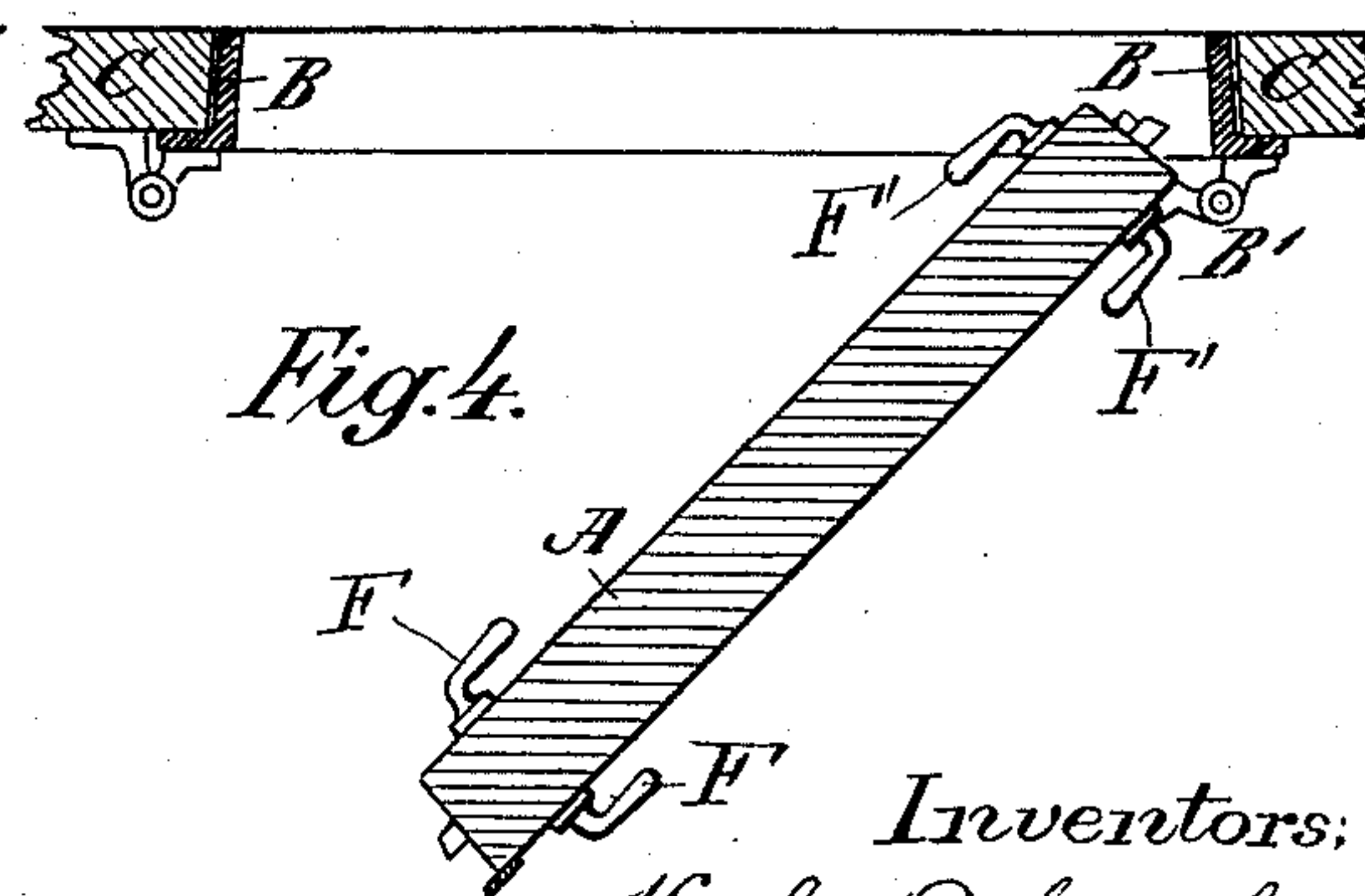
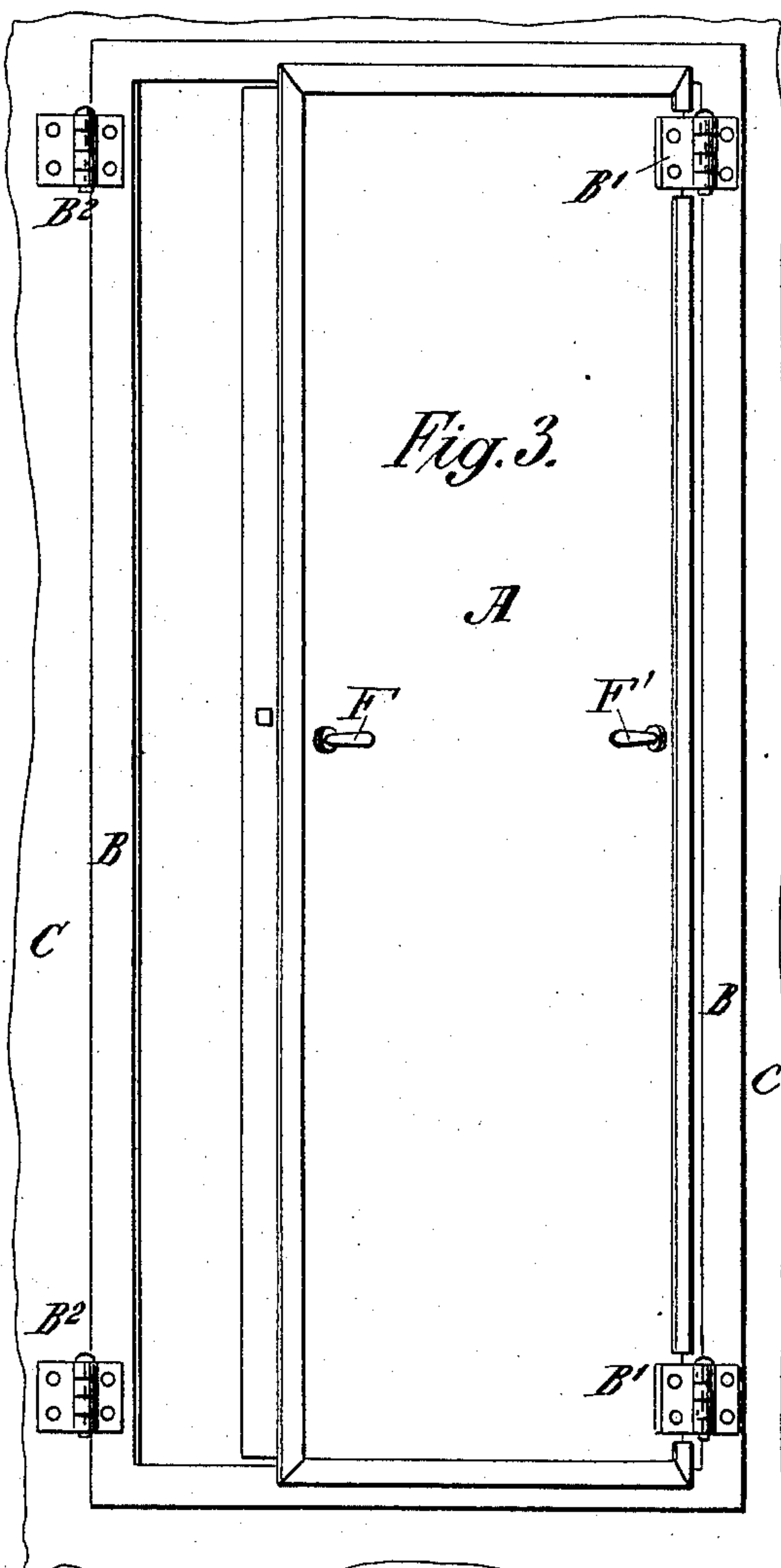



4 Sheets—Sheet 1.

Patented Feb. 5, 1895.



 *Inventors;*  
*Karl Belesak*  
*By Whitman & Wilkinson,*  
*Attorneys.*

(No Model.)

4 Sheets—Sheet 2.

K. BELCSAK.  
DOOR.

No. 533,777.

Patented Feb. 5, 1895.

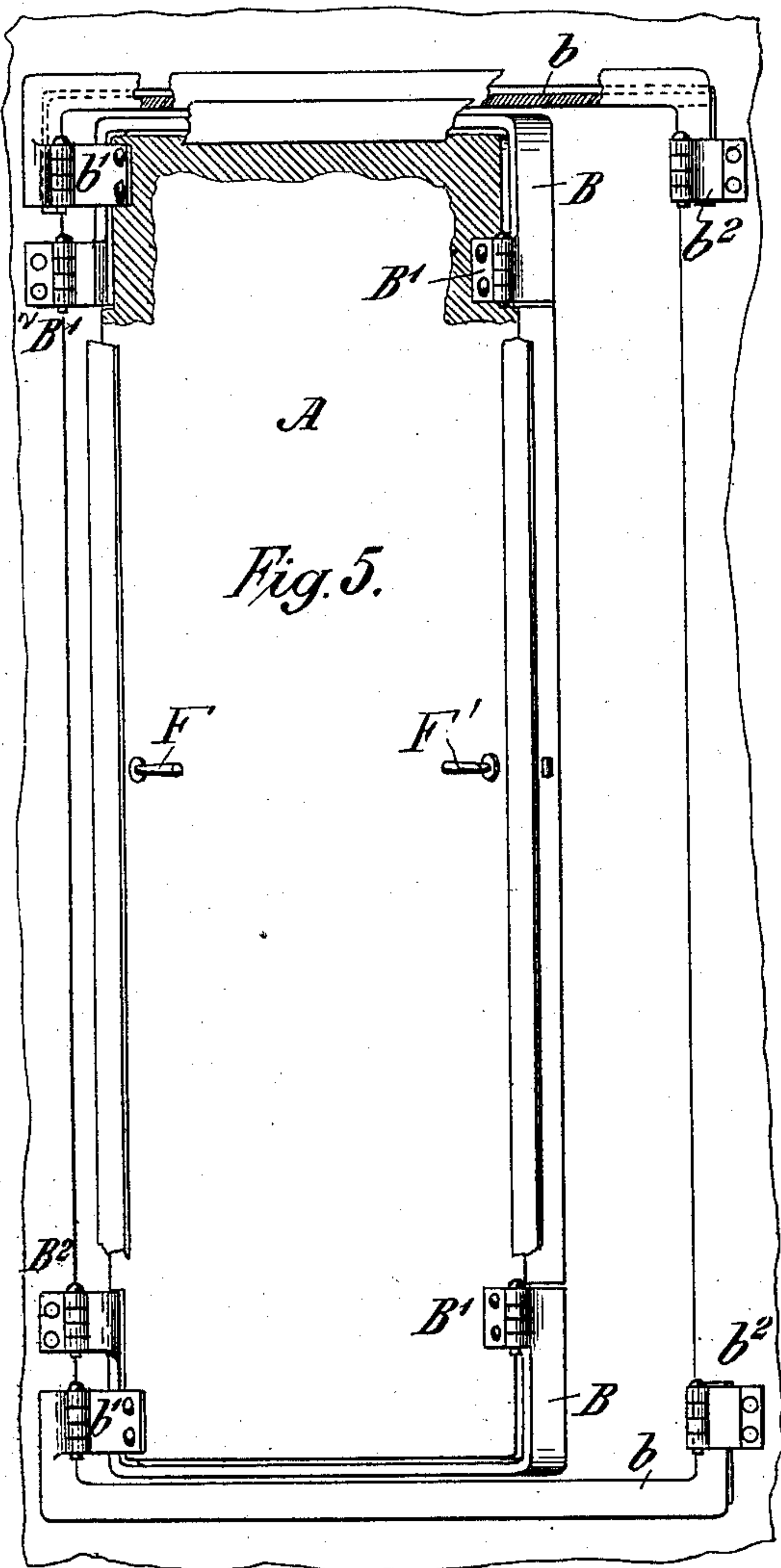


Fig. 5.

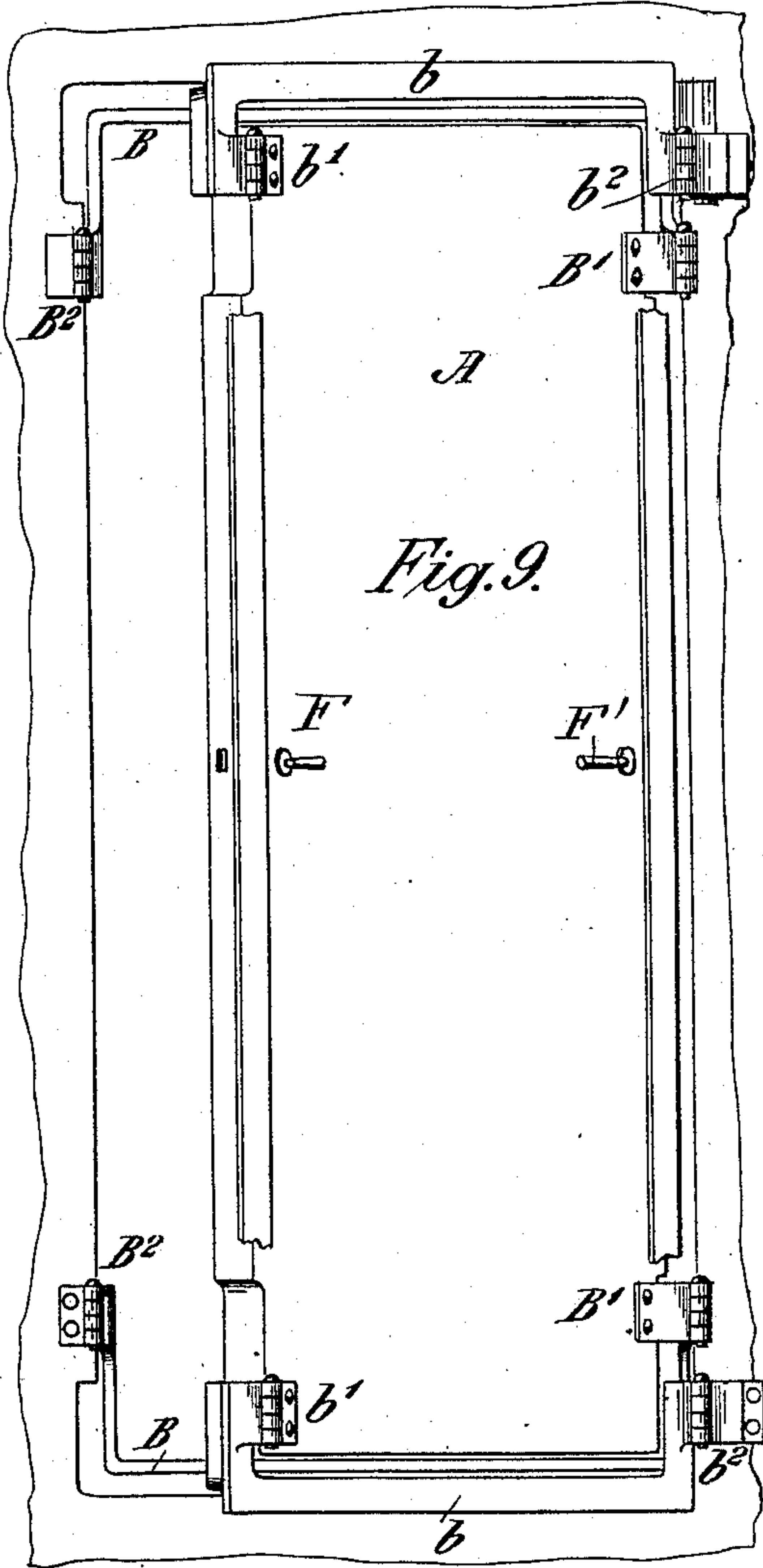


Fig. 9.

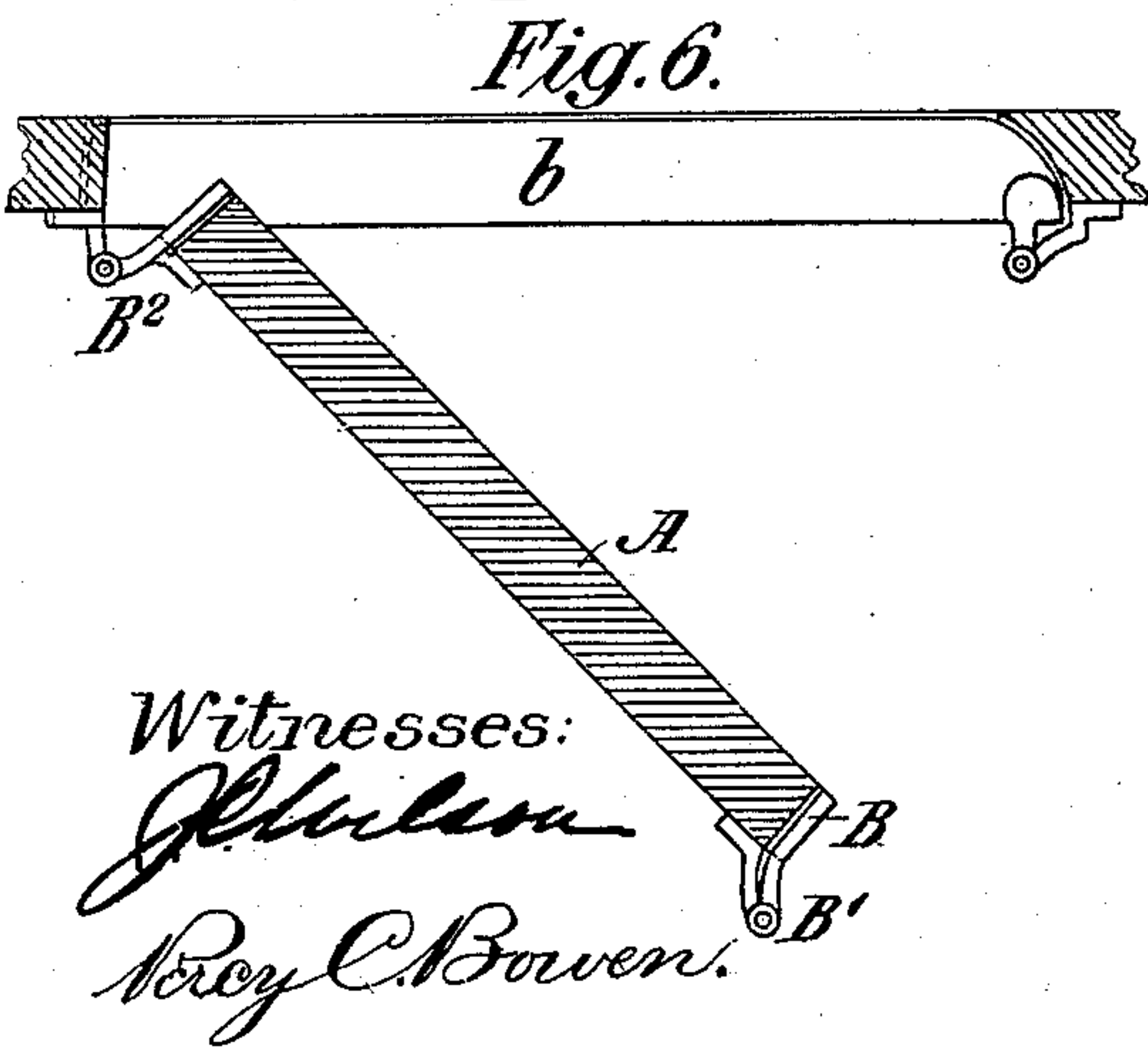


Fig. 6.

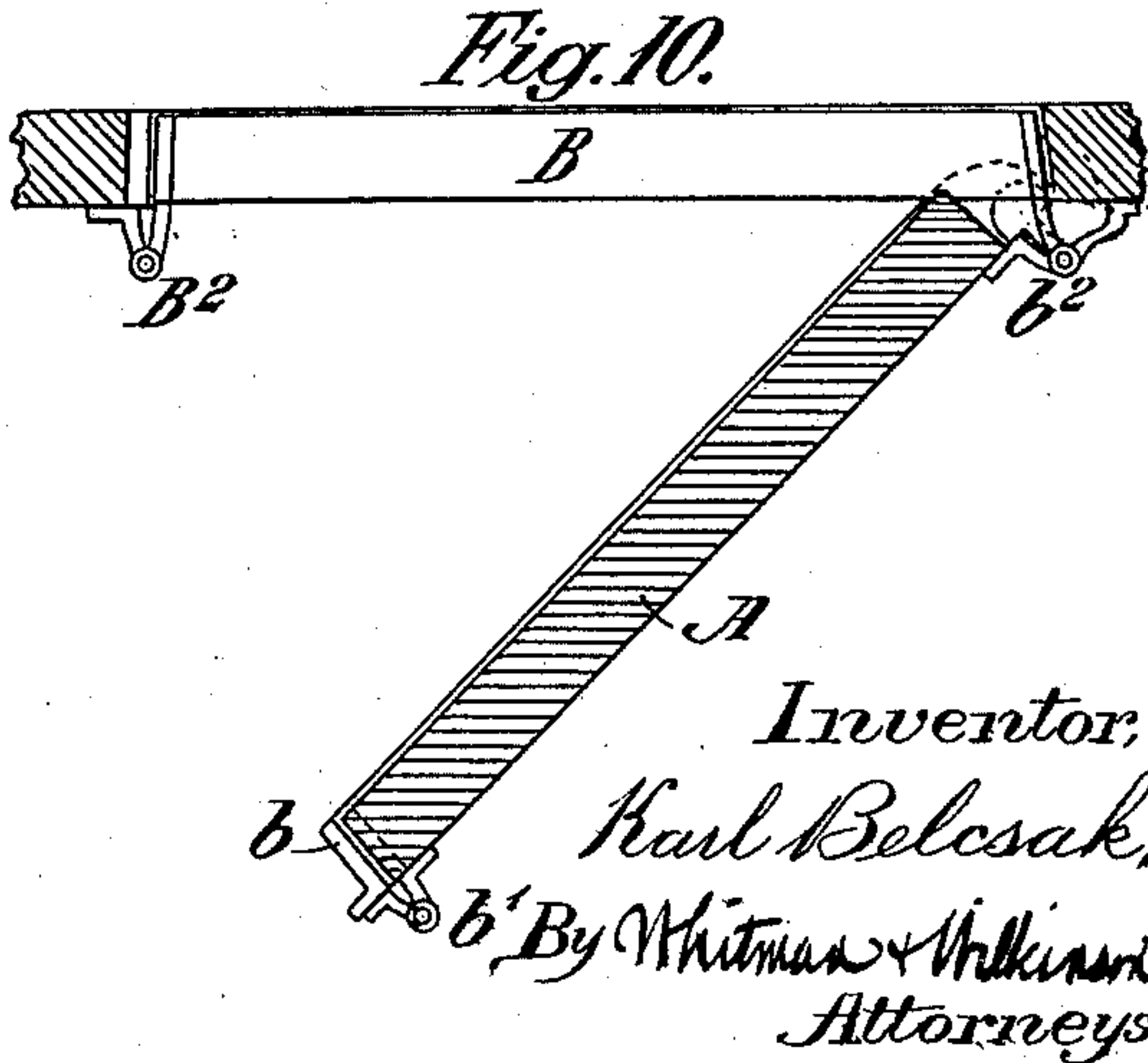


Fig. 10.

Witnesses:

*John C. Bowen*  
Percy C. Bowen.

Inventor,

Karl Belcsak,

By *Whitman & Wilkinson*  
Attorneys.



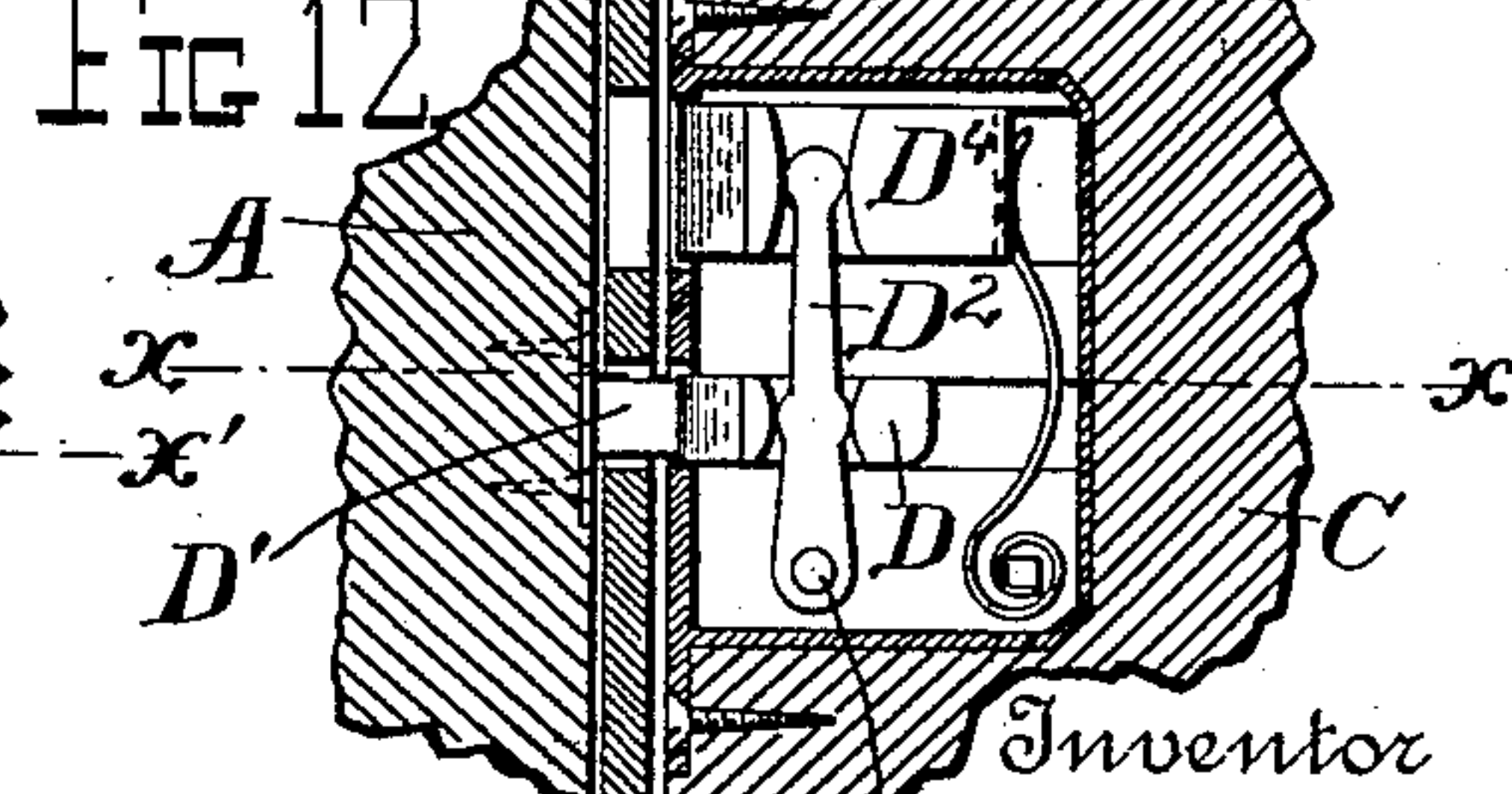
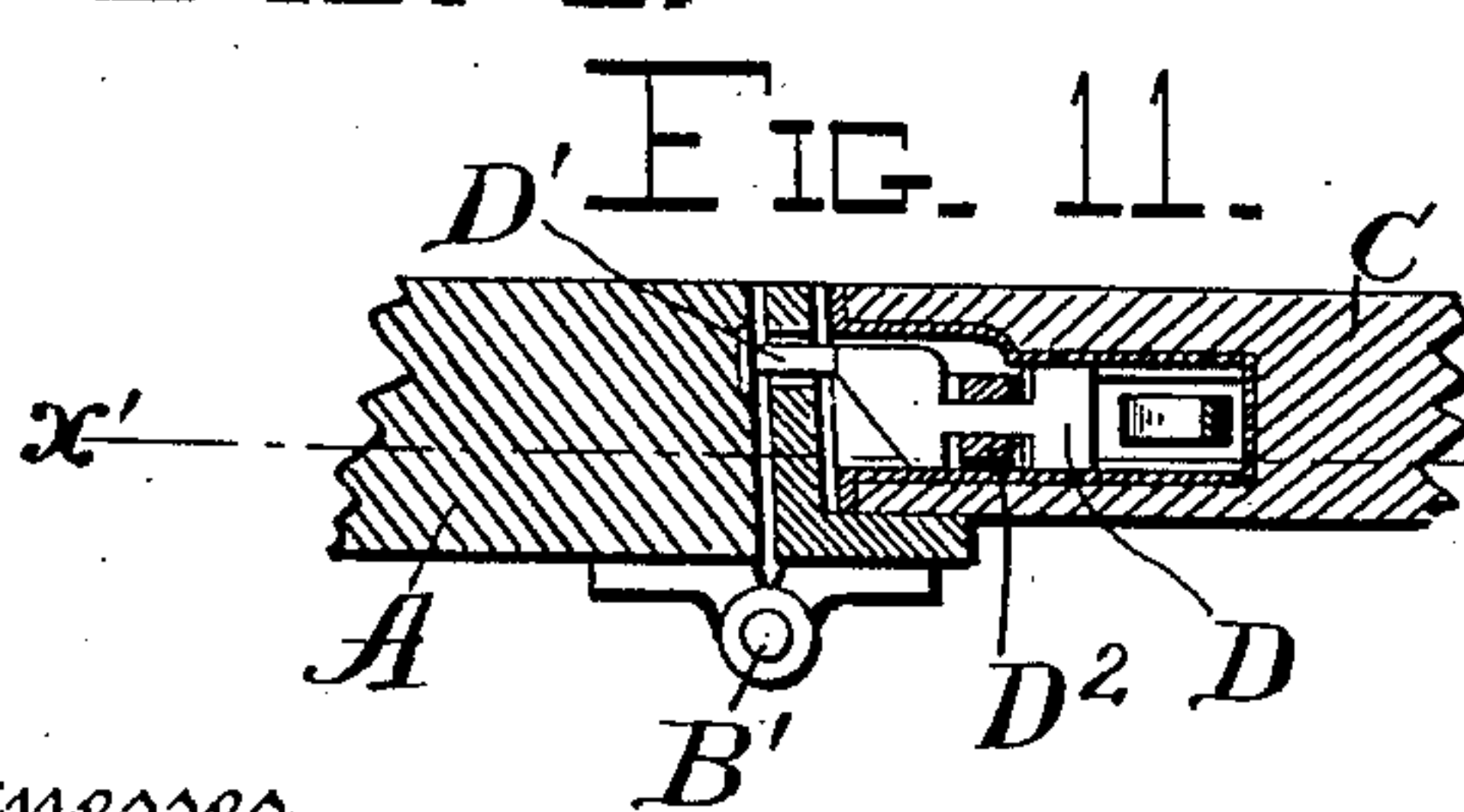
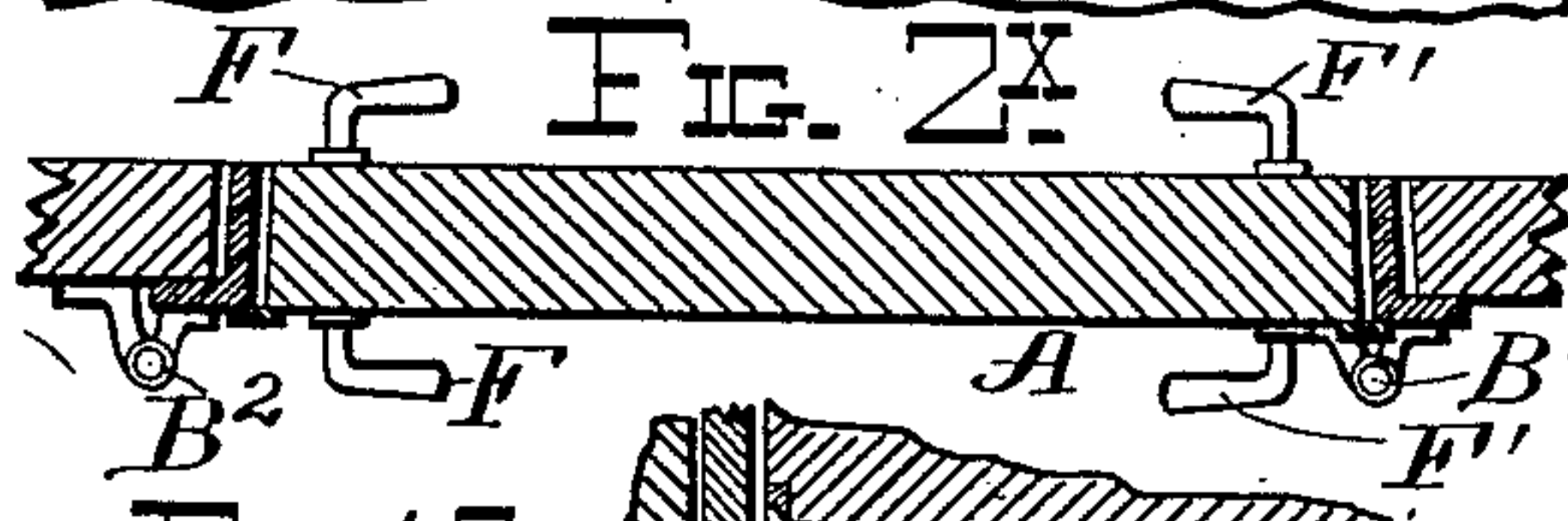
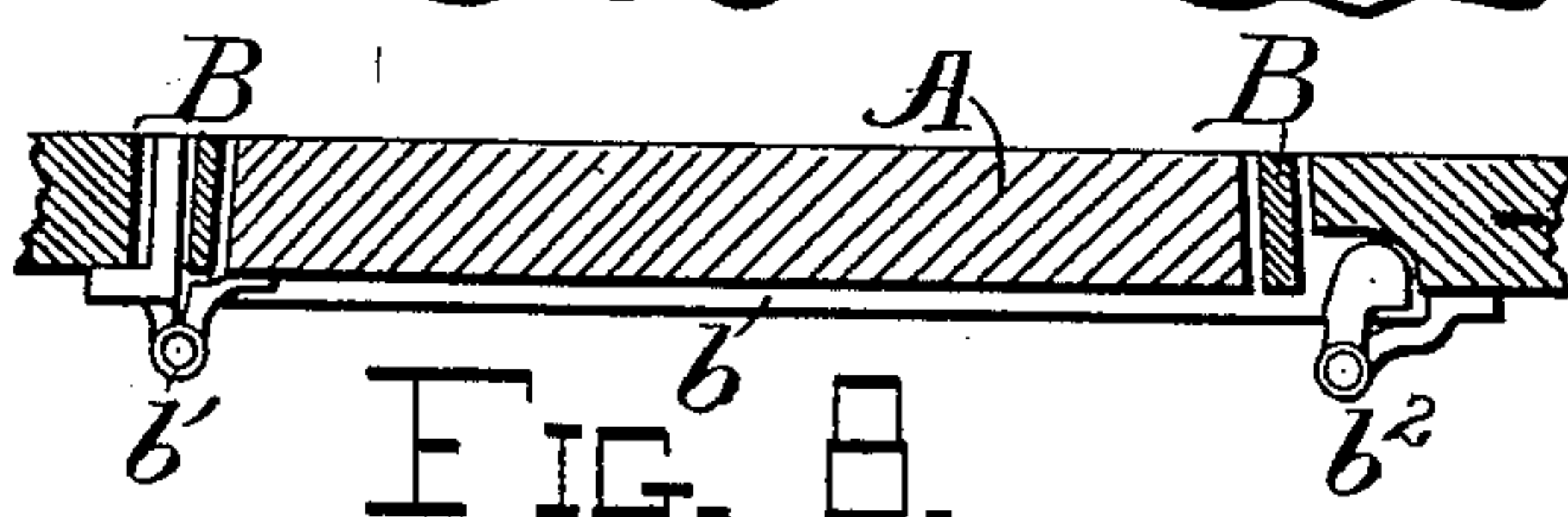
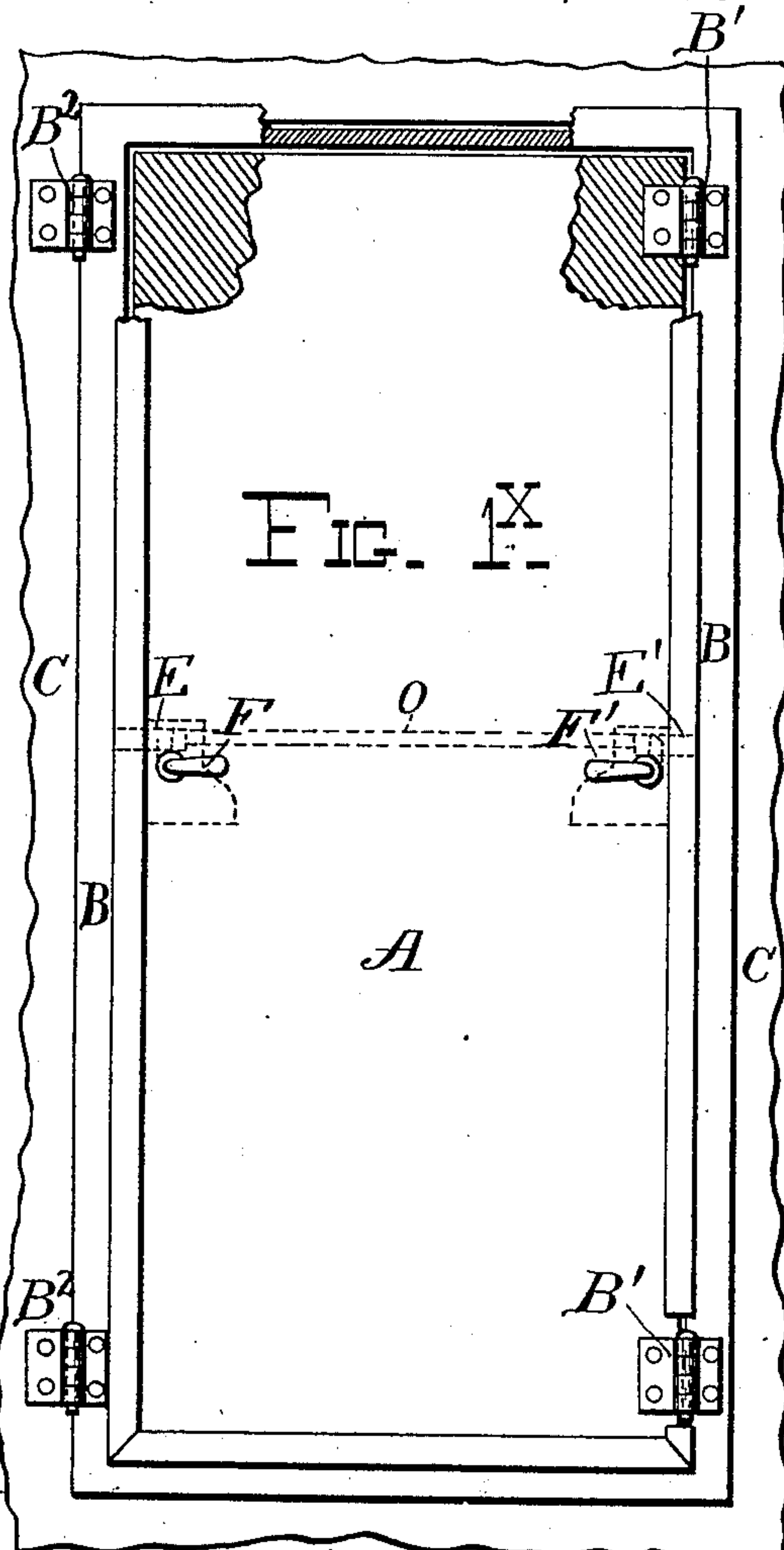
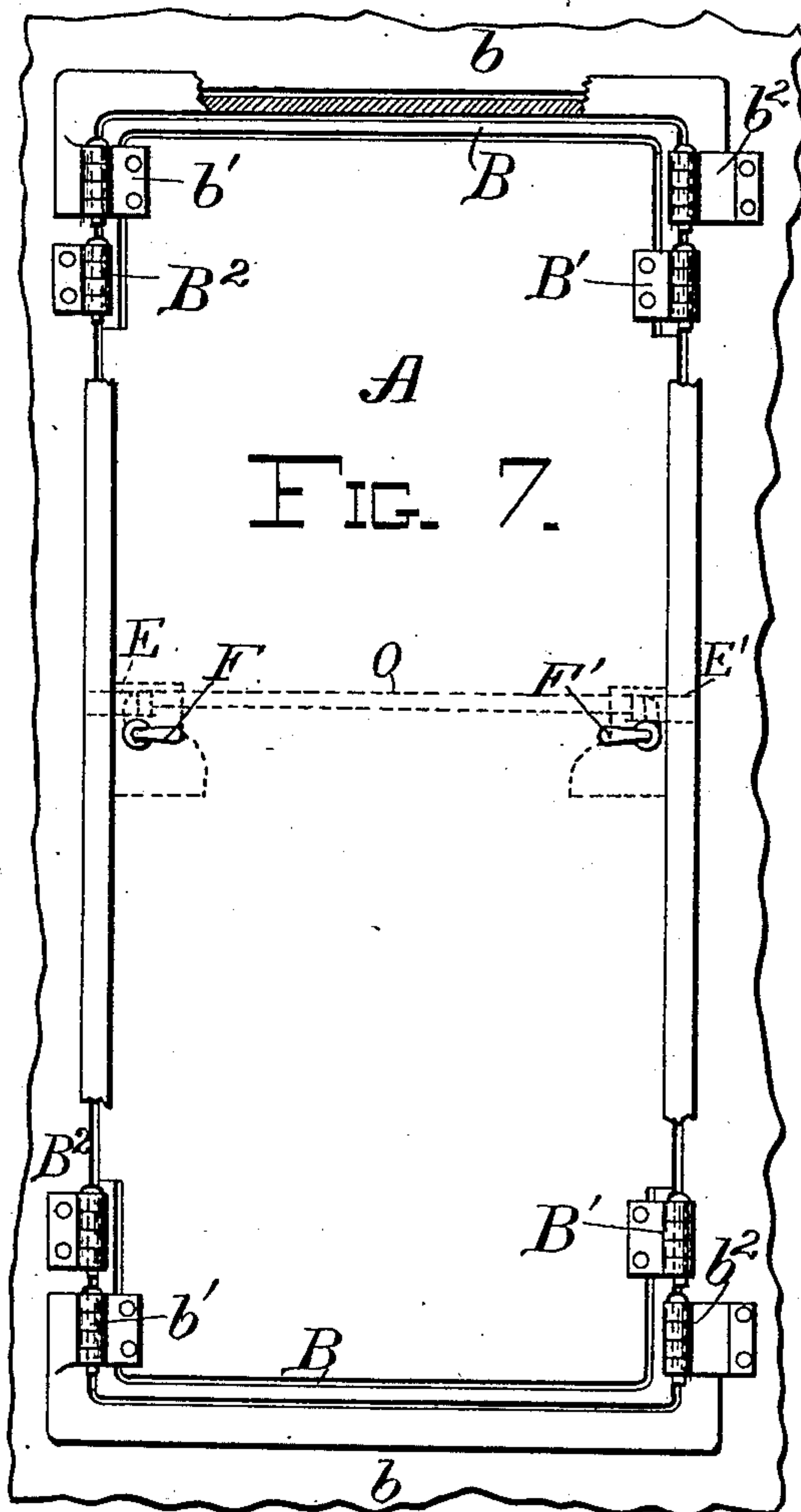
(No Model.)

4 Sheets—Sheet 3.

K. BELCSAK.  
DOOR.

No. 533,777.

Patented Feb. 5, 1895.



Witnesses

Percy C. Bowen.  
Maurice Sinussa.

Inventor  
Karl Belcsak,  
By Whitman & Wilkinson,  
Attorneys.

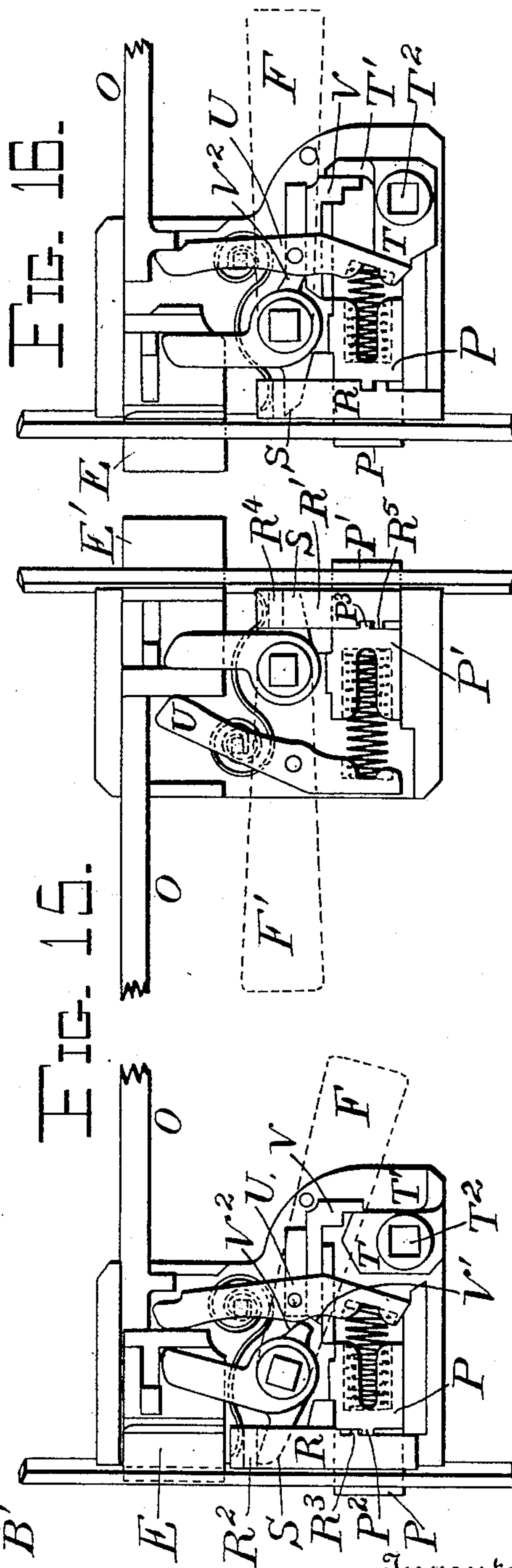
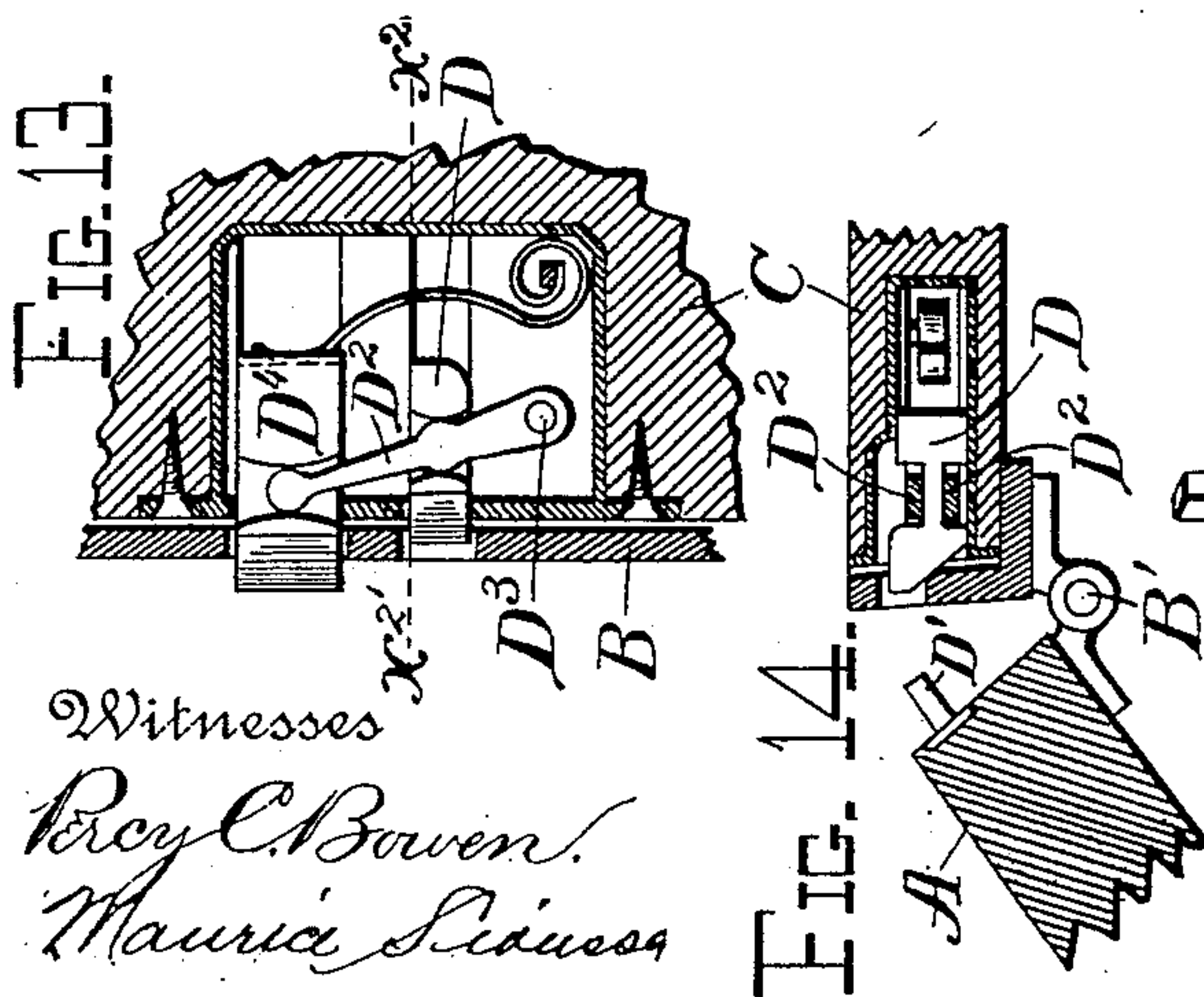
(No Model.)

K. BELCSAK.  
DOOR.

4 Sheets—Sheet 4.

No. 533,777.

Patented Feb. 5, 1895.



Inventor  
Karl Belcsak  
By Whitman & Wilkinson  
Attorneys.



# UNITED STATES PATENT OFFICE.

KARL BELCSAK, OF VIENNA, AUSTRIA-HUNGARY.

## DOOR.

SPECIFICATION forming part of Letters Patent No. 533,777, dated February 5, 1895.

Application filed September 6, 1894. Serial No. 522,264. (No model.) Patented in Switzerland November 17, 1893, No. 7,805, and in Austria-Hungary December 5, 1893, No. 4,840 and No. 52,861.

*To all whom it may concern:*

Be it known that I, KARL BELCSAK, a subject of the Emperor of Austria-Hungary, and a resident of the city of Vienna, in Austria-Hungary, have invented certain new and useful Improvements in Doors, (for which I have obtained patents in Austria-Hungary, No. 4,840 and No. 52,861, dated December 5, 1893, and in Switzerland, No. 7,805, dated November 17, 1893,) of which the following is a specification.

This invention relates to improvements in locking and latching devices for doors for railway cars, of that class which are arranged to open from either side, the object being to provide such a door with a lock which will lock one side when the opposite side is opened.

Figures 1 and 2 are a front elevation and horizontal section of one modification of the improved door opened at the right side. Figs. 1<sup>x</sup> and 2<sup>x</sup> are similar views showing the door closed. Figs. 3 and 4 are a front elevation and horizontal section of the same opened at the left side. Figs. 5 and 6 are similar views of the other modification of the improved door opened at the right side. Figs. 7 and 8 are similar views of the same the door being closed. Figs. 9 and 10 are similar views of the same the door being opened at the left side. Fig. 11 is a horizontal section on the line  $xx$  of Fig. 12 of the mechanism for locking the frame supporting the door proper, showing the same unlocked such mechanism being used in connection with the modification shown in Figs. 1 to 4. Fig. 12 is a vertical section of the same taken on the line  $x'x'$  of Fig. 11. Fig. 13 is a similar vertical section of the same when locked, and Fig. 14 is a horizontal section of the same on the line  $x^2x^2$  of Fig. 13. Fig. 15 is an elevation, with one side of the casing removed, of a lock for these doors. Fig. 16 is a similar view showing the lock on one side of the door in its locked position.

Referring to Figs. 1 to 4 A is the door proper hinged at one side to a frame B by hinges B' B'. This frame is hinged to the door post C by hinges B<sup>2</sup> B<sup>2</sup> opposite to the hinges B' B'. When it is desired to open the door at one side, the door proper A together with its supporting frame B is turned on the hinges B<sup>2</sup> B<sup>2</sup>, (Figs. 1 and 2.) When on the other hand it

is desired to open the door at the other side the door proper A is turned on the hinges B' B', (Figs. 3 and 4.)

Some mechanism must be provided to so lock the supporting frame as to prevent it from being turned on its hinges B<sup>2</sup> B<sup>2</sup> as long as the door proper A is open. Such mechanism is shown in Figs. 11 to 14. It consists of a bolt D arranged in a suitable recess in the door post C and connected by a lever D<sup>2</sup> pivoted in the said recess at D<sup>3</sup> to another spring actuated bolt D<sup>4</sup>. A projection D' secured to the door proper and adapted to pass through a suitable opening in the supporting frame B is exactly opposite the bolt D when the door proper is closed as shown in Figs. 11 and 12 so that in this position the said bolts D and D<sup>4</sup> are pushed back by the projection D' leaving the supporting frame B free to be turned on its hinges B<sup>2</sup> B<sup>2</sup> so that the door can be opened at the left side; but when the door proper is opened at the right hand side by turning it on its hinges B' B' the projection D' will recede from the bolt D thus permitting the bolt D<sup>4</sup> to be thrown forward by its spring locking the supporting frame B by entering a notch in it, and thereby preventing it from being opened as long as the door proper is open at its right hand side as shown in Figs. 13 and 14. By the arrangement of the lever D<sup>2</sup> connecting the bolts D and D<sup>4</sup> the movement of the latter is rendered quicker and its operation more reliable.

The bolt is beveled on one side in the usual manner so that it will be automatically pushed back on closing the door after it has been opened at the right hand side by turning it together with the supporting frame B on the hinges B<sup>2</sup> B<sup>2</sup> of the latter.

The above described door has to be provided with a lock with two bolts in order to prevent its being opened simultaneously at both sides which lock must be so arranged that when the bolt on one side is free to be actuated by the handle or key to open or close the door the other bolt is so locked in position that it cannot be actuated by the handle or key. To accomplish this I employ the form of lock shown in Figs. 15 and 16, described as follows: A straight rod O of predetermined length is arranged and horizon-



tally guided between the two bolts E E' so that when the bolt E is drawn back the rod O abuts against the bolt E' to prevent it from being drawn back, thus locking the door at the side of the bolt E' and vice versa. For each bolt a separate handle F or F' respectively is provided. Moreover in each lock casing there is provided an auxiliary horizontally sliding spring actuated bolt P P' having each a projection P<sup>2</sup> P<sup>3</sup> and a vertically sliding spring actuated arrester R R' with two projections R<sup>2</sup> R<sup>3</sup> R<sup>4</sup> R<sup>5</sup>. On depressing the handle F the bolt E' is locked by the rod O as stated and the vertically sliding arrester R corresponding to the handle F is raised by a cam S on the pivot pin of the said handle taking under the projection R<sup>2</sup> on the said arrester. When the door has been opened these auxiliary bolts P P' having no recesses in the door post or supporting frame to enter into will be thrown forward by their springs as they recede from the door post or supporting frame and will assume the positions shown on the right and left side of Fig. 15. Therefore the projection P<sup>2</sup> of the auxiliary bolt P will be under the projection R<sup>3</sup> of the arrester R because the latter has been raised by depressing the handle F. At the other side of the door the arrester R' has not been raised and therefore after the opening of the door the projection P<sup>3</sup> of the auxiliary bolt P' will be above the projection R<sup>5</sup> of the arrester R' thus preventing the same from being raised and the handle F' from being depressed, for opening the lock at this side of the door. In order to fully lock the door a cam T T' is provided on a square plug T<sup>2</sup> to be actuated by an ordinary key. When this plug is given a quarter of a turn, the cam T acting on one end of a lever U shifts the rod O see Fig. 16 so as to lock the bolt E' on the opposite side of the door. At the same time the cam T' pushes forward a slide V so that its shoulder V' enters under a shoulder V<sup>2</sup> on the pivot pin of the handle F thus preventing the latter from being depressed. Both locks are then fully locked.

By the construction of the locks hereinbefore described with reference to Figs. 15 and 16 still another important result is obtained. Suppose the door is opened by turning it together with the supporting frame B on the hinges B<sup>2</sup> B<sup>2</sup> of the latter, then the bolt E or E' retained stationary by the means set forth in the recess or slot provided for it in the supporting frame B will prevent the door proper A from being opened in the supporting frame by turning the said door on its hinges B' B'.

Instead of using a single supporting frame B as shown in Figs. 1 to 4 two such frames may be used the one inclosing the other, and the door proper being hinged at the one side to the one and at the other side to the other supporting frame while each of these supporting frames is hinged to the door post at the side opposite to that at which the door

proper is hinged to it. Such an arrangement is obviously substantially a duplication of that hereinbefore described with reference to Figs. 1 to 4. Nor is it necessary that the supporting frame or frames entirely surround the door proper, as the portions of the supporting frame or frames between the hinges may be dispensed with. Thus in Figs. 5 to 10 A is the door proper. B, b are the supporting frames of which the vertical portions between the hinges are dispensed with. The supporting frame B is hinged to the door post C at B<sup>2</sup>, B<sup>2</sup>. The other supporting frame b is hinged to the opposite door post C at b<sup>2</sup>, b<sup>2</sup>. The door proper A is hinged at B', B', to the supporting frame B the hinges B' B' being at the side opposite to that of the hinges B<sup>2</sup> B<sup>2</sup>, and is also hinged at b' b' to the supporting frame b the hinges b' b' being at the same side as the hinges B<sup>2</sup> B<sup>2</sup> and opposite the hinges b<sup>2</sup> b<sup>2</sup>. With this construction it will be obvious that the door when opened, will always turn with one of the supporting frames B or b the other supporting frame remaining stationary and preventing the door from being opened at the other side by turning it on its hinges on the first mentioned frame. Therefore the locking mechanism for the supporting frame described with reference to Figs. 11 to 14 can be dispensed with in this case.

I claim—

1. In combination with the door post, the supporting frame hinged thereto and the door proper hinged to the opposite side of such supporting frame a spring actuated bolt located in a recess in the door post and connected to a second bolt located in the same recess and by a lever, and a projection on the door proper adapted to automatically push back this second bolt on closing the door, but permitting it to advance and actuate the first bolt so as to push it into a recess in the supporting frame to lock the latter in position when the door proper is opened by turning it on its hinges on the said supporting frame substantially as described.

2. In combination with the door posts, a door proper and a supporting frame connected by hinges to the said door and door post, of a lock on each edge of the said door, each lock comprising a bolt to take into the adjacent door post and a handle to control said bolt; a horizontal rod, guided between the said bolts, of such length that when one bolt is drawn back the said rod will be pushed against the back of the other bolt, and hold the latter bolt in its locked position and means for locking both bolts at the same time, substantially as and for the purposes described.

3. In combination with the door posts a supporting frame hinged to one of the door posts, a door proper hinged to such supporting frame at the side opposite to that at which such frame is hinged to the door post, and a second supporting frame hinged to the other door post; the door proper being hinged to



such second supporting frame at the side opposite to that at which such second frame is hinged to its door post; of a lock on each edge of the said door, each lock comprising a bolt to take into the adjacent door post and a handle to control the said bolt; a horizontal rod, guided between the said bolts, of such length that when one bolt is drawn back the said rod will be pushed against the back of the other bolt and hold the latter bolt in its locked position and means for locking both bolts at the same time, substantially as and for the purpose described.

4. In combination with the door posts, a door proper and a supporting frame connected by hinges to the said door and door posts, of a lock on each edge of the said door, each lock comprising a bolt to take into the adjacent door post and a handle to control the said bolt; a horizontal rod, guided between the said bolts, of such length that when one bolt is drawn back the said rod will be pushed against the back of the other bolt, and hold the latter bolt in its locked position, a horizontally guided spring actuated auxiliary bolt and a vertically guided arrester in con-

nection with each of the locking bolts, such arresters being provided with two projections, one to engage with a cam on the pivot pin of the handle and the other with a projection on the auxiliary bolt, so that when the door is opened the auxiliary bolt at the hinge side of the door engages with the arrester thus preventing the same from being raised and hence locking the handle and bolt at the hinge side of the opened door, one of such locks being combined with a lever adapted to act on the said rod between the bolts, a key actuated cam acting on one end of such lever, a slide acted upon by some part of the said cam to bring a shoulder of said slide in the path of a second cam on the handle pivot to lock the latter in position when the door has to be entirely locked the said rod holding the other bolt in locking position, substantially as and for the purpose described.

In testimony whereof I have affixed my signature in presence of two witnesses.

KARL BELCSAK.

Witnesses:

JULIUS GOELLER,  
JOHANN LISSNER.