

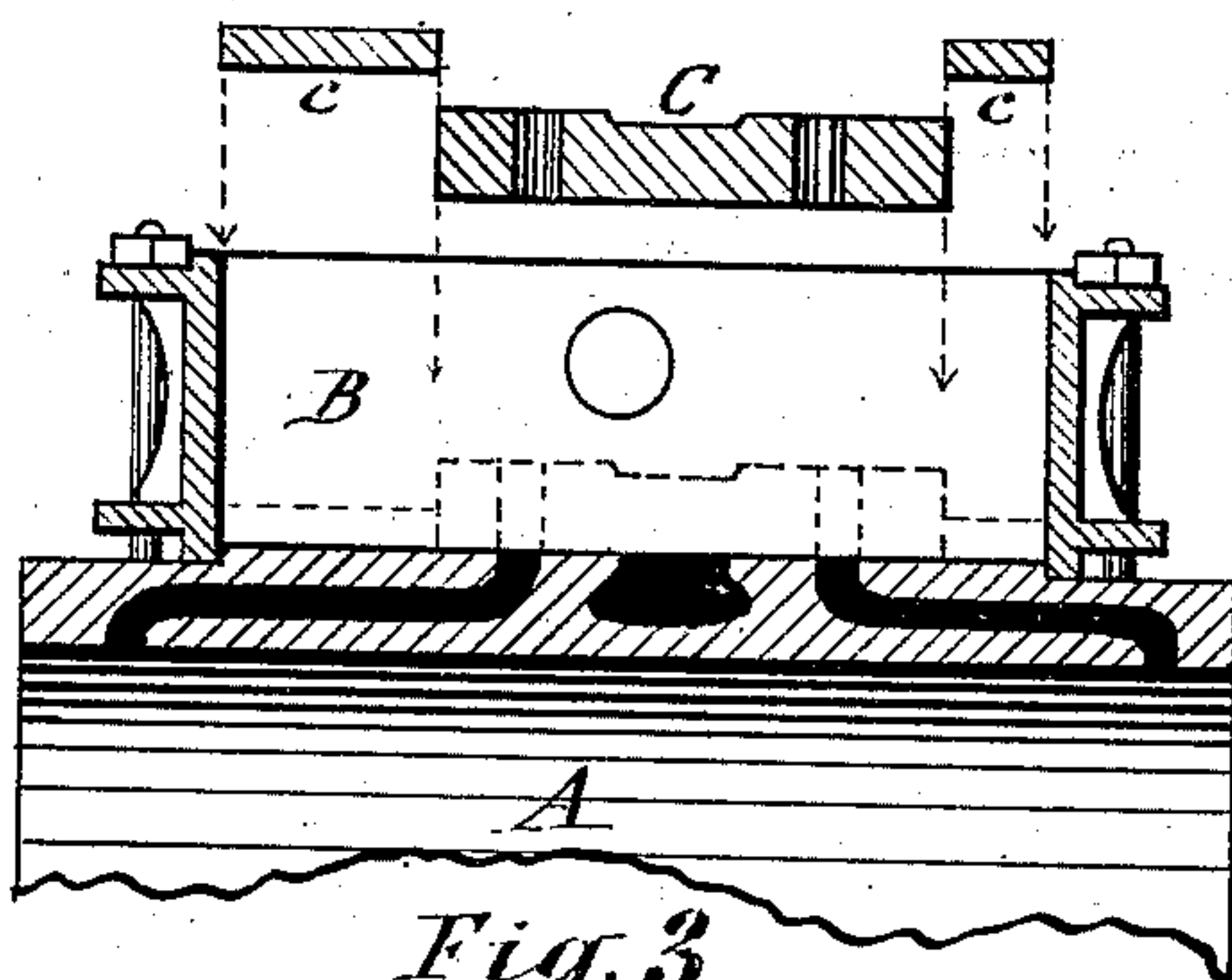
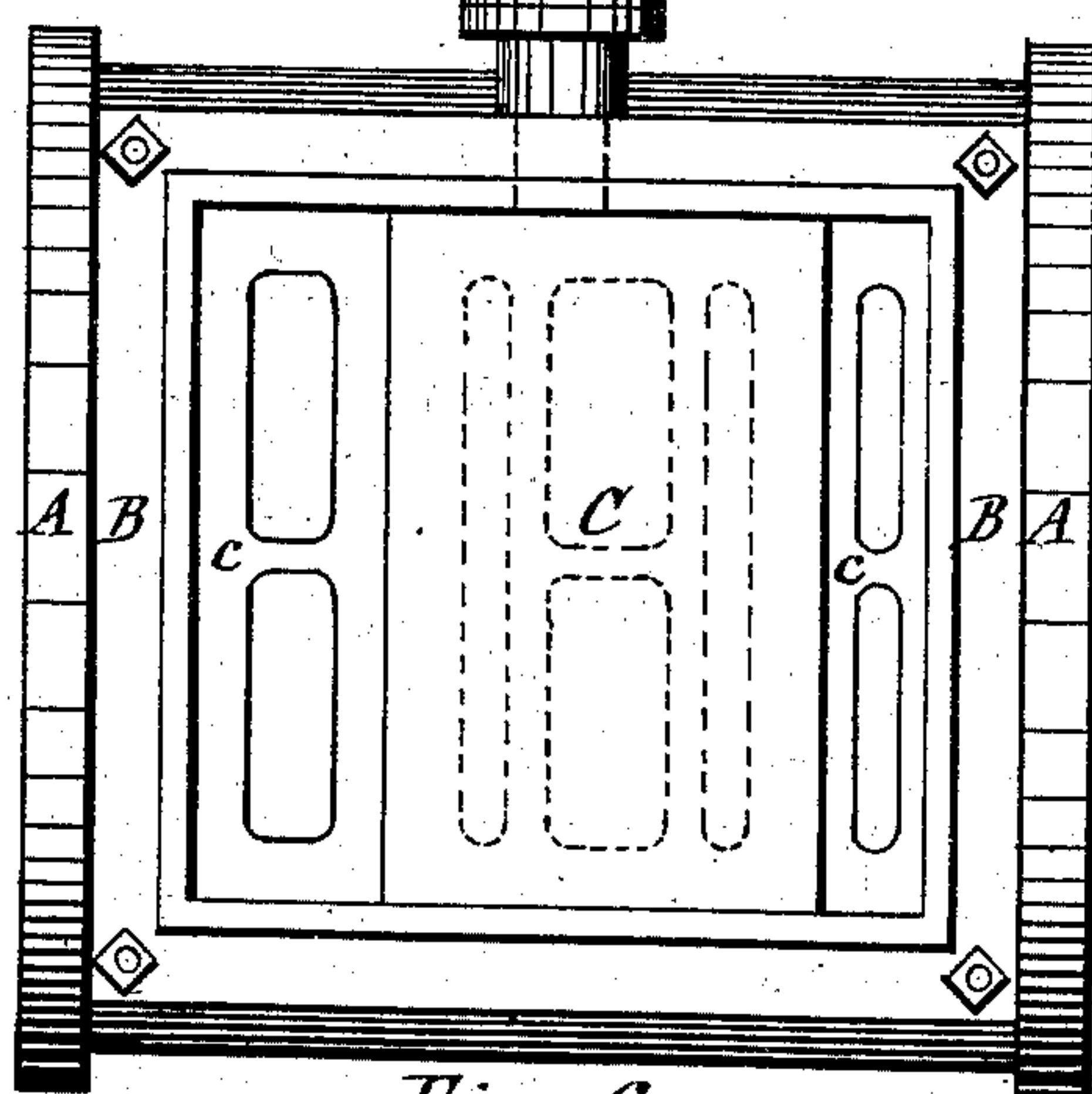
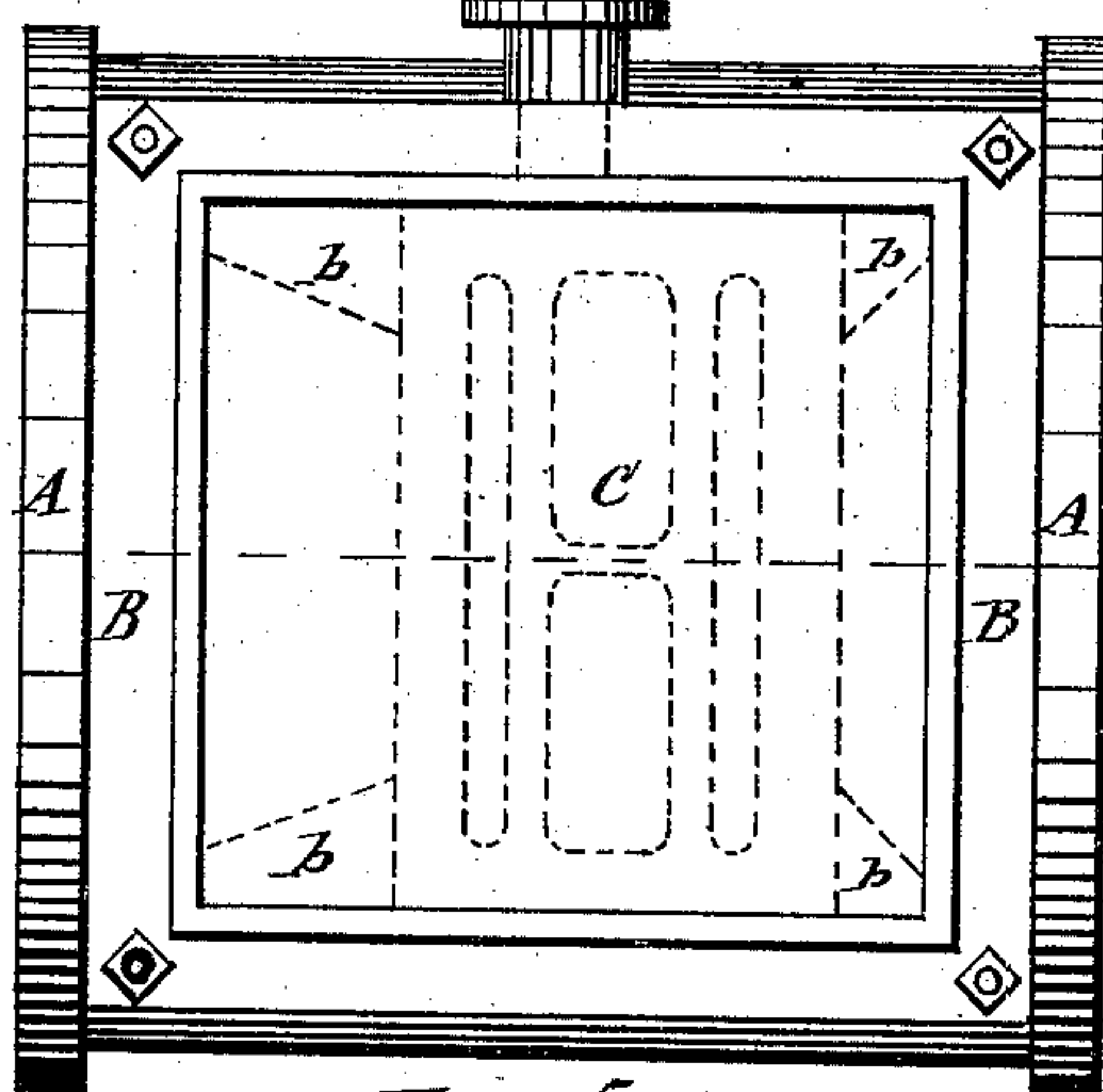
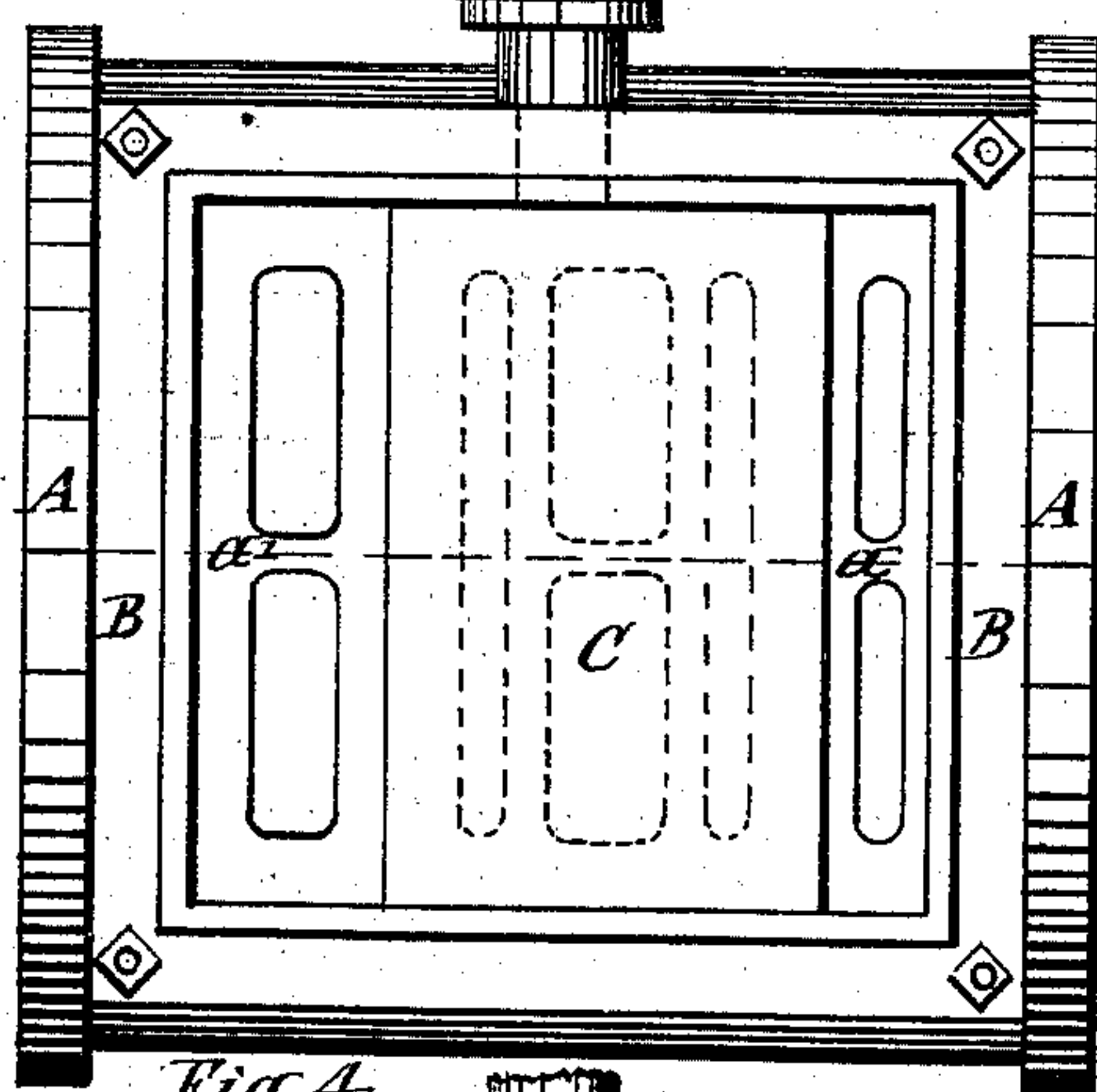
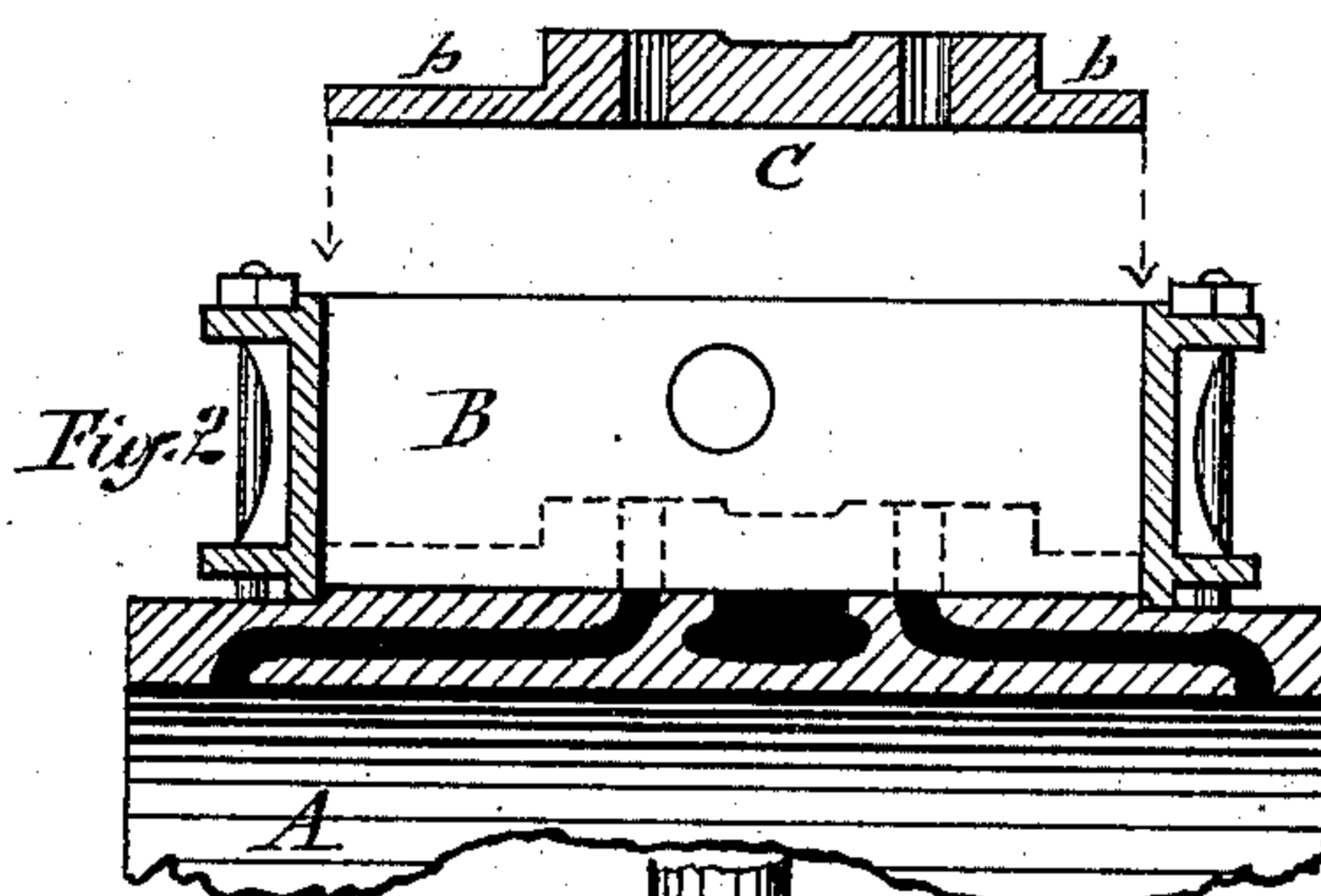
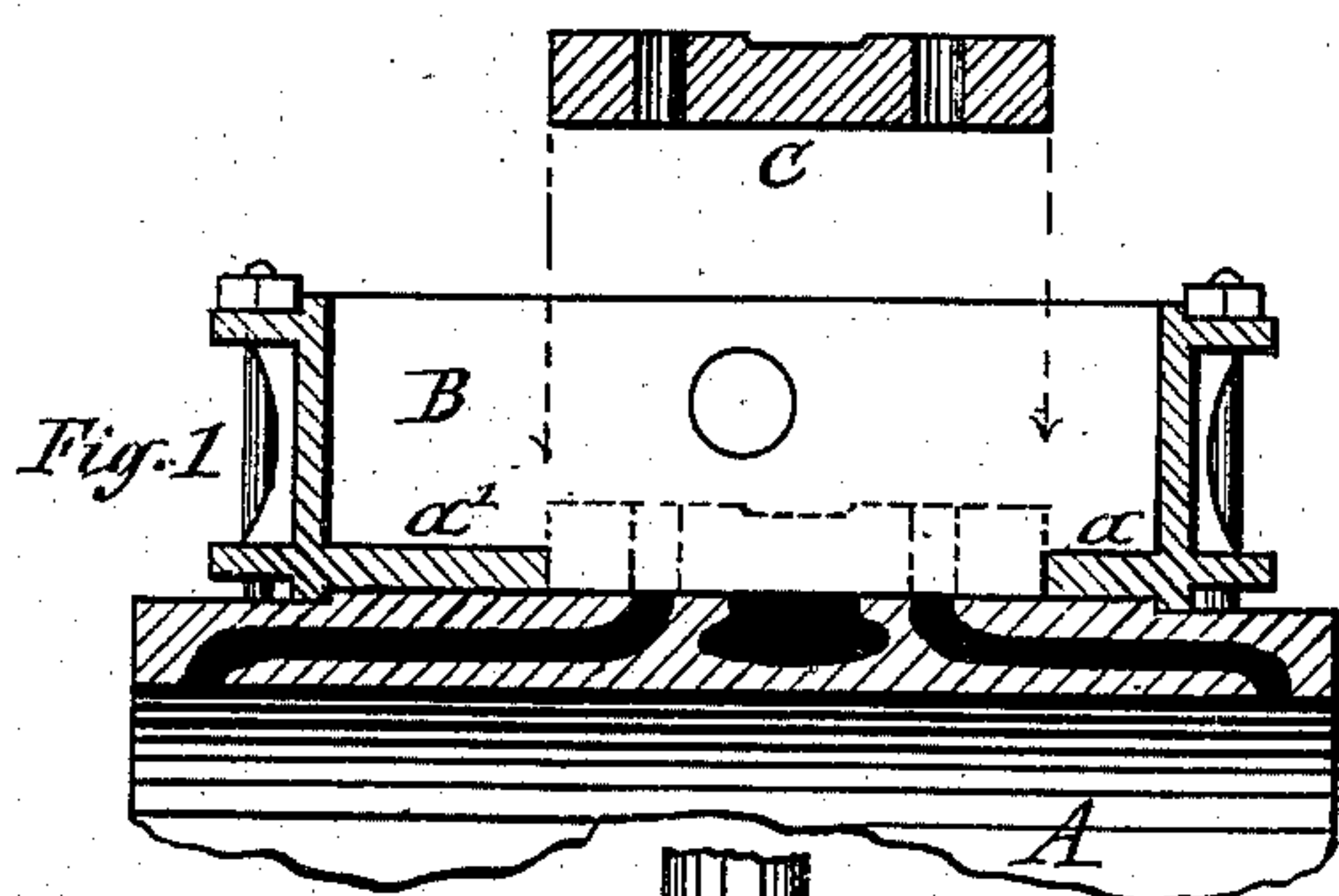
(No Model.)

H. WATKEYS.

Valve Seat for Steam Cylinders.

No. 238,819.

Patented March 15, 1881.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY WATKEYS, OF SYRACUSE, NEW YORK.

VALVE-SEAT FOR STEAM-CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 238,819, dated March 15, 1881.

Application filed April 5, 1880. (No model.) Patented in England November 28, 1878, in Canada December 31, 1878, in Belgium December 16, 1878, and in France March 1, 1879.

To all whom it may concern:

Be it known that I, HENRY WATKEYS, of the city of Syracuse, in the State of New York, have invented new and useful Improvements in Valve-Seats for Steam-Cylinders, (which are incorporated in patents obtained by me, respectively, in Great Britain, No. 4,849, bearing date November 28, 1878, in Canada, No. 9,535, dated December 31, 1878, in Belgium, No. 46,796, December 16, 1878, and in France, No. 127,724, March 1, 1879,) of which the following is a specification.

This invention relates to the class of valve-seats for which I have obtained Letters Patent of the United States No. 210,279. In the arrangement there shown and set forth the valve-seat is restrained from being lifted off the cylinder-face by shoulders on the interior of the steam-chest bearing upon the valve-seat, and consequently the latter cannot be renewed or repaired without first removing the steam-chest.

The object of my present invention is to provide a valve-seat which shall rely simply on the pressure of the steam in the chest for holding it down upon the cylinder-face, and be of the utmost simple and cheap construction, and be capable of being applied to and removed from the cylinder-face of an engine without necessitating the removal of the steam-chest, and thus avoid the breaking of the joint of said chest with the cylinder, and also obviate the necessity of disconnecting the steam-pipe in case the said pipe is applied to the side of the chest.

For the attainment of this object my invention consists, essentially, in the combination, with a steam-cylinder, of a valve-seat having a plain straight surface on its under side applied loosely to the cylinder-face, and confined in its position in relation to the ports of the cylinder by stays abutting against the end of the chest, and devoid of fastenings restraining its lifting, substantially as hereinafter more fully described.

In the accompanying drawings, Figures 1, 2, and 3 are vertical sections of my invention, and Figs. 4, 5, and 6 are plan views, respectively, of same.

Similar letters of reference indicate corresponding parts.

A represents a steam-engine cylinder provided with the usual steam induction and eduction ports, and with a suitable face over the same, upon which the valve slides to admit and emit steam alternately at opposite ends of the cylinder.

B denotes the steam-chest with its cover removed. The wear of the cylinder-face incident to the friction of the sliding valve has heretofore been compensated by a false valve-seat, either bolted onto the cylinder-face or secured thereon by bringing the chest to bear upon it, and in some instances said seats have been restrained from lifting by bolts inserted through the cover of the chest and by other devices; and, again, others have been confined from other displacement by downward ribs or flanges on the under side of the seat engaging either grooves or shoulders on the cylinder. Either of these constructions and combinations is complicated and expensive, and in many cases necessitated the removal of the steam-chest in order to apply or remove the false seat, and consequently caused the breaking of the joint between the chest and cylinder, and also of the connection of the steam-pipe in case said pipe had its inlet at the side of the chest. This I obviate by means of my improved valve-seat, (designated by the letter C in the drawings,) which seat I make of a plate having the requisite steam and exhaust ports and a perfectly straight plain surface on the under side, and of such dimensions as to allow it to be inserted through the open top of the chest and pass down to the cylinder-face, to which it is fitted with a steam-tight joint. The said seat being of proper width to abut against the sides of the chest prevents lateral play of the former. It is devoid of all fastenings tending to prevent its lifting, and secured against longitudinal displacement and maintained in its position in relation to the ports of the cylinder by means of stays extending from the end of the seat to the end of the chest, which stays may consist either of flanges or plates *a a'*, cast on the ends of the interior of the chest and abutting against the ends of the seat, as shown in Figs. 1 and 4 of the drawings; or, in case the invention is to be applied to an old chest, the stays may be formed by extensions *b b*, cast on the seat and abutting against the

ends of the chest, as shown in Figs. 2 and 5 of the drawings, or consist of removable blocks *c' c'*, fitted between the ends of the seat and the respective opposite ends of the chest, as illustrated in Figs. 3 and 6 of the drawings. Either of the described arrangements will serve to confine the seat in its position in relation to the ports of the cylinder as aforesaid, and I therefore do not limit myself to any specific construction in that respect.

Having thus described my improvements, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with a steam-cylinder, of a valve-seat having a plain straight surface on its under side applied loosely to the cylinder-face, and confined in its position in relation to the ports of the cylinder by stays abutting against the end of the chest, and devoid of fastenings restraining its lifting, substantially in the manner described and shown.

HENRY WATKEYS.

Witnesses:

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