

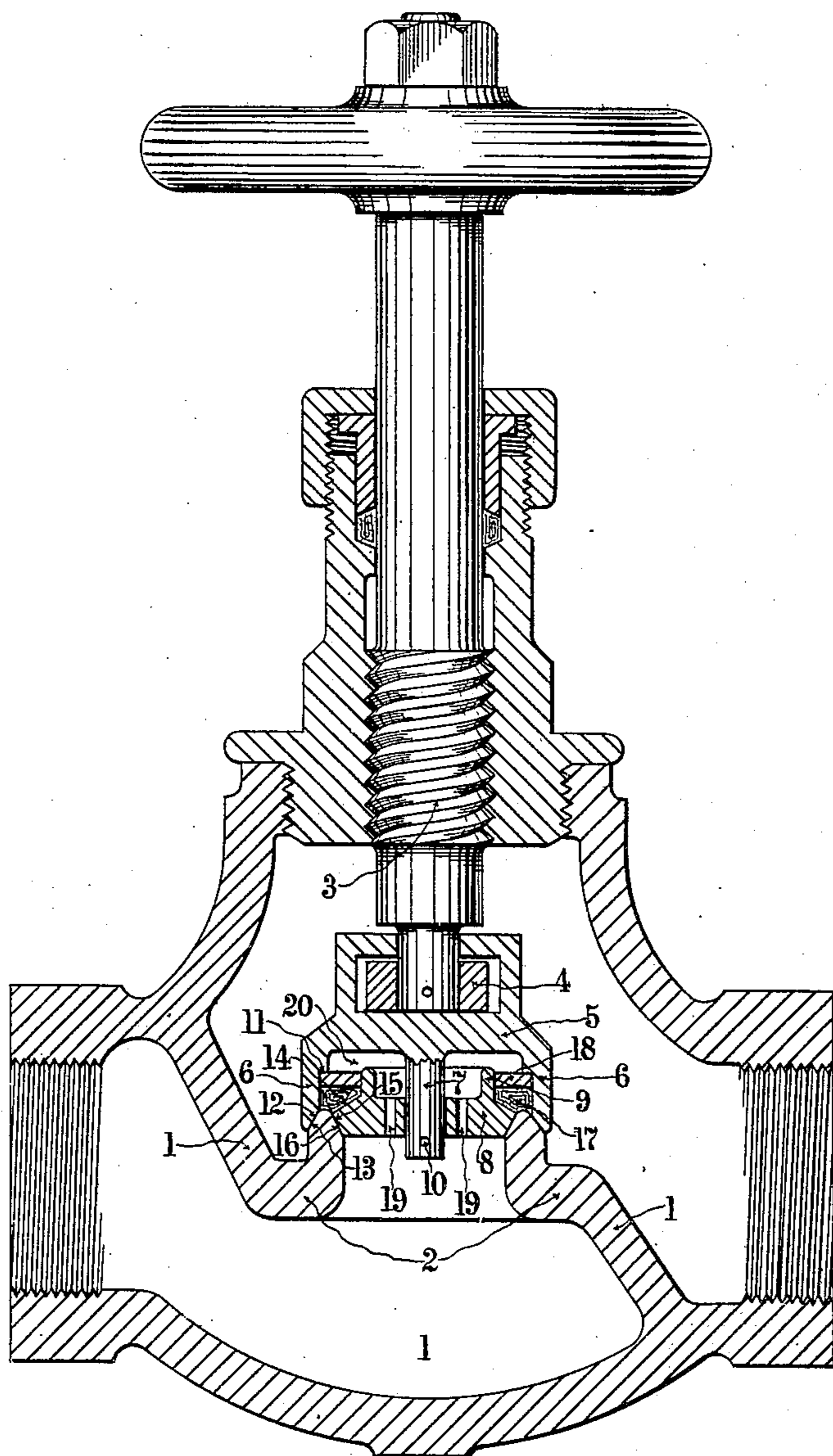
No. 763,208.

PATENTED JUNE 21, 1904.

J. ROBINSON.  
STOP VALVE.

APPLICATION FILED MAR. 16, 1904.

NO MODEL.



Witnesses

Chas H Smith  
Leopold Lee

Inventor

James Robinson  
per Harold Lurrell

Atty.

# UNITED STATES PATENT OFFICE.

JAMES ROBINSON, OF LEEDS, ENGLAND.

## STOP-VALVE.

SPECIFICATION forming part of Letters Patent No. 763,208, dated June 21, 1904.

Application filed March 16, 1904. Serial No. 198,347. (No model.)

*To all whom it may concern.*

Be it known that I, JAMES ROBINSON, a subject of the King of Great Britain, residing at Leeds, in the county of York, England, have  
5 invented certain new and useful Improvements in Stop-Valves, of which the following is a specification.

This invention relates to stop-valves for steam, gas, compressed air, water, or other  
10 fluids of that type in which a valve of cylindrical formation carried on the lower end of a screwed spindle is caused to engage against an annular upturned rim or seating formed on the valve-casing; and my object is to construct a stop-valve in such a manner as to insure a perfectly-sealed joint between the valve  
15 and its seating when under pressure. To this end I employ a valve body or casing having an annular rim or seating and being provided with a screwed valve-actuating spindle of ordinary construction, while the valve proper is formed in two parts, consisting of an upper or outer portion, which is loosely carried on  
20 the lower end of the valve-spindle, and a lower or inner portion, which is loosely carried on the said upper portion. The two portions comprising the valve proper are formed with oppositely-situated beveled faces, which are adapted to engage corresponding oppositely-situated beveled faces on the annular upturned rim or seating of the valve body or casing, and the said valve portions are so arranged in connection with each other as to form an annular chamber within the valve itself, which  
30 chamber is fitted with an asbestos or any other suitable elastic or soft packing-ring adapted to engage a portion of the seating on the valve-body between the oppositely-situated beveled faces, while apertures are formed through the lower portion of the valve, so as to establish communication between the annular chamber above the packing-ring and the interior of the valve-casing. When the valve is closed on its seat, the steam or other fluid under pressure  
45 contained in the pipe or vessel to which the valve is attached enters the annular chamber through the apertures in the valve and presses upon the packing-ring contained therein, which has the effect of forcing the said ring down onto the seating of the valve-casing with

a force in proportion to the area of the said ring and the pressure which the valve has to withstand, thereby sealing the valve against leakage. If desired, a ring of hard metal may be inserted above the elastic or soft packing  
55 in the annular chamber of the valve, so as to act after the manner of an annular piston to force the soft packing-ring down onto its seating, thereby sealing the complete valve against leakage and at the same time protecting the  
60 said packing-ring against injury from the action of the steam or other fluid.

In order that my invention may be clearly understood, I will proceed to describe the same with reference to the accompanying drawing,  
65 which shows in sectional elevation a stop-valve constructed in accordance with my invention in which the numbers of reference marked thereon correspond with the numbers occurring in the following description: 70

In the drawing, 1 is the valve body or casing, having an annular upturned rim or seating 2, and 3 is the screwed valve-actuating spindle of ordinary construction. The valve proper, which is rotatably mounted on a fixed collar  
75 4, located on the lower end of the valve-spindle 3, is formed in two parts, consisting of an upper metallic body portion 5, having an outer depending circular rim 6 and a central depending spindle 7 formed integral therewith, and a lower or inner metallic portion 8,  
80 having an upturned rim 9 formed integral therewith, the said portion 8 being mounted on the central spindle 7 of the portion 5 and held loosely thereon by means of a pin 10. 85 The depending circular rim 6 of the portion 5 of the valve is formed with an internal recess 11, while the lower edge of the said rim 6 is formed with a beveled face 12, adapted to engage a corresponding beveled face 13,  
90 formed on the annular upturned rim or seating 2 of the valve body or casing 1, and the inner portion 8 of the valve is formed with a beveled face 14, located opposite the recessed rim 6, and a second or oppositely-situated beveled face 15 is formed on the valve portion 8, adapted to engage a corresponding beveled face 16, formed on the annular upturned rim or seating 2 of the valve body or casing 1. An annular chamber is thus formed between  
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the rims 6 and 9 of the valve, in which chamber an asbestos or other suitable elastic or soft packing-ring 17 is fitted, so as to engage a portion of the seating 2 on the valve body or casing 1 between its oppositely-situated beveled faces 13 and 16, and above the elastic or soft packing 17 within the recess 11 is inserted a hard-metal ring 18, while apertures 19 are formed through the lower portion 8 of the valve, so as to establish communication between a pressure-chamber 20, formed within the valve itself above the packing-ring, and the interior of the valve-casing 1. On screwing down the valve-spindle 3 the beveled face 15 on the inner portion 8 of the valve comes onto its corresponding beveled face 16 on the seating 2 and simultaneously therewith the beveled face 12 on the outer portion 5 of the valve comes onto its corresponding beveled face 13 on the seating 2, when the entire valve comes to rest and cannot be screwed down any lower. The steam or other fluid under pressure contained in the pipe or vessel to which the valve is attached then enters the chamber 20 of the valve by way of the apertures 19 and presses upon the upper surface of the annular ring 18 of the elastic or soft packing 17, which has the effect of forcing the said packing down onto the seating 2 of the valve-casing 1 automatically with a force equal to the pressure which the valve has to withstand, thereby effectually sealing the valve against leakage.

By employing the hard-metal ring 18 above the elastic or soft packing ring 17 the latter is effectually protected against injury from the action of the steam or other fluid.

What I claim as my invention, and desire to secure by Letters Patent, is—

In a stop-valve, the combination with a valve body or casing having an annular upturned rim or seating, and a valve-actuating spindle; of a valve proper consisting of an upper portion carried loosely on the valve-spindle and having an outer depending circular rim formed with a beveled face adapted to engage a corresponding beveled face formed on the annular seating of the valve-casing, and a lower or inner portion carried loosely by the said upper portion formed with a beveled face adapted to engage a corresponding beveled face formed on the annular seating of valve-casing, said inner portion having an upturned rim forming in conjunction with the depending rim of the upper portion an annular chamber containing a packing-ring adapted to engage against the seating of the valve-casing, and a pressure-chamber formed within the valve itself above the packing-ring communicating with the interior of the valve-casing, substantially as and for the purposes set forth.

JAMES ROBINSON.

Witnesses:

JOHN JOWETT,  
VANCE E. GALLOWAY.