C. W. SHERBURNE.

VALVE.

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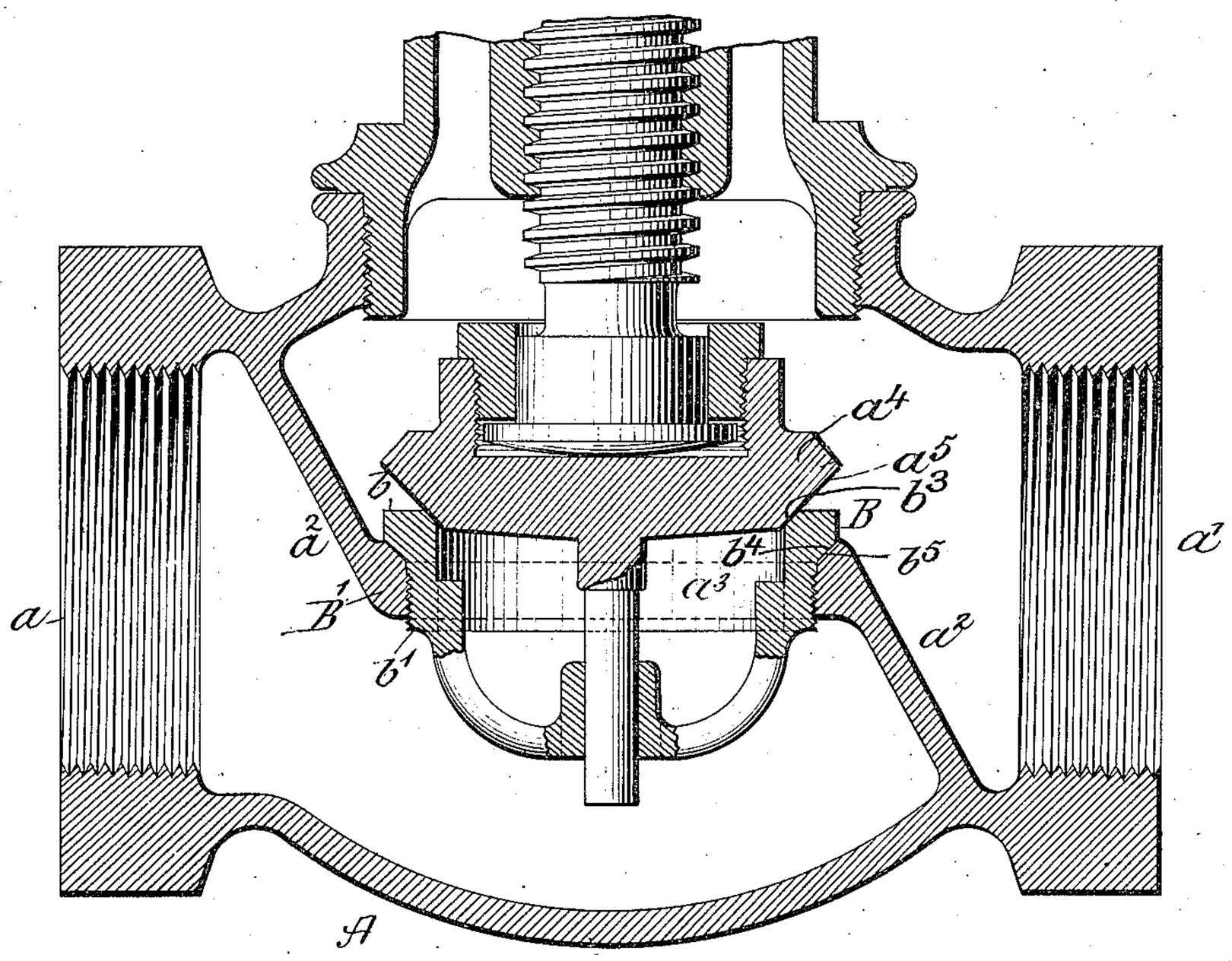
944,286. Patented Dec. 28, 1909.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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VALVE.

944,286. Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed April 27, 1908. Serial No. 429,327.

To all whom it may concern:

Be it known that I, CHARLES W. SHERBURNE, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

My invention relates to an improvement in valves having a renewable valve seat, meaning a valve seat which may be taken out and a new seat substituted as occasion may require.

My invention can best be seen and its advantages understood by describing it in connection with the drawings in which the figure shows a valve provided with the improvement comprising my invention.

In the drawings:—A represents a portion of a valve and a, a^1 represent, respectively, its inlet and outlet passages separated by a diaphragm or partition a^2 in which is formed a port a^3 controlled by a valve proper a^4 having a beveled seating surface or edge a^5. This is a tentative construction shown only for the purpose of illustrating my invention and to which reference will now be made.

It will be observed that the edge a^5 of the valve is adapted to close against a detachable valve seat B which is adapted to be affixed to a base B^1 comprising that portion of the diaphragm or other portion of the valve body which forms the port or opening between the inlet and outlet passages of the valve. This base is interiorly threaded and the valve seat comprises both a seat proper or head b and an annular shank b^1 exteriorly threaded by which the seat may be screwed onto and affixed to the base.

The head b of the detachable valve seat is provided on the inside with a beveled edge b^3 having the same angular inclination as the beveled edge a^5 of the valve in order that the two edges may properly coincide with one another when the valve is seated. On the outside the head b is provided with a beveled seating surface or edge b^4 having the same angular inclination as the inside beveled edge b^3 of the head which gives to the head the character of an annular wedge.

The base B^1 is provided with an interior beveled surface or edge b^5 forming a socket for receiving the head upon applying the detachable seat to the base, the edge b^5 of the base having the same angular inclination as the edge b^4 of the head. The relative size and arrangement of all the parts is such also that the beveled edge b^5 of the base will be in alinement with the valve, or in other words, the arrangement is such that were the detachable seat B removed the valve a^4 would still have a proper seat to rest upon for closing the valve.

In referring to the advantages of this construction I would first explain that I am able to derive all the advantages obtained from a detachable valve seat socketed in a base for by wedging the seat into a socket prepared for it in the base and by the employment of relatively long beveled surfaces contacting with one another a tight joint can be made without the necessity of screwing the valve hard upon the base or with excessive strain. The seat becomes self-centering and its beveled or inclined surface b^2 will gradually in the application of the seat accommodate itself to the inclined or beveled surface b^5 of the base when by a slight further tightening of the seat on the base a tight joint is made. Accordingly the danger of distorting the seat when it is applied to its base is eliminated and inasmuch as there is no necessity of fixing the seat hard upon its base the seat can be very easily removed and replaced by another seat; also, as the threaded connection between the shank of the seat and base becomes worn the joint between the seat and base will still be maintained by reason of the wedge-shaped formation of the seat, for all wear is taken up and as long as the threaded connection between the parts is sufficient to draw or wedge the seat upon the base a tight joint can be obtained and maintained, for the seat once becoming wedged in place will remain so during the operation of the valve.

A further advantage of this construction resides in the fact that the detachable seat has the same relative bearing or disposition with respect to the base that the valve proper has to it, the detachable seat, on which account there is less danger of distorting or bending the detachable seat upon the application of pressure when the valve is closed, the base supporting the detachable seat to withstand this pressure in the same

manner that it would withstand the pressure of the valve itself were the valve applied directly to it.

A still further advantage of the construction resides in the fact that under some circumstances the detachable seat may become broken with no seat at hand to replace it, or for certain reasons it may be deemed inexpedient to place a further detachable seat in the valve. Even then a proper closure of the valve may be obtained for the reason that the beveled surface b^5 of the base, which normally receives the bearing of the beveled surface b^4 of the valve seat, may also provide a beveled surface against which the valve itself may bear for closing it.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States:—

1. In a valve, the combination of a valve having a beveled edge, a valve seat having an interior beveled edge of like angular inclination as the beveled edge of said valve and against which beveled edge of the seat said valve is adapted to bear when closed, said seat having also an outer beveled edge having the same degree of angular inclination as the interior beveled edge thereof, and a base having an annular edge against which said seat is adapted to bear upon attaching the same to said base, said parts being arranged also whereby said valve may close against the annular edge of said base upon the removal of said detachable seat.

2. In a valve, the combination of a valve having a beveled edge, a valve seat having an interior beveled surface or edge against which said valve is adapted to bear, which valve seat, also, is made wedge-shaped by an outer beveled surface or edge, a base having a beveled surface or edge against which said wedge-shaped seat is adapted to be drawn upon affixing said seat to said base, all of which beveled surfaces have the same degree of angular inclination, and means for affixing said seat to said base.

CHARLES W. SHERBURNE.

Witnesses:

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GEORGE W. MUSGRAVE.