

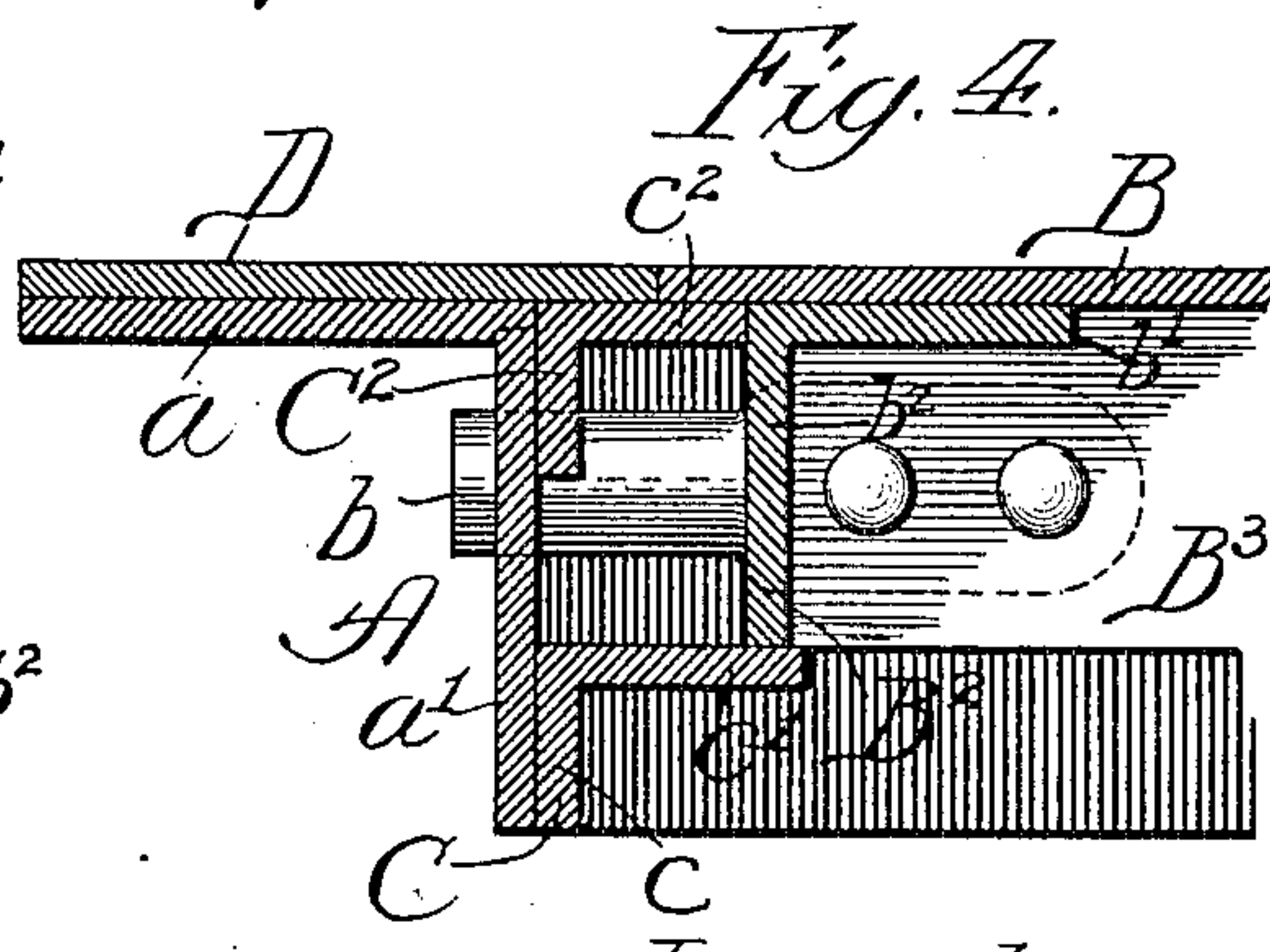
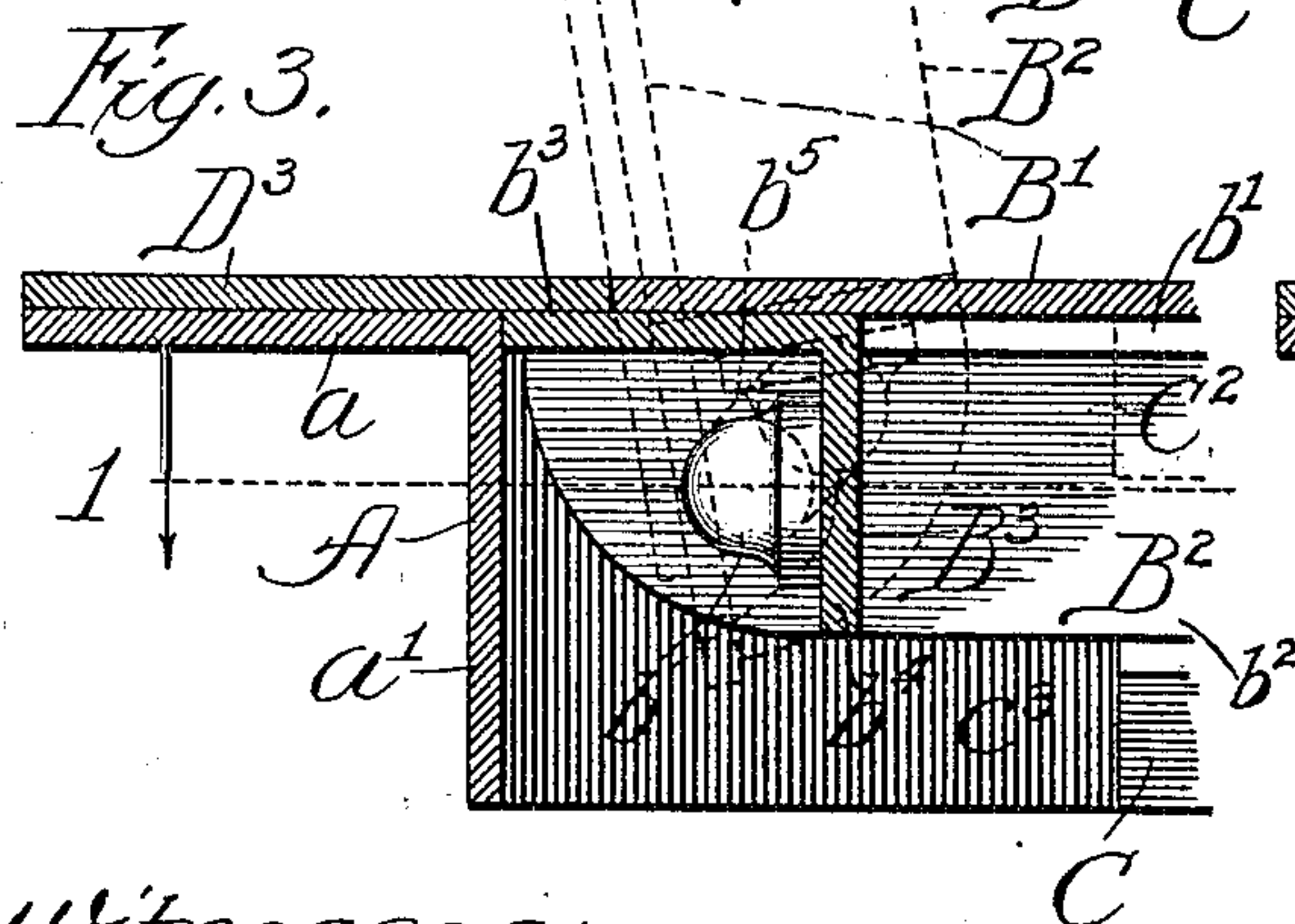
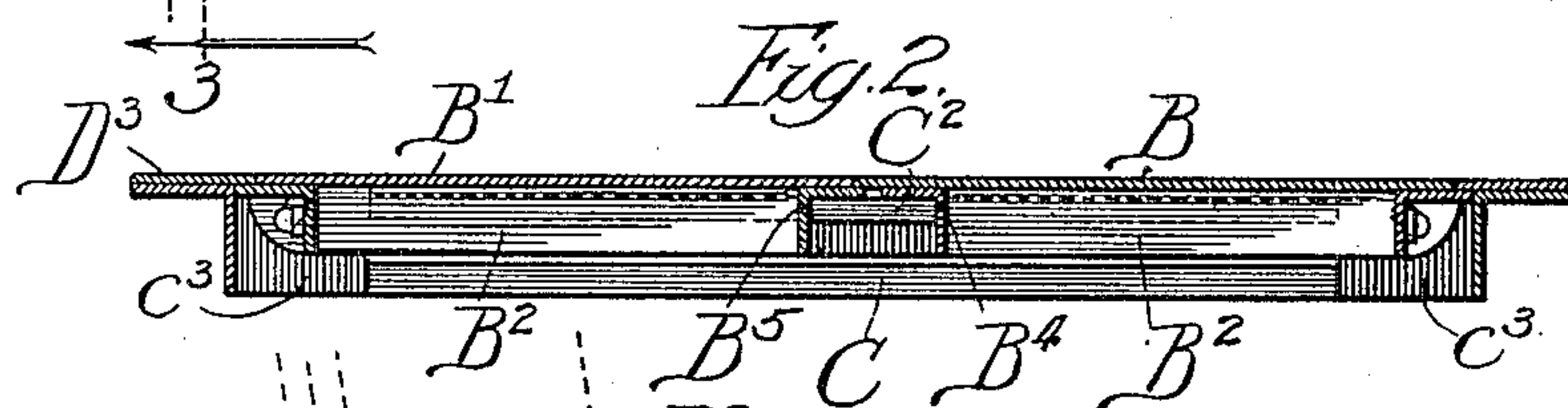
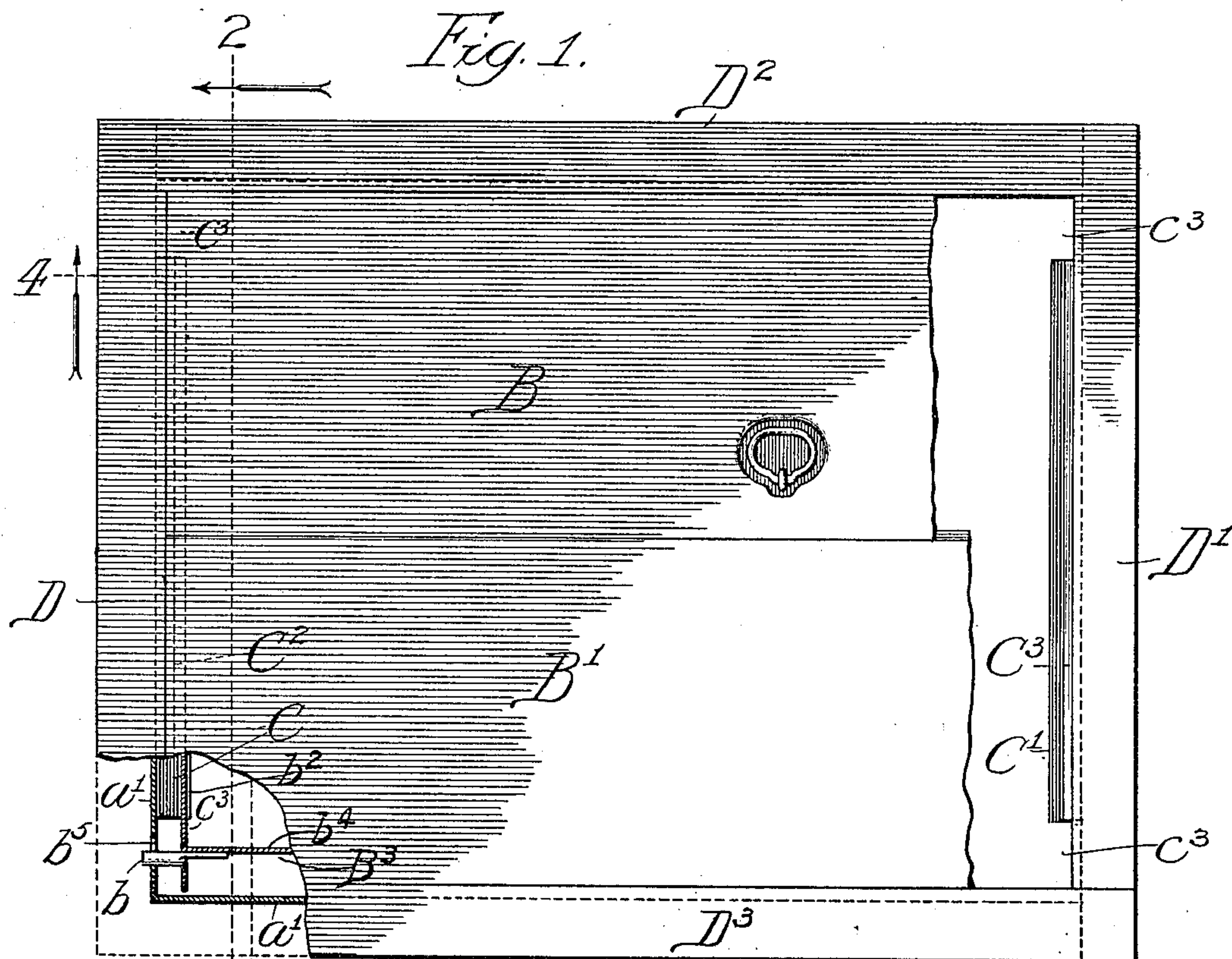
No. 825,613.

PATENTED JULY 10, 1906.

A. C. PREBLE.

TRAP DOOR.

APPLICATION FILED OCT. 14, 1905.



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UNITED STATES PATENT OFFICE.

ANDREW C. PREBLE, OF CHICAGO, ILLINOIS.

TRAP-DOOR.

No. 825,613.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed October 14, 1905. Serial No. 282,866.

To all whom it may concern:

Be it known that I, ANDREW C. PREBLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Trap-Doors, of which the following is a specification.

My invention relates particularly to trap-doors for sidewalks and analogous situations where a flush door strongly supported in the closed position and capable of maintaining itself in an open position is very desirable.

My primary object is to provide a door of simple construction possessing the suggested and other advantages.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents a plan view, partly sectional, of a trap-door constructed in accordance with my invention, the section being taken as indicated at line 1 of Fig. 3; Fig. 2, a transverse section taken as indicated at line 2 of Fig. 1; Fig. 3, an enlarged broken section taken as indicated at line 3 of Fig. 1, and Fig. 4 an enlarged broken section taken as indicated at line 4 of Fig. 1.

In the construction illustrated A represents a rectangular flanged frame adapted to fit in an opening in a sidewalk or floor and comprising suitably-connected angle-bars having outturned horizontal flanges a , adapted to rest upon the walk, and downturned vertical flanges a' , adapted to fit within the opening in the walk; B B', a pair of doors joined by pivots b to the vertical flanges a' of the transverse members of the frame A; B², transversely-extending angle-bars secured to the lower surfaces of the doors near the ends thereof, each of these bars having an inturned horizontal flange b' and a downturned vertical flange b^2 ; B³, angle-bars secured on the under surfaces of the pivotal edges of the doors and having outturned horizontal flanges b^3 , projecting beyond the rear edges of the doors, and having also downturned vertical flanges b^4 ; B⁴ B⁵, transverse angle-bars secured to the lower surfaces of the meeting edges of the doors, one of these angle-bars having a flange projecting beyond the free edge of the door to form an overlap with the other door; C C', a pair of door-supporting transverse angle-bars each having a vertical flange c firmly secured to the vertical flange

of the corresponding transverse member of the frame A and having an inturned horizontal flange c' ; C² C³, a pair of angle-bars secured to the upper portions of the inner surfaces of the flanges a' of the transverse members of the frame A and having inturned flanges c^2 ; D D', a pair of sheet-metal bars secured to the horizontal flanges a of the transverse members of the frame A and having their inner portions partly overlapping the angle-bars C² C³, and D² D³ a pair of sheet-metal bars secured to the longitudinal members A and overlapping the projecting portions of the flanges b^3 of the angle-bars B³.

From the foregoing explanation it will be understood that the doors are equipped marginally on their under surfaces with firmly-secured strengthening-bars, and it may now be stated that the transverse bars B² rest upon the bars C, which constitute an exceedingly substantial support for the doors, relieving the hinges and projecting flanges of the door of the weight which they are unadapted unaided to bear. The pivots b preferably comprise studs having flattened shanks which are securely riveted to the end portions of the members B³, and the studs project beyond the members B² into slots b^5 , with which the flanges a' of the transverse members of the frame A are provided. As shown in Fig. 3, the slots b^5 incline upwardly and toward the meeting edges of the doors, so that when a door is thrown to the open position its pivots will ride up the inclines, enabling the rear edge of the metal of the door to pass the adjacent edge of the bar D³—for instance, (if we refer to Fig. 3,) so that the door will assume the self-sustaining position shown in dotted lines in Fig. 3. To permit this action, it is necessary also to cut away the ends of the angle-bars C C' and C² C³, as indicated at c^3 . When the door is lowered, the pivots naturally seek their normal positions at the bottoms of the inclined slots, insuring correct positioning of the door.

It is noteworthy that while the doors are strongly supported and have protected joints by reason of the overlapping arrangement besides having a flush upper surface they nevertheless are easily opened and closed. Moreover, the feature of automatic locking in the open position is of importance.

Changes in details of construction within the spirit of my invention may be made.

Hence no undue limitation should be understood from the foregoing detailed description.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a trap-door, the combination of a horizontal frame, an upwardly-swinging door with which said frame has overlapping connection, and sliding pivotal connection between the door and frame, the frame having a shoulder above and in the rear of the pivotal connection against which the door may lean when raised, for the purpose set forth.

2. In a trap-door, the combination of a horizontal frame, an upwardly-swinging door with which said frame has overlapping connection, pivots carried by one of said elements, and inclined slots in the other of said elements and receiving said pivots, the frame having a shoulder above and in the rear of said slots against which the door may lean when raised, for the purpose set forth.

3. In means of the character set forth, the combination of a frame, a door with which the frame has overlapping connection, pivotal connections between the door and frame, door-supporting members secured to the transverse members of the frame, and door-strengthening members secured to the under side of the door and resting upon the door-supporting members, for the purpose set forth.

4. In a trap-door, the combination of a frame having internal bars located one above the other and presenting intumed flanges of different widths, doors having overlapping engagement with the upper bars and equipped with firmly-secured strengthening-bars resting upon the lower ones of said first-named bars, and pivotal connections between said doors and frame, for the purpose set forth.

5. In a trap-door, the combination of a frame comprising angle-bars having out-turned horizontal flanges and downturned

vertical flanges; bars secured on said horizontal flanges and projecting within the frame, relatively narrow flanged angle-bars secured to said vertical flanges and partially underlying the projecting portions of said bars, relatively wide flanged angle-bars secured to said vertical flanges beneath the narrow-flanged bars, doors having margins bearing upon the narrow-flanged angle-bars, angle-bars secured to the doors and bearing upon the wide-flanged angle-bars, and pivotal connections between the doors and frame, for the purpose set forth.

6. In a trap-door, the combination of a frame comprising angle-bars having out-turned horizontal flanges and downturned vertical flanges; bars secured on said horizontal flanges and projecting within the frame, relatively narrow flanged angle-bars secured to said vertical flanges and partially underlying the projecting portions of said bars, relatively wide flanged angle-bars secured to said vertical flanges beneath the narrow-flanged bars, doors having margins bearing upon the narrow-flanged angle-bars, angle-bars secured to the doors and bearing upon the wide-flanged angle-bars, angle-bars secured to the rear edges of the doors and partially underlying the adjacent projecting bars carried by the frame, and pin-and-slot connection between the frame and doors.

7. In a trap-door, the combination of a horizontal frame having internal transverse bars supported thereon, and horizontal doors having pin-and-slot connection with the transverse members of the frame permitting sliding movement of the pivotal portions of the doors, said internal transverse bars being cut away at their ends to permit movement of the door, as and for the purpose set forth.

ANDREW C. PREBLE.

In presence of—

L. HEISLAR,
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