

908,413.

A. LOTZ.
VALVE.
APPLICATION FILED OCT. 27, 1906.

Patented Dec. 29, 1908.

Fig. 1

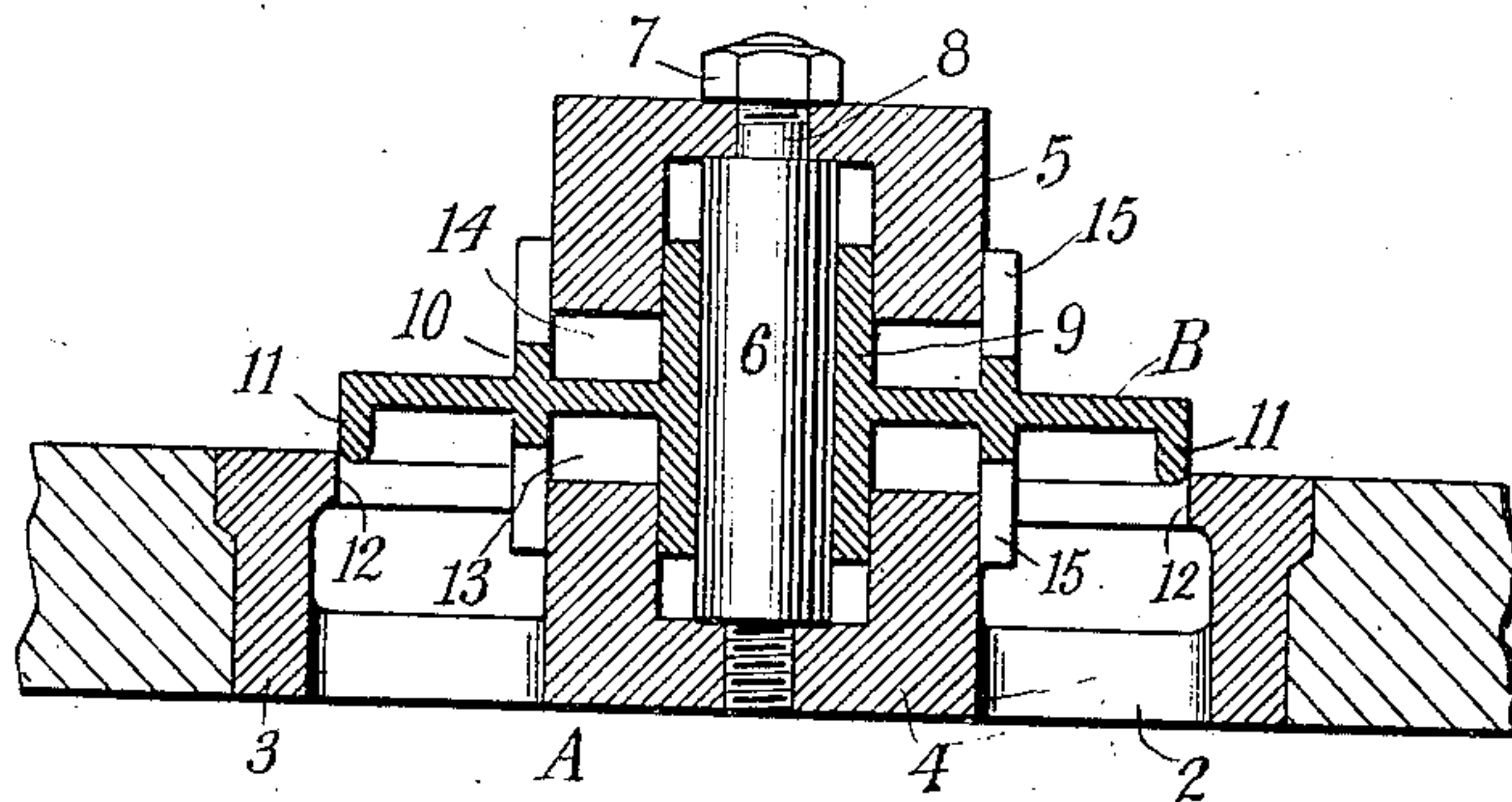


Fig. 2

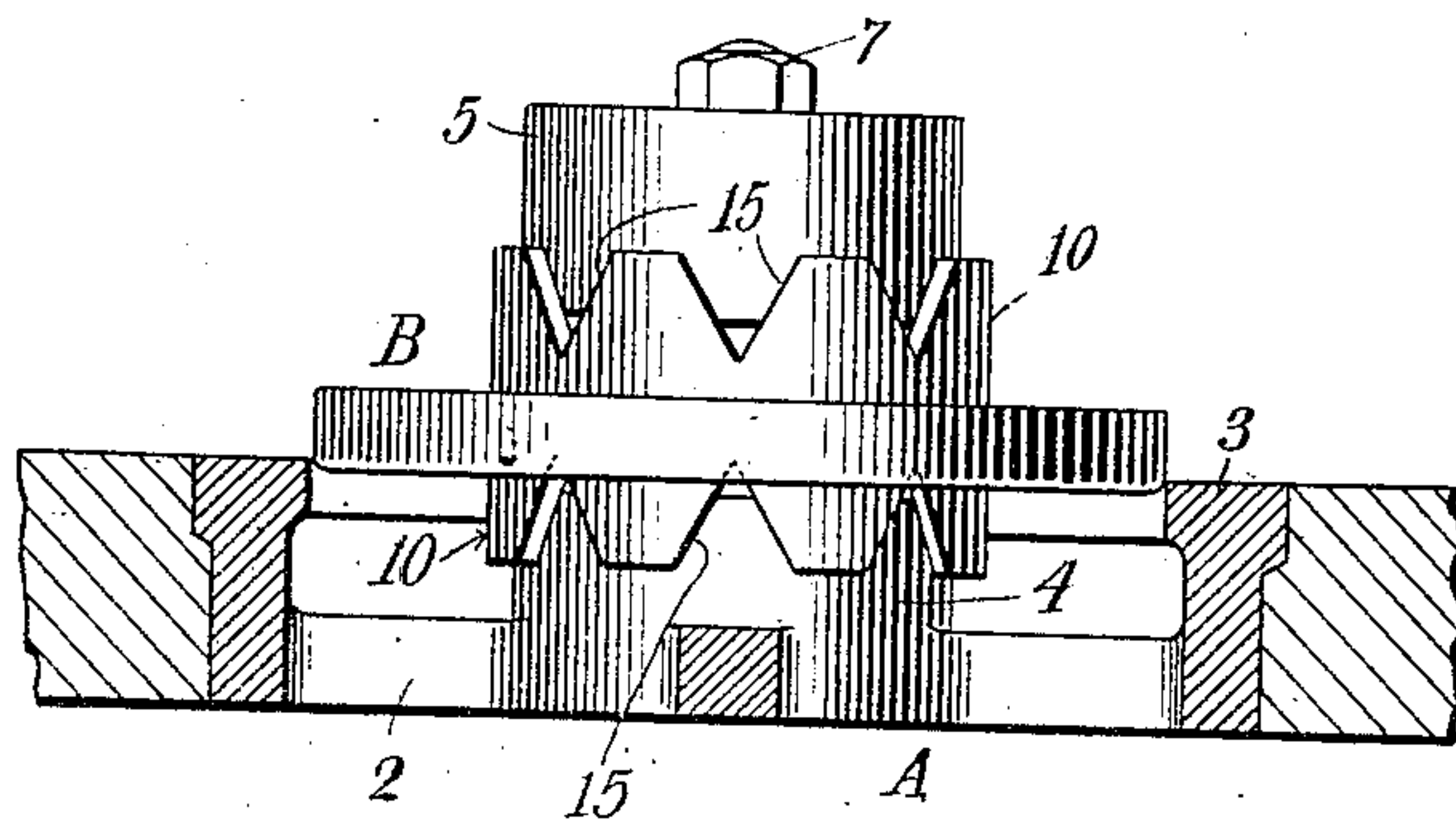


Fig. 3

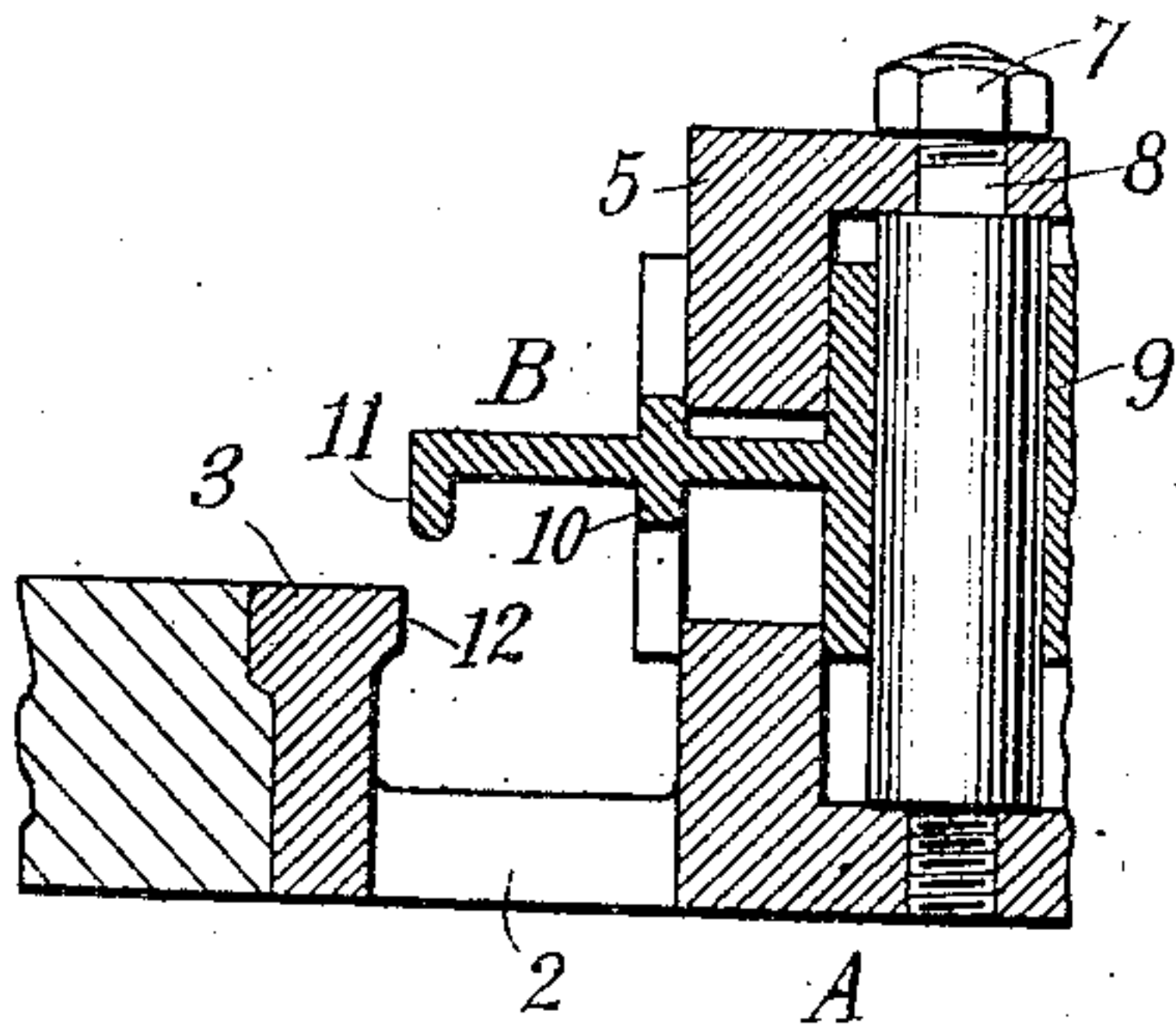
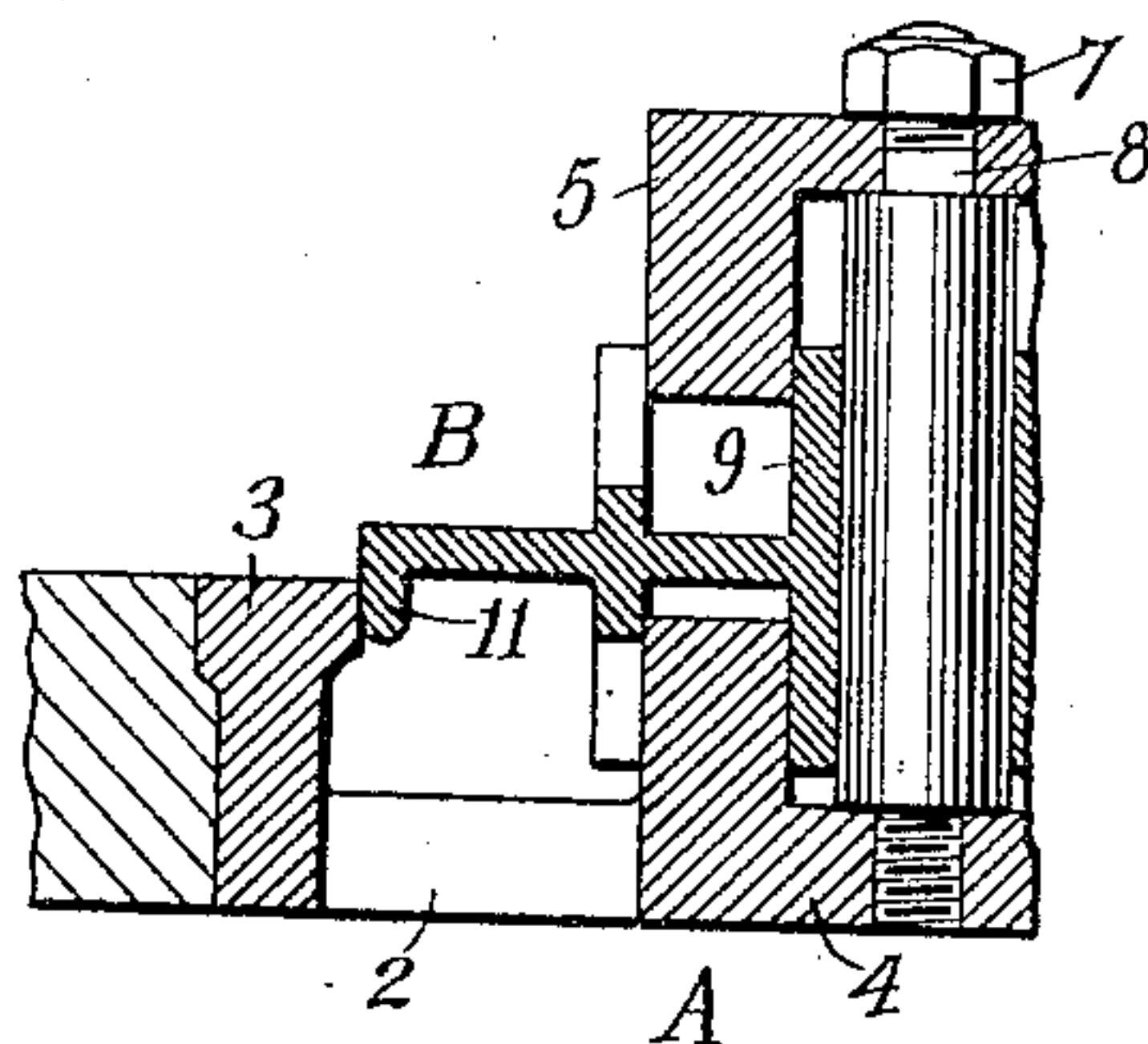


Fig. 4



Witnesses
Raphael Kutter
Katherine Henry

Augustus Lotz Inventor
By his Attorney
F. D. Almond

UNITED STATES PATENT OFFICE.

AUGUSTUS LOTZ, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO SANITARY DEVICES MANUFACTURING COMPANY, A CORPORATION OF CALIFORNIA.

VALVE.

No. 908,413.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed October 27, 1906. Serial No. 340,790.

To all whom it may concern:

Be it known that I, AUGUSTUS LOTZ, a citizen of the United States, and a resident of the city and county of San Francisco, State of California, have invented new and useful Improvements in Valves, of which the following is a specification.

My invention relates to improvements in valves for vacuum pumps and air compressors, its object being to provide a valve which shall be practically noiseless in its action, and consists of the features of construction hereinafter described and claimed.

In the drawings forming part of this specification, Figure 1 is a central, longitudinal section of my improved valve shown in mid position or the center of stroke; Fig. 2 is a detail side elevation showing the angular ports communicating with the air cushion spaces. Fig. 3 is a detail showing the position of the parts when the valve is full open, and Fig. 4 is a similar detail showing the valve closed.

In the drawings, the valve body or seat A is provided with radially disposed air passages 2, a cylindrical flange 3, and a hub 4 having its center cored out as shown in Fig. 1. The part 5 is a counterpart of the hub 4, and oppositely disposed and connected therewith by a central stud or pin 6, which is preferably screw-threaded into the hub and secured to the part 5 by means of a nut 7 engaging the threaded tip 8. The part 5 is held by the central pin spaced from the hub as shown. The valve B is provided with a central sleeve 9 which slides freely upon the pin 6, and a cylindrical flange 10, which similarly slides upon the outer perimeters of the hub and part 5. The outer edge of the valve B is provided preferably with a downturned flange 11 which fits closely within the edges or lips 12 of the cylindrical flange 3 of the valve body. The parts are so proportioned and adjusted that the valve is free to move to and from the valve body to the full open position of Fig. 3, or to the closed position of Fig. 4.

In order to cushion the valve at the limits of its movement, and to also serve in lieu of springs for starting the valve, the spaces 13

and 14, between the ends of the hub and the part 5, and inclosed between the sleeve 9 and flange 10 of the valve, serve as cushions between the valve and the hub, and part 5 respectively. The flange 10 is provided with air vents 15, preferably V-shaped as shown, the apices of the vents being a short distance from the valve B. These vents permit the escape of air from the cushion spaces in the movement of the valve, but diminish in size as the valve approaches its limit of travel, and are finally entirely closed, so that the further movement of the valve is resisted by the imprisoned air which serves as a cushion and also as a spring to give an initial impulse to the valve in the opposite direction.

The operation of the valve is evident, its purpose being to avoid the noise produced by the pounding of the valve upon the valve body. In this case, the blow in each direction is received upon a cushion of air which makes the operation of the device practically noiseless.

I claim:

1. In combination, a disk valve, a cylindrical seat therefor, concentric ribs upon each face of said valve constituting annular pockets, and fixed annular hubs fitting into said pockets.

2. In combination, a disk valve, a cylindrical seat therefor, an annular pocket and an annular piston fitted thereto arranged on each side of the valve, and having relative movement with the travel of the valve and constituting pneumatic dash pots therefor.

3. In combination, a disk valve, a cylindrical seat therefor, a hub or other relatively fixed part on each side of said valve, an annular rib and annular pocket into which said rib enters, the one being arranged upon the valve and the other upon said adjacent hub.

4. In combination, a disk valve, a cylindrical seat therefor, a sleeve upon which said valve is mounted projecting beyond both faces of the valve, a stem upon which said sleeve slides, an annular rib upon each side of said valve concentric with said sleeve, a fixed part on each side of said valve, and an

annular rib on each said fixed part fitted to the space between the adjacent rib and sleeve upon said valve.

5. In combination, a disk valve having a concentric sleeve projecting from both faces thereof, a stem or rod upon which said sleeve works, a rib upon each face of said valve concentric with said sleeve having longitudinal slits or notches, and a fixed an-

nular rib upon which the slotted rib upon said valve is fitted and slides in the operation of the valve.

In testimony whereof, I have hereunto set my hand this 5th day of October, 1906.

AUGUSTUS LOTZ.

Witnesses:

HARRY S. PLATOWSKY,
MARY C. BURNS.