

No. 774,732.

PATENTED NOV. 15, 1904.

W. J. BAINES.
VALVE FOR HIGH PRESSURE PUMPS.

APPLICATION FILED FEB. 24, 1904.

NO MODEL.

Fig. 1

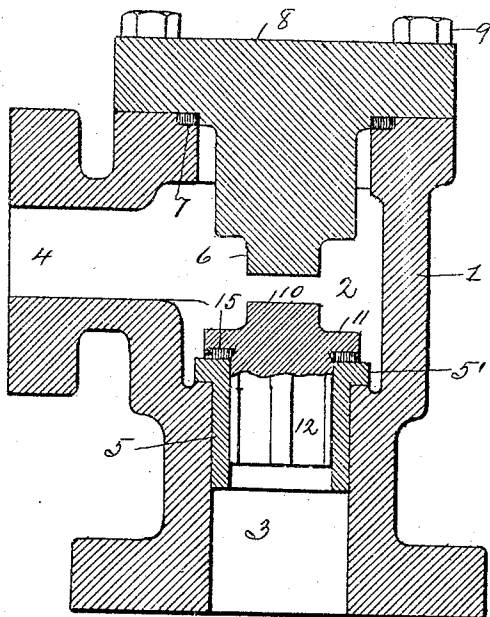


Fig. 4

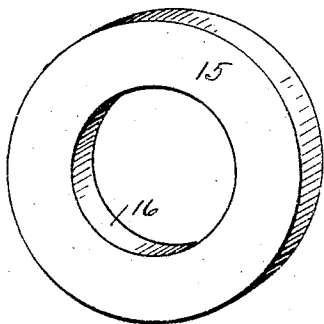


Fig. 3

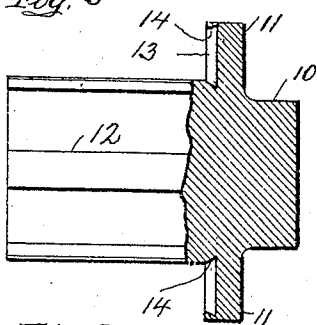


Fig. 2

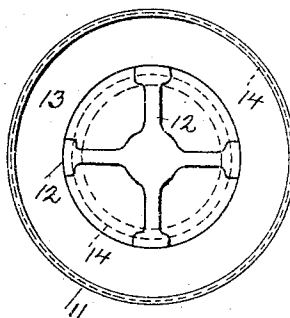


Fig. 5



WITNESSES:
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UNITED STATES PATENT OFFICE.

WILLIAM J. BAINES, OF McKEESPORT, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO WILLIAM WOOD, OF McKEESPORT, PENNSYLVANIA, AND A. N. McCASLIN, OF PITTSBURG, PENNSYLVANIA.

VALVE FOR HIGH-PRESSURE PUMPS.

SPECIFICATION forming part of Letters Patent No. 774,732, dated November 15, 1904.

Application filed February 24, 1904. Serial No. 195,019. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. BAINES, a citizen of the United States, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Valves for High-Pressure Pumps, of which improvement the following is a specification.

This invention relates to improved valves for high-pressure pumps; and it consists in the certain details of construction and combination of parts, as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a side sectional elevation of a valve-chamber having arranged therein my improved valve, the said valve being constructed and arranged in accordance with my invention. Fig. 2 is an enlarged inverted plan view of the valve removed from the casing, showing the dovetailed recessed seat for holding the leather washer thereto. Fig. 3 is a side sectional elevation of the same. Fig. 4 is a perspective view of the leather packing-ring. Fig. 5 is a sectional elevation of a portion of the packing-ring after the same has been in use.

To put my invention into practice with a valve-chamber for use upon a high-pressure pump, the said chamber consists of a shell 1, an interior chamber 2, having an inlet 3 and outlet 4 leading therefrom, together with a removable cap 8, secured by bolts 9, the said cap being formed with a downwardly-extending portion 6 to limit the movement of the valve 10 below. Arranged within the inlet-passage 3 is a cylindrical flanged seat 5, formed from cast-brass and having a peripheral flange 5' resting upon a seat formed integral with the casing 1. The valve 10 consists of a casting having an enlarged flange 11 and a downwardly-projecting portion 12, which fits snugly within the bushing 5 and acts as guide for the valve. Formed on the under side of the flange 11 is a circumferential groove 13, the walls 14 of which are inclined inwardly in the form of a "dovetail," as will be seen by reference to Fig. 3 of the drawings. I now provide a leather packing-ring 15, the external

diameter of which is the same as that of the flange 11 and the inner diameter equal to the diameter of the guide portion 12 of the valve.

In operation the valve is arranged within the casing as shown at Fig. 1 of the drawings. The packing-ring 15 being of thick leather and comparatively soft will be pressed into the groove 13 upon the first action of the pump and from the enormous pressure brought upon the top of the valve will assume the form shown at Fig. 5 and in use become very hard. The advantage of this seat is that the sand in the water flowing through the valve will not cut or destroy the packing or the seat below, as is the case with a metallic seat. A practical test of this above-described valve has been made in this vicinity with best possible results, the same being in constant use upon a high-pressure pump without attention during an extended period, while other valves upon the same pump have been repeatedly renewed and reground.

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

1. In a valve of the type described, a casing having an inlet-passage and an outlet-passage, a removable cap having a depending portion projecting in close proximity to a valve to limit the movement of the latter, and a flanged bushing arranged in the inlet-passage and forming a valve-seat, combined with a valve having a projecting portion to work in the bushing, and having an annular flange overlying the flange of the bushing, said annular flange of the valve having an annular groove in its underneath face, and a packing-ring fitted in the groove, and being of an exterior diameter equal to the flange of the valve and of an interior diameter equal to the flange of the bushing, substantially as described.

2. In a valve of the type described, a casing having an inlet-passage and an outlet-passage, a bushing fitting in the inlet-passage and provided with an annular flange forming a valve-seat, a valve having a downwardly-projecting portion fitting in the bushing, an enlarged annular flange on the valve overlying the valve-

seat, and having a dovetailed groove in its under-
neath face, and a flexible packing-ring held
in said groove and having an exterior diame-
ter equal to the flange on the valve and an in-
5 terior diameter equal to the interior diameter
of the bushing, substantially as described.

In testimony whereof I have hereunto signed

my name in the presence of two subscribing
witnesses.

WILLIAM J. BAINES.

In presence of--

C. C. LEE,

J. A. HERRON.