

(Model.)

2 Sheets—Sheet 1.

S. N. JOHNSON & A. M. DÉ SOUCHET.
OPERA CHAIR.

No. 255,868.

Patented Apr. 4, 1882.

Fig. 1.

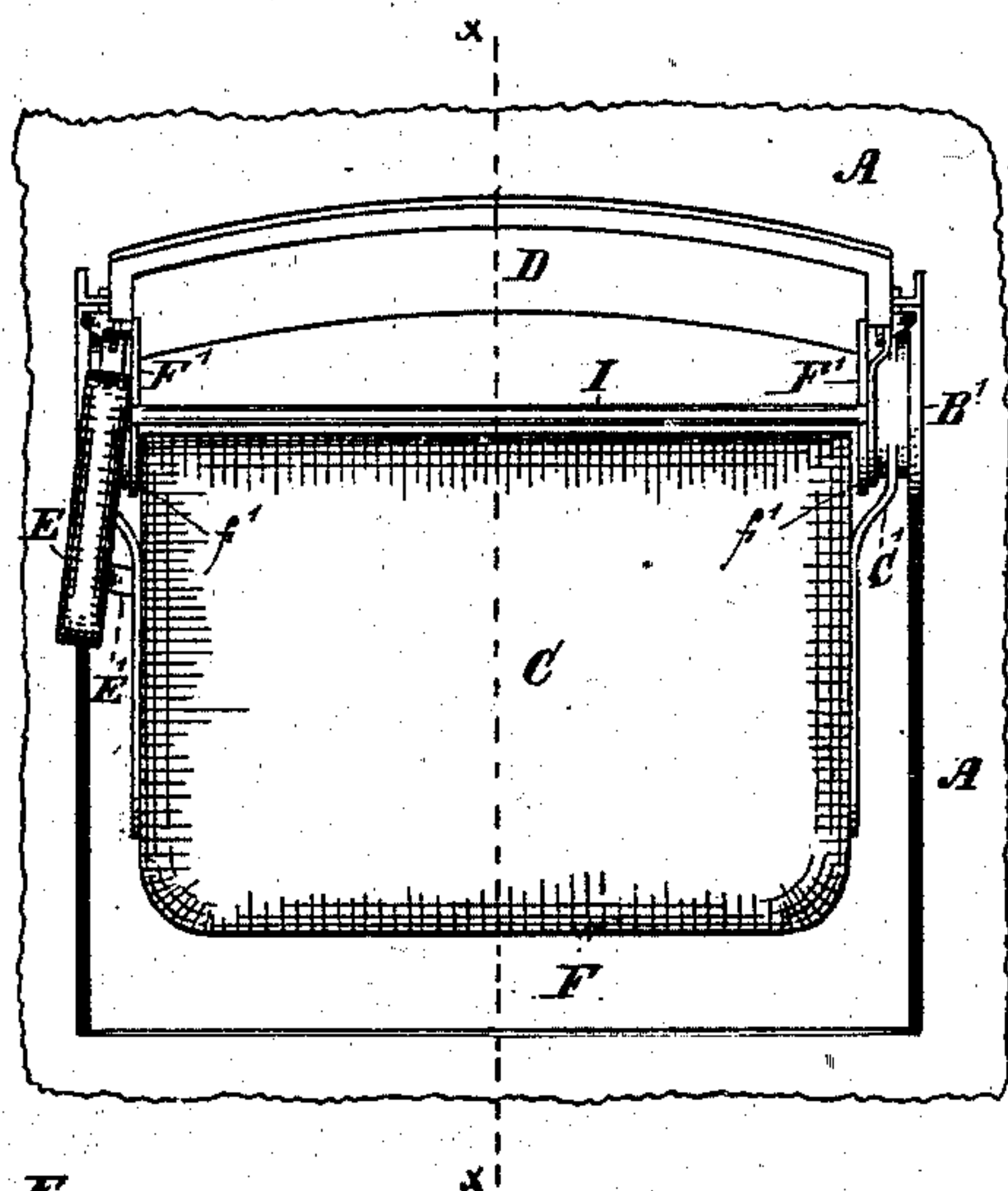


Fig. 2.

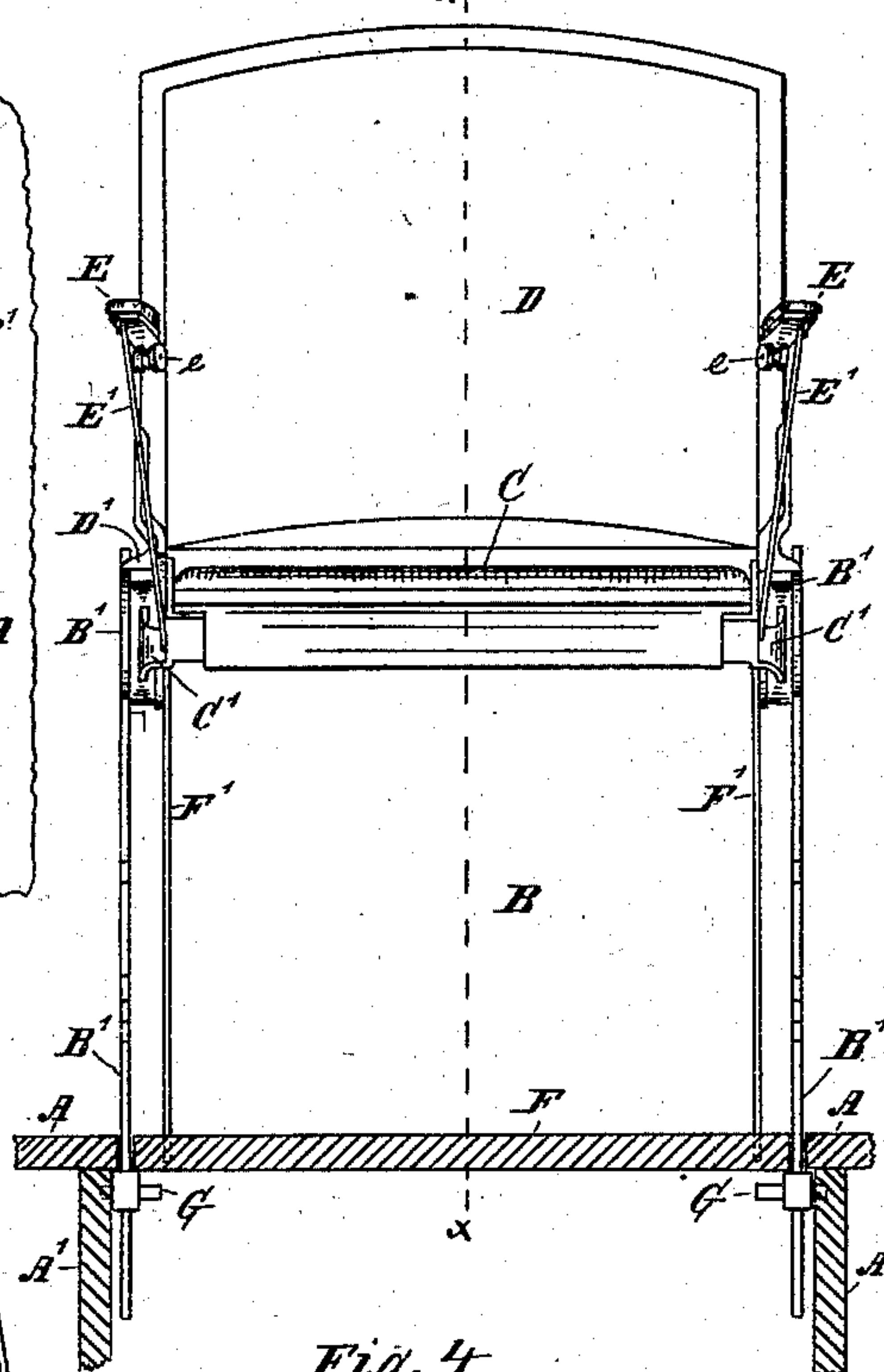


Fig. 3.

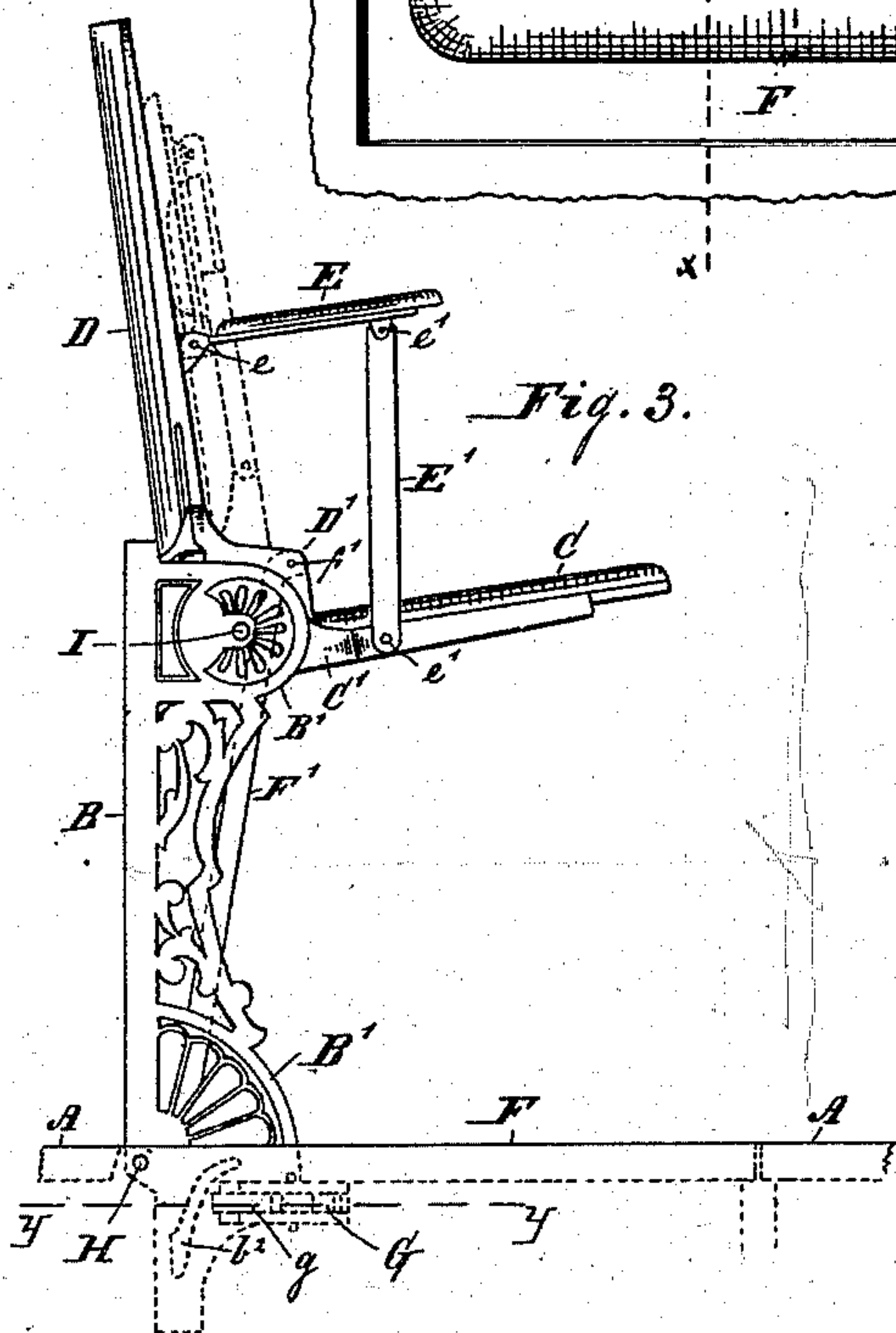


Fig. 4.

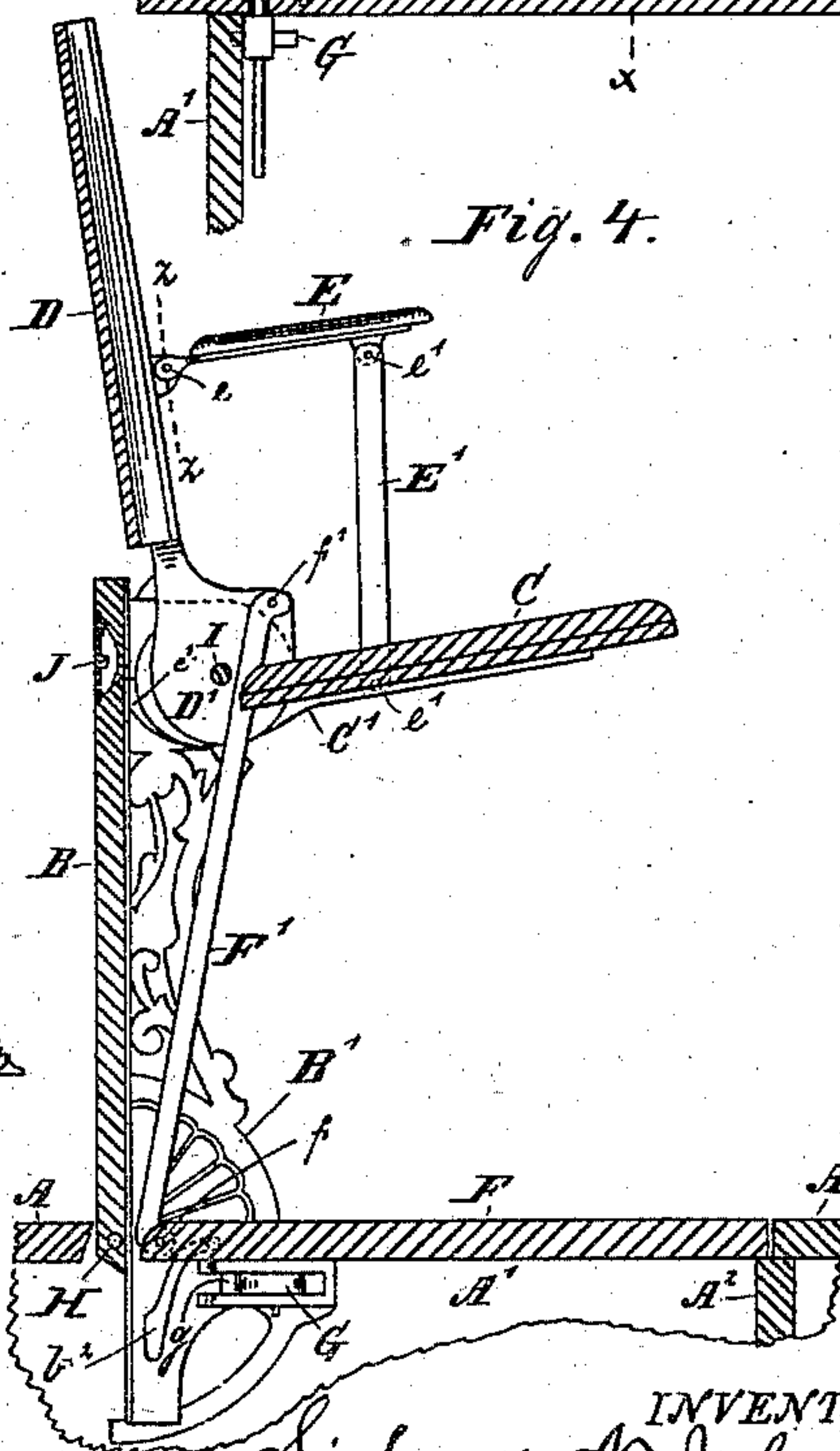
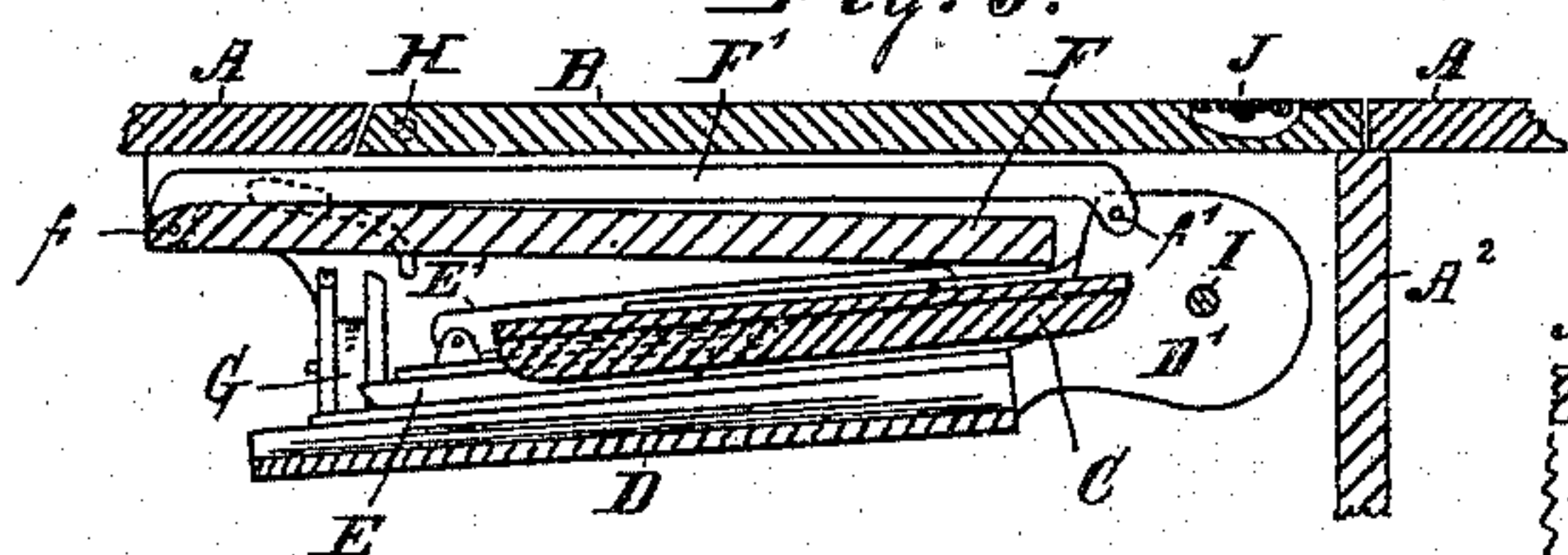


Fig. 5.



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Fig. 6.

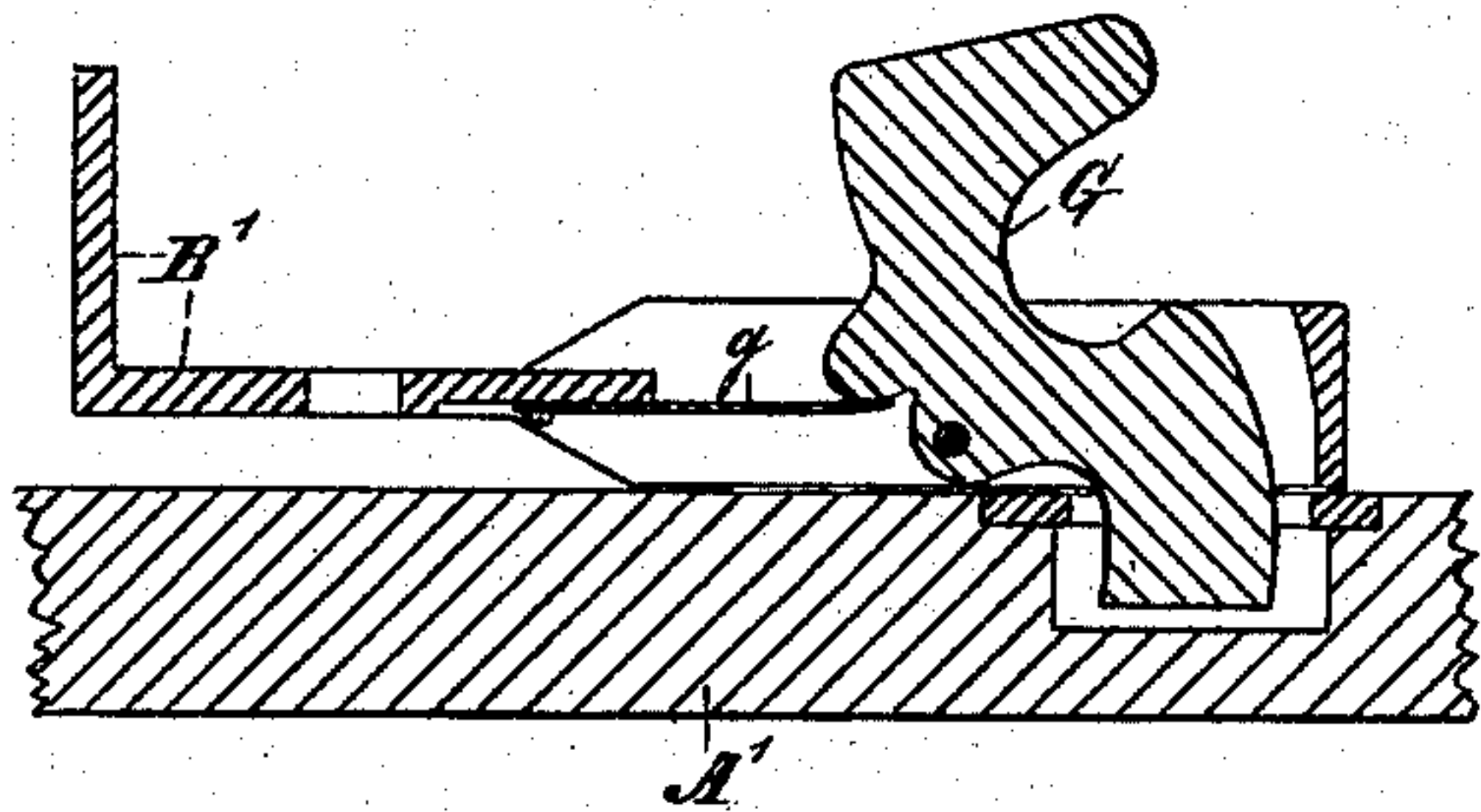


Fig. 7.

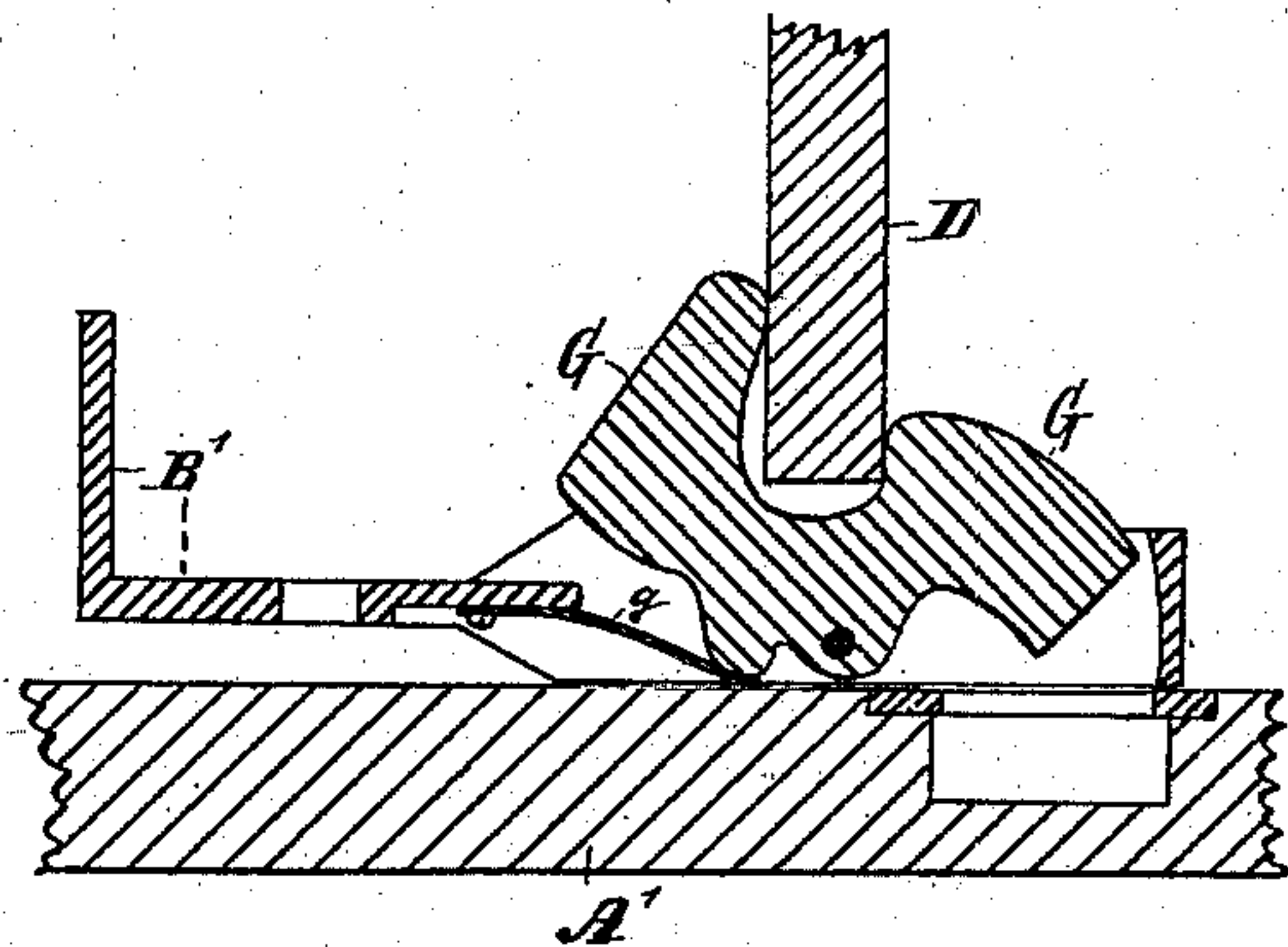


Fig. 8.

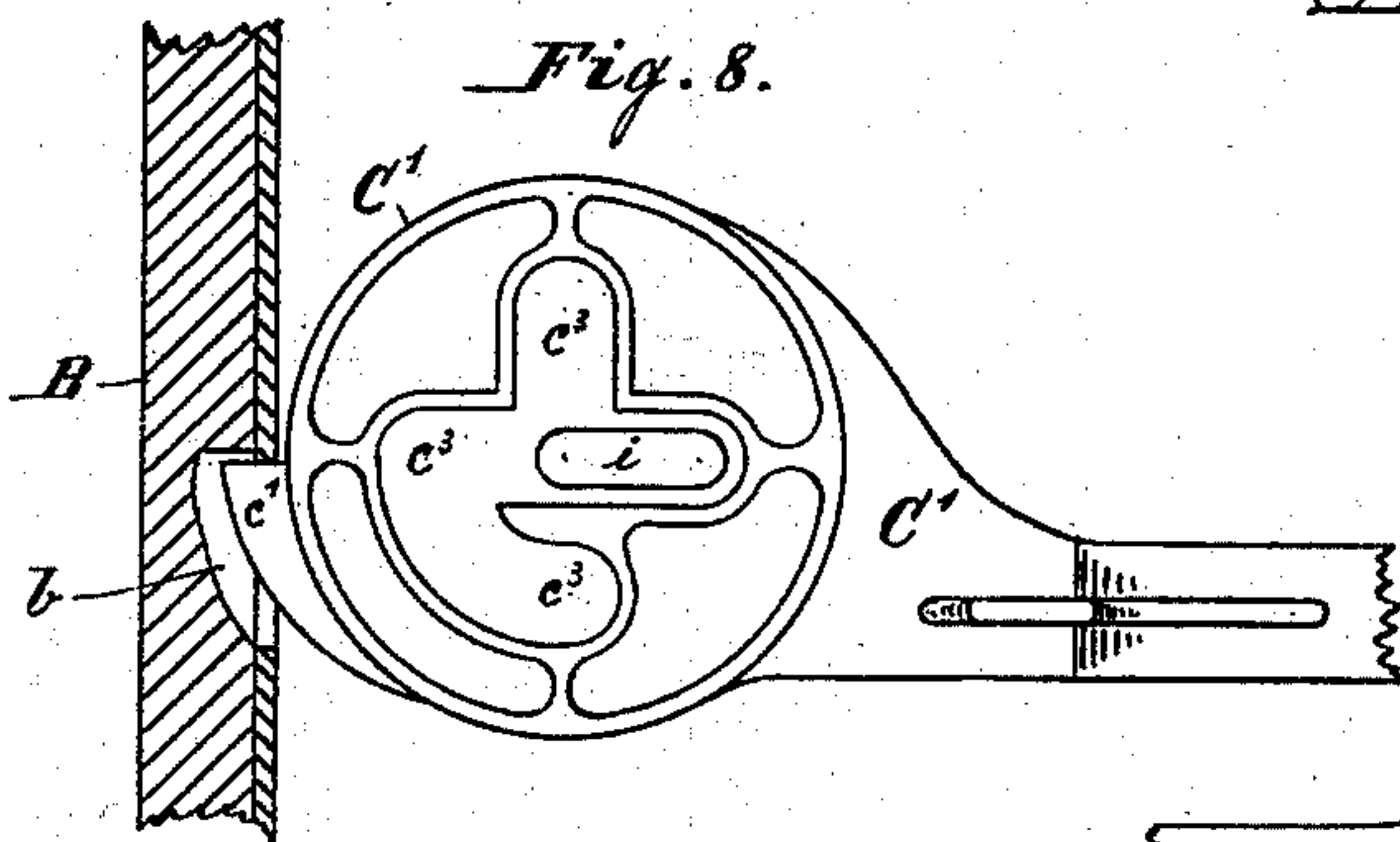


Fig. 10.

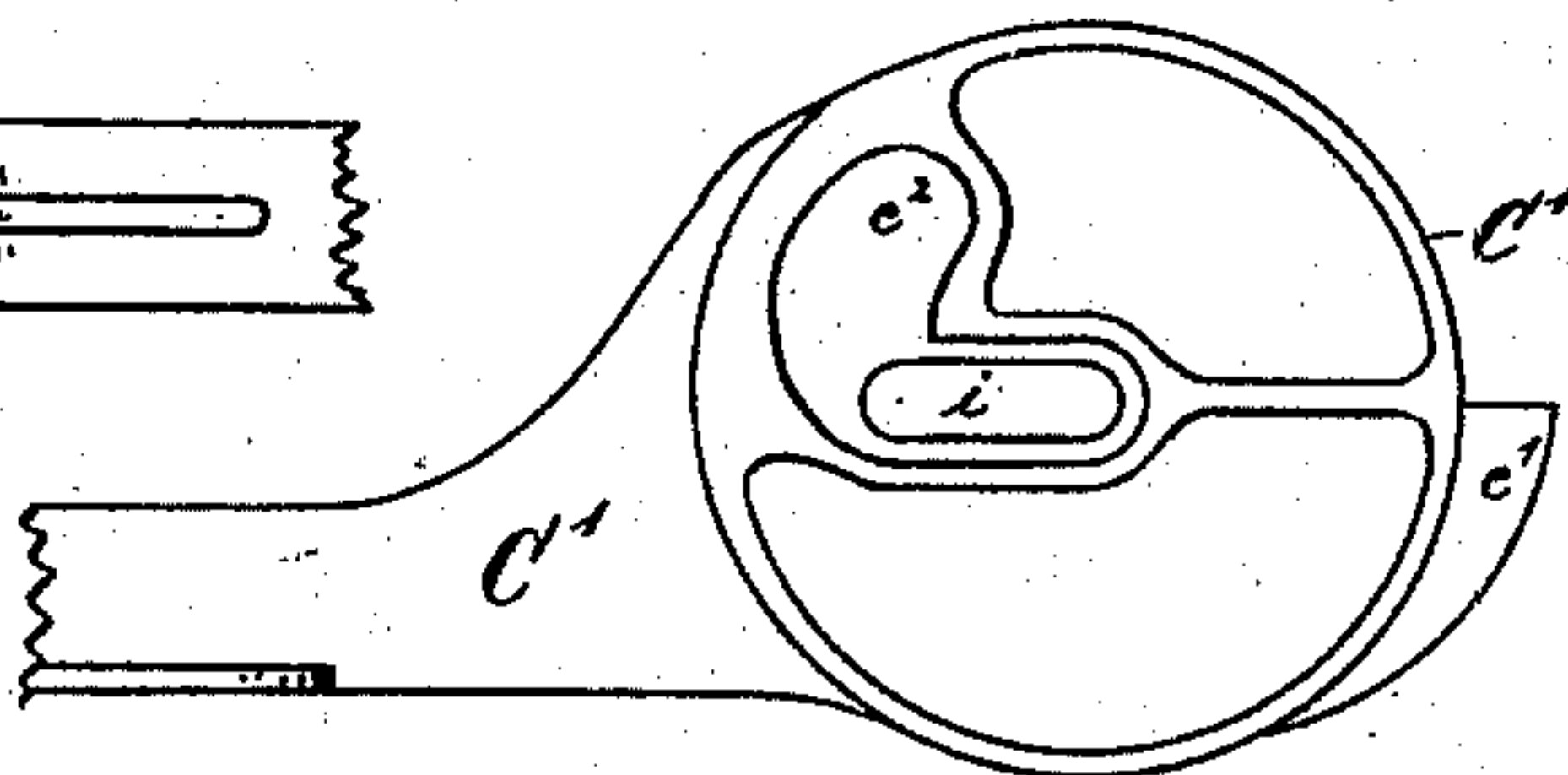


Fig. 9.

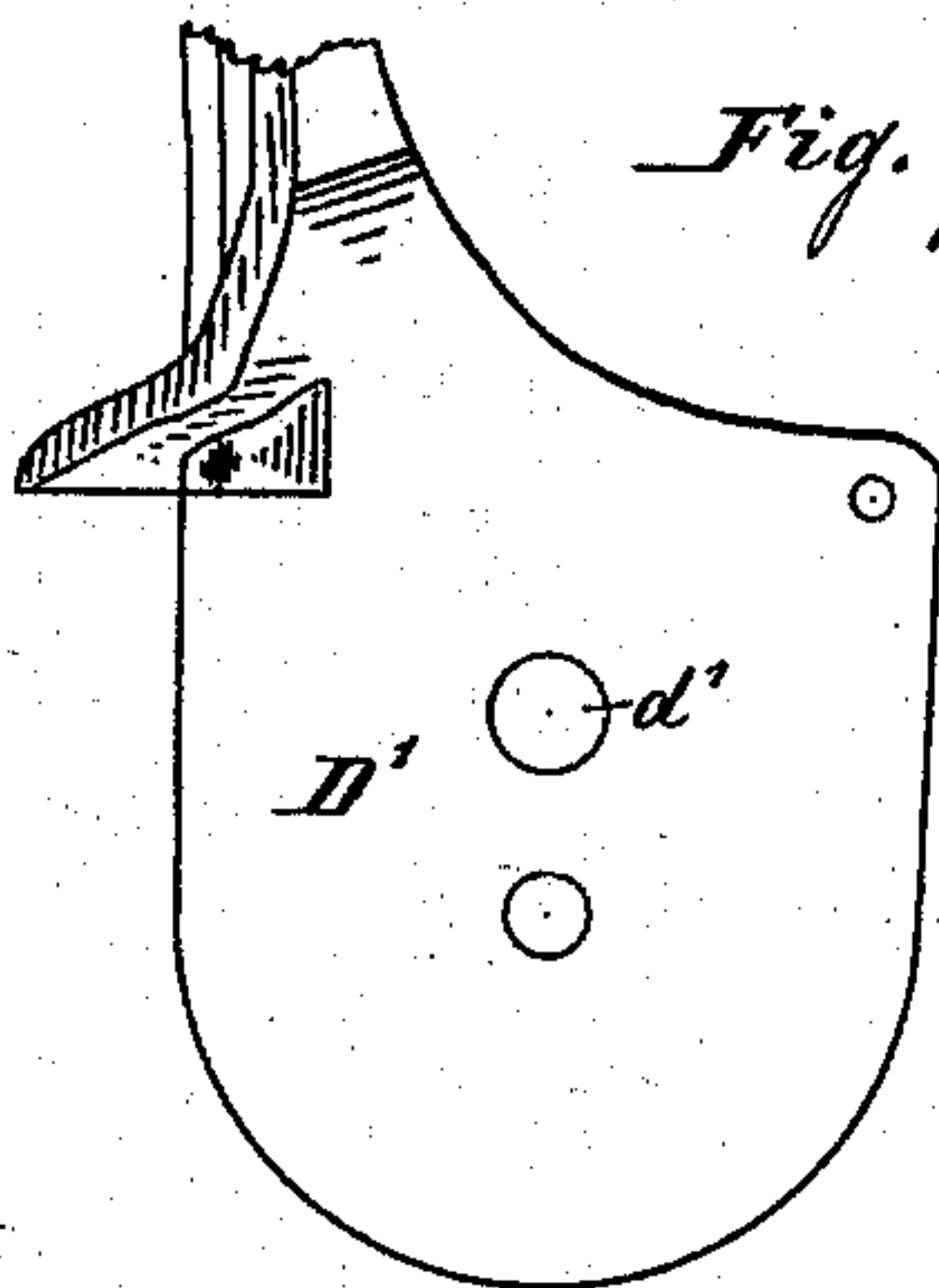


Fig. 11.

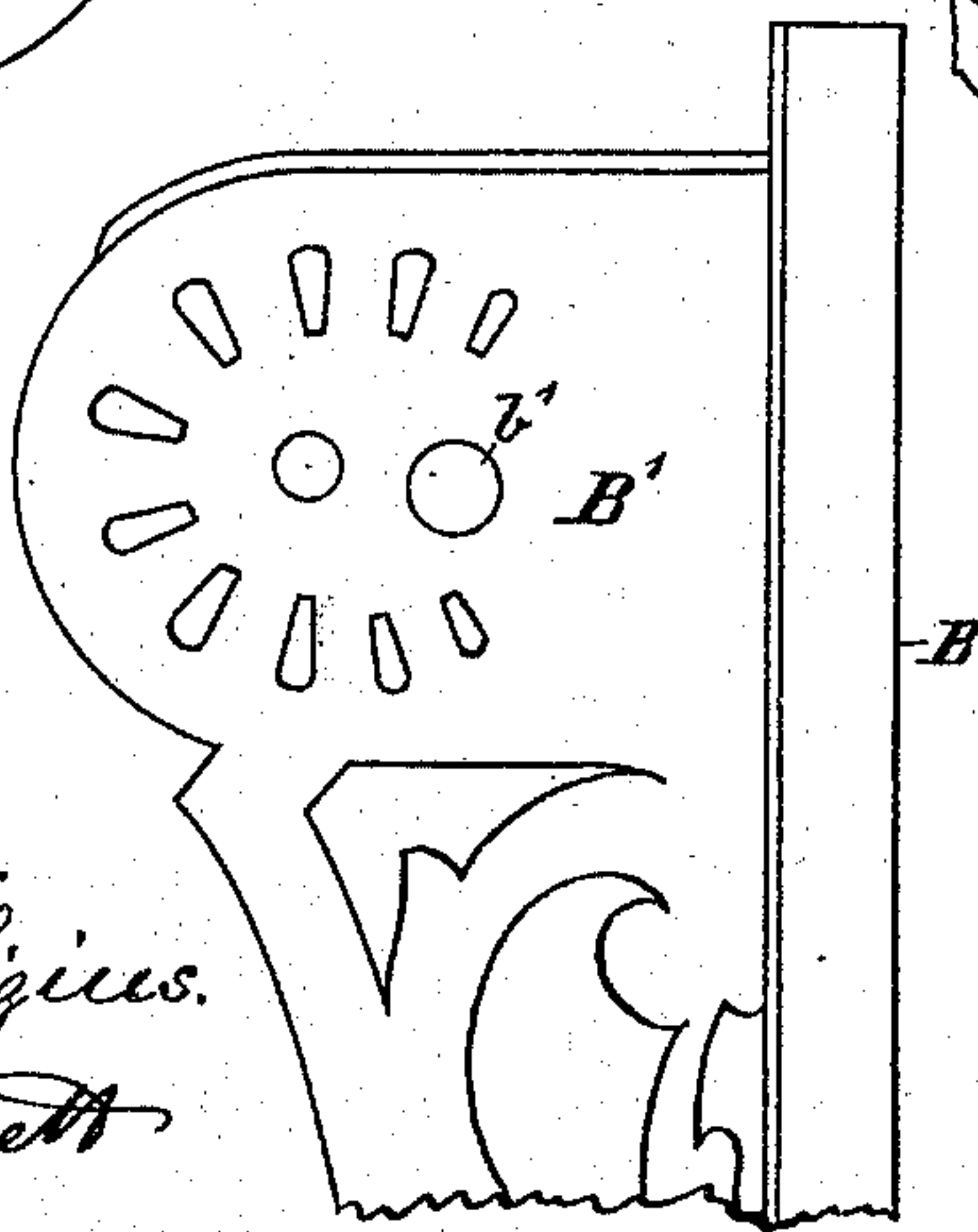


Fig. 12.

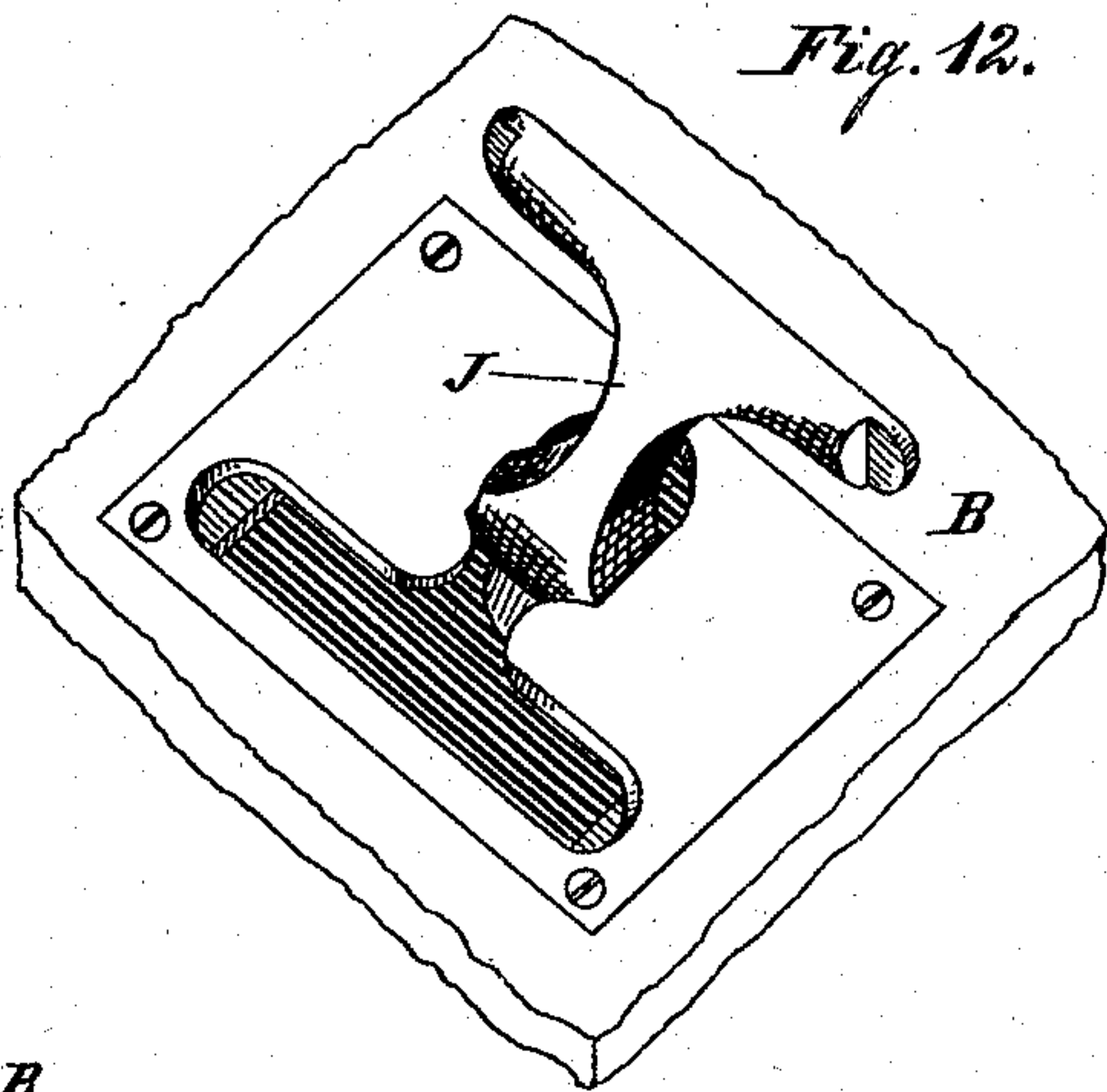
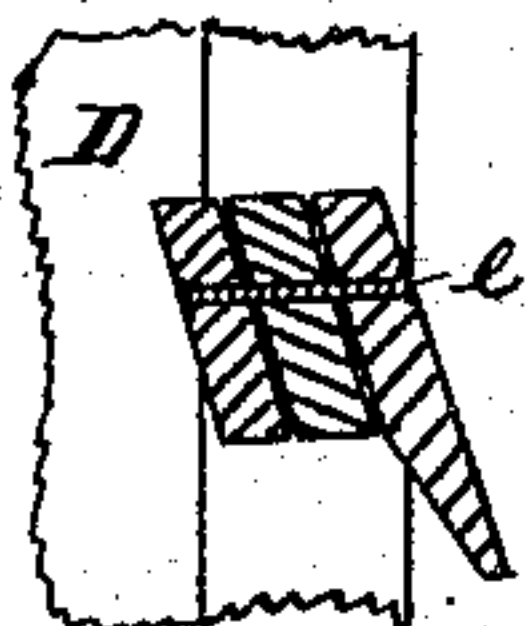


Fig. 13.



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UNITED STATES PATENT OFFICE.

SIDNEY N. JOHNSON AND AUGUSTUS M. DÉ SOUCHET, OF INDIANAPOLIS,
INDIANA, ASSIGNORS OF ONE-THIRD TO WILLIAM H. THOMAS, OF SAME
PLACE.

OPERA-CHAIR.

SPECIFICATION forming part of Letters Patent No. 255,868, dated April 4, 1882.

Application filed October 4, 1880. (Model.)

To all whom it may concern:

Be it known that we, SIDNEY N. JOHNSON and AUGUSTUS M. DÉ SOUCHET, of the city of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Opera-Chairs, of which the following is a specification.

The object of our said invention is to produce an opera-chair, or chair for theaters, public halls, churches, and the like, which may upon occasion fold down into the floor of the room and leave the latter unobstructed, to the end that persons may be enabled to freely pass out without being obliged to pass around or between the chairs in case of fire or other dangerous occurrence; and, further, to the end that the seats may be speedily and easily removed when it is desired to otherwise occupy the room.

Our said invention consists in the peculiar construction and arrangement of parts whereby that accuracy of movement and elegance of finish necessary to an opera-chair are produced in a chair having the above-described features, and in the combination therewith of various mechanical contrivances which increase its utility.

The several features of our invention, as well as the peculiar construction and arrangement of parts, will be hereinafter more particularly described.

Referring to the accompanying drawings, which are made a part hereof, Figure 1 is a top or plan view of a chair embodying our invention, when in position for use, one of the arms, however, being removed. Fig. 2 is a front elevation thereof. Fig. 3 is a side elevation, showing by means of dotted lines the seat and arms, both in position for use, and raised up to allow of a free passage in front of the chair, when it is arranged, as ordinarily, with another directly before it. Fig. 4 is a vertical section, looking to the right from the dotted line *x x*, when the chair is in position as above stated. Fig. 5 is a sectional view from the same line when the chair is folded down into the floor. Fig. 6 is a horizontal section, on the dotted line *y y*, of the locking mechanism when the chair is in position for use. Fig. 7 is a similar view to Fig. 6 when the chair is

in the position shown in Fig. 5. Fig. 8 is a side view of that portion of the hinge attached to the seat, as seen when looking in the same direction as in Fig. 3. Fig. 9 is a similar view of that portion of the hinge attached to the back, when looking in the same direction. Fig. 10 is a view of the opposite side of the part shown in Fig. 8. Fig. 11 is a view of the inside of that part of the hinge mechanism upon the upper or forward part of the portion B. Fig. 12 is a perspective view of the handle by which the device is raised up; and Fig. 13 is a detail section, on the dotted line *z z*, of the joint by which the arms are hinged to the back.

In said drawings, the portions marked A represent parts of the ordinary floor of the building; B, a section of boarding which serves as a support for the seat when the latter is in position for use and as a portion of the floor when the seat is folded down; C, the seat; D, the back to the seat; E E, arms; F, a portion which serves as a section of floor to fill the orifice which would otherwise exist therein, beneath the seat, when the chair is in position for use; G G, locks for securing the seat from falling when in position for use, and for securing the several parts together when folded down; H, pivots or a pivot-shaft on which the whole device is mounted and moves; I, a shaft passing through the hinge portions of the part B, the seat, and the back thereto, where said parts come together, and upon which said parts move as they are folded up or unfolded in closing or opening the chair; and J, a handle in the back of the portion B, by which the device is raised into upright position.

The floor A is sustained by floor-beams and cross-timbers A' A², and is provided with bearings for the pivots or rod H. The orifice therein is of such size as will surround the part B closely when the chair is folded down into it.

The part B is a section of boarding stoutly secured together, having metal side pieces B' B', and mounted on the pivots or pivot-rod H, which projects far enough to rest securely in the bearings in the floor A. This part B serves as the sustaining portion of the seat when the latter is in use and as a portion of the floor when the seat is folded down.

The seat C is constructed in the usual form,

has metal side pieces C' C' , which project rearwardly therefrom, and through the rear ends of which passes the rod I , which is sustained by bearings in the upper ends of the metal side pieces B' B' .

The back D is provided with metal side pieces D' D' , through which the pivot-rod I also passes. A projecting portion of each of said side pieces rests upon the top of the parts B' B' , and thus stops its backward movement at the right point.

The arms E are attached to the sides of the chair by means of hinges e e upon the back and pivoted connections E' E' with the seat. The latter are preferably simple strips of sheet metal, thin enough to be somewhat flexible. The hinges e , of which the inner ends of the arms form a part, are of an ordinary form, except that they are set at such an angle with the back and with the general direction of the arms proper that the arms are thereby caused to diverge from each other when they are in position for use and to approach a parallel position when folded up against the back.

The portion F serves as a section of floor to fill the orifice which would otherwise exist therein beneath the seat when the chair is in position for use. Its rear or lower end is provided with pins or studs which move in the slots b^2 in the part B' . It is connected to the back C by rods F' , the pivots f f' serving as connection-points, as is shown most plainly in Fig. 4. The slots b^2 and the pins which move therein are provided simply as a guide for the temporary floor-section F in its movement, and are not absolutely essential to the operation of the parts, though the manipulation thereof would be slightly more troublesome without them.

The lock G is attached to the part B' on the part B at a point just below the floor when the latter is in upright position, as is shown most plainly in Fig. 4. A notch is provided in the timber A' immediately opposite the lock when in this position, as is shown most plainly in Fig. 6, into which the end of the lock enters, whereby the part B is secured from falling until the lock is displaced. The lock is held in engagement with the notch by the spring g . When the back is folded down it comes into contact with the projection on the lock and forces it around on its pivot out of engagement with the notch and allows the seat-structure to fall down into the opening in the floor. In this operation another projection comes into relation with the back, bringing it between the two projections and securely holding it in place, as is best shown in Fig. 7.

The rod H passes through the lower end of the part B and rests in bearings in the floor A . The whole seat-structure is mainly supported by this rod and moves upon it when being raised from or lowered into the opening in the floor.

The rod I passes through the parts B' B' C' C' D' D' respectively, and thereby secures the

part B , the seat C , and the back D together, and serves as the pivot upon which they move in changing their position relatively to each other.

Each of the parts B' at its upper end has a hole therein which serves as a bearing for the rod I and sustains said rod, and through it the seat and back of the chair. It also has a stud, b' , on its inner face, which engages with the slot c^3 .

Referring now to Fig. 8 when all the parts are in position for use, (see Figs. 1, 2, 3, and 4,) the rod I is at the extreme right of the slot i and the stud b' occupies a central position. When the seat is folded up to allow people to pass, as shown by the dotted lines in Fig. 3, the shaft I occupies a central position and the stud b' the upper extremity of the groove c^3 . When the parts are all folded together, as shown in Fig. 5, the rod I occupies a central position and the stud b' a position in the lower or curved part of the groove c^3 . The portion of the slot c^3 which is to the left of the center is not occupied by the stud b' when the chair is in any position in which it is necessary that it shall remain, but only as the seat and back are brought to a level before the back is raised to an upright position, and when it is thrown forward, preparatory to folding the entire structure into the floor.

Each of the parts C' is provided with the slot i to receive the rod I , the groove c^3 upon the outer side to receive the stud b' , and upon the inner side with the groove c^2 to receive the stud d' . Together they support the seat C . They are also provided with the projections c' , which engage with the notches b and assist to hold the seat rigidly in place when in position for use.

Each of the parts D' has a hole through which the rod I passes, whereby said rod is enabled to hold it in place. It is also provided with a stud, d' , which engages with the slot c^2 in the part C' .

Referring now to Fig. 10 when all the parts are in position for use, (see Figs. 1, 2, 3, and 4,) the rod I occupies that portion of the slot i nearest the left-hand of the figure, and the stud d' occupies the upper portion of the groove c^2 . When the parts are folded either half or wholly down, or the seat is folded up against the back, the rod I occupies a central position, and the stud d' occupies the position in the slot which is occupied by the rod I when the parts are in the position just described. After the seat and back have reached the position which the seat alone usually occupies in the operation of unfolding the chair the stud d' operates during the further movement of the back in reaching its proper position to force the part C' back, so that the projection c' shall engage with the notch b , and thus reaches the position in the groove c^2 first above stated in this paragraph.

As will be readily understood, some of the above details may be varied and some others

may be dispensed with without departing essentially from our invention. The design has been in this specification to so describe and illustrate every detail that it could be copied exactly; but we do not intend thereby to limit ourselves closely to them.

The operation of our said invention is as follows: The section B is first raised to an upright position. The back D is then raised to an upright position above the part B, and during its progress operates to bring all the parts into position for use. When the part B is raised it brings with it into upright position the other parts, they being held in the same relative positions shown in Fig. 5 by the locks G until the part B reaches the limit of its movement, said locks being meanwhile in the position shown by Fig. 7. When the back D is raised it operates to unfasten the locks so far as they operate to hold the parts in folded position, and causes them to lock the part B in upright position instead by throwing their ends into notches in the beams A', or in plates thereon, as shown in Figs. 2 and 6. As the back D rises, it also, by means of the pin d' and the groove c^2 in the part C', operates to raise the seat C to a horizontal position, and to throw it back so that the rear ends, e' , of the parts C' shall engage with a notch, b , in the part B or an equivalent device, and thus hold the seat securely against falling. The exact movement of the seat is determined, or rather the pin d' is enabled to accomplish this result in an exact manner, by the control which is exercised over said seat by the pin b' on the part B', which engages with the groove c^3 in the part C' on the opposite side thereof from the groove c^2 .

The closing or folding down of this chair is accomplished by simply pushing the back forward, when all the parts operate in the reverse manner to that just described.

The arms E are attached to the sides of our chair by means of the hinges e upon the back and pivoted connections E' with the seat. The latter are preferably simply strips of sheet metal, thin enough to be somewhat flexible. The hinges e are of an ordinary form, except that they are set at such an angle with the back that the arms shall spread out from each other when they are in position for use, and shall approach a parallel position when folded up.

The locks G are operated to remain securely in locked position, when the chair is in position for use, by the springs g .

The handle J is of a peculiar formation. Its outward portion is flat, so as to be level with the floor when at rest, and is provided with a point which projects rearwardly beyond the pivot, which point can be pressed down, and the forward or handle part thus raised.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an opera-chair having folding arms, the combination, with the said arms and the back of the chair, of joints or hinges e , the contact portions of which are constructed at an angle, as shown, whereby said arms are caused to spread apart from each other when in position for use, but by which they are brought into substantially parallel relation when folded up, substantially as set forth.

2. The combination of the seat C, back D, arms E, hinges e , and rods or strips E', all constructed, arranged, and operating substantially as and for the purposes set forth.

3. The combination of the part B, having part B', provided with the projecting stud b' , the seat C, having part C', having groove c^2 on its inner face and groove c^3 on its outer face, and the back D, having part D', provided with the stud d' , said several parts B' C' D' being connected by a common pivot or rod, substantially as set forth.

4. The combination, substantially as described, of a folding chair, the floor having an opening into which the chair is adapted to fold, and on the edges of which the chair-standard is pivoted, an independent floor-section, and the rods F' F', connecting said floor-section with the folding chair, whereby said section, which fills the opening when the chair is in use, is folded up by the folding of the chair to permit the chair to drop into the opening, substantially as set forth.

5. The combination of the temporary floor-section F, the rods F' F', the folding back D, and the standard B, all substantially as and for the purposes set forth.

6. The combination, with the main portion B of a folding opera-chair which moves on pivots H, of locks G, which are operated by means, substantially as described, to move side-wise at the proper point and engage with the adjacent floor or frame-work, thereby securing said portion of the chair in upright position, substantially as set forth.

7. The combination, with a folding opera-chair adapted to be folded into an opening in the floor, of locks G, attached to the sustaining portion of said chair, as shown, and provided with projections with which the folding back shall come in contact as it is folded or unfolded, and thereby force said lock out of or into engagement with the notch in the side of the floor-opening provided to receive it, substantially as and for the purposes set forth.

In witness whereof we have hereunto set our hands and seals at Indianapolis, Indiana, this 1st day of October, A. D. 1880.

SIDNEY N. JOHNSON. [L. S.]
AUGUSTUS M. DÉ SOUCHET. [L. S.]

In presence of—

C. BRADFORD,
W. H. THOMAS.