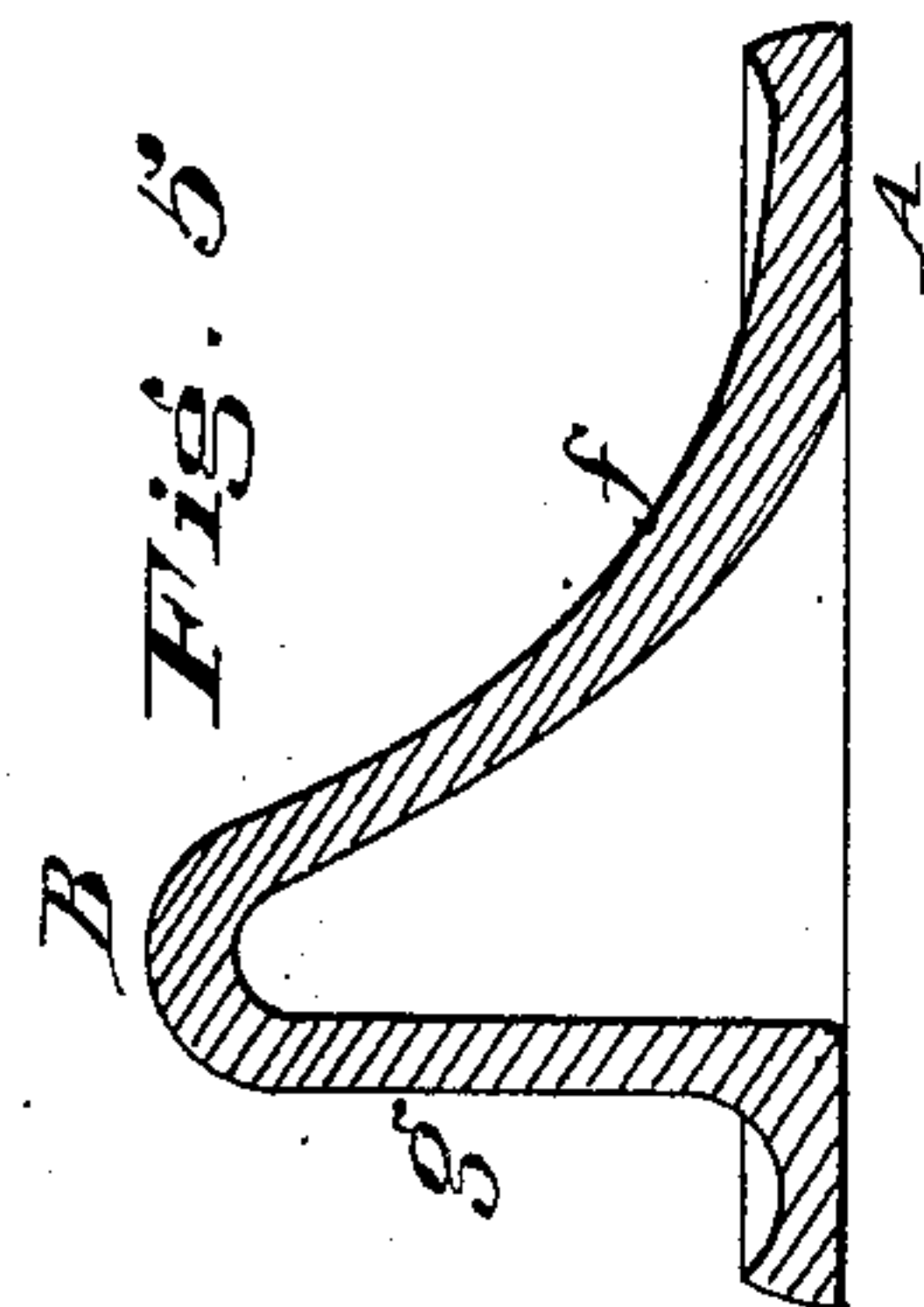
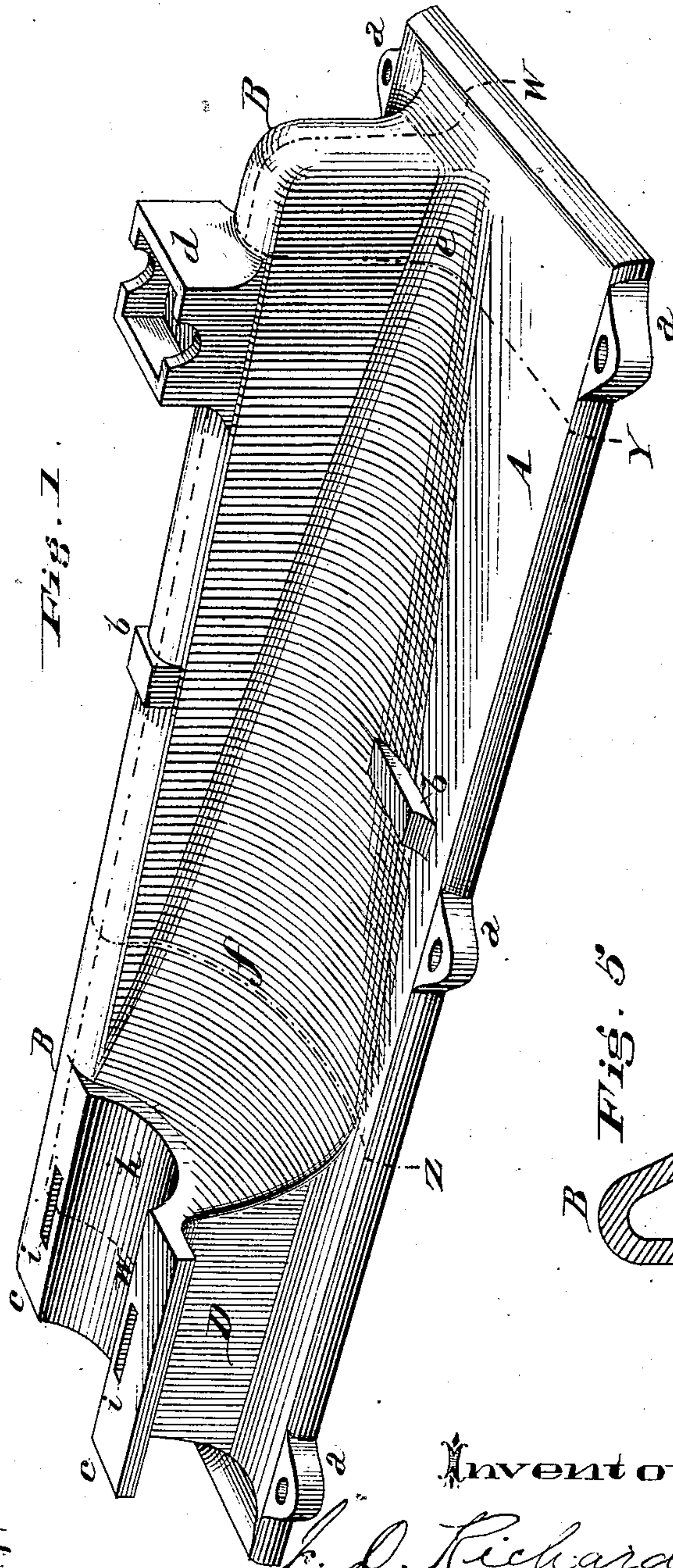
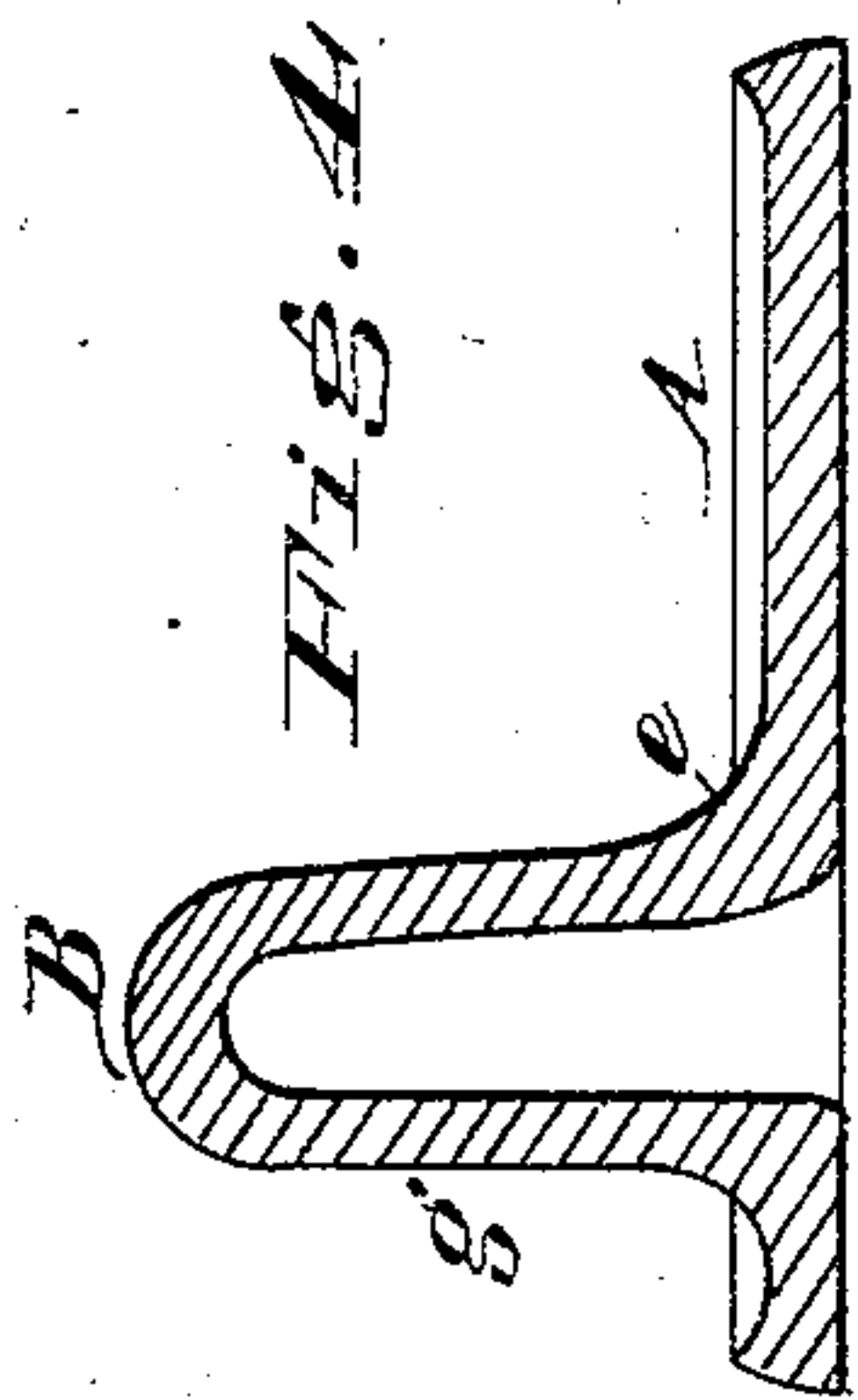


**J. D. RICHARDSON.**  
**Bed-Plates for Steam-Engines.**

No. 158,980.

Patented Jan. 19, 1875.



Attest

*J. D. Richardson*

*J. Edgar Cross*

Inventor

*J. D. Richardson*

*Wm. F. Millward*  
 Attorney

J. D. RICHARDSON.  
Bed-Plates for Steam-Engines..

No. 158,980.

Patented Jan. 19, 1875.

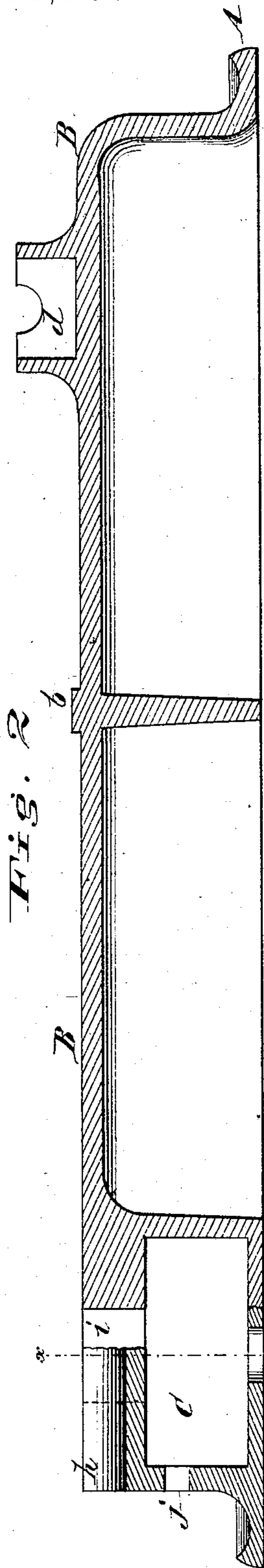


Fig. 2

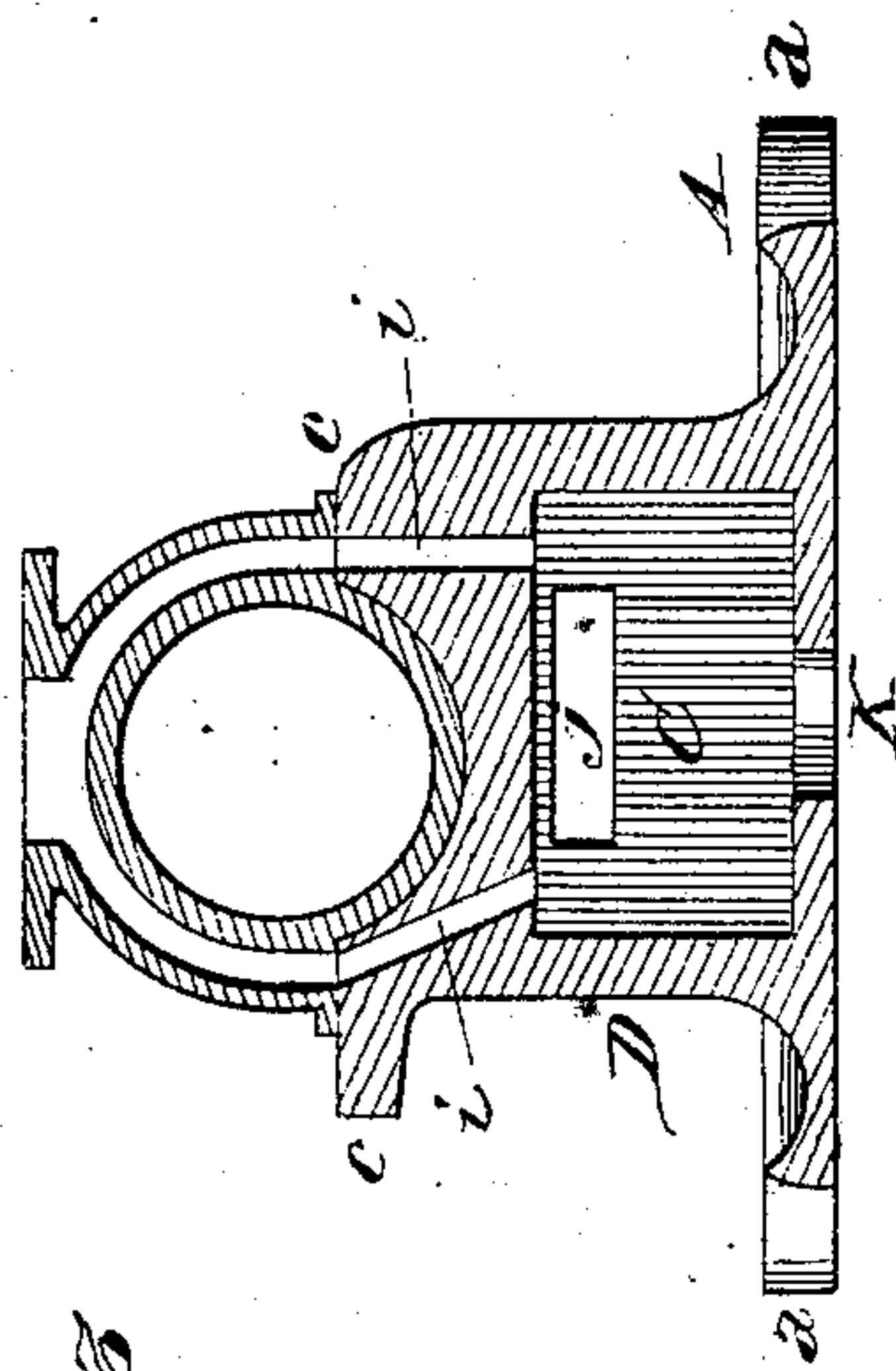


Fig. 3

Attest

Inventor

*J. D. Richardson*

*J. Edgar Gross* By *F. Millward*  
Attorney



# UNITED STATES PATENT OFFICE

JOHN D. RICHARDSON, OF HOUSTON, TEXAS.

## IMPROVEMENT IN BED-PLATES FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **158,980**, dated January 19 1875; application filed October 14, 1874.

*To all whom it may concern:*

Be it known that I, JOHN D. RICHARDSON, of Houston, Harris county, State of Texas, have invented a certain new and useful Improvement in Bed-Plates for Steam-Engines, of which the following is a specification:

My invention consists of a certain construction of bed-plate, by which extreme stiffness is secured in the angle of strain with lightness of material, and a feed-water heating chamber embodied, convenient for the direct escape of exhaust steam into it from the cylinder.

Figure 1 is a perspective view of a bed-plate embodying my invention. Fig. 2 is a vertical section in two planes on line W and the center of the cylinder. Fig. 3 is a cross-section on the line *x x* of Fig. 2. Fig. 4 is a cross-section on line Y of Fig. 1. Fig. 5 is a cross-section on line Z of Fig. 1.

The bed-plate is adapted to be cast in one piece with the lugs *a* for the foundation-bolts, the lugs *b* for the reception of the yoke to support the slides, the flanges *c* for the cylinder to rest upon, and the pillow-block *d* for the main shaft; but it is obvious that the lugs *a* may be dispensed with, and the foundation-bolts made to enter through holes with raised edges within the outer line of the base-plate, and that the lugs *b* and pillow-block *d* for the main shaft may be separately bolted on. The base A of the bed-plate is rectangular, as shown, with its outer edges raised, as illustrated in Fig. 2, to retain the oil or grease on the plate, and thus prevent its running over the foundation. From one end of the bed to the other, and at one side thereof, a high ridge, B, is formed, which is hollow underneath, as shown in Figs. 4 and 5, and connects at the shaft end with the base-plate by a small fillet, *e*, and with the

same plate at the cylinder end by a large curve, *f*, so that, as clearly shown in Fig. 1, the bracing connection between the cylinder and the pillow-block is diagonal, in conformity to the angle of the strain between these two parts; and as the back plate *g* of the ridge B is in line with the axis of the cylinder, a bracing of the bed-plate is the result, which prevents any deflection whatever under strain, and this elevated ridge B, with its diagonal fillet *e f*, is the distinguishing feature of my invention.

The cylinder is received in the recess *h*, and rests upon the flanges *c*, as shown in Fig. 3, so that its exhaust can pass through slots *i* into the chamber C below the cylinder. This chamber is fully inclosed, and receives exhaust steam for the purpose of heating feed-water. The coils of feed-water pipe are introduced through aperture *j*, the pipe both entering and leaving chamber C after coiling inside, so as to expose a long surface to the exhaust steam. When the pipe is in place the aperture *j* is closed steam-tight. The exhaust steam, after passing the coils of pipe, is carried off through aperture K and a suitable pipe. The sides of chamber C form a box-support, D, for the cylinder, as shown.

I claim—

A bed-plate for a steam-engine, having base-plate A, cylinder-base D *c*, hollow ridge B, and diagonal fillet *e f*, substantially as and for the purposes specified.

In testimony of which invention I hereunto set my hand.

JOHN DUNN RICHARDSON.

Witnesses:

J. C. BALDWIN,  
W. WILLIAMS.