

(No Model.)

2 Sheets—Sheet 1.

I. T. DYER.
REFRIGERATOR.

No. 300,351.

Patented June 17, 1884.

Fig. 2.

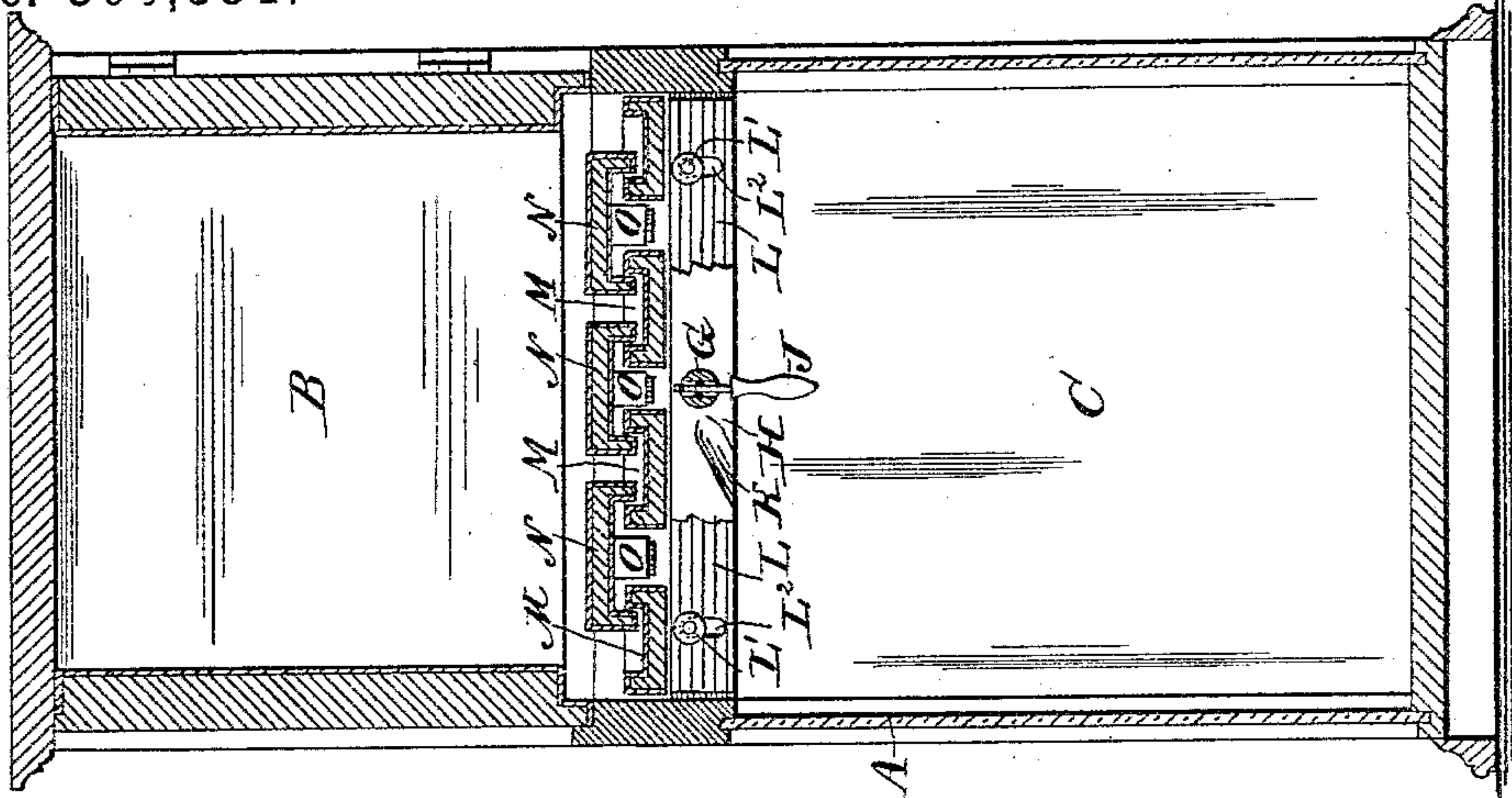
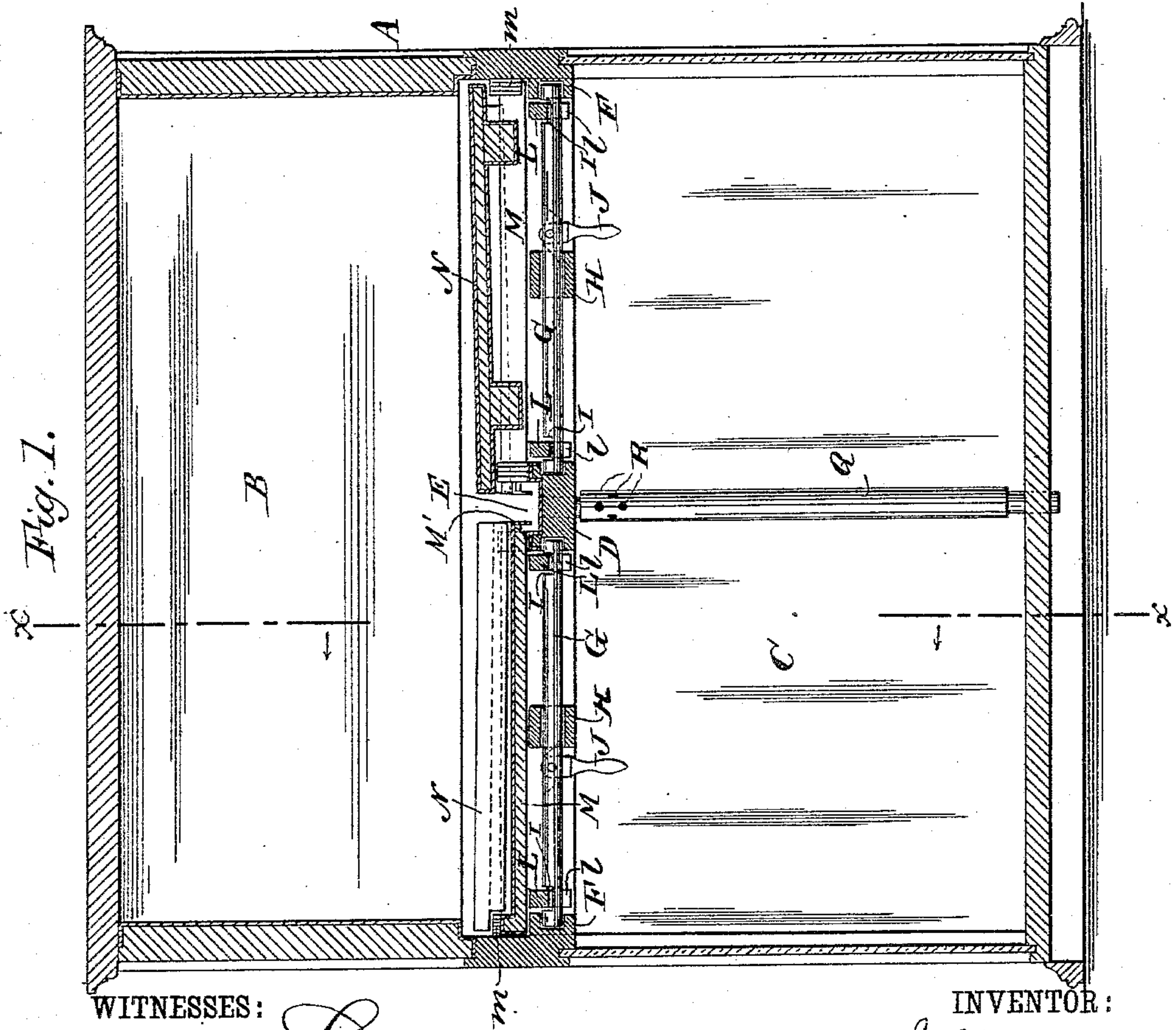


Fig. 1.



WITNESSES:

Wm. Dyer
C. Sedgwick

INVENTOR:

I. T. Dyer
BY *Munn & Co*
ATTORNEYS.

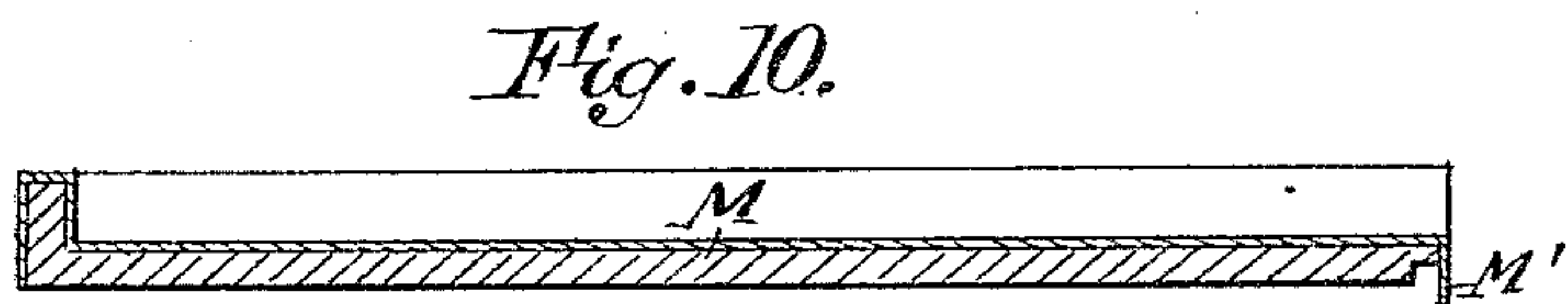
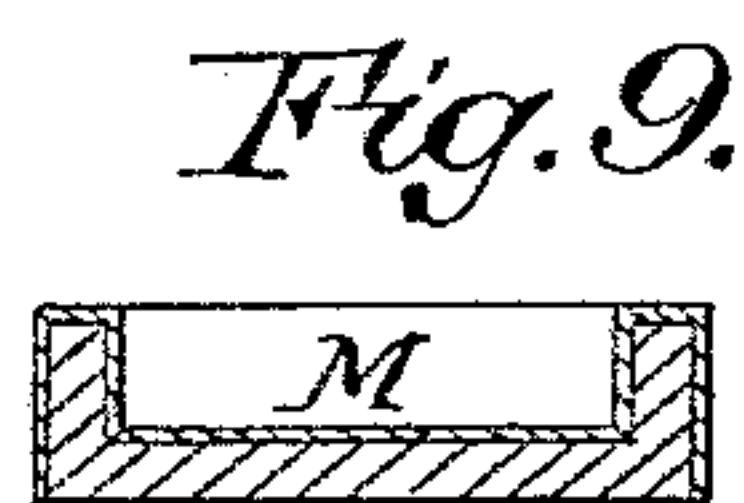
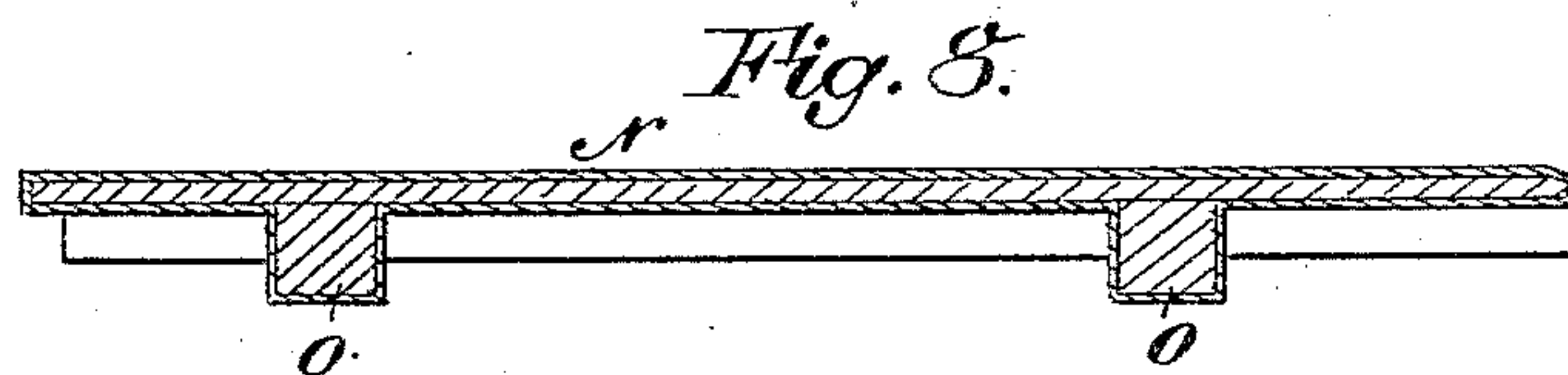
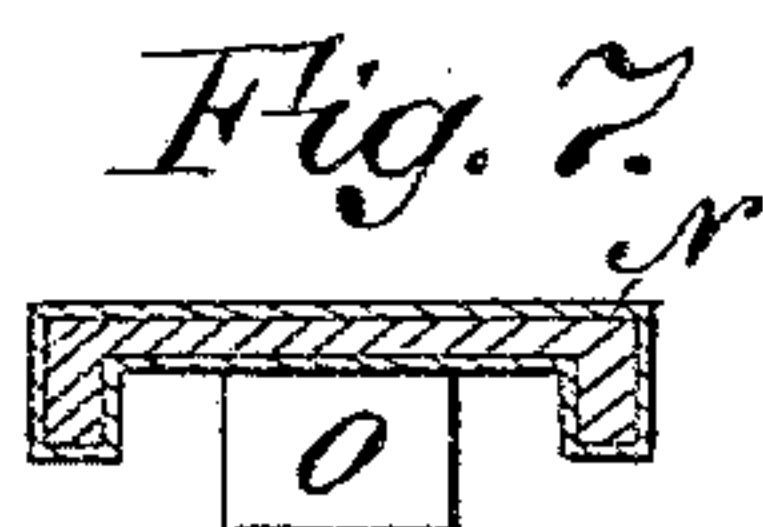
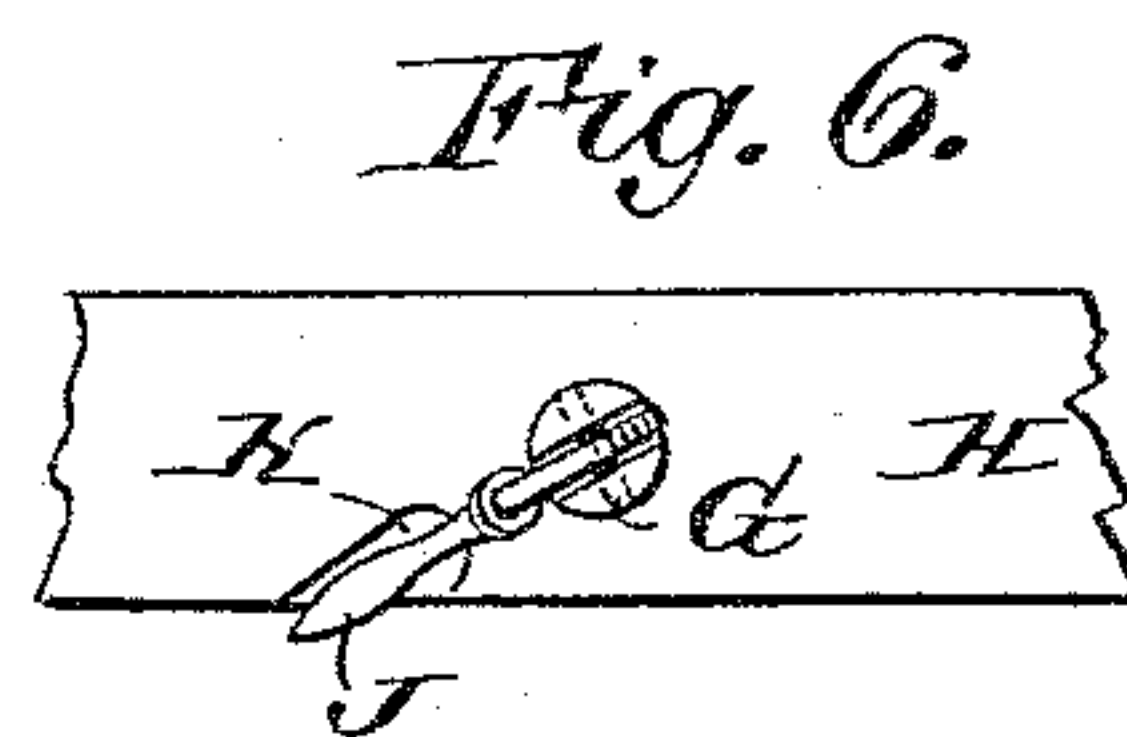
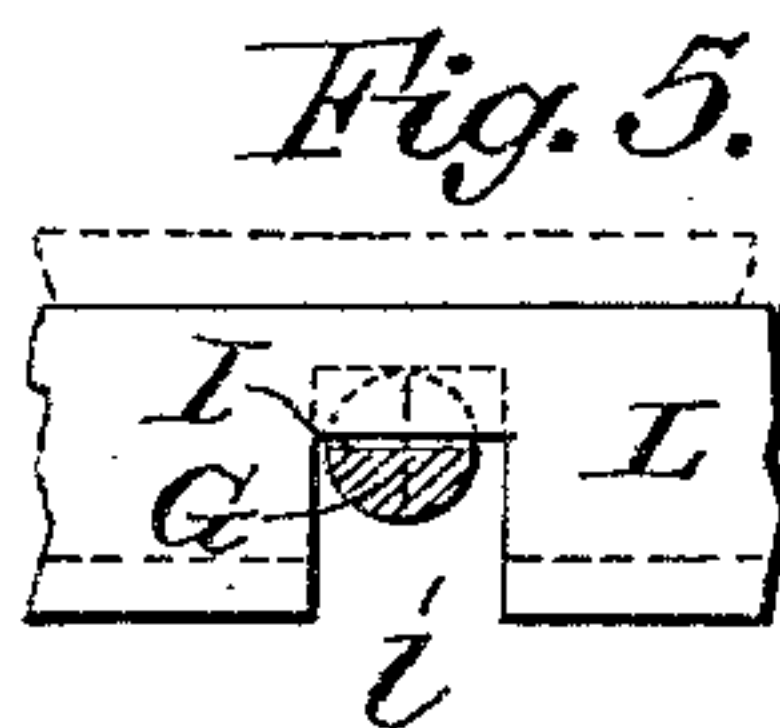
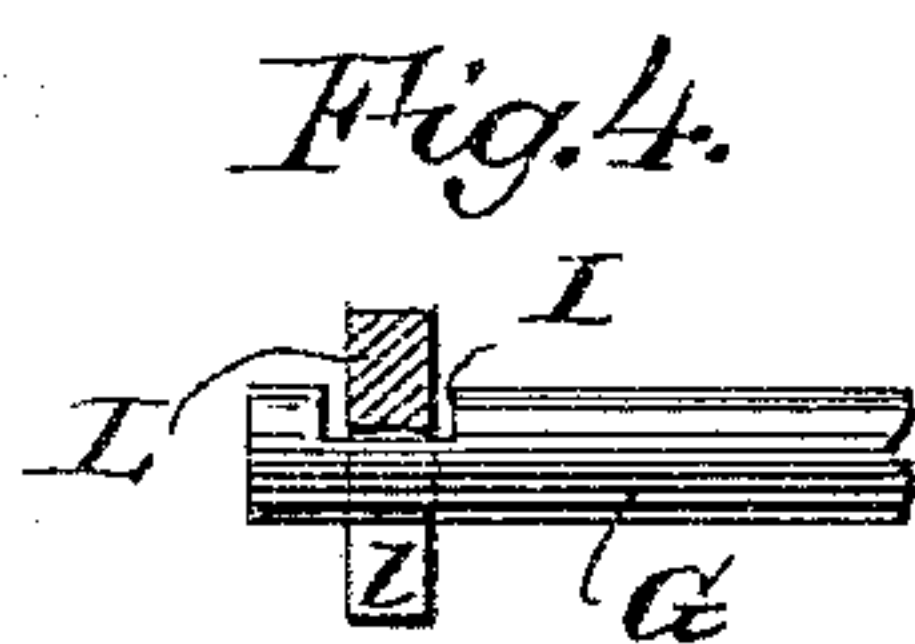
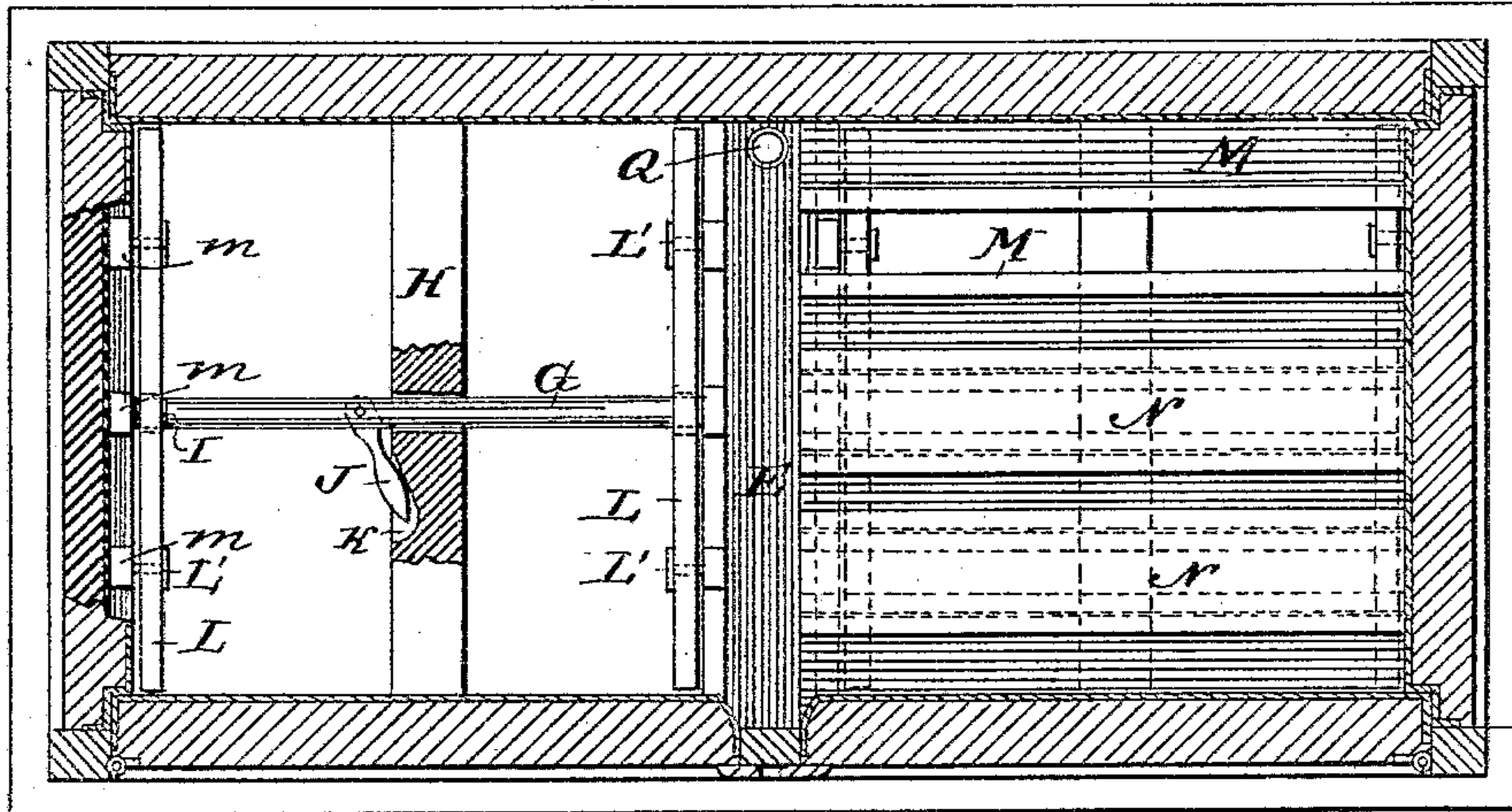
(No Model.)

2 Sheets—Sheet 2.

I. T. DYER.
REFRIGERATOR.

No. 300,351.

Fig. 3. Patented June 17, 1884.



WITNESSES:
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C. Sedgwick

INVENTOR:
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UNITED STATES PATENT OFFICE.

ISAAC T. DYER, OF QUINCY, ILLINOIS, ASSIGNOR OF ONE-HALF TO JOHN T. PIEPER AND HENRY C. PFEIFFER, BOTH OF SAME PLACE.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 300,351, dated June 17, 1884.

Application filed March 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, ISAAC T. DYER, of Quincy, in the county of Adams and State of Illinois, have invented a new and Improved Refrigerator, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved refrigerator, in which the openings through which the cold air can pass from the ice-chamber into the refrigerating-chamber, or the hot air can pass from the refrigerating-chamber to the ice-chamber, can be regulated at will, and which refrigerator can easily be taken apart for packing and cleaning.

The invention consists in a refrigerator having its ice-rack formed of a series of vertically-movable troughs or gutters, over which inverted troughs or gutters are held, the inner ends of the troughs projecting over the sides of a gutter formed on the top of a transverse beam, from which an outlet-pipe extends to the bottom of the refrigerator.

The invention also consists in parts and details and combinations of the same, as will be fully described and set forth hereinafter.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved refrigerator. Fig. 2 is a cross-sectional elevation of the same on the line *x x*, Fig. 1. Fig. 3 is a sectional plan view of the same, a part of the gutter being removed and parts being broken away. Fig. 4 is a longitudinal view of the end of the shaft for raising the gutters. Fig. 5 is a cross-sectional elevation of the same. Fig. 6 is a side view of the device for locking the ice-rack in place. Fig. 7 is a cross-sectional elevation of the top gutters of the ice-rack. Fig. 8 is a longitudinal sectional elevation of the same. Fig. 9 is a sectional view of the bottom gutters of the ice-rack. Fig. 10 is a longitudinal sectional elevation of the same.

The refrigerator consists of a box, A, divided into an upper ice-chamber, B, and a lower refrigerator-chamber, C, arranged below the ice-chamber. At the middle of the length and height of the refrigerator a transverse beam, D, is arranged, in the upper surface of

which a gutter or trough, E, is formed, which gutter is lined with zinc. In circular apertures in the sides of the beam D and cross-pieces F, secured to the inner surfaces of the ends of the refrigerator at the same level with the beam D, the ends of two central longitudinal shafts, G, are journaled, which shafts also pass through apertures in intermediate cross-pieces, H, arranged between the central cross-piece, D, and the end pieces, F. Each shaft G is provided with a semicircular notch, I, at each end, or in place of the notch, with a cam. That part remaining in the shaft after the notch has been cut out also acts as a cam. Adjoining each intermediate cross-piece, H, a handle, J, is pivoted in each shaft G in such a manner that the handle can be folded against the side of the cross-piece H, which cross-piece H is provided in the corresponding side with an inclined recess, K, for receiving the handle J. On each side surface of the middle cross-beam, D, and on the outer side of the surface of the end cross-pieces, F, flat strips L are held by pintles L', passing through vertical slots L² in the said strips, thus permitting the said strips to be moved vertically, the slots limiting their movement. The pieces or strips L are provided with notches l, through which the ends of the shaft pass. If the upper ends of the pieces L rest in the recesses I of the shafts G, the said pieces L will be lowered; but if the shafts are turned on their longitudinal axis, so that the round or cam parts of shafts rest against the closed ends of the notches, the pieces L will be raised—that is, the strips or pieces L can be raised or lowered by giving the shafts G about a quarter-turn, more or less. After the said shafts have been turned, the handles J are pressed into the notches K for the purpose of locking the pieces in place, as shown in Fig. 6. In Fig. 5 the pieces L are represented as lowered, and the position they occupy when raised is shown in dotted lines. Gutters or troughs M, lined with zinc, are placed on the upper edges of the intermediate pieces, H, and on the upper edges of the strips L L, the said gutters being parallel with the longitudinal axis of the box. The said gutters are separated by blocks *m* on the upper surfaces of the middle cross-beam, D, and the end cross-beams, F. At the ends projecting

over the gutter in the cross-beam D the gutters M are provided with downwardly-projecting aprons M', made of zinc. Gutters or troughs N, covered on their top and bottom surfaces with zinc, and provided in their recessed surfaces with blocks O, also covered with zinc, are placed over the spaces between the gutters M in an inverted position, so that the blocks O pass in between the upwardly-projecting sides of the gutters M, and the sides of the inverted gutters N lap over and are within the upwardly-projecting sides of the gutters M, as shown in Fig. 2. The upper surfaces of the inverted gutters N will then be higher than the gutters M. The inverted gutters N form the support for the blocks of ice, and are in turn supported by the gutters M. The water produced by the melting of the ice flows over the sides of the inverted troughs or gutters N into the gutters M, and through the same to the gutter E in the cross-beam D, and then flows down through the outlet-pipe Q into a basin placed below the refrigerator, which outlet-pipe is provided with a series of apertures, R, through which the hot air in the refrigerator-chamber, through which the said pipe O extends, can pass. The ice-chamber is provided with a suitable door, and the walls are made hollow or filled in with non-conducting material, and the walls or sides of the refrigerating-chamber can be made of glass or of wood, as may be desired. The ends of the inverted gutters or troughs N rest on the blocks m. If the shafts G are so turned that the pieces or strips L are lowered, slots or longitudinal openings will be formed between the end edges of the sides of the inverted gutters N and the upper surfaces of the gutters M, as the inverted gutters N cannot be lowered; but if the shafts G are turned to raise the pieces L of the upper surfaces of the gutters M, will be pressed against the longitudinal edges of the sides of the inverted gutters N, thus preventing the cold air from passing into the refrigerating-chamber. By means of the shafts G the ice rack or support can thus be adjusted to permit the cold air to pass from the ice-chamber into the refrigerating-chamber, or to permit the hot air to pass from the refrigerating-chamber to the ice-chamber; or the rack can be adjusted to prevent such a circulation of air. If the openings in the rack are all closed to prevent the hot air from passing into the ice-chamber, the hot air can pass out through the aperture R in the outlet-pipe Q.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A refrigerator provided with a rack formed of vertically-movable troughs or gutters, over which fixed troughs or gutters are held, the said lower gutters being arranged to close the spaces between the upper gutters, whereby communication between the two chambers may be shut off, substantially as herein shown and described.

2. In a refrigerator, the combination, with a series of vertically-movable troughs or gutters, of a series of inverted troughs or gutters held above the vertically-movable troughs or gutters, adapted to close the spaces between and receive the adjacent flanges of the upper gutters, and of means for moving the lower troughs or gutters vertically, substantially as herein shown and described.

3. In a refrigerator, the combination, with a series of vertically-movable troughs or gutters, of a series of inverted troughs or gutters held above the vertically-movable troughs or gutters, adapted to cover the spaces between the upper troughs, of means for moving the lower troughs or gutters vertically, and of means for locking the lower troughs or gutters in place when raised, substantially as herein shown and described.

4. In a refrigerator, the combination, with a series of gutters or troughs held on vertically-movable bars, of inverted fixed gutters held over the vertically-movable gutters, the said troughs being adapted by their interlocking flanges to act as valves between the two chambers, substantially as herein shown and described.

5. In a refrigerator, the combination, with a series of gutters, of vertically-movable bars supporting them, and a cam-shaft for moving the said bars vertically, substantially as herein shown and described.

6. In a refrigerator, the combination, with a series of gutters, of vertically-movable bars supporting them, cam-shafts for moving the supports vertically, handles for turning the cam-shafts, and means for locking the handles in place after turning the shafts, substantially as herein shown and described.

7. In a refrigerator, the combination, with a series of gutters or troughs, of vertically-movable bars for supporting them, cam-shafts for moving the supports vertically, pivoted handles on the cam-shafts, and of notched crossed bars adjoining the handles, substantially as herein shown and described.

8. In a refrigerator, the combination, with a transverse beam, D, having a gutter, E, of the cam-shafts G, the handles J, pivoted to the same, the cross-bars H, provided with notches K, for receiving the handles and holding them in place, and the gutters M, resting on the bars L, supported by the cam-shafts, substantially as herein shown and described.

9. In a refrigerator, the combination, with the transverse beam D, having a groove in its upper surface, of the cam-shafts G, the gutters M, and the inverted gutters N, held above and overlapping the sides of the gutters M, substantially as herein shown and described.

10. In a refrigerator, the combination, with the gutters or troughs M, resting on vertically-movable supports, of the fixed inverted gutters or troughs provided with the blocks O on their under surfaces, substantially as herein shown and described.

11. In a refrigerator, the combination, with
a central cross-bar, D, provided with a groove
in the upper surface, the end bars, F, the cam-
shafts G, journaled in the cross-bars H and F,
5 the strips L, held on the bars D and F by pin-
tles passing through vertical slots, the gutters
M, resting on the strips L, and the inverted
gutters N, resting above and overlapping the
sides of the gutters M, and provided on their
10 under surfaces with blocks O, which pass in
between the adjoining sides of the gutters M,
substantially as herein shown and described.

12. In a refrigerator, the combination, with
a cross-beam, D, having a gutter, E, of the
cross-beams F, the gutters M, the inverted 15
gutters N, and the outlet-pipe Q, having ap-
ertures R, extending from the trough or gut-
ter E through the refrigerating-chamber to the
bottom of the refrigerator-casing, substantially
as herein shown and described.

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Witnesses:

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