DETACHABLE VALVE-SEAT.

UNITED STATES PATENT OFFICE.

ELLING O. BERG, OF MADISON, MINNESOTA.

984,062.

DETACHABLE VALVE-SEAT.

Application filed May 10, 1910. Serial No. 560,495.

Patented Feb. 14, 1911.

To all whom it may concern:

Be it known that I, ELLING O. BERG, a citizen of the United States, residing at Madison, in the county of Lac qui Parle and State of Minnesota, have invented a new and useful Detachable Valve-Seat, of which the following is a specification.

It is a well known fact that when the valve seat in the steam chest of a steam engine becomes worn or cut from running dry it will leak steam, and then it becomes necessary to take the whole engine, boiler and surface thereof smooth and tight. If the valve wears, it can be readily taken out of the steam chest and repaired, but repairs of the valve seat is a difficult matter especially in traction and other portable engines having the cylinder and steam chest cast in one piece and bolted to the boiler, as it is necessary to take the whole engine, boiler and all, to the shop to get the cylinder dismantled from the boiler, as it is too bolted thereto.

It is the purpose of the present invention to obviate this difficulty and trouble, and to this end it consists in a removable valve seat which is handy to take out and replace with a new seat when worn. This removable seat is a plate which is held down on the floor of the steam chest by fastening means which enable it to be readily removed, means being also provided to make a steam tight joint.

In order that the invention may be better understood reference is had to the accompanying drawing forming a part of this specification, in which drawing,

Figure 1 is a longitudinal section of the steam chest showing the removable valve seat therein. Fig. 2 is a cross section on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of the valve seat removed from the steam chest, and showing in inverted position.

Referring more particularly to the drawing, 5 denotes the steam chest, and 6 the engine cylinder, only a fragment of the latter being shown as it forms no part of the present invention. The steam chest has a removable cover 7 which is held down by bolts 8 as usual. Opening through the floor of the steam chest, as usual, are the steam and exhaust ports 9 and 10 respectively, an ordinary D-slide valve 11 controlling said ports. This valve ordinarily seats on the floor through which the ports open. As already mentioned, this seat of the valve is subject to a wear, in view of which the removable seat which is the subject of the present invention is provided. This removable seat is a flat plate 12 fitting on the old valve seat, and having openings 13 as shown which register with the ports 9 and 10. The plate 12 is held down onto the seat by screws 14 which take through the cover 7 down against the top of the plate, four of such screws being provided, the plate being rectangular in form, and a bolt engaging the same at each corner. Thus the plate is securely clamped to the seat, and at the same time it can be readily removed upon taking off the cover 7, and removing the valve. In order to make a steam tight joint between the plate 12 and the old seat, the bottom of the plate is inlaid with soft lead wires 15, arranged so as to extend around the openings 13. In that opening 13 which registers with the exhaust port 10 is a thin transverse partition 16 which extends into said port, said partition serving to hold the plate from sliding back and forth on the seat when the valve 5 is in motion. One or more of these partitions may be provided.

By providing the herein described removable valve seat plate, the valve and its seat may be made as good as new. The plate will be applied to the old seat, and the valve will be replained to properly fit the new seat thus formed. If the plate becomes worn, it can be readily removed, and replaced by a new one. Inasmuch as the seat plate can be applied or removed without dismantling the entire engine, repairs can be quickly made, and the invention therefore effectually serves the purpose for which it is designed.

It will be understood that other means may be provided for holding the valve seat plate down on the old seat. Where the engine is originally built with a removable valve seat plate as herein described, said plate may be fastened by means of screws passing through the same into the floor of the steam chest.

What is claimed is:

The combination with the steam chest of a steam engine having a flat bottom pierced with rectangular ports, a detachable cover for said chest, and a reciprocating valve therein; of a detachable valve seat consisting of a rectangular plate having openings...
registering with said ports, packing let into its lower face around each opening, a partition across one of said openings extending down into its port but flush at its top with the upper face of the plate, and screws taking through the cover and bearing upon the corners of said plate.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ELLING O. BERG.

Witnesses:

LOUIS O. BERG,

ERVIN J. HANSON.