

No. 810,672.

PATENTED JAN. 23, 1906.

W. PRELLWITZ.
DISCHARGE VALVE FOR FLUID COMPRESSORS.
APPLICATION FILED APR. 1, 1905.

Fig. 1.

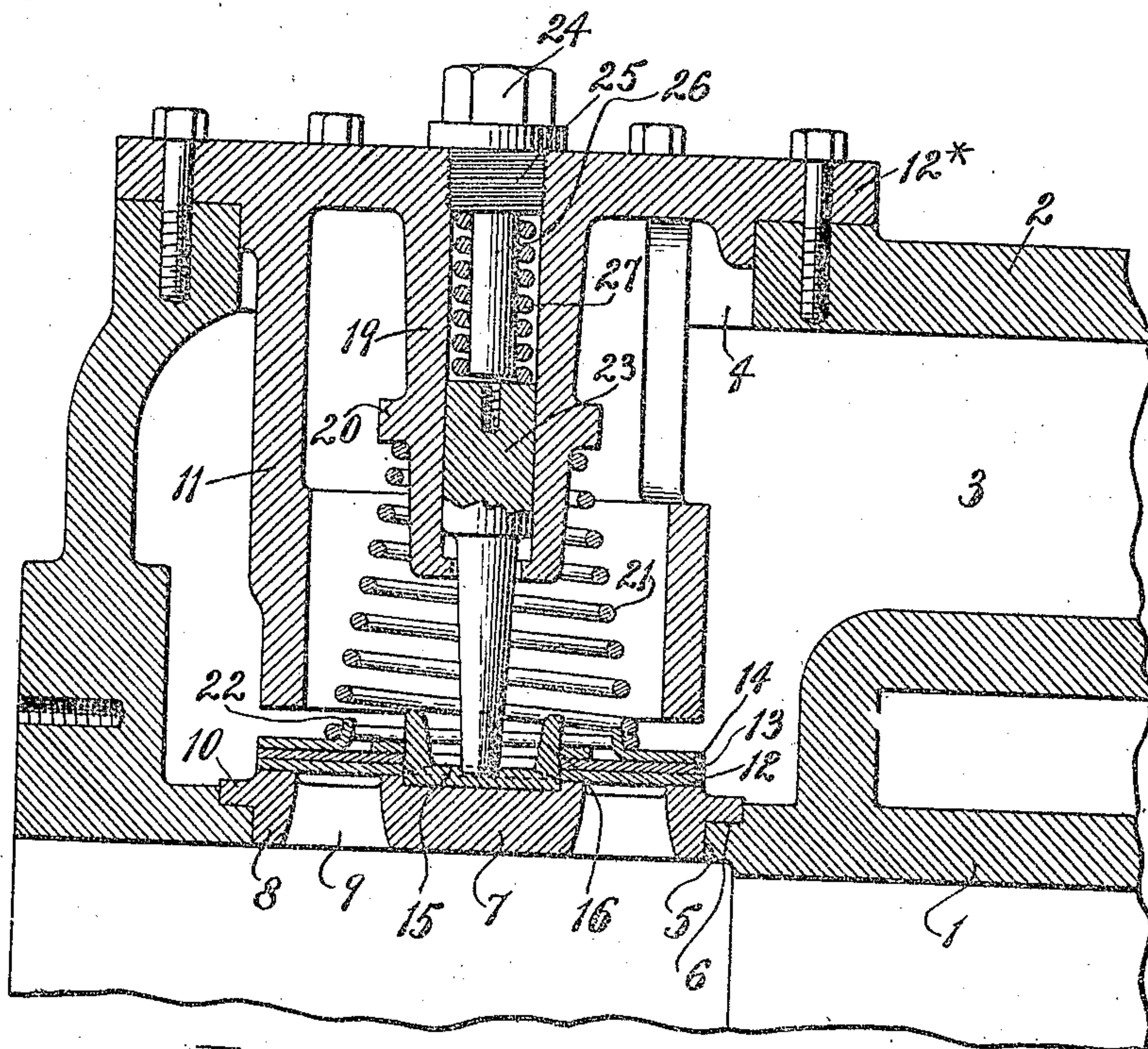


Fig. 2.

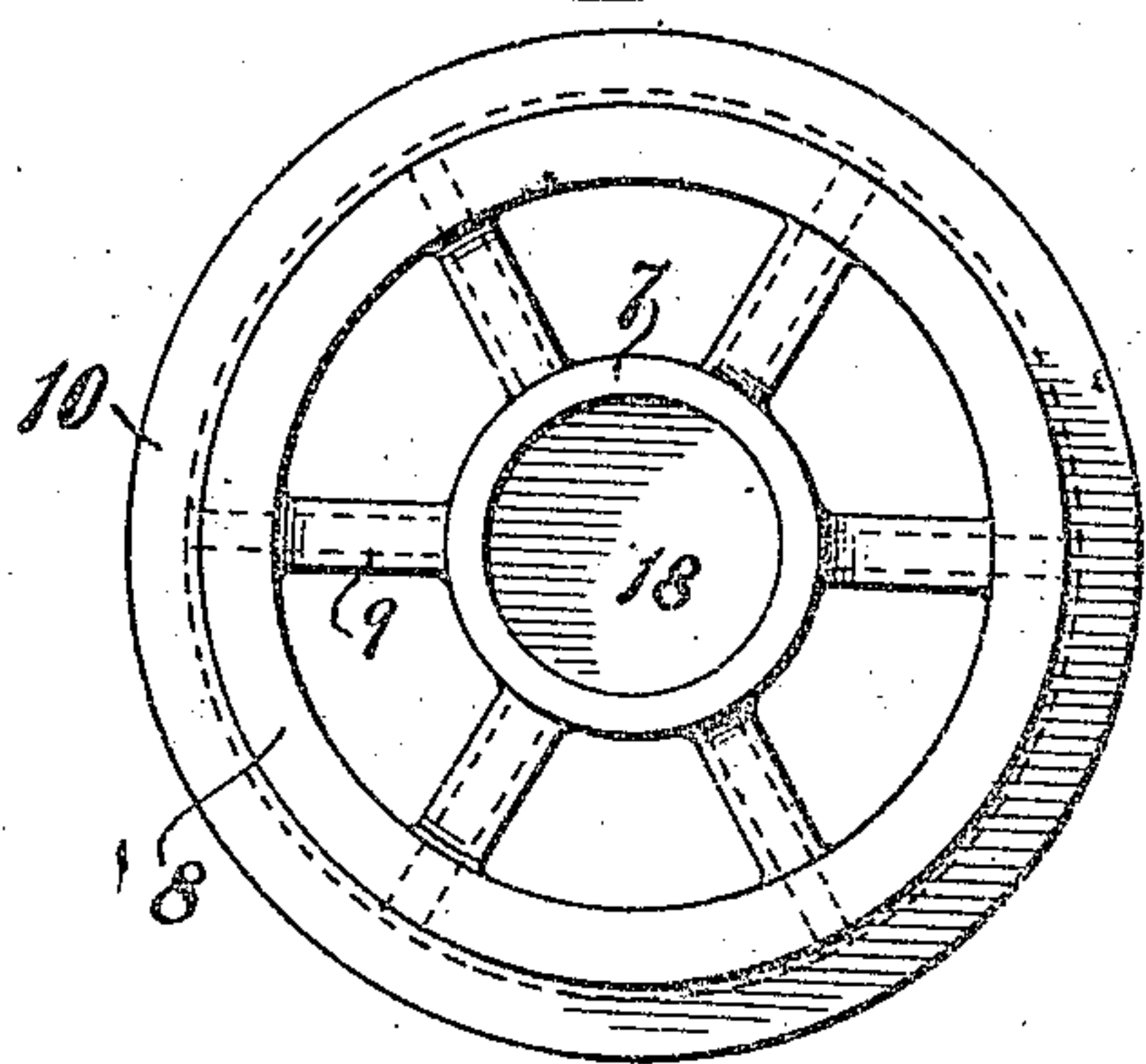


Fig. 3.

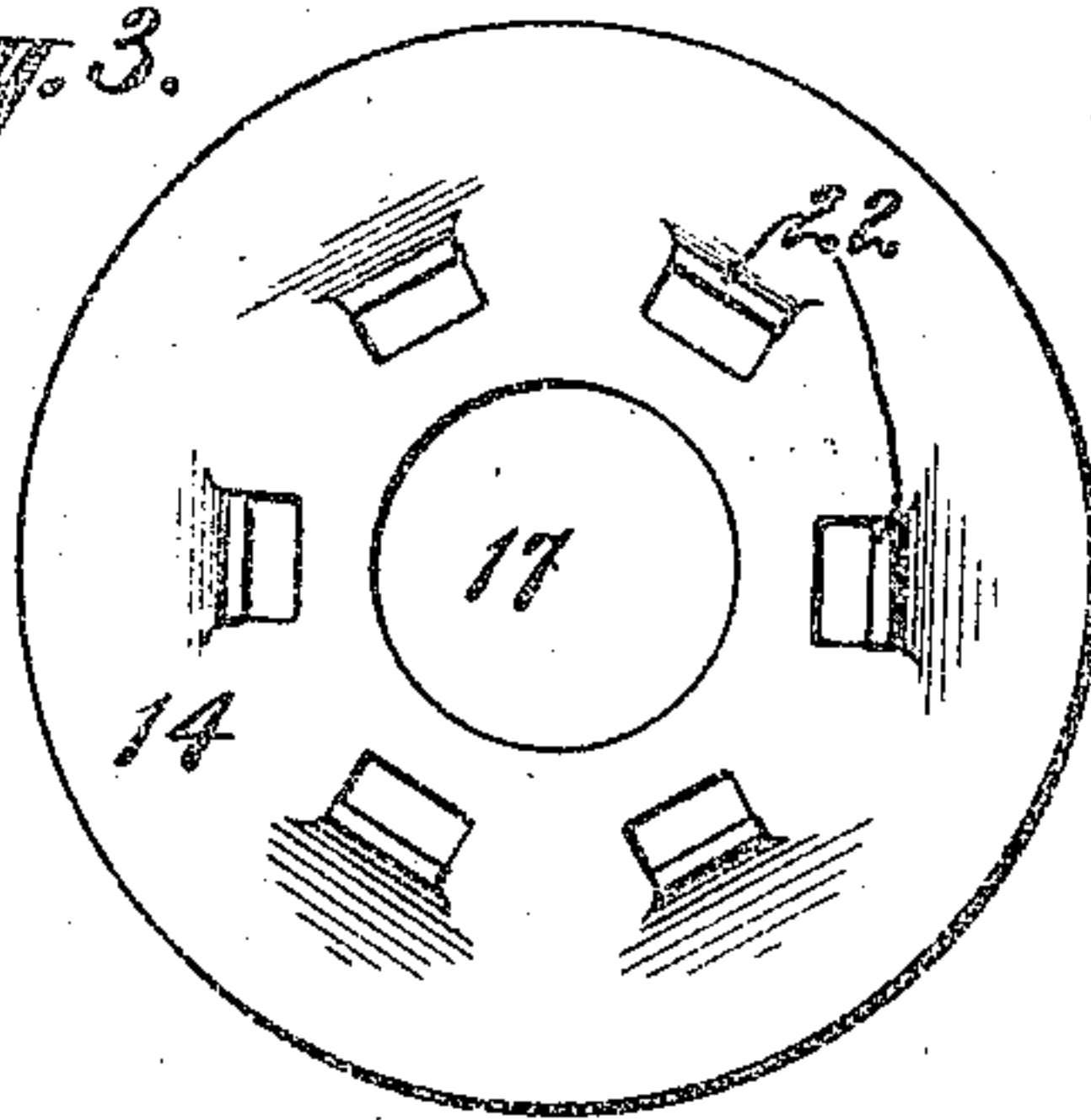


Fig. 4.

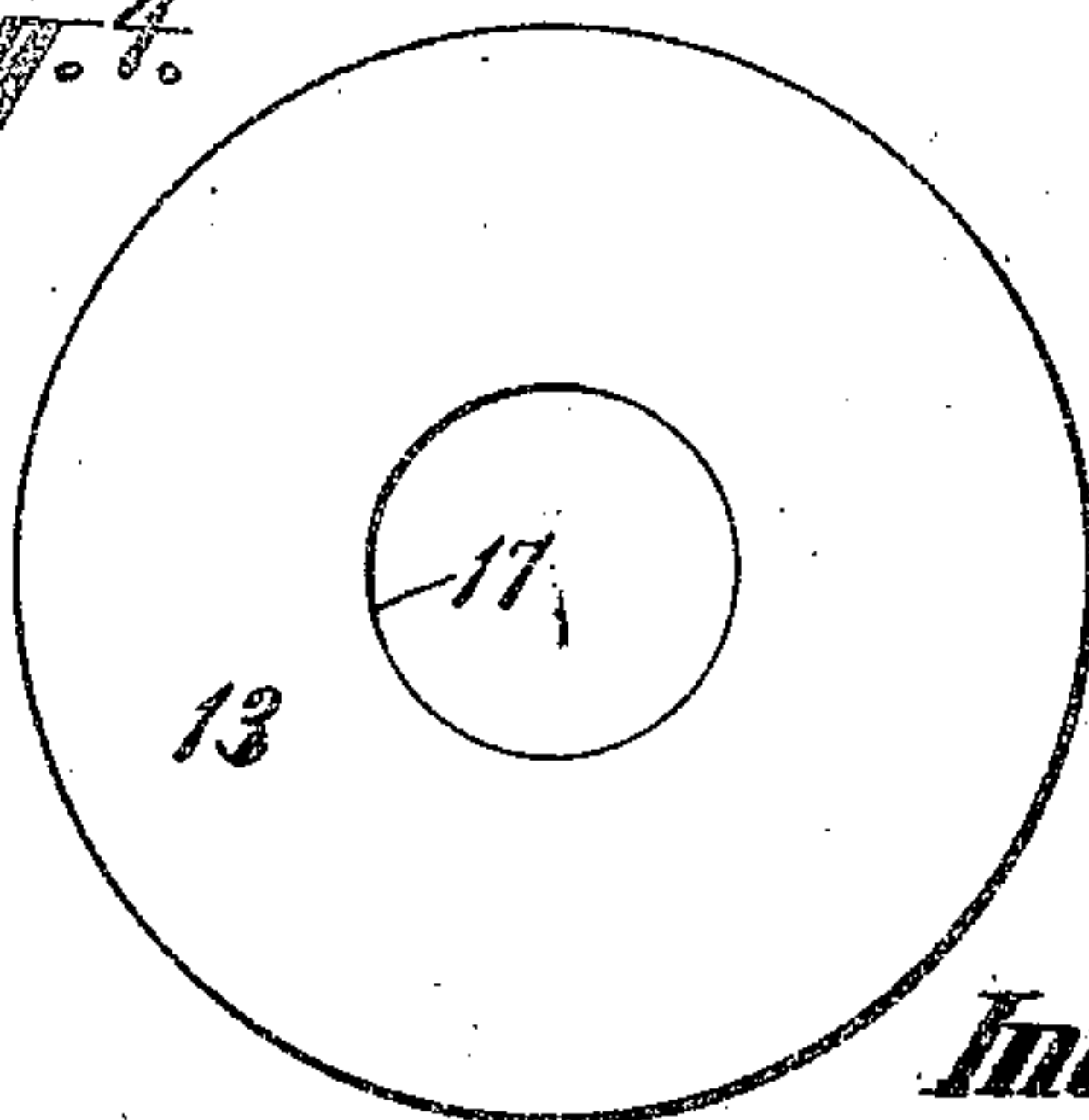


Fig. 5.

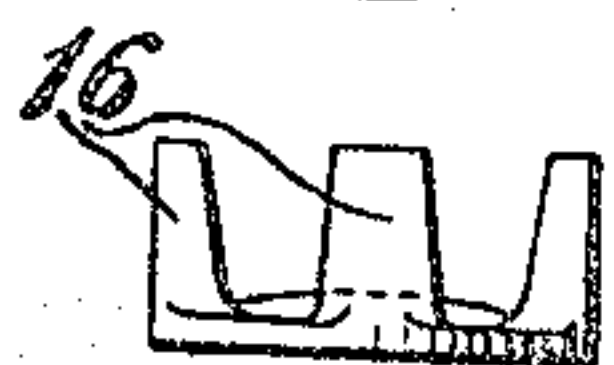
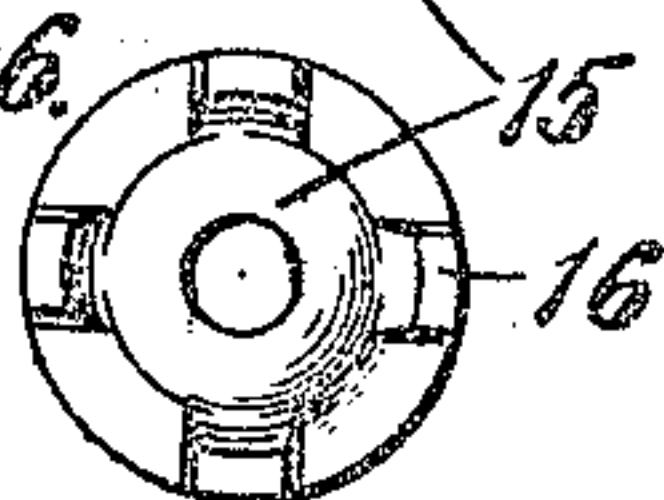


Fig. 6.



Witnesses:

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Henry Thieme.

Inventor:

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by attorney
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UNITED STATES PATENT OFFICE.

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DISCHARGE-VALVE FOR FLUID-COMPRESSORS.

No. 810,672.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed April 1, 1905. Serial No. 253,247.

To all whom it may concern:

Be it known that I, WILLIAM PRELLWITZ, a citizen of the United States, and a resident of Easton, in the county of Northampton and State of Pennsylvania, have invented a new and useful Improvement in Discharge-Valves for Fluid-Compressors, of which the following is a specification.

The object of this present invention is to provide certain improvements in the construction, form, and arrangement of the several parts of a discharge-valve whereby a removable guide for the valve may be employed and in which means are provided for yieldingly holding the discharge-valve seat and the removable guide in position.

An embodiment of this invention is represented in the accompanying drawings, in which—

Figure 1 represents a portion of a fluid-compressor cylinder in section with the discharge-valve shown in position therein, said discharge-valve being also shown in longitudinal central section. Fig. 2 is a top plan view of the valve-seat. Fig. 3 is a plan view of the top plate of the laminated valve. Fig. 4 is a plan view of one of the other plates of the valve. Fig. 5 is a side view of the removable valve-guide, and Fig. 6 is a top plan view of the same.

The inner wall of the cylinder is denoted by 1, its outer wall by 2, and the outlet-port between the walls by 3. The outer wall has a hole 4 therethrough of sufficient diameter to permit the insertion and removal of the valve and its seat. The inner wall 1 of the cylinder is also provided with a hole 5 therethrough, the upper portion of which is enlarged to produce an annular shoulder 6.

The valve-seat herein shown comprises a central or disk portion 7, an outer or ring portion 8, and connecting-ribs 9. The outer wall of the ring portion 8 of the valve-seat has an easy sliding fit within the walls of the hole 5 in the inner wall 1 of the cylinder. This ring portion 8 of the valve is further provided with an annular flange 10, which abuts against the shoulder 6 when the valve-seat is in position.

The valve-cage is denoted by 11, and it has a flanged head 12*, which is bolted or otherwise secured to the outer wall 2 of the cylinder around the hole 4.

The discharge-valve proper is herein shown as of laminated form, in the present instance comprising three disk-plates 12, 13, 14. A removable centrally-arranged guide for the valve comprises a plate 15, from which uprises a plurality of guide-fingers 16, the outer walls of which engage the inner walls of the hole 17 through the center of the laminated valve. This central valve-guide is preferably countersunk into a recess 18 in the central portion 7 of the valve-seat for holding the guide, and thereby the valve, against lateral movement. The head 12* of the cage 11 has a centrally-arranged depending hollow post 19, the bore of which is open at both ends. This post is provided with an annular shoulder 20, between which and the top plate 14 of the laminated valve is interposed a spring 21 for yieldingly holding the valve closed. To prevent the lateral displacement of the lower end of this spring 21, the top plate 14 of the laminated valve is preferably provided with an annular series of lugs 22, struck up therefrom. A pin 23 has an easy sliding fit within the bore of the hollow post 19, the inner end of which pin rests on the center of the plate 15 of the removable valve-guide. An adjusting-bolt 24 has a screw-threaded engagement with the upper portion of the bore of the hollow post 19, as shown at 25, which bolt has a reduced portion 26, which extends down into close proximity to the outer end of the pin 23 when the bolt is in position. A spring 27 is interposed between the screw-threaded portion 25 of the bolt 24 and the outer end of the pin 23 for yieldingly pressing the pin against the valve-guide, and thereby normally holding the valve guide and seat in position under pressure. The strength of this spring 27 should be sufficient to exert a greater pressure upon the valve guide and seat than the excess of pressure from the cylinder due to the compression, of the valve sufficient to open the discharge-valve against the tension of its spring 21. The reduced portion 26 of the bolt 24 is so arranged that even should the spring 27 become broken or weakened the bolt will engage the outer end of the sliding pin 23 and limit its outward movement, thus preventing the valve-seat from lifting out of its hole a sufficient distance to permit the escape of pressure around its outer walls.

It is to be understood that certain features of construction shown and described, but not claimed herein, form part of the subject-matter of a copending application filed by me 5 January 18, 1905, Serial No. 241,603, for improvement in discharge-valves for fluid-compressors.

What I claim as my invention is—

1. A valve-seat, a valve, its spring for 10 yieldingly holding the valve closed, a removable valve-guide engaged with the seat and means for yieldingly holding the valve guide and seat in position.

2. A laminated valve, its seat, a support 15 for the seat, a centrally-arranged removable guide for the valve, means for yieldingly holding the valve closed and means for yieldingly holding the valve guide and seat in position.

20 3. A valve, its seat, a support for the seat,

a centrally-arranged removable valve-guide locked to the seat against lateral movement, means for yieldingly holding the valve closed and means for yieldingly holding the valve-seat and valve-guide in position. 25

4. A valve, its seat, a support for the seat, a centrally-arranged removable valve-guide comprising a plate countersunk into the valve-seat and guide-fingers uprising therefrom, a spring for yieldingly holding the 30 valve closed and means for yieldingly holding the valve guide and seat in position.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 29th day of 35 March, 1905.

WILLIAM PRELLWITZ.

Witnesses:

FREDK. HAYNES,
C. S. SUNDGREN.