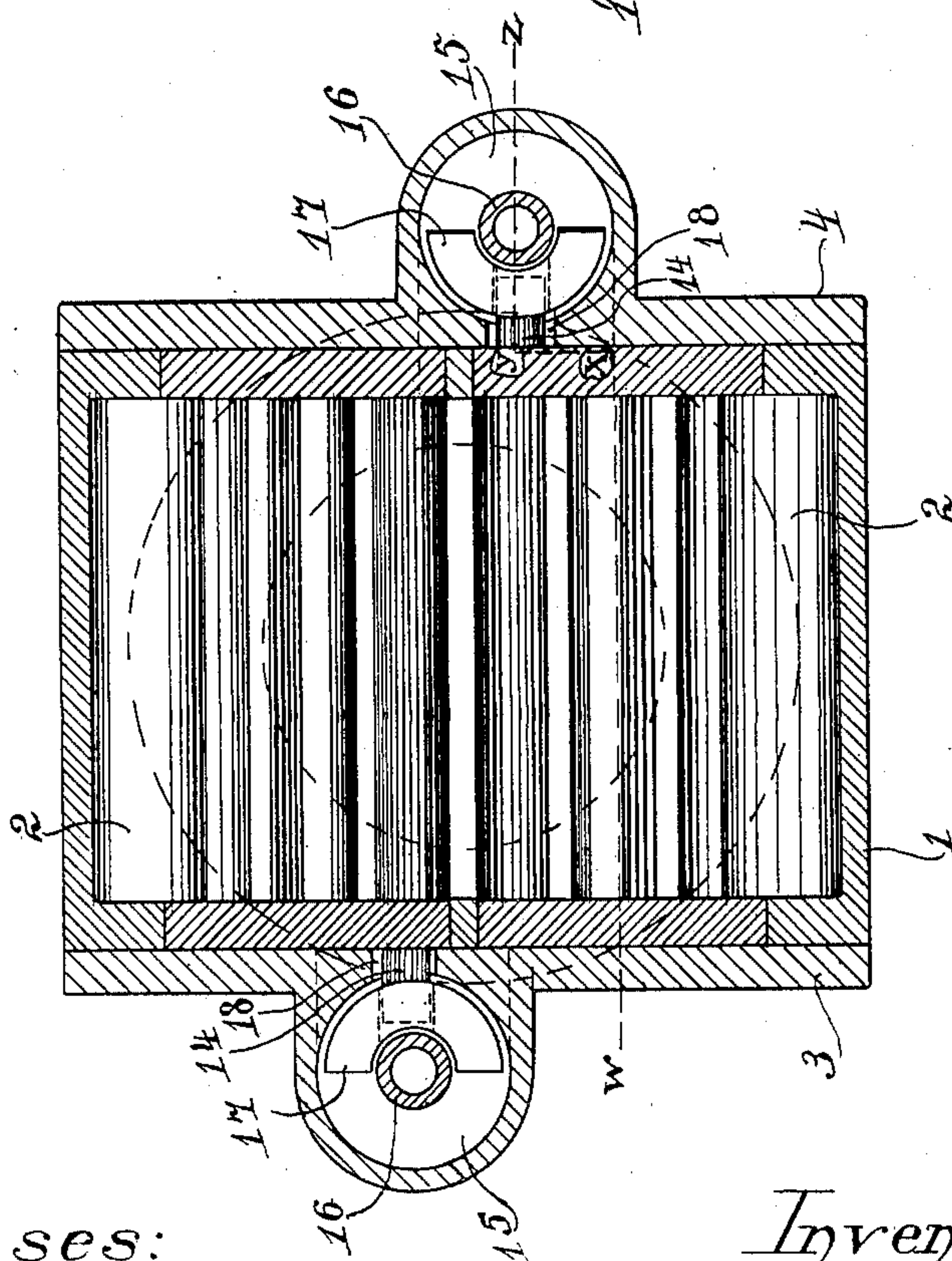


Fig. 3.



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Henry J. Wessinger
By James T. Watson
his Attorney.

UNITED STATES PATENT OFFICE.

HENRY J. WESSINGER, OF DULUTH, MINNESOTA.

BACK-PRESSURE VALVE.

SPECIFICATION forming part of Letters Patent No. 756,306, dated April 5, 1904.

Application filed September 4, 1903. Serial No. 171,877. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. WESSINGER, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Back-Pressure 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 appertains to make and use the same.

My invention relates to back-pressure valves, and has for its object the construction of a valve adapted to retard the escape of exhaust-steam from engine-cylinders.

It consists, in combination with a casing divided into a suitable series of connecting-chambers, of cradle-valves mounted in the central chamber and pistons contained in the other said chambers and respectively connected with said cradle-valves to operate the same.

It also consists of certain other constructions, combinations, and arrangements of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of my said invention, partly broken away and partly in vertical longitudinal section in two planes, on the line *w x y z* of Fig. 3. Fig. 2 is a perspective view of one of the cradle-valves. Fig. 3 is a horizontal mid-section of my said invention, and Fig. 4 is a vertical transverse section of the same.

In the drawings, 1 is a casing containing a central chamber 2, provided with covers 3 and 4. Said covers contain piston-chambers 5 and 6, respectively, which communicate with said central chamber through ports 7 and 8.

Within the chamber 2 is constructed a horizontally-arranged grating 9, the openings or ports 10 in which are adapted to be normally closed by superimposed cradle-valves substantially of the pattern shown in said Fig. 2 and comprising a plural number of port-covering bars 11, formed on and extending between end disks 12 and 13, respectively, upon the disk 12 of each of which valves is formed or secured a pin 14. Each of said chambers 5 and 6 is adapted to contain a piston 15, which pistons are centrally reduced, as at 16, to form

a bearing for loose gibs 17. The opposite walls of said central chamber are apertured to receive the disk portions 12 and 13, respectively, of each of said cradle-valves, said walls forming bearings for said valves. The end covers forming part of said casing are also apertured, as at 18, to permit the passage and oscillation of the pin 14, which projects therethrough and engages an aperture formed in said gib 17. Said cradle-valves are inserted in said central chamber before the end covers of the casing are attached, and also prior to the attachment of said covers said pistons are inserted into the chambers 5 and 6, respectively, through openings in tops of said chambers, which openings are then preferably closed by suitable screw-plugs 19. The pins 14 are then brought into registration and engagement with the apertures of the respective gibs, and the covers are bolted to the central casing. Said cradle-valves are of one pattern and in position lie parallel to each other in opposite directions and rock oppositely. In operation when exhaust-steam conducted by any suitable means flows into said central chamber from the direction indicated by the arrow A it is at first prevented by the grating and cradle-valves from directly traversing the central chamber, and therefore passes through the ports 8 into the chambers 5 and 6 beneath the pistons, forcing said pistons upward. The movements of said pistons rock the respective cradle-valves, which thereupon uncover the ports through said grating and permit the exhaust-steam to directly traverse said central chamber and escape in the direction of the arrow B. The pressure being relieved from beneath said pistons, they fall of their own weight, returning said cradle-valves to normal position. Compression of air or steam above said pistons is avoided by means of said ports 7.

While I have described a certain embodiment of my invention, it is obvious that within the scope of said invention the number of said valves may be increased or may be diminished to one cradle-valve and one piston and minor changes effected in the construction and contours of said valves, grating, and other parts.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a back-pressure valve, the combination of a casing comprising a central chamber, open at each end, having a grating formed therein, and side chambers communicating with said central chamber through suitable ports, pistons inclosed in said side chambers, cradle-valves mounted in said central chamber and adapted to govern the ports through said grating and provided with means for engaging said pistons, substantially as described.

2. In a back-pressure valve, the combination with a casing have a cradle-valve chamber open at the top and bottom and a piston-chamber formed therein communicating with each other by means of ports and having a grating formed within and horizontally dividing said cradle-valve chamber, of a piston within said piston-chamber, a cradle-valve within said cradle-valve chamber adapted to

govern the ports in said grating and provided with means adapted to engage said piston, substantially as described.

3. In a back-pressure valve, the combination with a casing containing a chamber open at the top and bottom and divided by a partition having ports formed therein, and a closed chamber communicating with the first said chamber through ports formed in their walls, of a piston positioned within said closed chamber, a valve positioned within the first said chamber and adapted to govern the ports in said partition and provided with means adapted to engage the piston in said closed chamber, substantially as described.

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

HENRY J. WESSINGER.

Witnesses:

S. S. RUMSEY,

JOSEPH B. COTTON.