H. ELLIOT.

Improvement in Slide-Valves for Steam-Engines.

No. 130,492. Patented Aug. 13, 1872.

Fig.1.

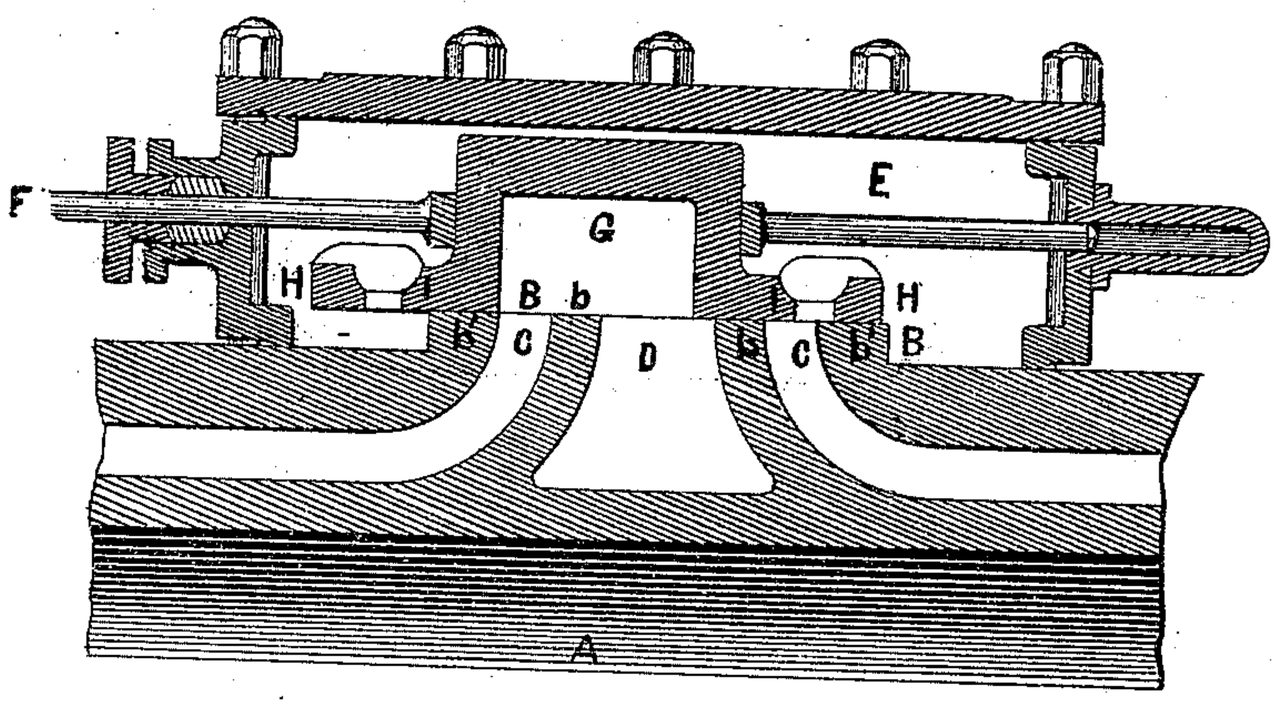
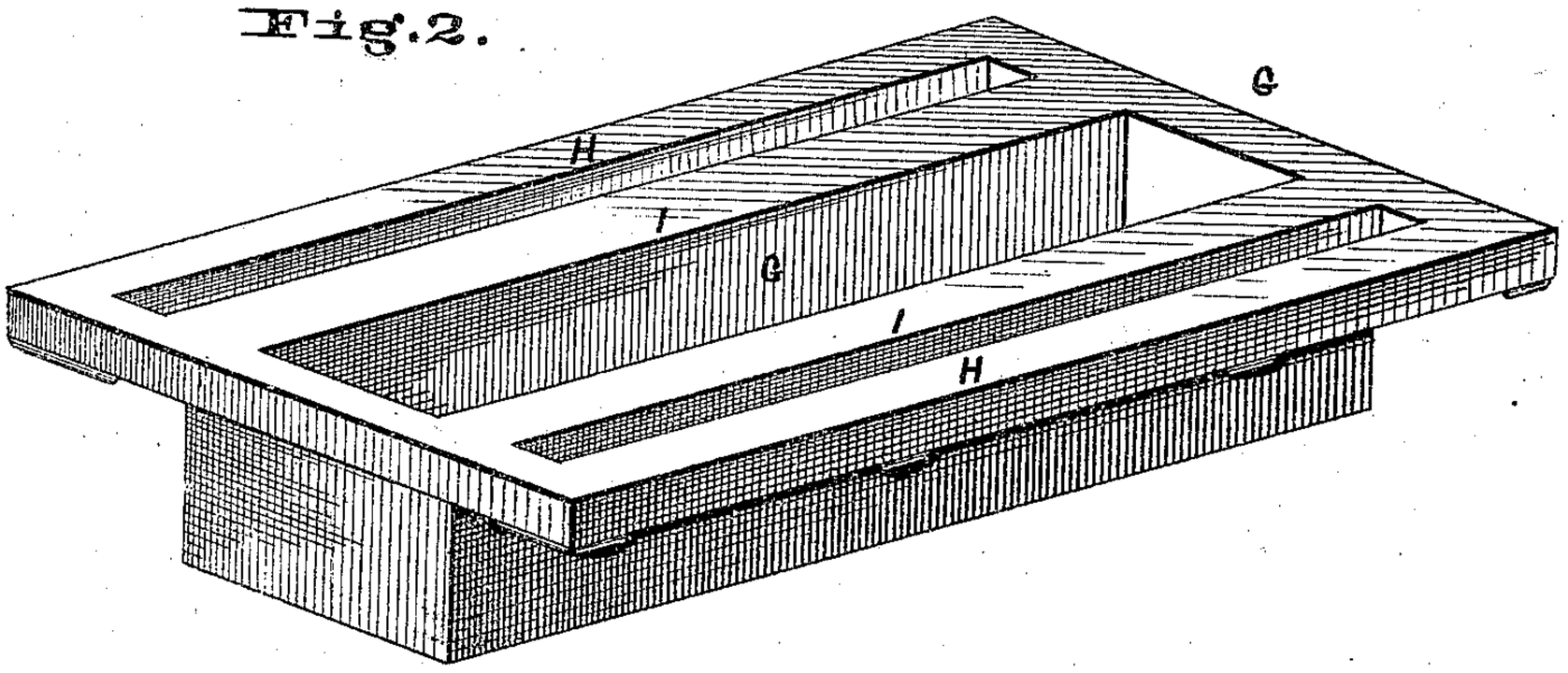


Fig.2.



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UNITED STATES PATENT OFFICE.

HENRY ELLIOT, OF EAST ST. LOUIS, ILLINOIS.

IMPROVEMENT IN SLIDE-VALVES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **130,492**, dated August 13, 1872.

Specification describing a certain Improvement in Slide-Valves for Steam-Engines, invented by HENRY ELLIOT, of East St. Louis, in the county of St. Clair and State of Illinois.

My invention relates to an improvement on the slide-valve of single-valve engines in which the valve has variable motion, such as that given by a link-gear. My improvement consists in placing bearing-bars beyond the points of receiving steam for the purpose of equalizing the wear of the faces and giving steadiness of movement to the valve.

In the drawing, Figure 1 is a longitudinal section through the valve, steam-chest, and the part of the cylinder contiguous. Fig. 2 is an enlarged perspective view of the valve-face.

A is a portion of a steam-engine cylinder. B is the valve-seat; C, the steam-ports; and D the exhaust. E is the steam-chest, and F the valve-stem.

In the preceding parts nothing new is claimed, and their construction may be modified to suit circumstances.

The valve G is of the ordinary construction, except that, upon each end, is a bearing-bar, H H, outside the edges I of the valve G, on the same plane as the valve-face. The object of the bearing-bars H H is to increase the length of the bearing-surface of the valve so as to equalize the wear of the valve-face and seat B, and give steadiness to the movement of the valve. In the common slide-valve having variable movement, as imparted by the link-motion of a locomotive, the seat B becomes hollowed or concaved by wear, because the friction is more constant upon the central parts *b* than the parts *b'*, forming the outside of the steam-port C; and this is more especially the case when the movement of the valve is small. In consequence of this the face of the seat wears more at the middle than at the sides *b'*, as before stated. There is another cause of this unequal wear of the seats, namely, the tendency to rock given to the valve by the stem, because its point of attachment to the valve is some distance above the point of resistance, or the face of the valve. The unequal wear of the seat from the latter cause results from the pressure given to the advancing edge at the beginning of the movement, the said edge then resting upon the central part of the valve-seat. The rocking tendency given to the valve causes the unequal wear of the same, the friction and wear being greatest upon the edges I, and, consequently, these edges wear faster than the central part, and the face becomes convexly curved. The bearing-bars H H tend to prevent this unequal wear by presenting a broader base, which not only has a more general bearing on the seat, but overcomes, to a great extent, the tendency to rocking of the valve, and so causes the valve-face and the seat to retain their plane surfaces under wear.

This improvement is applicable to single-valve steam-engines, where the valve movement is variable, and can be applied in all cases without modification of the valve seat, and, in almost all cases, without any lengthening of the steam-chest.

I claim as my invention—

The slide-valve G, provided with bearing-bars H H, constructed substantially as and for the purposes set forth.

HENRY ELLIOT.

Witnesses:

SAML. KNIGHT,

CHARLES PICKLES.