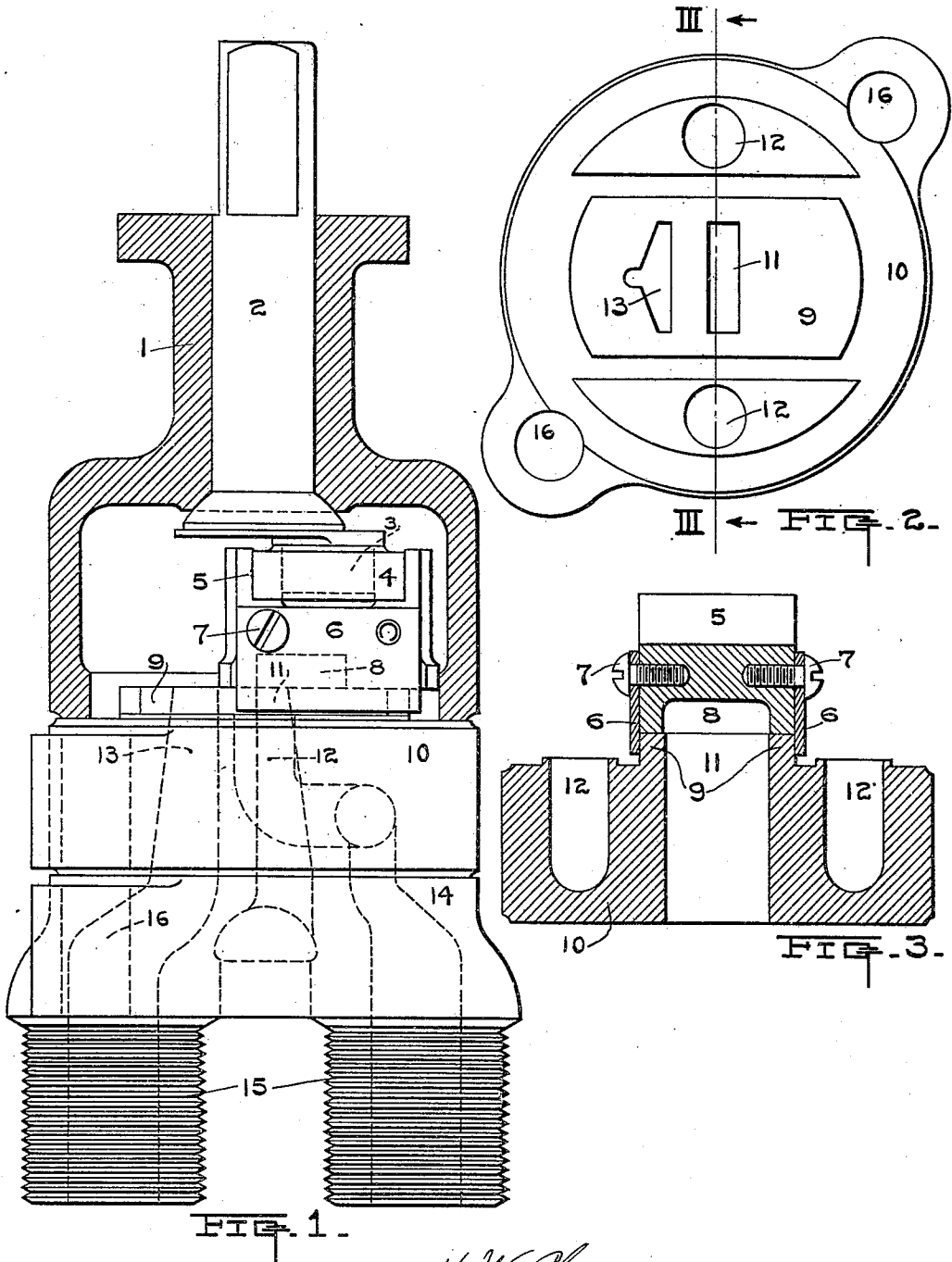


H. W. CHENEY.
ENGINEER'S VALVE.
APPLICATION FILED NOV. 26, 1909.

961,083.

Patented June 7, 1910.



WITNESSES -

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UNITED STATES PATENT OFFICE.

HERBERT W. CHENEY, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO ALLIS-CHALMERS COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF NEW JERSEY.

ENGINEER'S VALVE.

961,083.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed November 26, 1909. Serial No. 529,906.

To all whom it may concern:

Be it known that I, HERBERT W. CHENEY, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a certain new and useful Engineer's Valve, of which the following is a specification.

This invention relates to improvements in the construction of engineers' valves for fluid pressure brakes and in particular to that class of valves known as slide engineers' valves.

The object of the invention is to provide a valve which is simple in its construction and efficient in its operation, as well as one which can be easily assembled and disassembled.

In the construction of slide engineers' valves it has heretofore been found to be a difficult operation to machine the valve seat and grind the valve thereto, due to the projection of the valve guides from and above the valve seat.

It is an object of this invention to remedy this difficulty by removing the guides from the valve seat and placing them upon the valve itself.

A clear conception of the invention can be obtained by referring to the accompanying drawing in which like reference characters designate the same or similar parts in different views.

Figure 1 is a front view of an engineer's valve built according to the invention, a central vertical section being taken through the valve cap. Fig. 2 is a top view of the valve seat. Fig. 3 is a central vertical section through the valve and seat taken on the line III—III of Fig. 2 and looking in the direction of the arrows.

The body of the engineer's valve, see Fig. 1, is built up of three parts, the cap 1, the valve seat support 10, and the base 14, these parts being held together by means of bolts passing through the holes 16. The valve stem 2 which is mounted in the upper portion of the cap 1 concentric therewith, has an eccentric pin 3 formed at its lower end. This pin 3 is fitted into a bored hole in the square block 4. The block 4 is slidably mounted between parallel guides at the top of the valve 5, and rests on an upper surface of the valve 5 between the guides.

The lower surface of the valve 5, which alone rests upon the upper surface of the valve seat 9, is broken by the cavity 8 which extends up into the valve 5. The guide

plates 6 are attached to parallel side surfaces of the valve 5 by means of the screws 7 and project below the horizontal upper surface of the valve seat 9, thus preventing the valve 5 from leaving the valve seat 9, due to the coaction of the guide plates 6 with the sides of the seat 9.

The valve seat 9, which is preferably formed in one piece with the support 10, projects in an upward direction from the support 10, and has sides which are rectangular to the upper surface thereof. The ports 13, 11, emerge from the horizontal surface of the seat 9. The port 13 passes downward from the seat 9 through the support 10 and the base 14, emerging from the base 14 through one of the supporting screws 15. The port 11 also passes through the support 10 and the base 14. The ports 12 which emerge from an upper surface of the support 10, see Fig. 2, pass in a downward direction through the support 10 and the base 14, leaving the latter through a second supporting screw 15.

In operating the valve, the stem 2 is turned through the desired angle by means of a handle, not shown, which fits over the upper projecting end of the stem 2. This causes the eccentric pin 3 to move the block 4 through an arc of a circle concentric with the stem 2. As the block 4 is mounted between parallel guides at the top of the valve 5, the rotary motion of the stem 2 will be converted into straight line motion at the valve 5, the block 4 sliding between the guides at the top of the valve 5. As the valve 5 is moved along the seat 9, it is prevented from leaving the seat 9 by the guides 6 which coact against the parallel vertical side surfaces of the valve seat 9. Thus it can be seen that the valve 5 may be shifted along the valve seat 9 to any position within the limits of the walls of the cap 1. In the position shown, see Fig. 1, the port 11 is cut off from the ports 12, 13. If the valve 5 is brought to the extreme left by turning the stem 2 through an angle of 180 degrees, the ports 11, 13, would be cut off and the port 12 would be open to the interior of the casing 1. If the valve 5 is shifted to a position so that the cavity 8 is above both the ports 11, 13, these ports 11, 13 will be connected with each other.

In constructing valves of this type, as near a perfect joint as it is possible to obtain must

exist between the valve 5 and its seat 9. The coating surfaces between the two members are therefore machined as perfectly as possible, after which the valve 5 is ground to the seat 9. If the valve 5 and seat 9 become worn, it is necessary to re-machine and re-grind the coating surfaces. As it has been customary heretofore to form the guides for the valve 5 directly on the seat, usually in one piece with the support 10, great difficulty has been experienced in obtaining a perfect joint between the valve 5 and seat 9. It will be seen that with the present construction this difficulty is avoided. In machining the valve seat 9, the cutting tool can be passed freely over the upper surface of the seat 9, due to the elevation of the seat 9 above the seat support 10 and the elimination of valve guides therefrom. In constructing the valve 5 there is no obstruction to machine tools on the lower surface of the valve 5. The guides 6 are attached to the valve 5 after it has been machined and is ready to be ground to the seat 9. The guides 6 can be removed by withdrawing the screws 7, thus enabling re-machining of the valve 5 without obstruction to cutting tools.

A further advantage of the present invention is that valves which are now in operation and constructed with the guides on the seat 9, can be changed over to the present construction very easily. All that is necessary to introduce the present construction into such valves is to cut away the old guides elevating the valve seat 9 slightly, and to attach guides 6 to the sides of the valve 5.

It should be understood that it is not desired to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

It is claimed and desired to secure by Letters Patent,—

1. In an engineer's valve, a valve, a seat having an upper surface and a side rectan-

gular thereto, means for moving said valve along said seat, and means on said valve and coating with said side of said seat, for maintaining said valve on said seat.

2. In an engineer's valve, a seat, a valve supported only directly by said seat, means for operating said valve on said seat, guides for maintaining said valve on said seat, said guides being attached to said valve and removable therefrom.

3. In an engineer's valve, a seat, a valve supported only directly by said seat and movable thereon, means for moving said valve, and means on said valve for maintaining same on said seat, said means being attached to said valve and removable therefrom.

4. In an engineer's valve, a seat, a valve supported only directly by said seat and movable thereon, a rotatable stem for operating said valve, and means attached to said valve for maintaining same on said seat, said means being removable from said valve.

5. In an engineer's valve, a seat, a valve supported only directly by said seat, means for operating said valve on said seat, and means attached to said valve and coating with said seat for maintaining said valve on said seat, said means being removable from said valve.

6. In an engineer's valve, a seat having an upper surface and a side formed angular thereto, a valve supported only directly by said seat, means for operating said valve on said seat, and means attached to said valve and coating with said side of said seat for maintaining said valve on said seat, said means being removable from said valve.

In testimony whereof, I affix my signature in the presence of two witnesses.

HERBERT W. CHENEY.

Witnesses:

H. C. CASE,
W. H. LIEBER.