(No Model.)

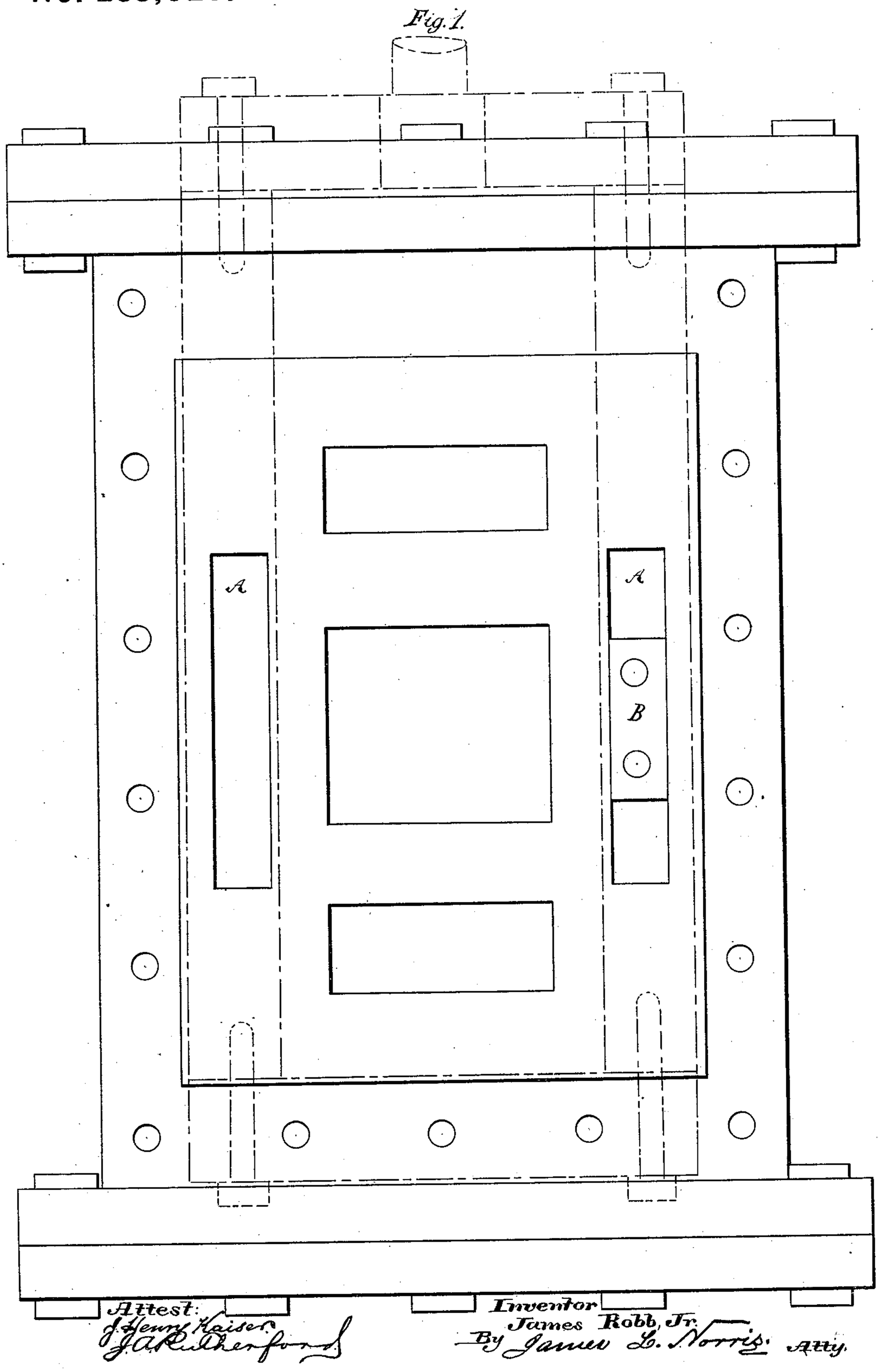
3 Sheets—Sheet 1.

J. ROBB, Jr.

Operating Slide Valves.

No. 235,023. Patented Nov. 30, 1880.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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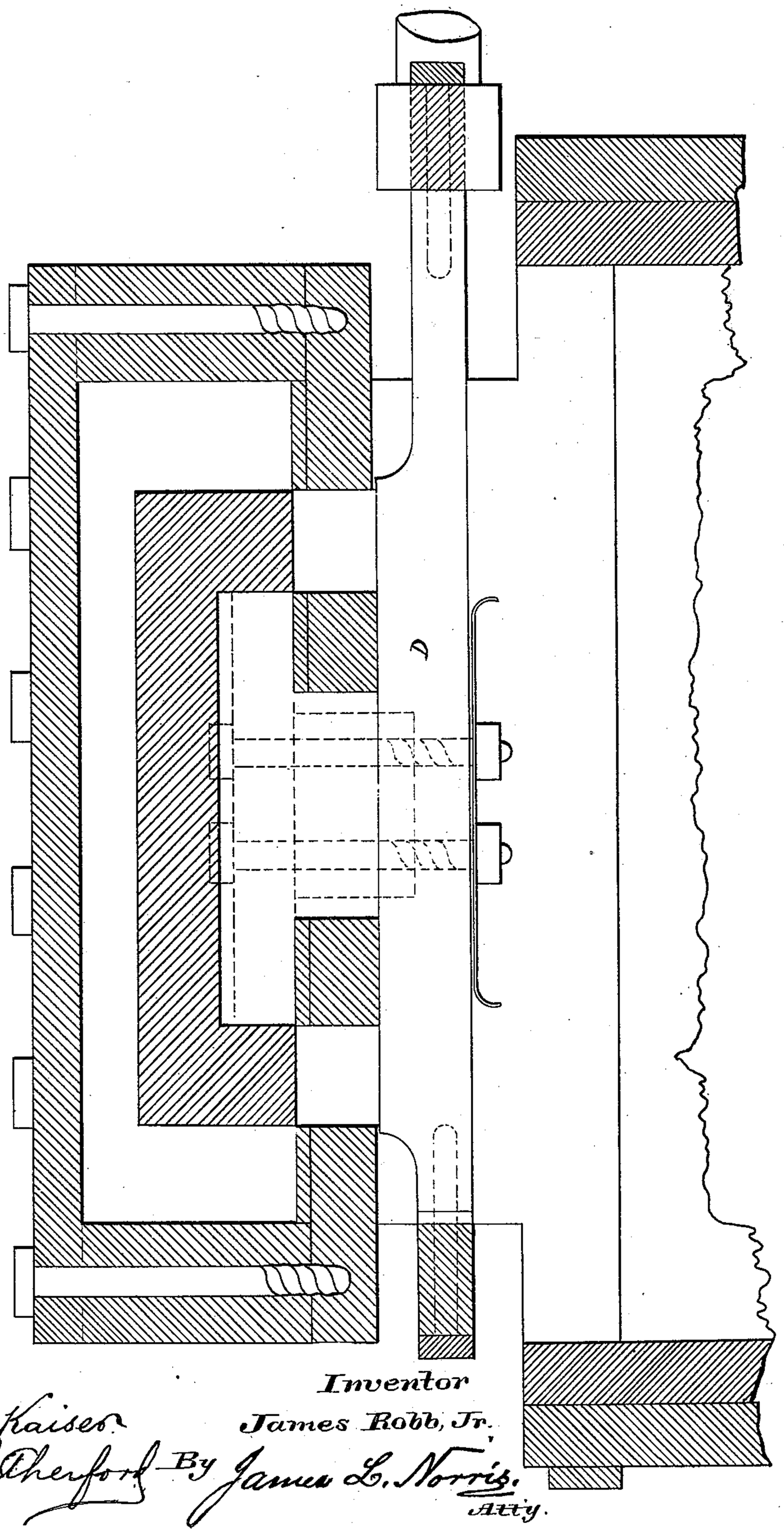

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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Fig. 3.

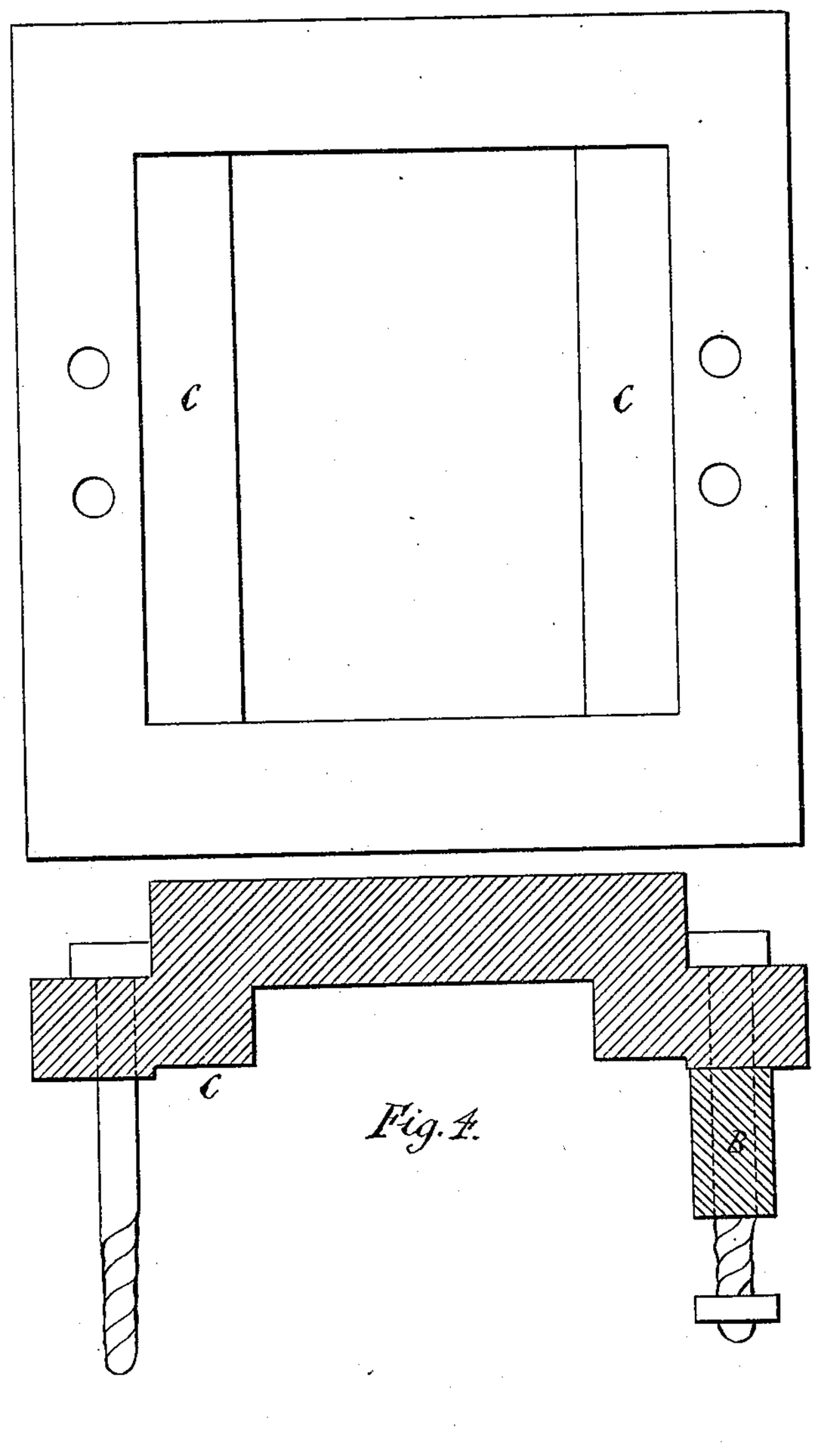

Fig. 4.

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UNITED STATES PATENT OFFICE.

JAMES ROBB, JR., OF GLASGOW, SCOTLAND.

OPERATING SLIDE-VALVES.

SPECIFICATION forming part of Letters Patent No. 235,023, dated November 30, 1880.

Application filed October 22, 1880. (No model.) Patented In England April 17, 1880.

To all whom it may concern:

Be it known that I, JAMES ROBB, Jr., of 8 Carlton Place, Laurieston, Glasgow, in that part of the United Kingdom called "Scotland," have invented certain new and useful Improvements in the Manner of Working the Valves of Steam and other Engines, (for which I have obtained a patent in Great Britain, No. 1,589, bearing date 17th April, 1880,) of which the following is a specification.

The object of my invention is to simplify and improve the working of slide-valves in connection with engines of all descriptions, whether propelled by steam, gas, water, or vapor, and in particular to dispense with the stuffing-box and all manner of packing.

My invention consists in a novel mode of attaching the valve connecting-rod of steam-engines to the ordinary slide-valve and giving motion thereto.

Instead of fitting the valve-box with a stuffing-box for a valve-rod to pass through, as in ordinary practice, I dispense with such stuffing-box, valve-rod, and the usual buckle. I form the slide-valve of greater breadth than usual by adding a flange at each side, and in order to have the slide-valve attached to the eccentric, which flanges cover two slots, and which slots open to the atmosphere. Through these slots two or more bolts pass from the valve in the inside of the valve-box to a bracket on the outside of the valve-box. This bracket works under the outside of the valve-box, and the ordinary valve-connecting rod is attached to this bracket. By these means or by their mechanical equivalents the ordinary motion can be imparted to the valve.

In order that my said invention may be more clearly understood, reference is made to the accompanying drawings, in which similar letters refer to similar parts in the several figures.

Figure 1 represents the cylinder and valve-face with the valve and valve-box removed to show the ports and slots. Fig. 2 represents a longitudinal sectional elevation of the valve, valve-box, ports, and a portion of the side of the cylinder, with a portion of the arrangements for connecting the slide to the ordinary valve connecting-rod. Fig. 3 represents the face of the slide-valve, and Fig. 4 a section of the slide-valve with the bolts attached.

A A in Fig. 1 are slots or openings in the valve-face on each side of the ports opening through the face-plate to the atmosphere.

B B, Figs. 1 and 4, is a small block or slide with two bolt-holes, which works in the slot A, Fig. 1, and acts as a guide for the steady motion of the slide and bolts. This guide B may form a part of the slide by being cast on it, or may be separate, as shown.

c, Figs. 3 and 4, is a hollow cavity on each side of the exhaust-cavity on the face of the slide, and extending a little over the slot A, in order to lessen the friction and convey any steam which may find its way into the slots into the exhaust-port.

D, Fig. 2, is a side view of the bracket, which works over the outside of the slot A, the face of which is ground to fit close, and through which one or more bolts pass from the flange on each side of the slide, as shown in Fig. 4. On screwing up the nuts of these bolts the face of the slide is drawn and held close to the face of the valve, as may be required, or springs may be used between the nuts and the bracket, which will keep the slide in a suitable position and the side of the bracket close to the outside of the slots.

The bracket consists of four pieces, one over each slot, with a cross end piece at the bottom, bolted and screwed together, also cross-head at the top, bolted and screwed, as shown by dotted lines in Fig. 1, to which cross-head is attached the usual connecting-rod, thus rendering unnecessary the ordinary valve-rod passing through a stuffing-box. The other end of this connecting-rod is attached to the eccentric or other valve-gear in the usual manner.

Having thus described the nature and object of my said invention, I would observe, in conclusion, that I reserve to myself the right of attaching or connecting the different parts together, either with bolts and nuts, as shown

on the drawings, or any other modification of attachment; and

I declare that what I claim, and desire to be secured to me, is—

The combination, with the cylinder having its valve-face provided with slots A A on the outside of the ports, of the slide C, the guide B, working in one of said slots and secured to the slide, and the bracket D, connected to said guide, substantially as described.

JAMES ROBB, JR.

Witnesses:
PETER FORGIE,
GEORGE H. WATT.