

No. 620,758.

Patented Mar. 7, 1899.

R. H. ELLIOTT.
RAILWAY CROSSING.

(Application filed Nov. 21, 1898.)

(No Model.)

3 Sheets—Sheet 1.

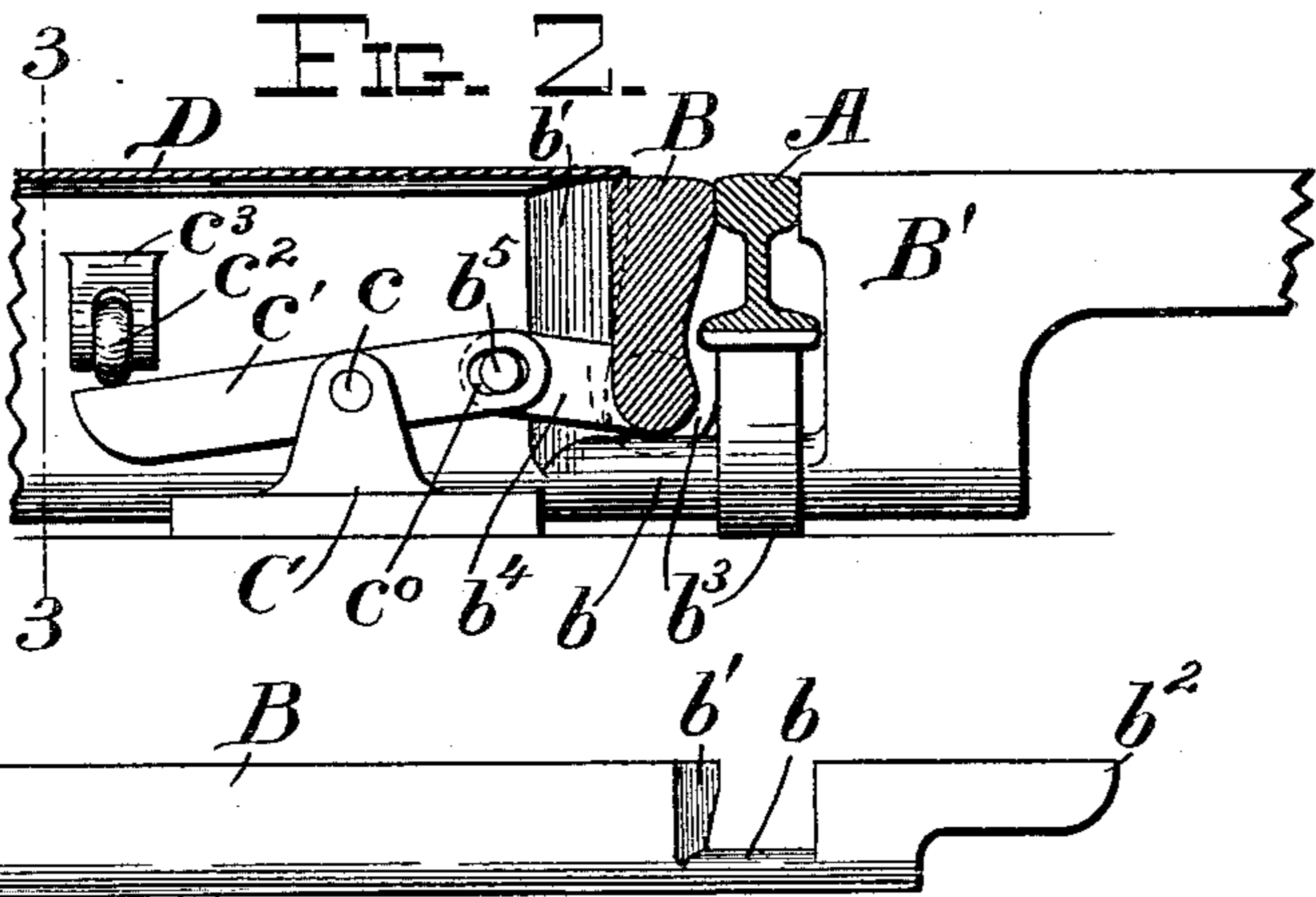
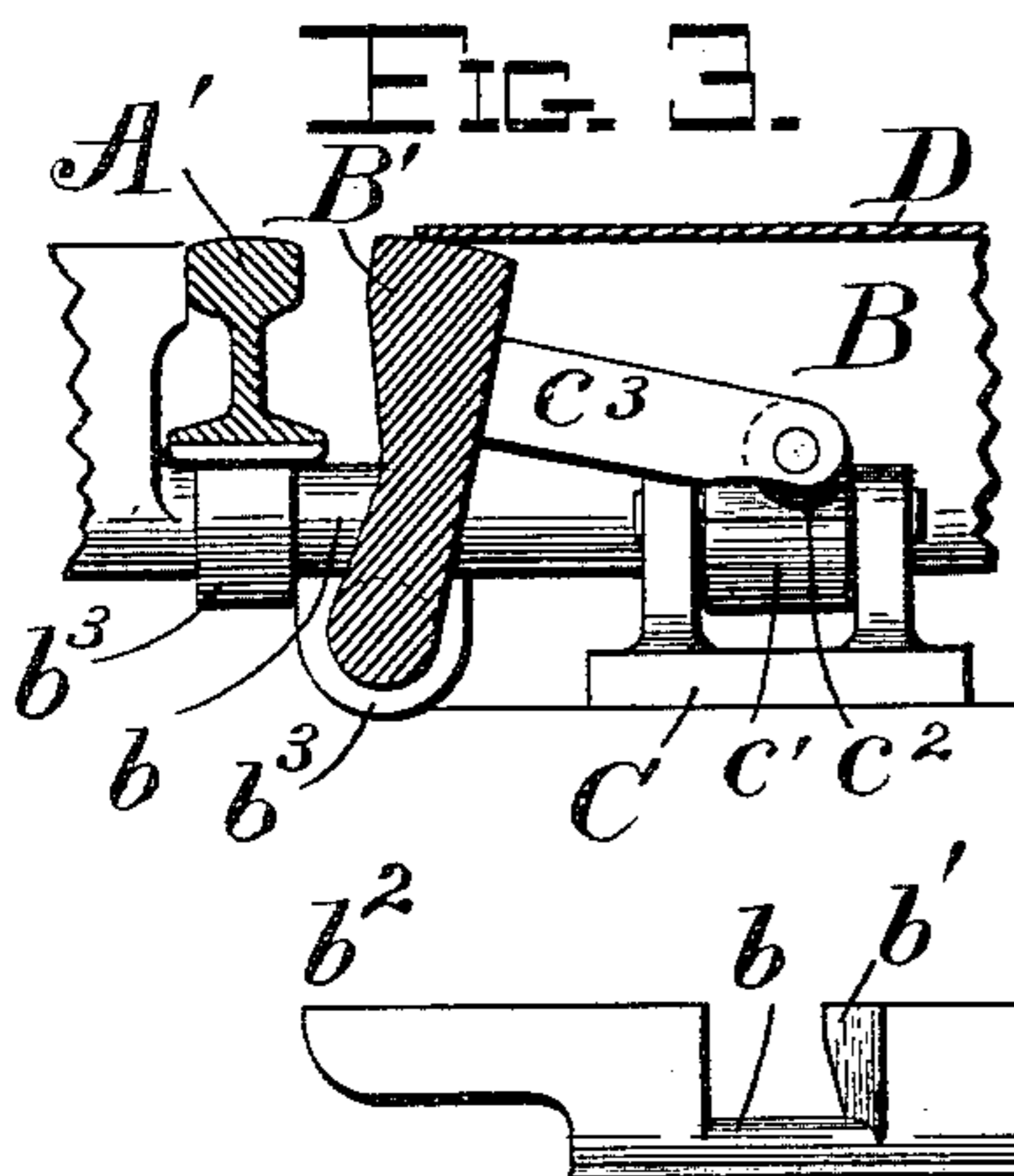
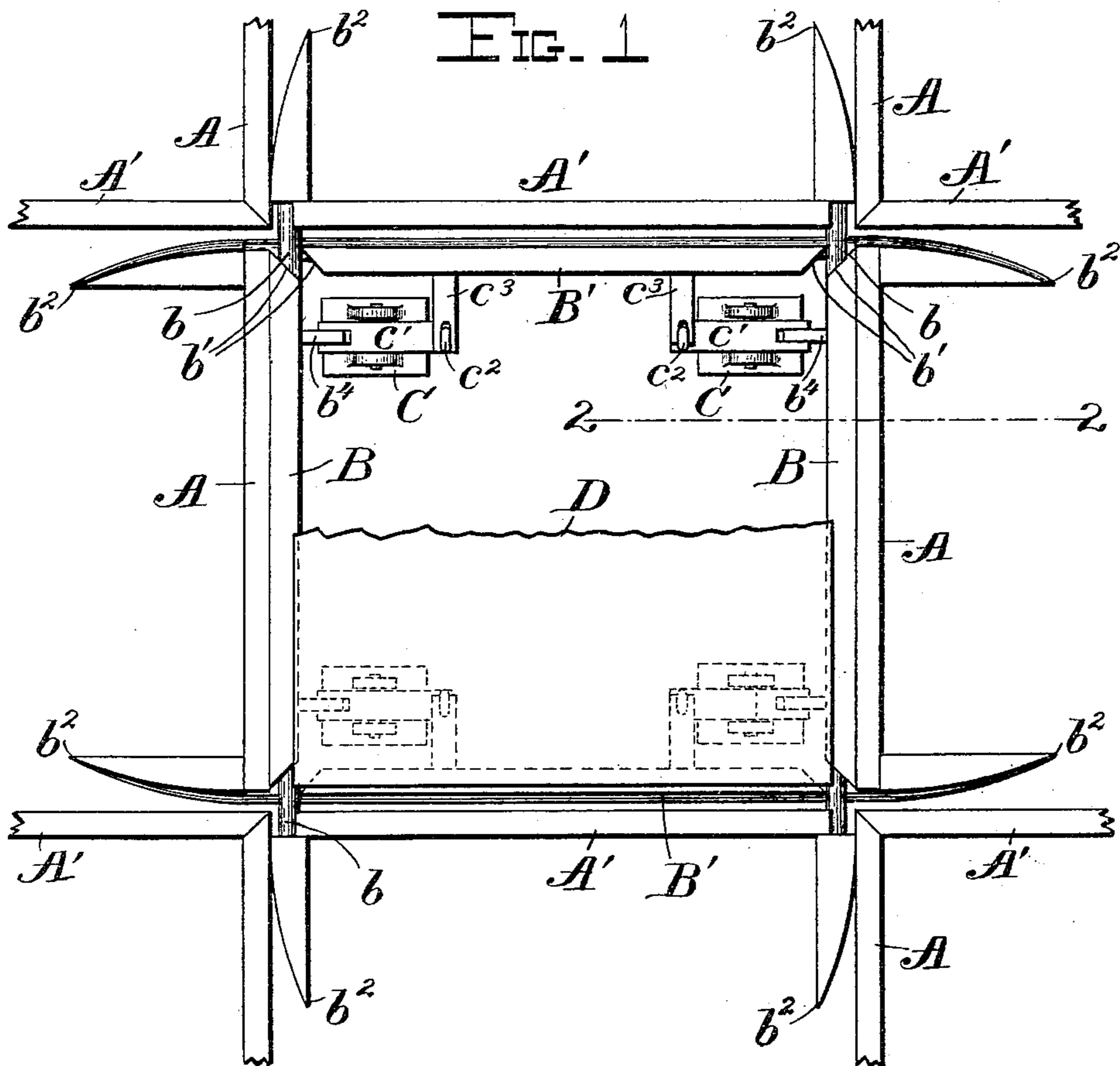


FIG. 4

Witnesses

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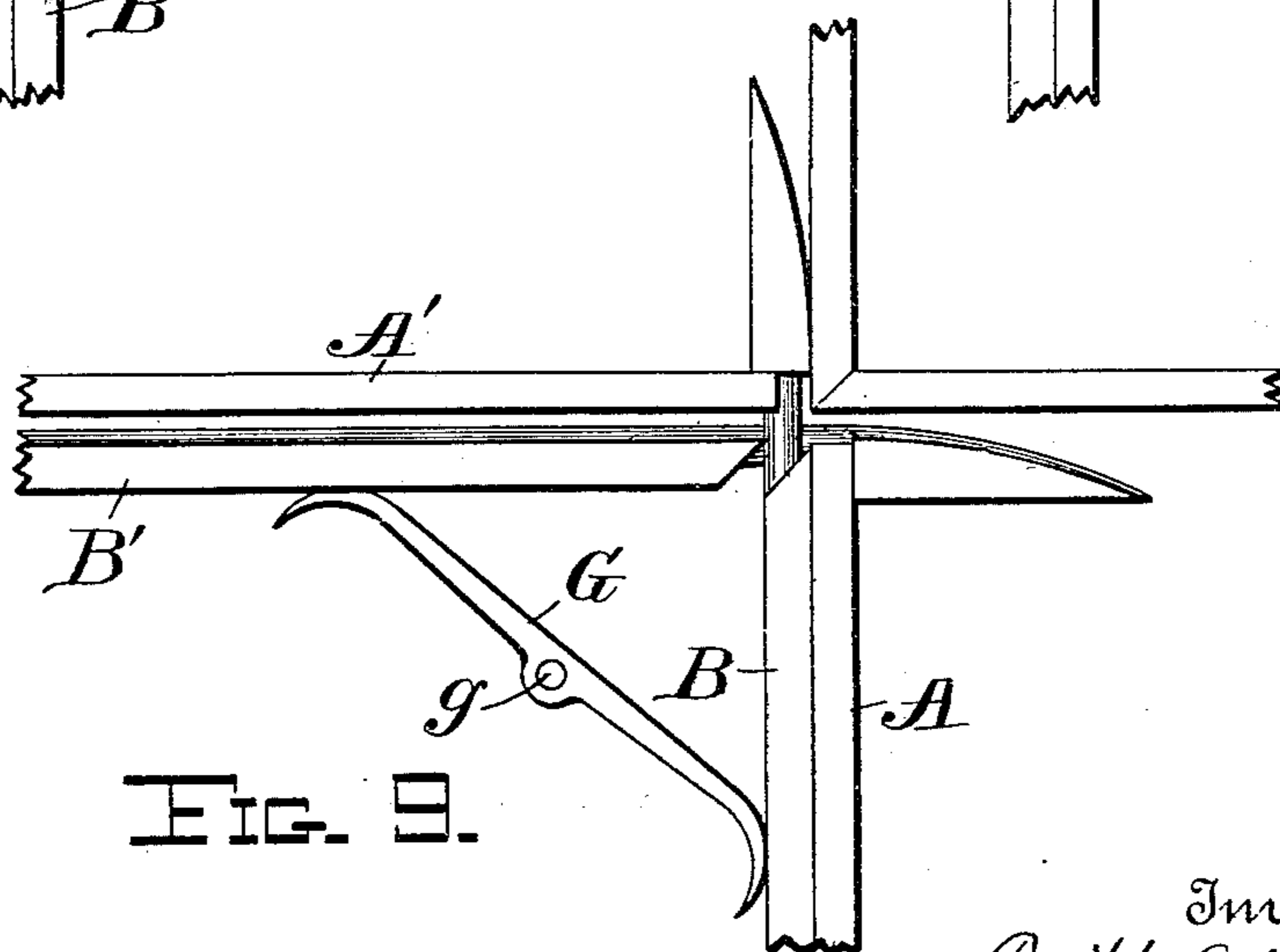
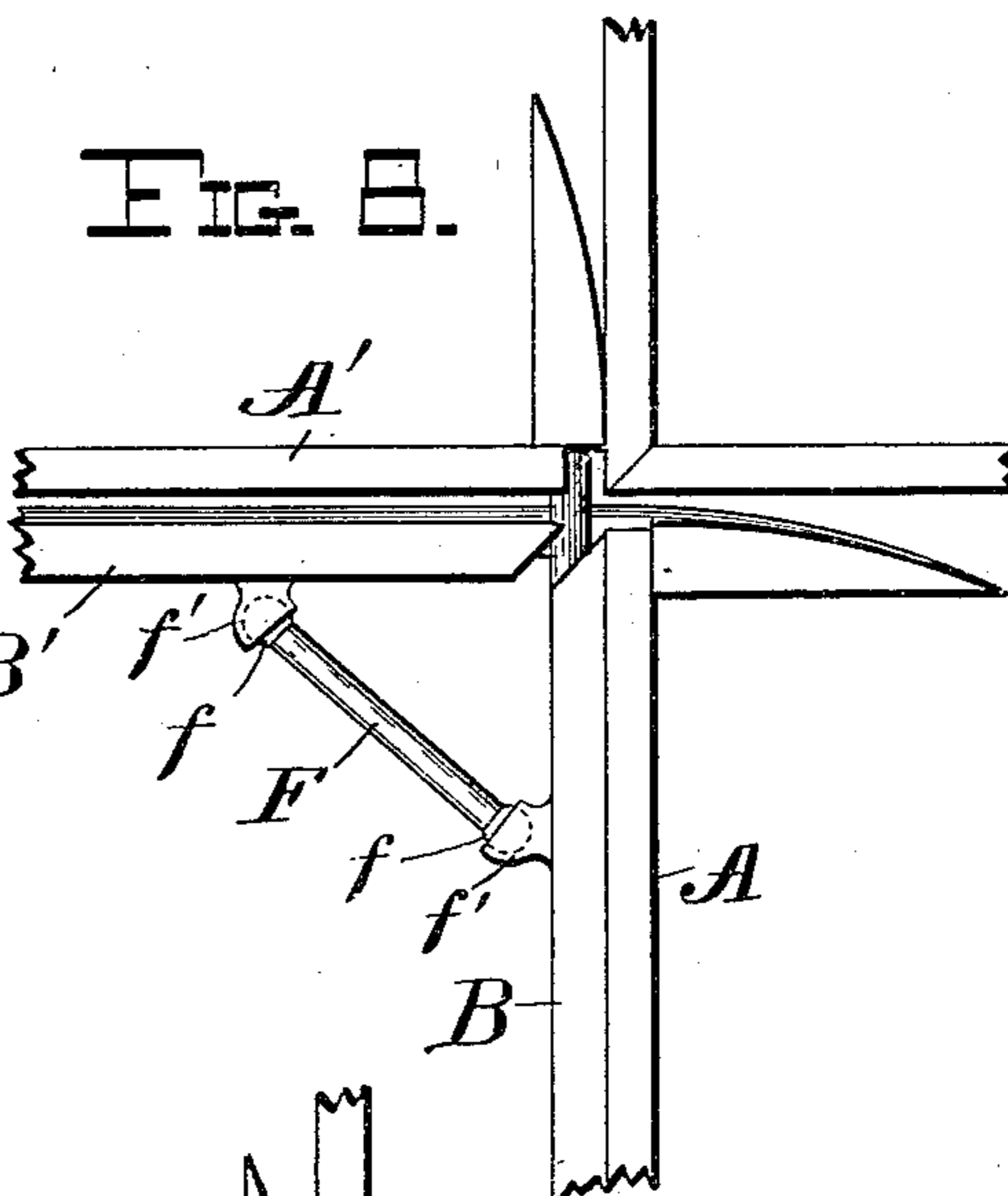
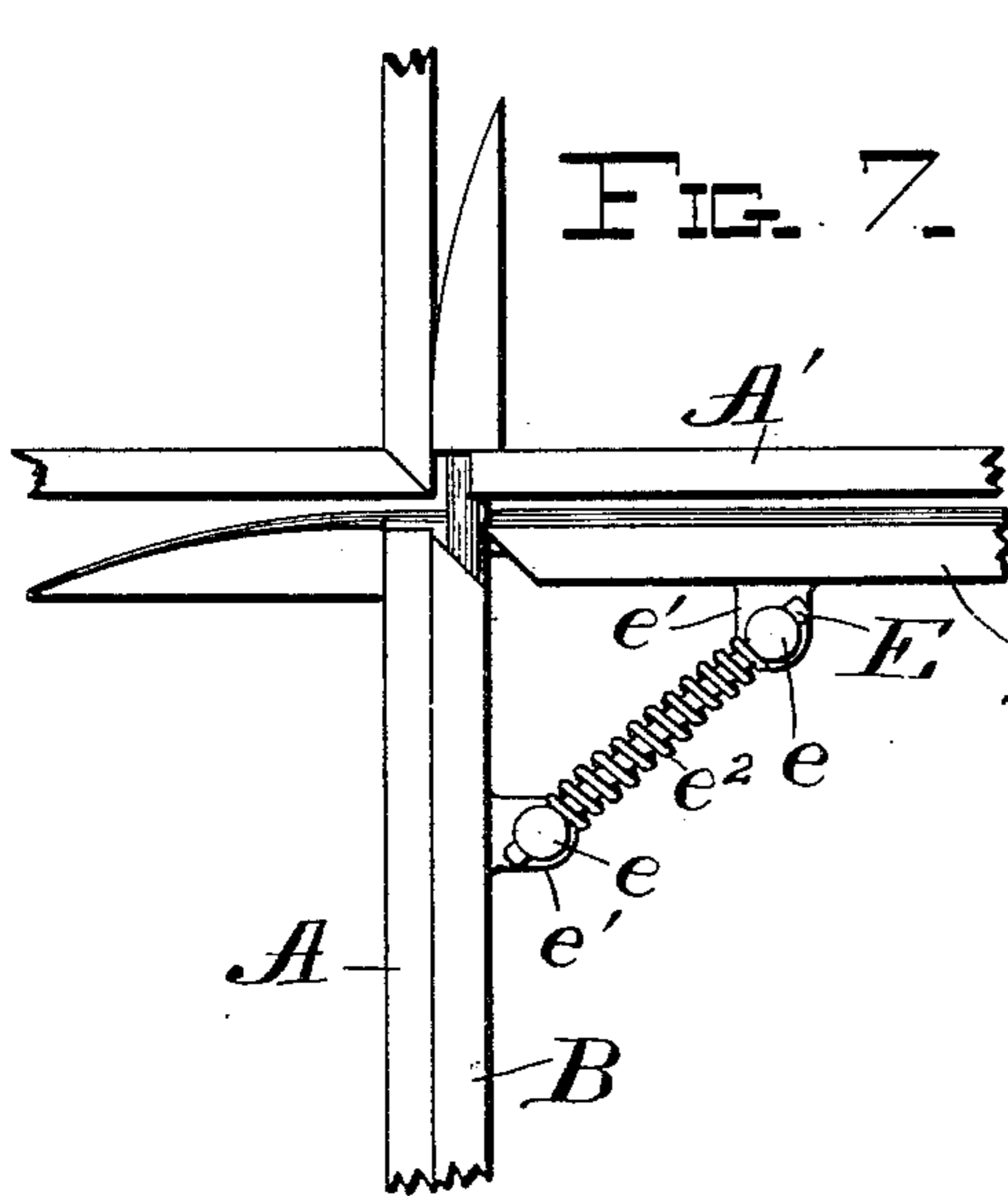
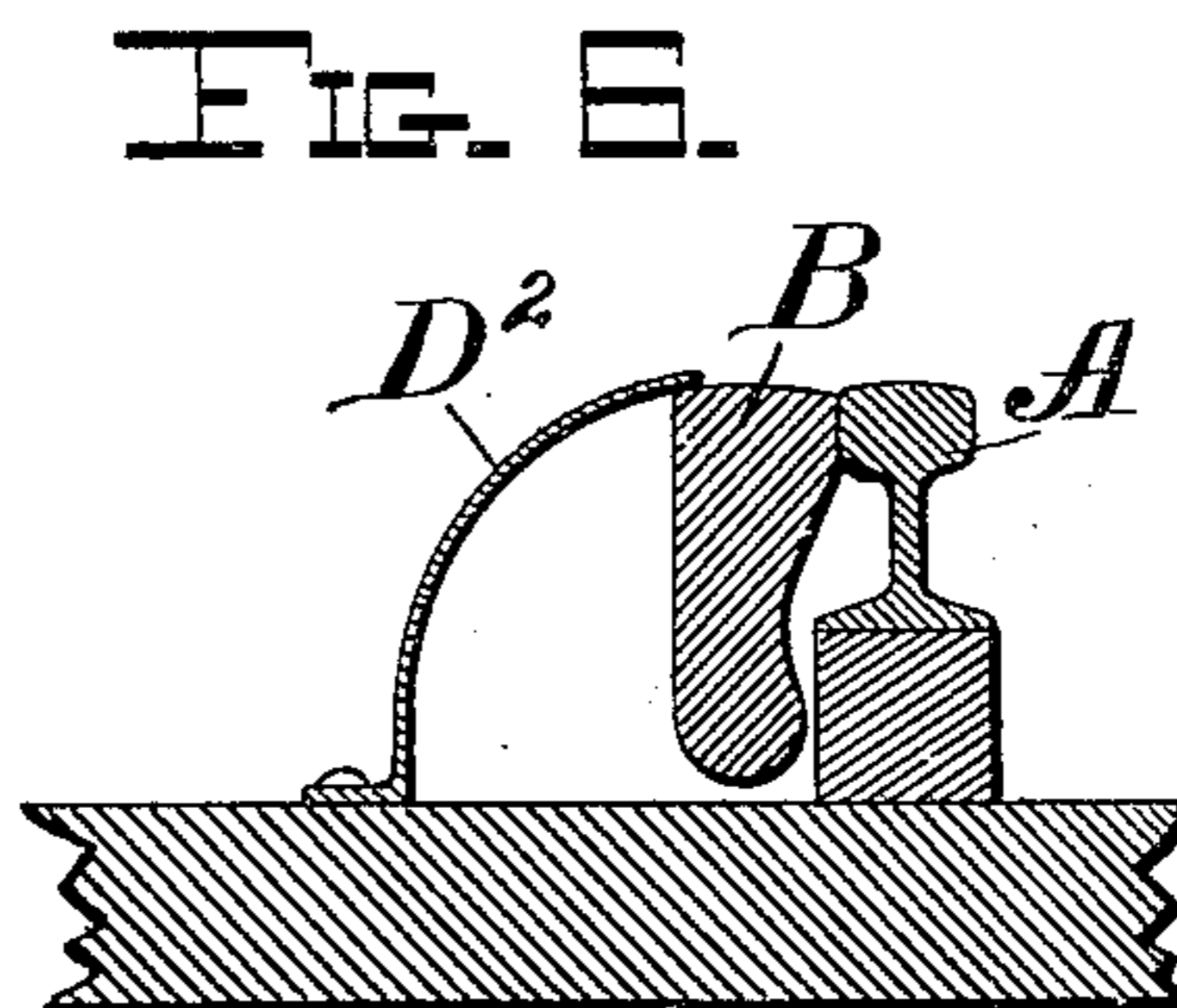
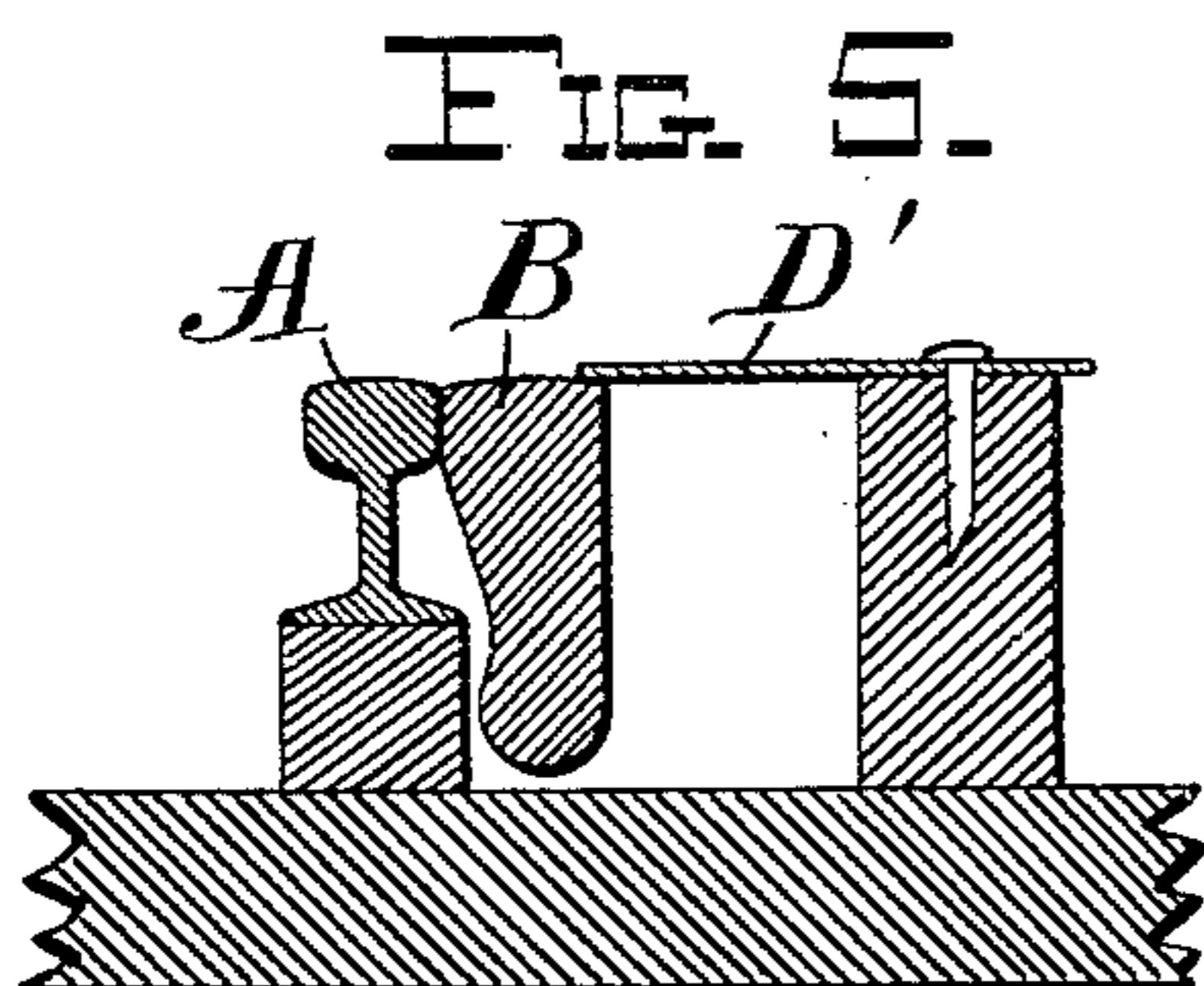
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3 Sheets—Sheet 2.



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FIG. 10.

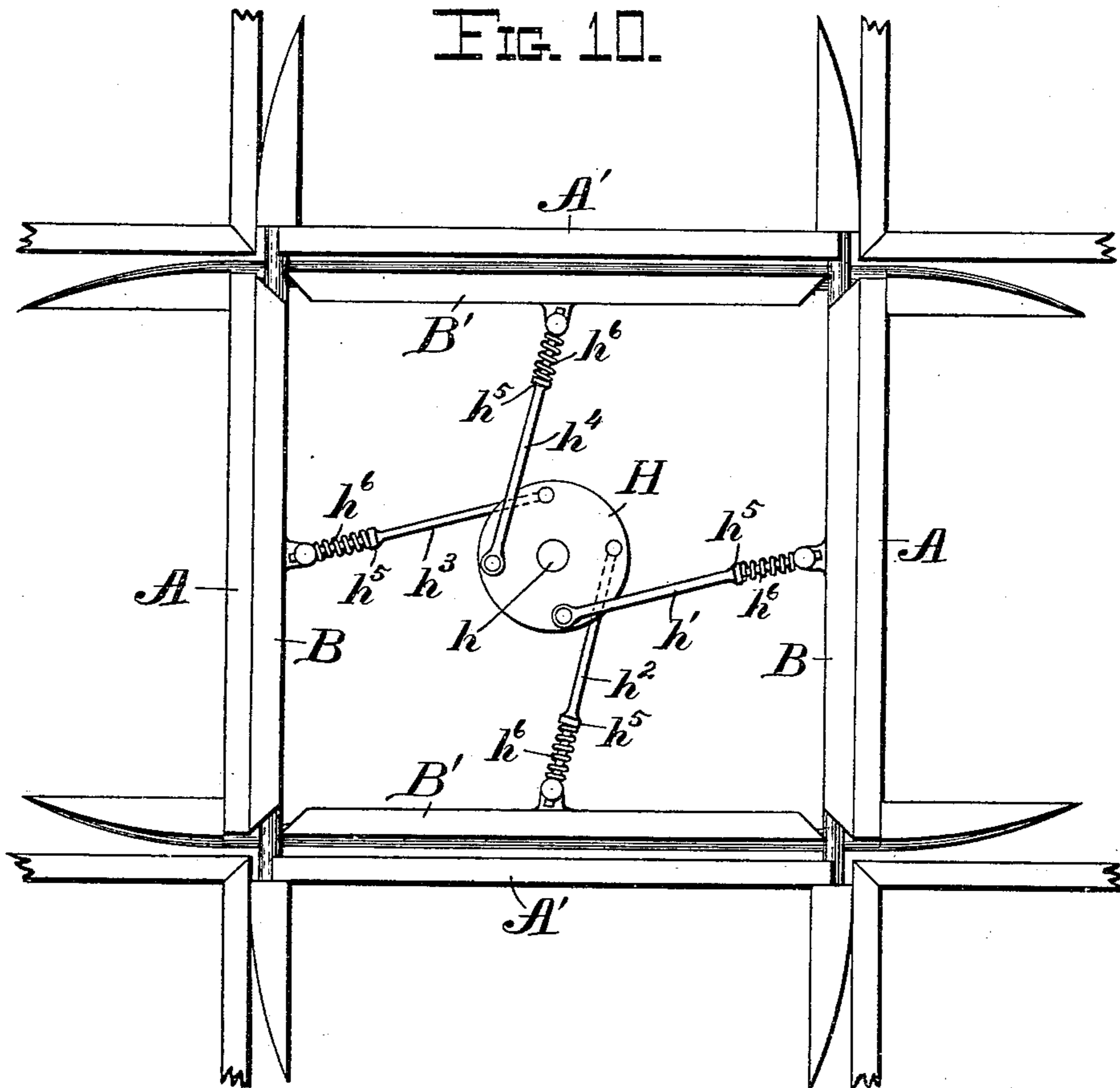
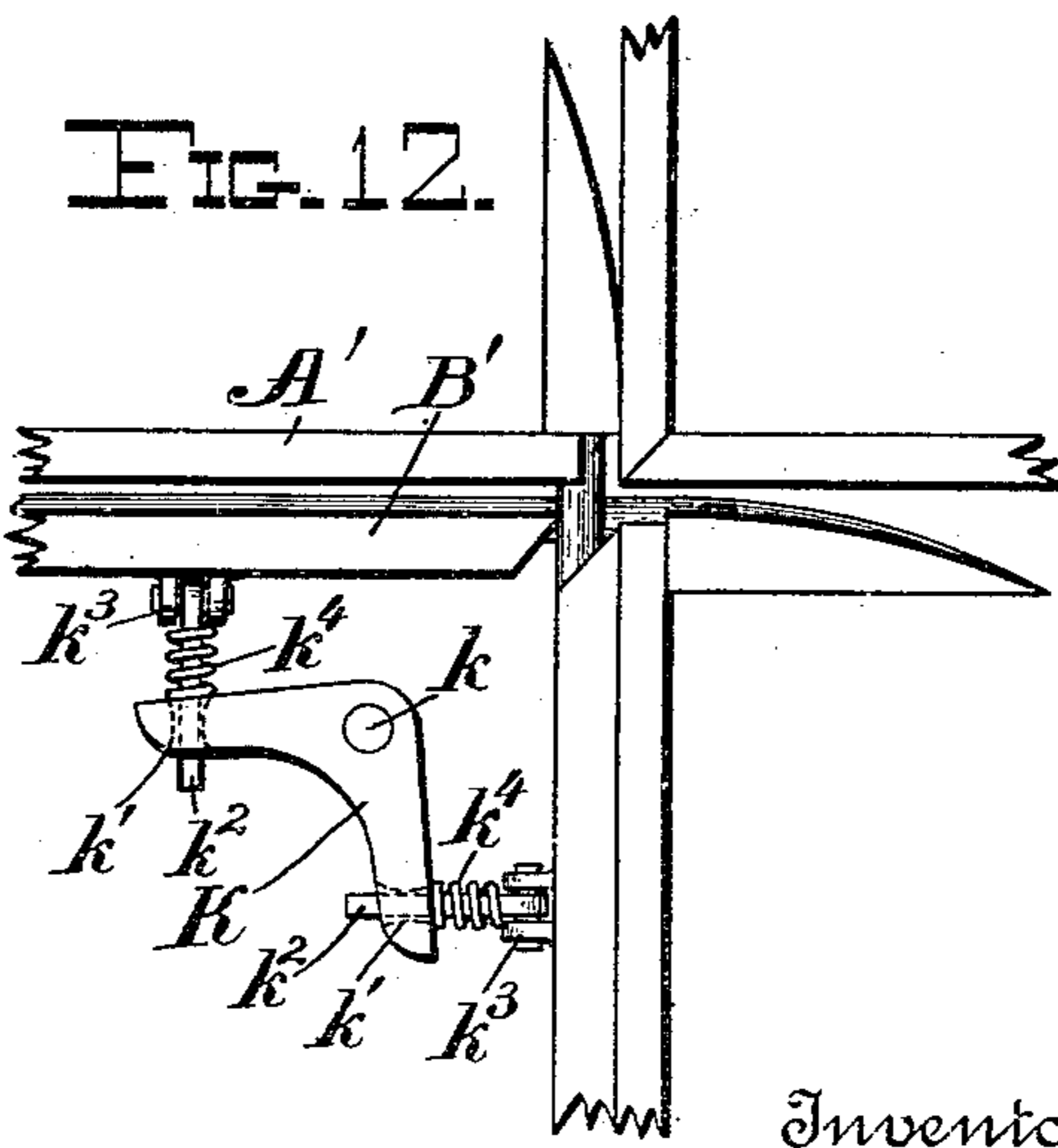
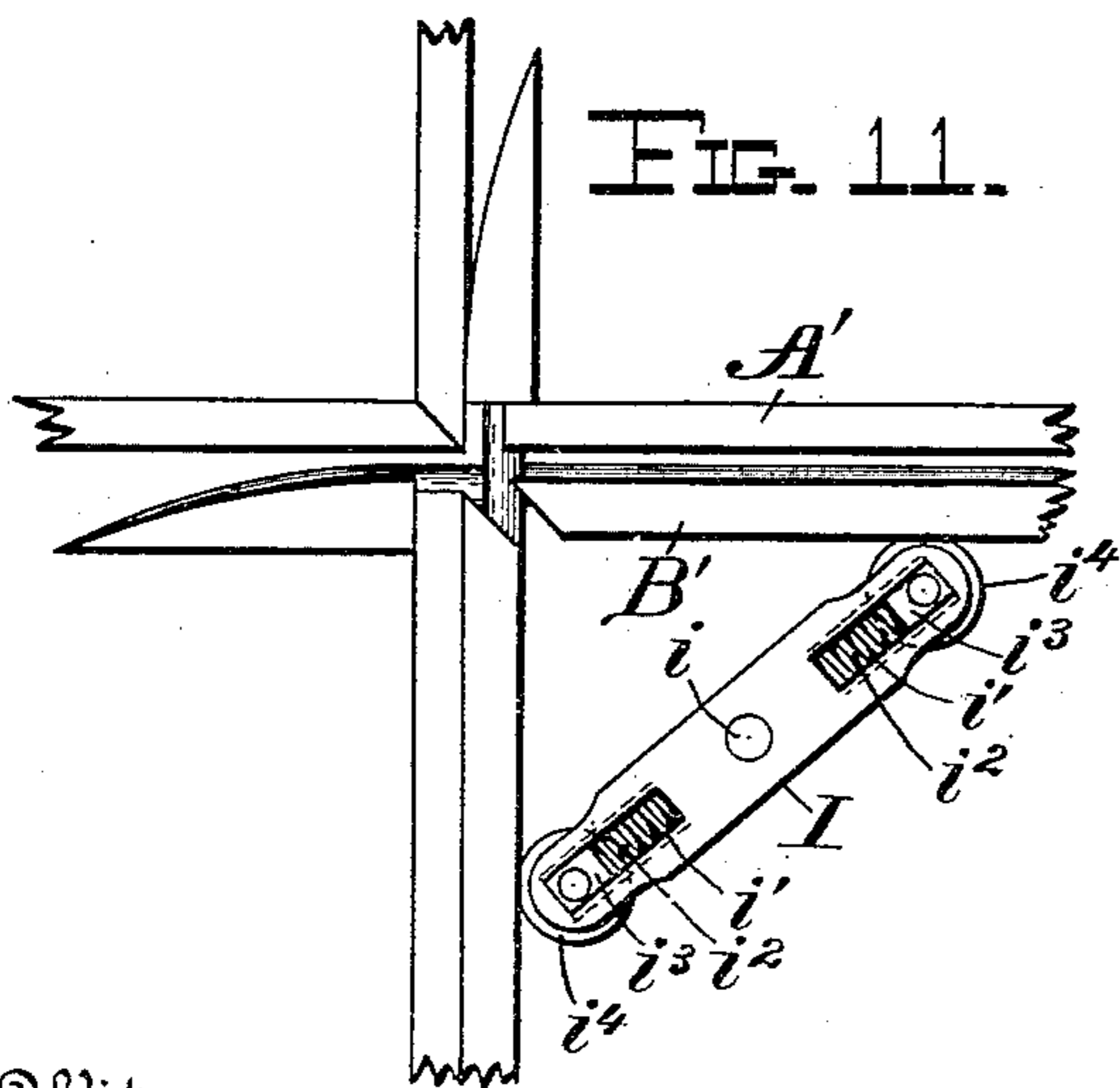


FIG. 11.

FIG. 12.



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UNITED STATES PATENT OFFICE.

ROBERT H. ELLIOTT, OF BIRMINGHAM, ALABAMA.

RAILWAY-CROSSING.

SPECIFICATION forming part of Letters Patent No. 620,758, dated March 7, 1899.

Application filed November 21, 1898. Serial No. 697,051. (No model.)

To all whom it may concern:

Be it known that I, ROBERT H. ELLIOTT, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Railway-Crossings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to railroad-crossings, and especially to those which are adapted to be automatically operated by the wheels of moving cars or trains.

In railroad-crossings of the ordinary type there are at the point where the rails intersect spaces provided of sufficient width to allow the flanges of the wheels to pass. The result is that there is a sudden jolt whenever the wheels reach this point, which is highly injurious not only to the rails, but also to the wheels themselves.

The object of my invention is to substantially prevent this and to provide an automatically-operated crossing which will always be opened in one direction and which will be operated by the wheels of the train.

With this object in view my invention consists in the construction and combination of parts, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a top view with a part broken away of my improved railroad-crossing. Fig. 2 is a cross-section of the same on the line 2 2 of Fig. 1. Fig. 3 is a cross-section of the same, taken on the line 3 3 of Fig. 2. Fig. 4 is a perspective view of one of the four movable rails which are provided in this crossing. Fig. 5 is a detail cross-section of the fixed and movable rail, showing a casing above the latter to prevent dust and dirt from entering and impeding the movement of the movable rail. Fig. 6 is a similar cross-section showing a different form of crossing. Figs. 7, 8, 9, 11, and 12 are detail views showing different means for causing one set of movable rails to actuate the other set. Fig. 10 is a top plan view showing still another modification of these means.

A represents one pair of fixed rails, and A' the other pair, these being shown at right an-

gles to each other, although it is obvious that they might cross at any desired angle.

B and B' represent the pairs of movable rails, respectively, which are so arranged in relation to each other that when one pair is open the other pair is closed.

The main fixed rails A and A' are of course cut away at the points of junction to permit the passage of the car-wheels. Each of the movable rails, as shown in Fig. 4, is cut away and provided with two rounded parts *b*, which serve as pivots, on which the rail partially rotates. Each one of these rails is also provided with beveled portions *b'* and other beveled portions *b²*, with which the wheels of the car engage to throw the movable rail out of contact with the adjacent fixed rail. The rounded parts *b* are journaled in bearings *b³*, supported in any suitable way, usually by means of large sleepers extending underneath the fixed and movable rails.

Rigidly connected to each of the rails B are arms *b⁴*, and as the movable rails B are thrown away from the fixed rails, as shown, for instance, in Fig. 3, by the passage of the car-wheels these arms are of course thrown down and operate to throw the rails B' into contact with the rails A'. This is done in the following manner: Four brackets C are placed one in each interior corner of the crossing, and a pivot *c* in each one of these brackets supports a movable arm *c'*. These arms are connected at one end with the arms *b⁴* by means of the pin *b⁵*, fixed to the arm *b⁴* and working in an enlarged slot *c⁰* in the arm *c'*. The outer end of each of the arms *c'* engages a roller *c²*, mounted in an arm *c³*, which is attached to the rail B'. The partial revolution of the movable rail B throws down the arm *b⁴*. This motion throws down one end of the arm *c'*, and consequently throws the other end of the arm *c'* upwardly. This through the medium of the roller *c²* causes the arm *c³* to press against the movable rail B', throwing it over against the fixed rail A'. The operation at each of the four corners of the structure is identical.

Referring to Fig. 1, it is obvious that when the car-wheels strike the flanges *b²* they will throw these flanges away from the fixed rail A, the rails B partially rotating upon their pivots *b*. This action makes a clear track

along the rails A and through the medium of the connections already described throws the rails B' against the rails A'. This practically makes a continuous track along the rails A, as the flanges of the rails B' bridge over the spaces cut in the rails A, the outer part of the wheels as they pass over this cut-away portion being supported by the flanges b^2 of the rails B'. This operation is reversed when the rails B' are moved inwardly by the car-wheels.

A casing D may be placed over the entire interior of the crossing, as shown in Fig. 1. This casing, however, may, if desired, extend only a short way over each movable rail, as shown by D' in Fig. 5. Said casing may also be curved, if desired, as shown at D² in Fig. 6.

The other figures show modifications of the means whereby the movement of the rail B causes the movement of the rails B', and vice versa, so that one pair will be open while the other pair is closed.

In Fig. 7 a bar E is shown connecting the rails B and B', which bar is mounted in pivots e , attached to brackets e' , which are fastened, respectively, to the rails B and B'. A spring e^2 , surrounding the bar E, transmits the motion of one set of rails to the other set.

In Fig. 8 a rigid bar F is shown provided with rounded heads f , journaled in cup-shaped bearings f' , attached to the rails B and B'.

In Fig. 9 a strong spring G is shown supported by a pivot g , which spring transmits the motion of one set of rails to the other.

In Fig. 10 a disk H is mounted in the center of the crossing upon a pivot h . This disk has four arms pivoted to it— h' , h^2 , h^3 , and h^4 . The arms h' and h^3 are connected to the rails B, respectively, and the arms h^2 and h^4 are connected to the rails B', respectively. Each of these arms is provided with an enlargement h^5 and a spring h^6 , bearing against such enlargement and a bracket upon one of the movable rails.

In Fig. 11 a bar I is supported on a pivot i at each corner of the crossing. Each end of the bar I is provided with a slot i' , in which is supported a spring i^2 . Outside of each spring is a sliding bearing i^3 , carrying a roller i^4 , whereby the movement of one pair of rails will be transmitted to the other pair.

In Fig. 12 a bent lever K is journaled on a pivot k at each corner of the crossing. Through holes k' in this lever loosely pass rods k^2 , which at their outer ends are movably connected to brackets k^3 on the movable rails. Springs k^4 are mounted on the rods k^2 and serve through the medium of the lever K and the rods and brackets k^2 k^3 to transmit motion from one set of movable rails to the other.

It is obvious that many changes might be made in the form and arrangement shown without departing from the spirit of my invention, the main features of which are the movable rails arranged in connection with the fixed rails and adapted to be operated by the wheels of a car or train, the arrangement be-

ing such that one track is always left clear, while the other is closed, and that the movement of one set of movable rails, caused by the passage of the train to open the track, will at the same time move the other pair of movable rails to close the other track, thereby furnishing a substantially continuous track for the passage of the train.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a railroad-crossing, the combination of fixed rails, sets of continuous movable rails adapted to be operated by the car-wheels on the different tracks, and connections between the different sets of movable rails, whereby the opening of one set will cause the closing of the other set, substantially as described.

2. In a railroad-crossing, the combination of fixed rails; sets of continuous pivoted movable rails arranged in pairs in proximity to said fixed rails and adapted to be operated by the car-wheels; and connections between the two sets of movable rails, whereby the opening of one set will cause the closing of the other set, substantially as described.

3. In a railroad-crossing, the combination of fixed rails provided with cut-away portions for the passage of the car-wheels, pivoted movable rails arranged in pairs in proximity to said fixed rails and adapted to be operated by the car-wheels, bearings supporting said movable rails, and connections between the two sets of movable rails, whereby the opening of one set will cause the closing of the other set, substantially as described.

4. In a railroad-crossing, the combination of fixed rails, pivoted movable rails arranged in pairs and in proximity to the fixed rails, each of said pivoted rails being provided with flanges to engage the car-wheels, and connections between the separate pairs of movable rails, whereby the opening of one pair will operate to cause the closing of the other pair, and to furnish a substantially continuous track for the passage of the train, substantially as described.

5. In a railroad-crossing, the combination of fixed rails provided with cut-away portions, movable rails arranged in pairs in proximity to said fixed rails and connected together, the arrangement being such that when one pair is open the other pair is closed, each of said movable rails being provided with rounded portions acting as an axle, bearings engaging said rounded portions, and each of said movable rails being provided with tapering flanges adapted to be engaged by the car-wheels, substantially as described.

6. In a railroad-crossing, the combination of fixed rails provided with cut-away portions, partially revoluble movable rails arranged in pairs in proximity to said fixed rails, each of said movable rails being provided with rounded portions acting as axles and with tapering flanges to engage the car-wheels, pivoted connections between the pairs of movable rails,

whereby the opening of one pair will cause the closing of the other pair, and a casing extending over said movable rails, substantially as described.

5 7. In a railroad-crossing, the combination of fixed rails, partially revoluble movable rails arranged in pairs, bearings for said movable rails, said movable rails being also provided with flanges to engage the wheels of the passing cars, and pivoted connections between the
10 pairs of movable rails, whereby the opening of one pair will cause the closing of the other pair, substantially as described.

8. In a railroad-crossing, the combination
15 of fixed rails, partially revoluble movable rails, provided with flanges, arranged in pairs in proximity to said fixed rails, bearings supporting said movable rails and pivoted spring connections between the pairs of movable
20 rails, whereby the opening of one pair will cause the closing of the other pair, substantially as described.

9. In a railroad-crossing, the combination of fixed rails, partially revoluble movable rails
25 arranged in pairs in proximity to said fixed

rails, a dust-excluding casing and connections between the pairs of movable rails consisting of pivoted arms connected to one of each of the different pairs of rails, substantially as described.

10. In a railroad-crossing, the combination
30 of fixed rails, movable rails provided with flanges to engage the car-wheels, arranged in pairs in proximity to the fixed rails, and connections between the rails of different pairs
35 whereby the opening of one pair will cause the closing of the other pair, said connections consisting of a bent lever, rods flexibly connected to one of the rails of each pair respectively and passing loosely through holes in
40 said bent lever, and springs located between said bent lever and one of the rails of each pair, substantially as described.

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

ROBERT H. ELLIOTT.

Witnesses:

W. G. ROBINSON,
W. M. BOIKER.