

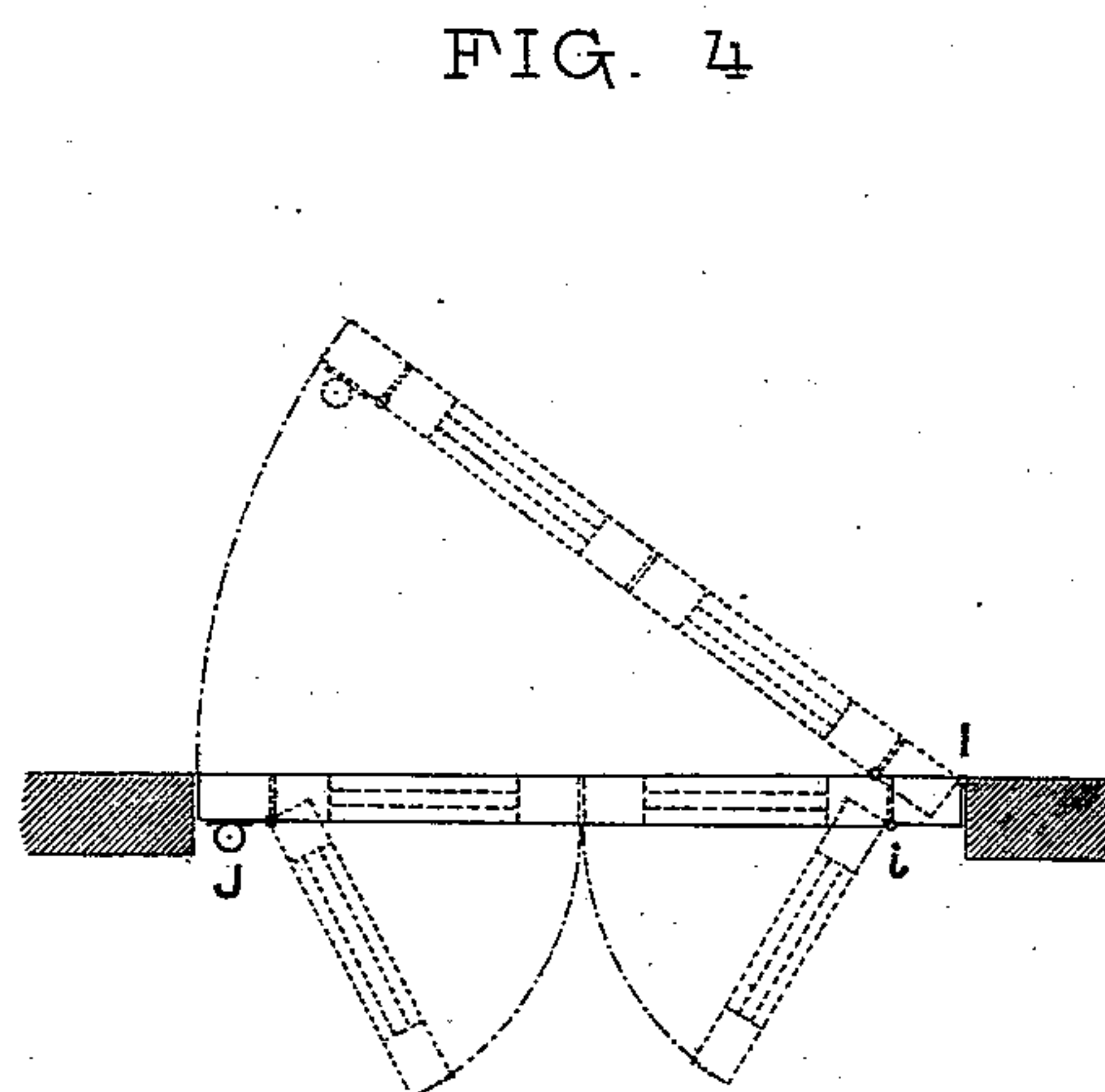
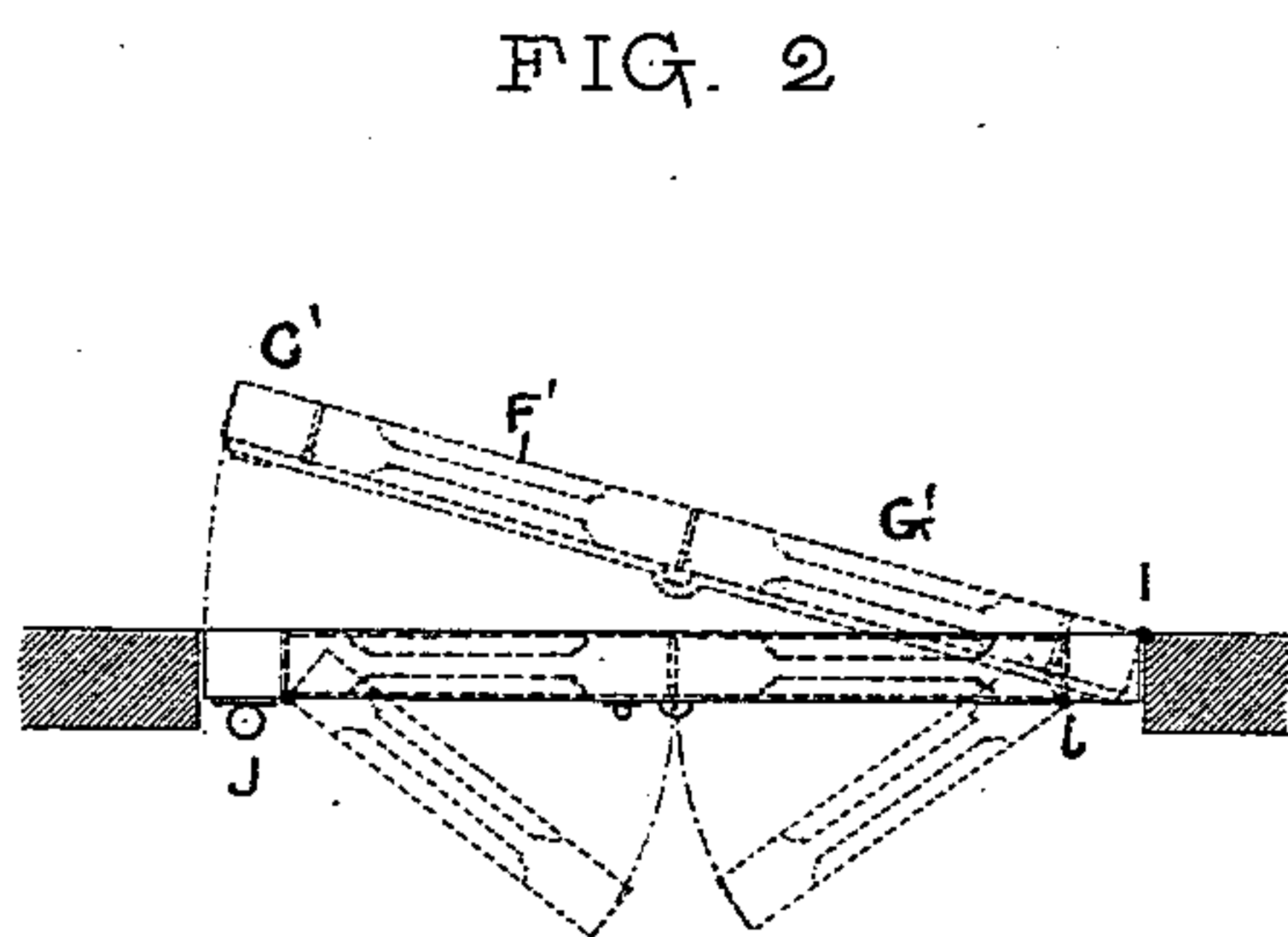
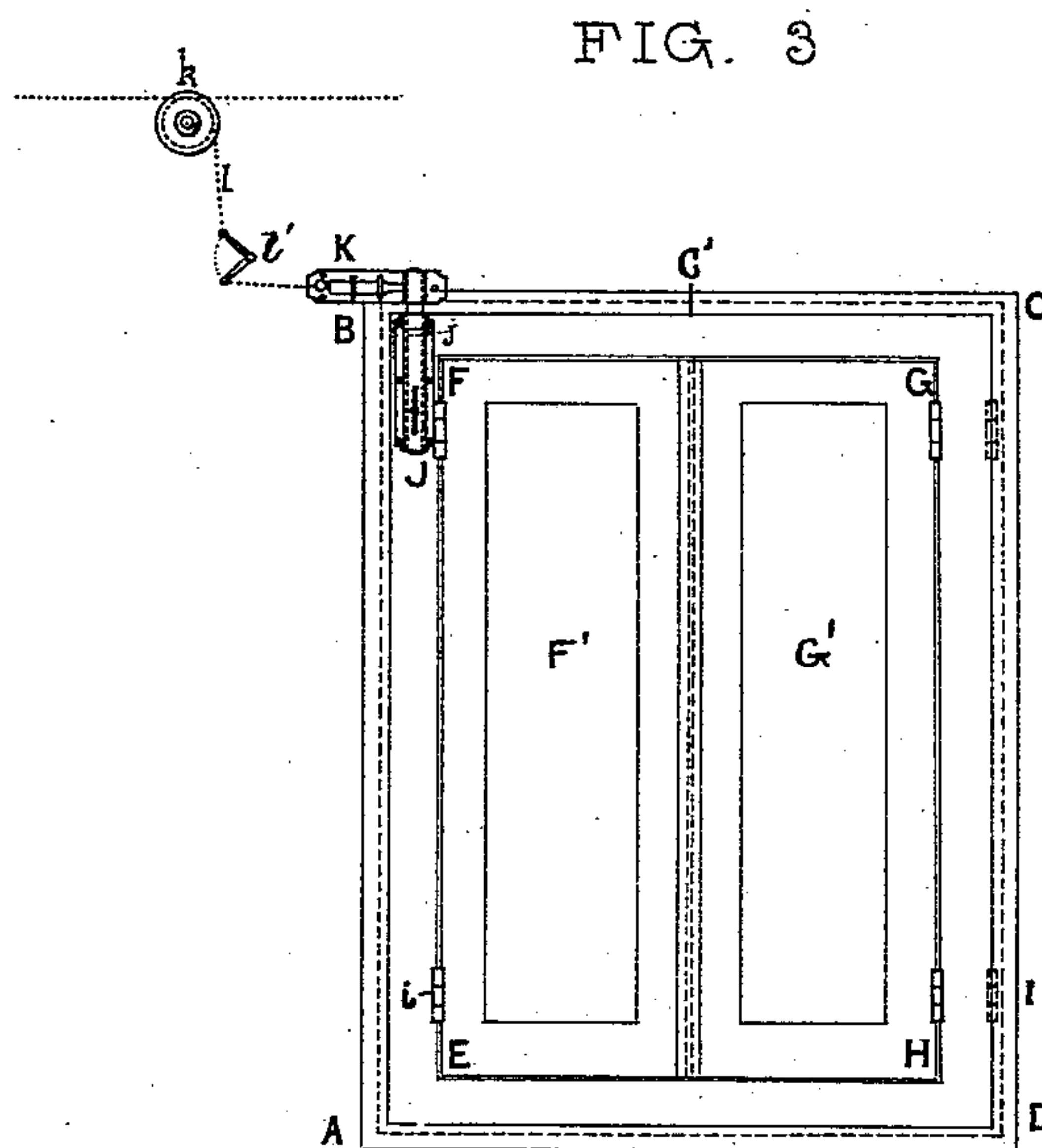
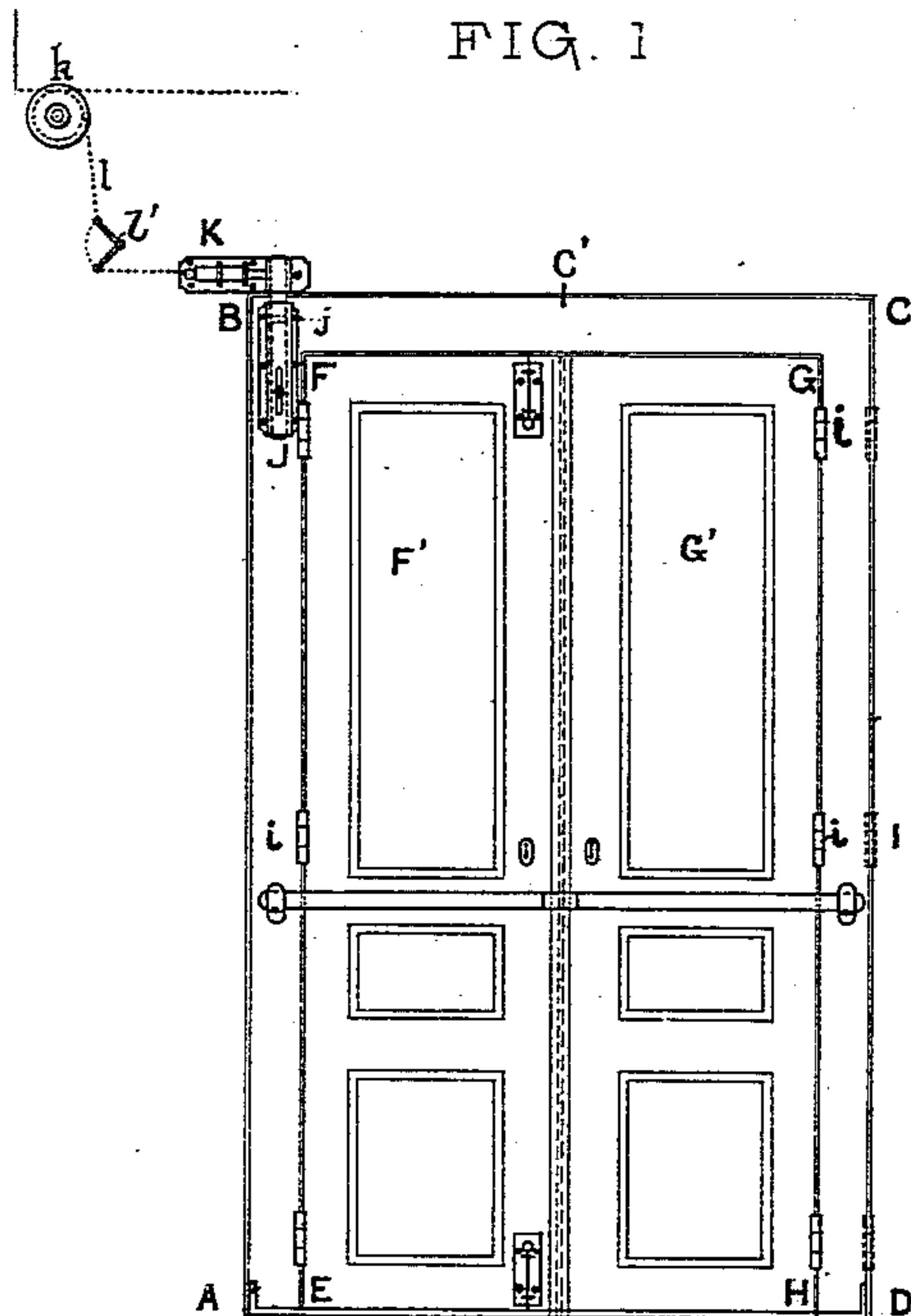
(No Model.)

5 Sheets—Sheet 1.

V. MÉHAY.
APPARATUS FOR OPENING DOORS.

No. 445,614.

Patented Feb. 3, 1891.



Witnesses:
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Inventor:
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(No Model.)

5 Sheets—Sheet 2.

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FIG. 5

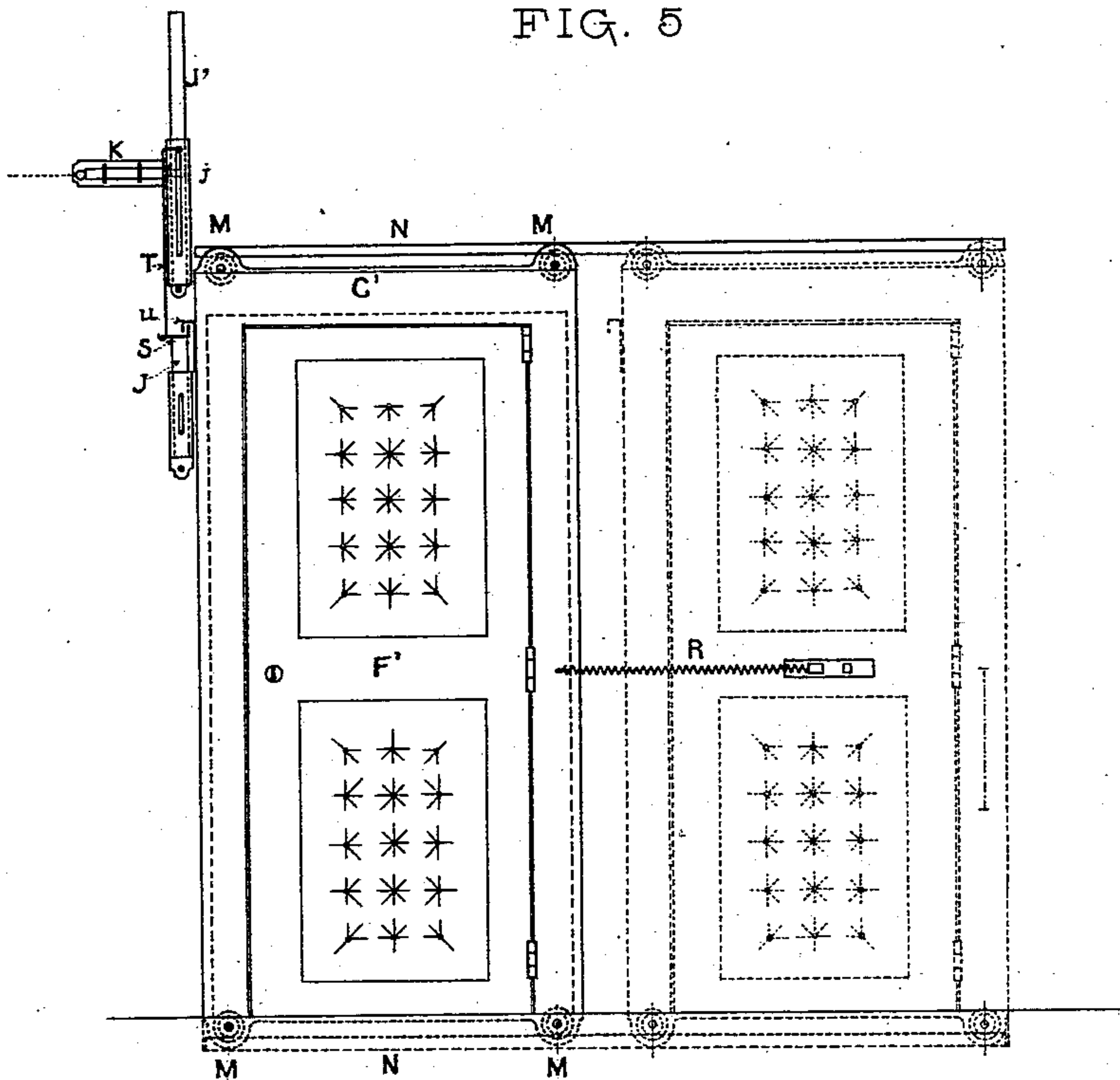
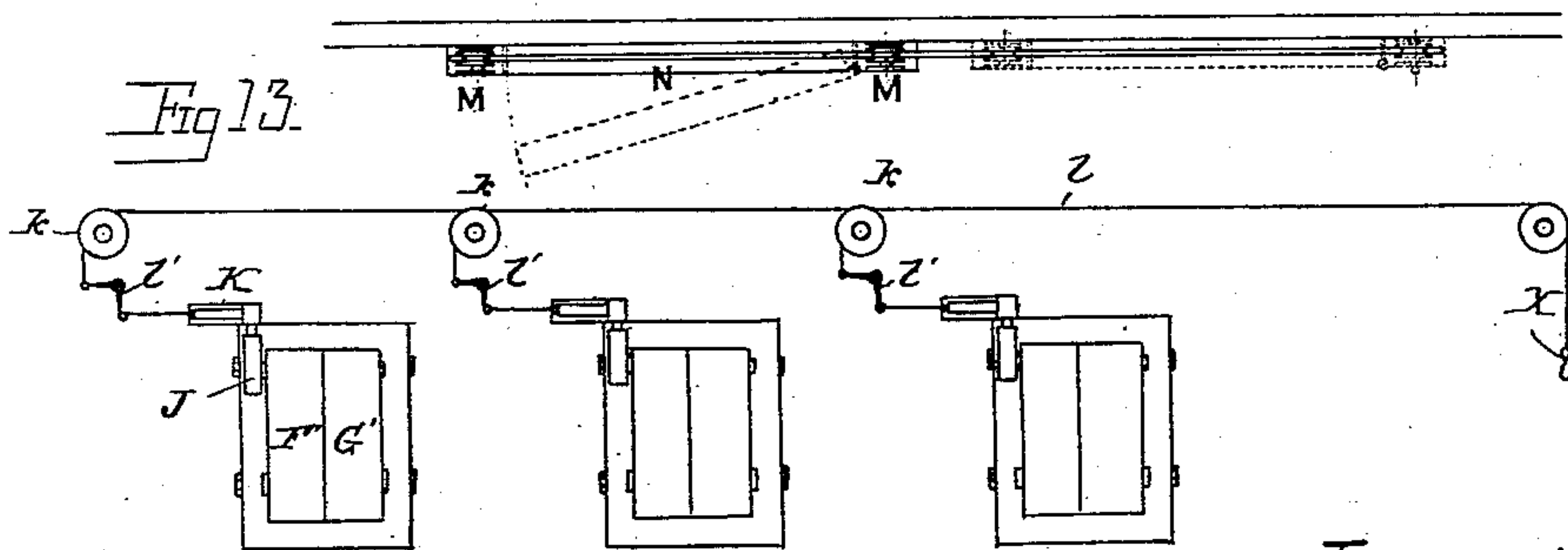


FIG. 6



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(No Model.)

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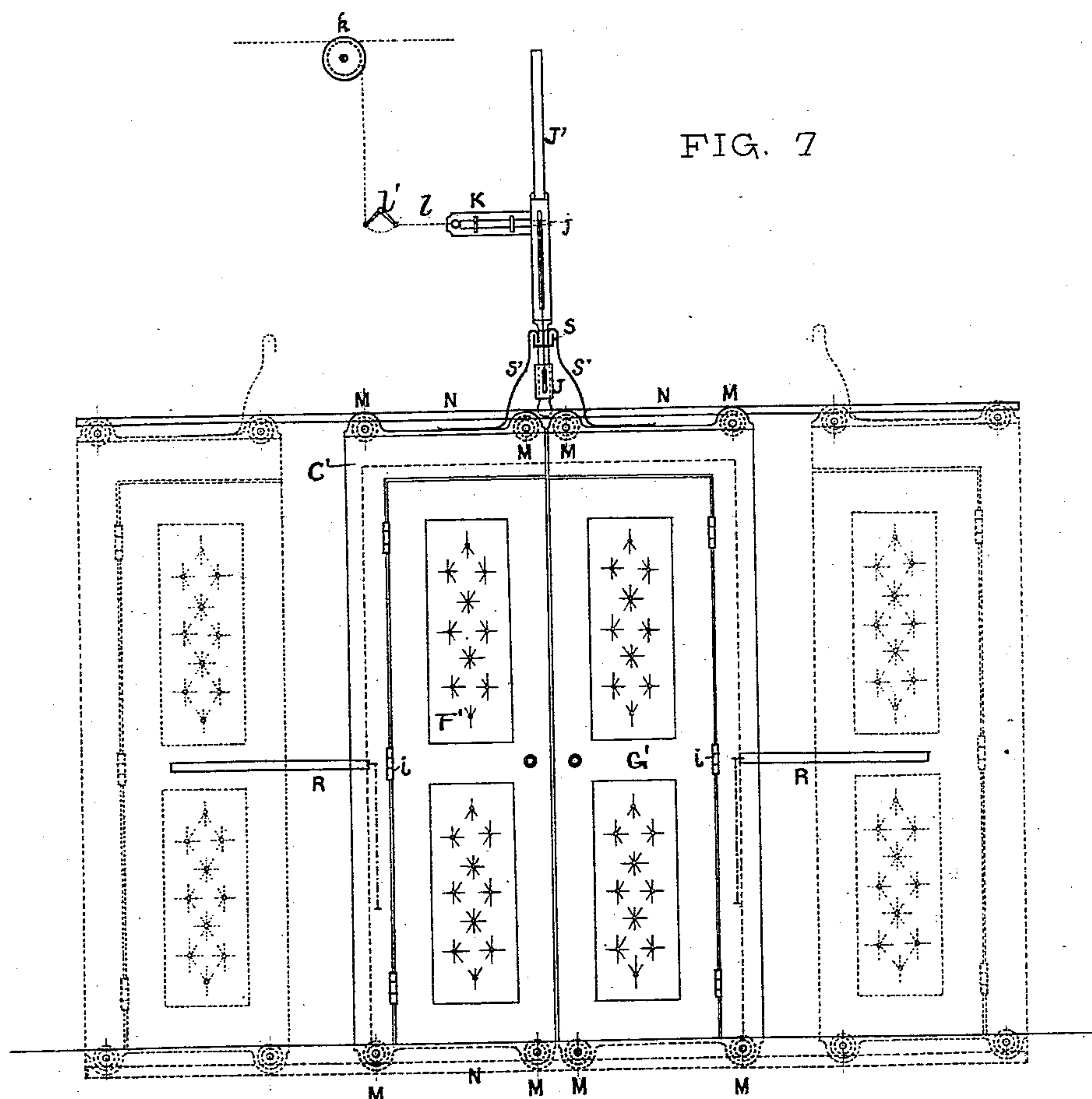
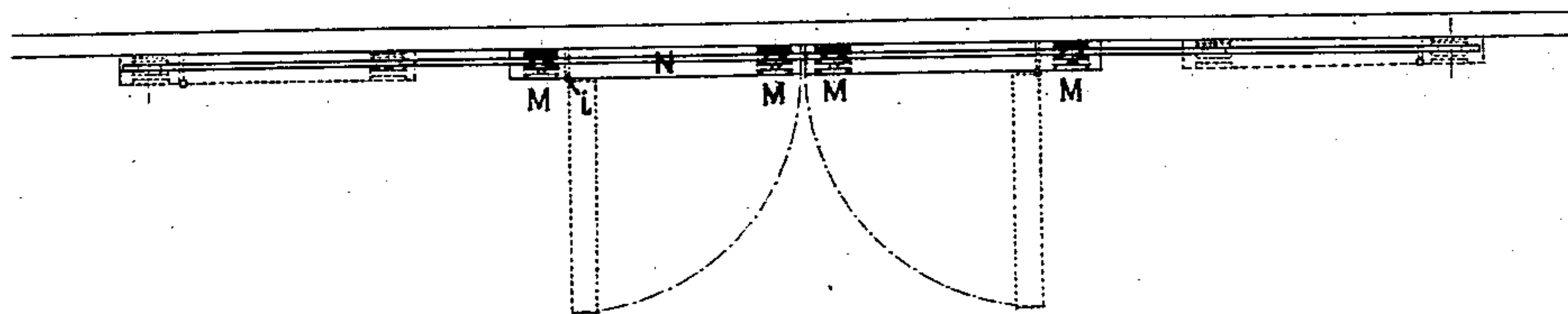


FIG. 7

FIG. 8



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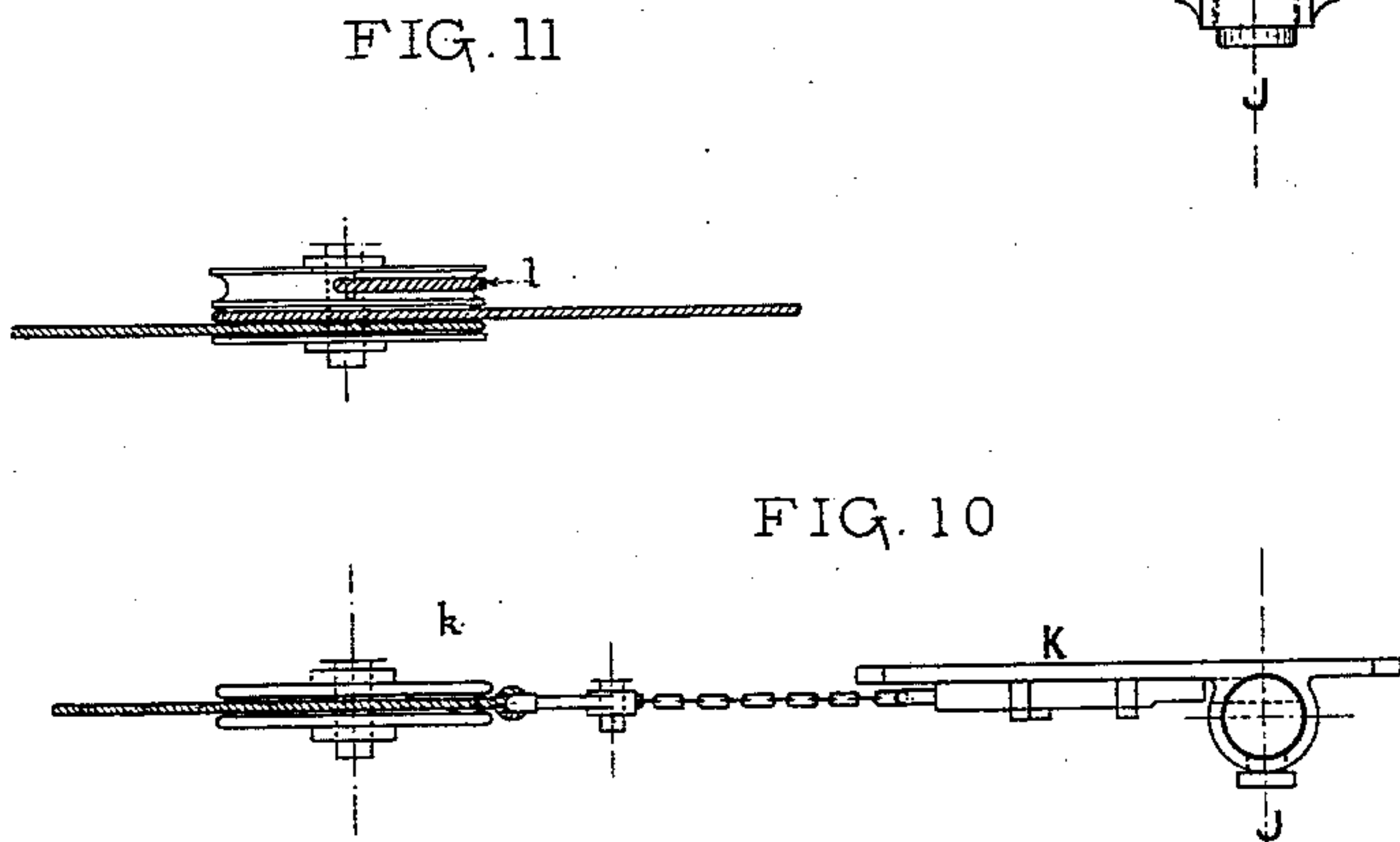
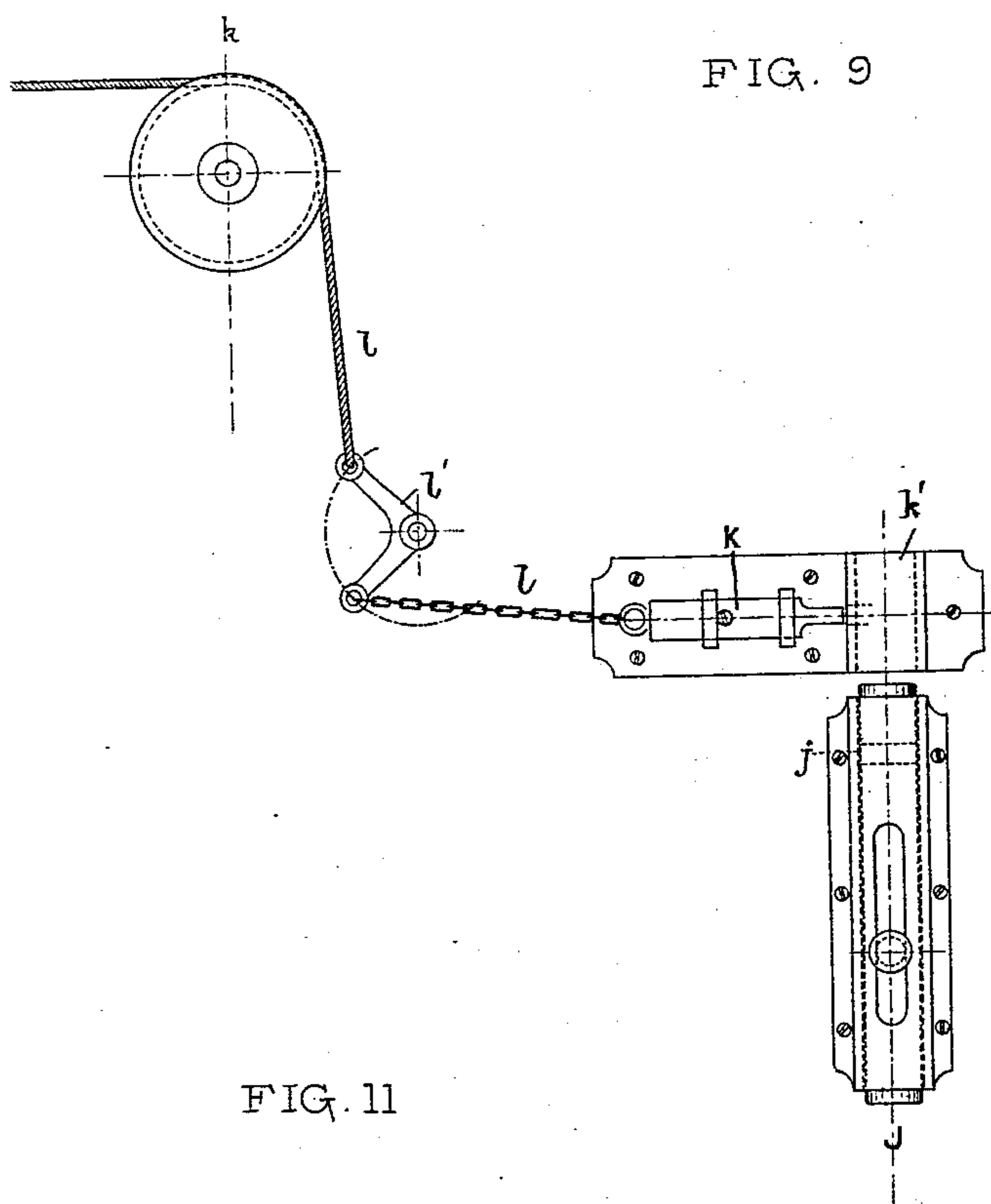
(No Model.)

5 Sheets—Sheet 4.

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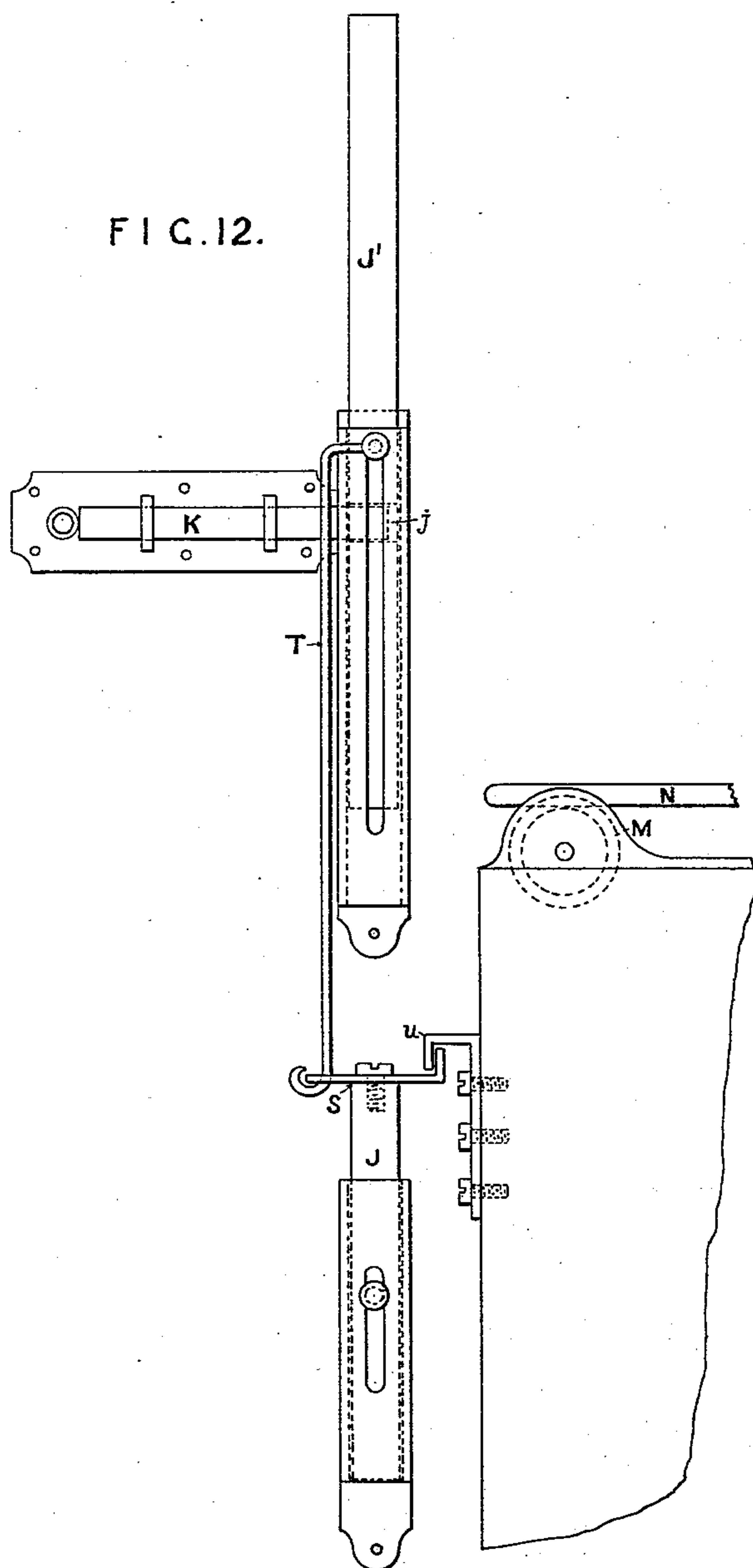
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5 Sheets—Sheet 5.

V. MEHAY.
APPARATUS FOR OPENING DOORS.

No. 445,614.

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UNITED STATES PATENT OFFICE.

VICTOR MÉHAY, OF BRUSSELS, BELGIUM.

APPARATUS FOR OPENING DOORS.

SPECIFICATION forming part of Letters Patent No. 445,614, dated February 3, 1891.

Application filed July 14, 1888. Serial No. 279,982. (No model.) Patented in Belgium February 8, 1888, No. 80,576, and in England February 25, 1888, No. 2,843.

To all whom it may concern:

Be it known that I, VICTOR MÉHAY, a citizen of the French Republic, residing in Brussels, in the Kingdom of Belgium, have
5 invented certain new and useful Improvements in Apparatus for the Instantaneous Opening of Doors and Windows, (for which I have obtained Letters Patent in England, No. 2,843, dated February 25, 1888, and in
10 Belgium, No. 80,576, dated February 8, 1888,) of which the following is a specification.

The present invention relates to improved means to facilitate the exit of a numerous public in buildings, such as theaters and the
15 like; and its object is to effect instantaneously the opening of the doors and windows of a building from the inside toward the outside and giving the greatest possible passage room.

20 This invention consists, essentially, in constructing the doors and windows with movable frames maintained in position by a system of fastenings which can be instantaneously unfastened from a distance and act
25 upon a great number of frames simultaneously.

In the accompanying drawings, Figure 1 represents in elevation the application of the invention to folding doors, seen from the interior of the building and bolted and barred.
30 Fig. 2 is a plan of Fig. 1. Fig. 3 represents the application of the invention to a window-frame with one or two leaves opening toward the inside. Fig. 4 is a plan of Fig. 3. Figs.
35 5 and 6 represent in elevation and plan the application of the invention to a single-leaf door and frame of a box of a theater. Figs. 7 and 8 represent in elevation and plan the application of the invention to double folding
40 doors and frame of a box of a theater. Figs. 9 and 10 are detail views of the hereinafter-described bolt. Fig. 11 is a double-grooved pulley, described hereinafter, to actuate several bolts simultaneously. Fig. 12 is a detail of
45 bolt for use in connection with sliding doors and frames. Fig. 13 represents a series of windows provided with my invention and connected to be operated from a central station.

50 The same letters of reference in the different figures represent the same parts.

The doors or windows shown in Figs. 1 to 4 are mounted within movable casings or frames, which are of larger size than are the said doors or windows. These movable frames
55 are normally locked or held stationary in the walls or casings in which they are mounted, but are so arranged that in case of accident or panic they may be moved, thus opening for exit the space A B C D, which, as will be
60 seen, is much greater than the space E F G, H, occupied by the doors proper and which only is used under ordinary circumstances for entrance and exit.

The frame C', which constitutes the frame
65 for the doors proper F' G', is hinged to the wall by the outer hinges I, and the doors proper are hinged to the outer frame C' at i. At a given moment the doors proper can swing outward with the outer frame to-
70 gether on the hinges I. A vertical bolt J, sliding in a socket, is fixed to the frame C'. This bolt, which may be placed at any desired height, is formed with a recess j, in which en-
75 gages the end of a horizontal bolt K, secured, for instance, to the wall and attached to the armature of an electro-magnet (not shown) or to a cord or wire l, actuated by a bell-crank lever l'. The plate of this bolt K is provided
80 with a socket k', into which enters the vertical bolt J. By the passage of an electric current or by pulling a cord from a certain point by means of the bell-crank lever and the pulley k (details which every mechanic under-
85 stands) the end of the horizontal bolt K is withdrawn from the recess j of the bolt J, and the latter falls by its own weight. It is then only necessary to push the door or window to turn the outer frame C' on its hinges I, forming thus a large exit for the public. The
90 door or window, together with the outer frame C', swings outward, as shown in Figs. 2 and 4, and can be even quite swung back against the outer wall. The outer frame C' can be the casing in brick-work or stone of
95 the door or window, or may be a special casing of wood. To replace the door or window in its original fastened position, the bolt J is lifted by hand and fixed by again engaging the end of the bolt K in the recess j.
100

It can be seen from Figs. 1, 3, 7, and 13 that the pulleys k, which are connected by a cord

or wire to the bolt K, may be connected to each other by a continuous metallic or other cord, thus forming a system of catch-actuating devices, by which means several bolts
 5 can be actuated simultaneously from a central station, as X, Fig. 13. Fig. 11 represents the manner in which for this purpose a double-grooved pulley may be arranged above each door or window. The continuous cord which
 10 actuates the pulleys passes round one of the grooves of the latter, and at a point of the second groove of each pulley is fixed the end of the cord *l*, which actuates the bolt. In this manner the bolts K of a whole building
 15 or of several doors and windows can be actuated simultaneously from one or more points of a building. The doors or windows, which may be locked, barred, and bolted, are thus secured until an imperious
 20 motive presents itself for permitting the opening thereof, and in that case folding doors and two-leaf windows act as single-leaf ones, and the whole bay of the door or window will be available as exit. To better indicate these
 25 exits suitable springs may be applied to the movable frames to open them wholly or partially as soon as the frames are freed.

Doors in the interior of buildings—such as the doors of boxes in theaters (see Figs. 5, 6,
 30 and 12, which represent a single-leaf door and a door-frame in one piece)—are hung, as usual, in hinges to the door-frame; but instead of fixing the latter by hinges they are preferably provided with rollers M, running on
 35 rails N, so that the whole of the frame with the door may slide laterally on said rails.

To the frame is fixed one end of a spiral spring R, or weighted cord, which tends to draw the frame on one side. The latter, how-
 40 ever, is maintained in its normal position by means of a catch S, consisting of a plate the end of which is bent upward and which is fixed to a bolt J, which has no recess *j*. This catch interlocks with another catch *u*, the end
 45 of which is bent downward and which is fixed to the door-frame. The bolt J in this case is completed and actuated in the following manner: Above the bolt J and in the same vertical line is arranged another bolt J', similar to
 50 J, but considerably heavier. This bolt J' engages with the catch S of the bolt J by means of the rod T, and thus holds the bolt J in position. When the end of the horizontal bolt K is withdrawn from the recess *j* of the bolt
 55 J', the latter will fall onto the bolt J and disengage by the force of the fall the catch S from the catch *u*, which had prevented the frame from following the impulse of the spiral spring or weight. This frame will then
 60 slide on the rails N and will remain flat against the wall without obstructing the passage of the public in the least.

Fig. 5 represents the frame with the door in its normal position, the position when
 opened being indicated in dotted lines. 65

Figs. 7 and 8 represent the invention applied to folding doors of the box of a theater, the frame of which is constructed in two parts. Each part of the frame is provided with a catch S', interlocking with a catch S,
 70 described farther on, and springs R, similar to the one represented in Fig. 5, tend to draw the two parts of the frame apart from each other. The bolts are similar to those represented in Fig. 5, with the only dif-
 75 ference that the catch S of the bolt J has both ends turned up, so that when the bolt J is lifted each end will engage with one of the catches S' of the frame. When the horizontal bolt K is withdrawn from the recess *j*
 80 of the bolt J', the latter will fall upon the bolt J, and the force of the fall will lower the bolt J and disengage the catches S S', when the parts of the frame with one leaf of the door
 85 each will be drawn aside, one to the right and one to the left, and remain flat against the wall.

While I have illustrated in the drawings but one form of device for actuating from a distance the catch by which the movable
 90 frame is held against movement, still I wish to be understood as not limiting my invention to use in connection with such single actuating mechanism, as in place thereof I may employ any of the now well-known forms
 95 of mechanism for operating bolts, catches, and the like from a distance.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be per-
 100 formed, I declare that what I claim is—

1. The combination of a door, a movable frame in which the door is mounted, a catch moved by gravity to release the said frame,
 105 but held to lock the said frame to the casing or wall in which it is mounted, and a bolt which engages with the said catch to hold it in its locking position, substantially as described.

2. The combination of the door, the movable frame in which the door is mounted, a
 110 catch J, moved by gravity and which locks the said frame, and a sliding bolt K, which engages with the said catch and holds it in its locking position, substantially as described. 115

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

VICTOR MÉHAY.

Witnesses:

ADOLF STEIN,
 GEORGE BEDE.