

(No Model.)

2 Sheets—Sheet 1.

C. S. HARDY.
REFRIGERATOR CAR.

No. 565,351.

Patented Aug. 4, 1896.

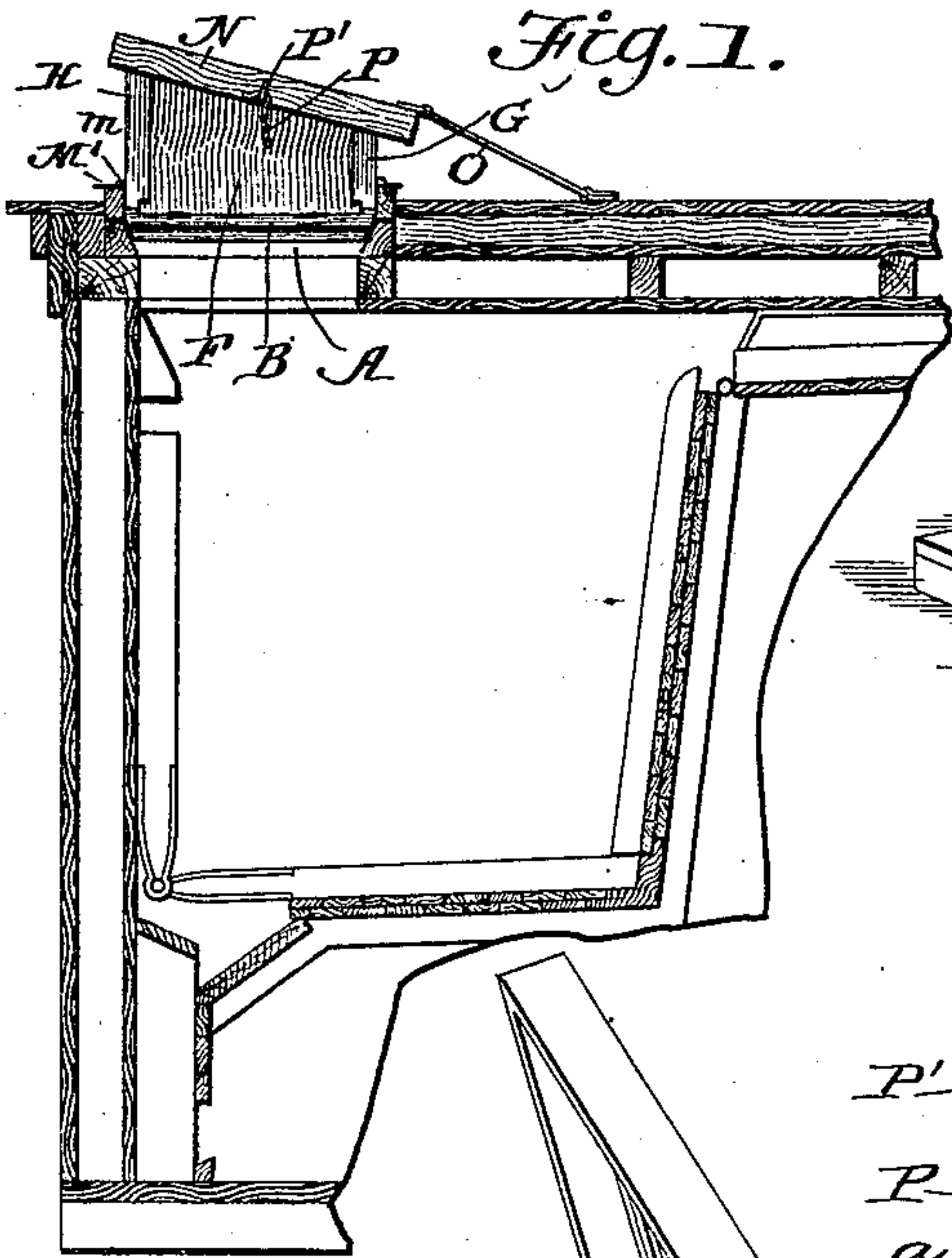


Fig. 2

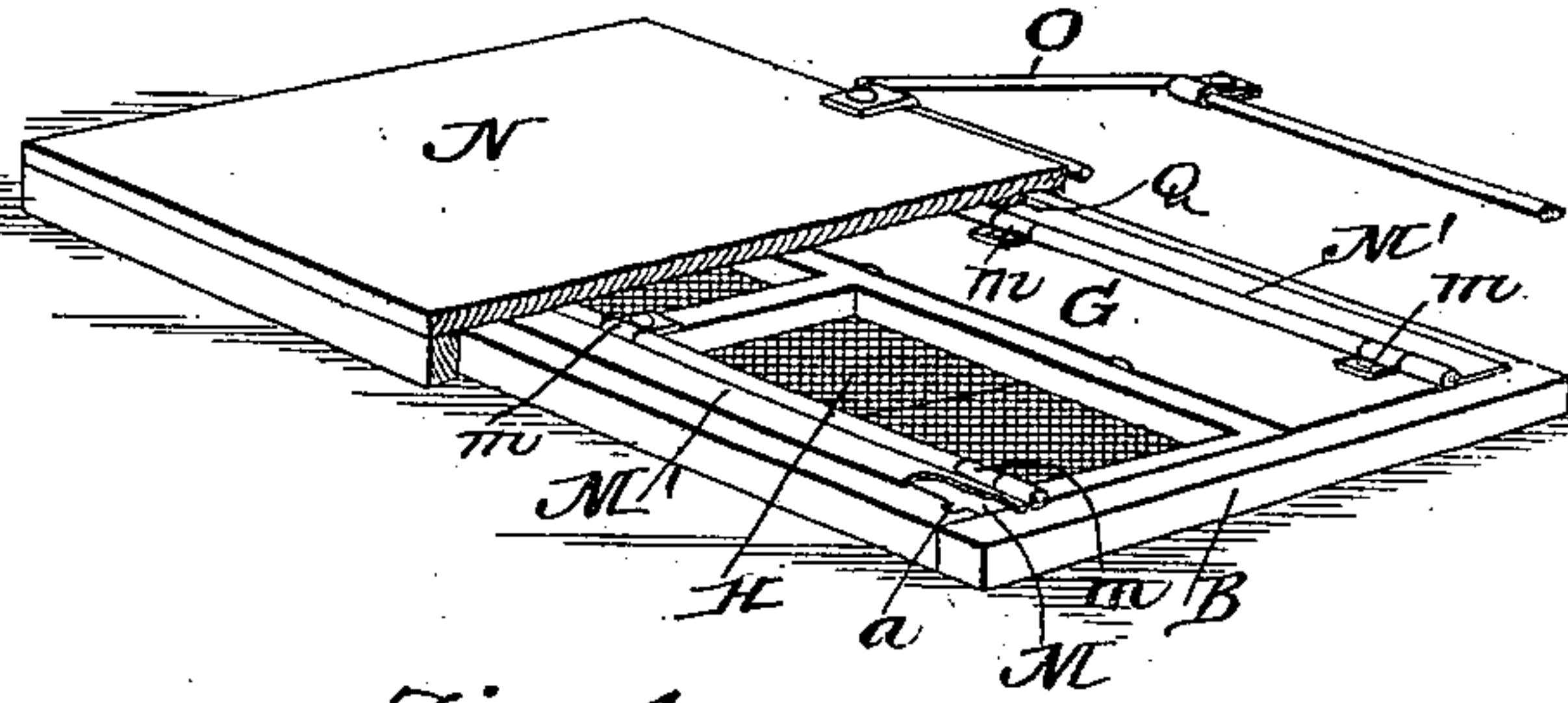


Fig. 4

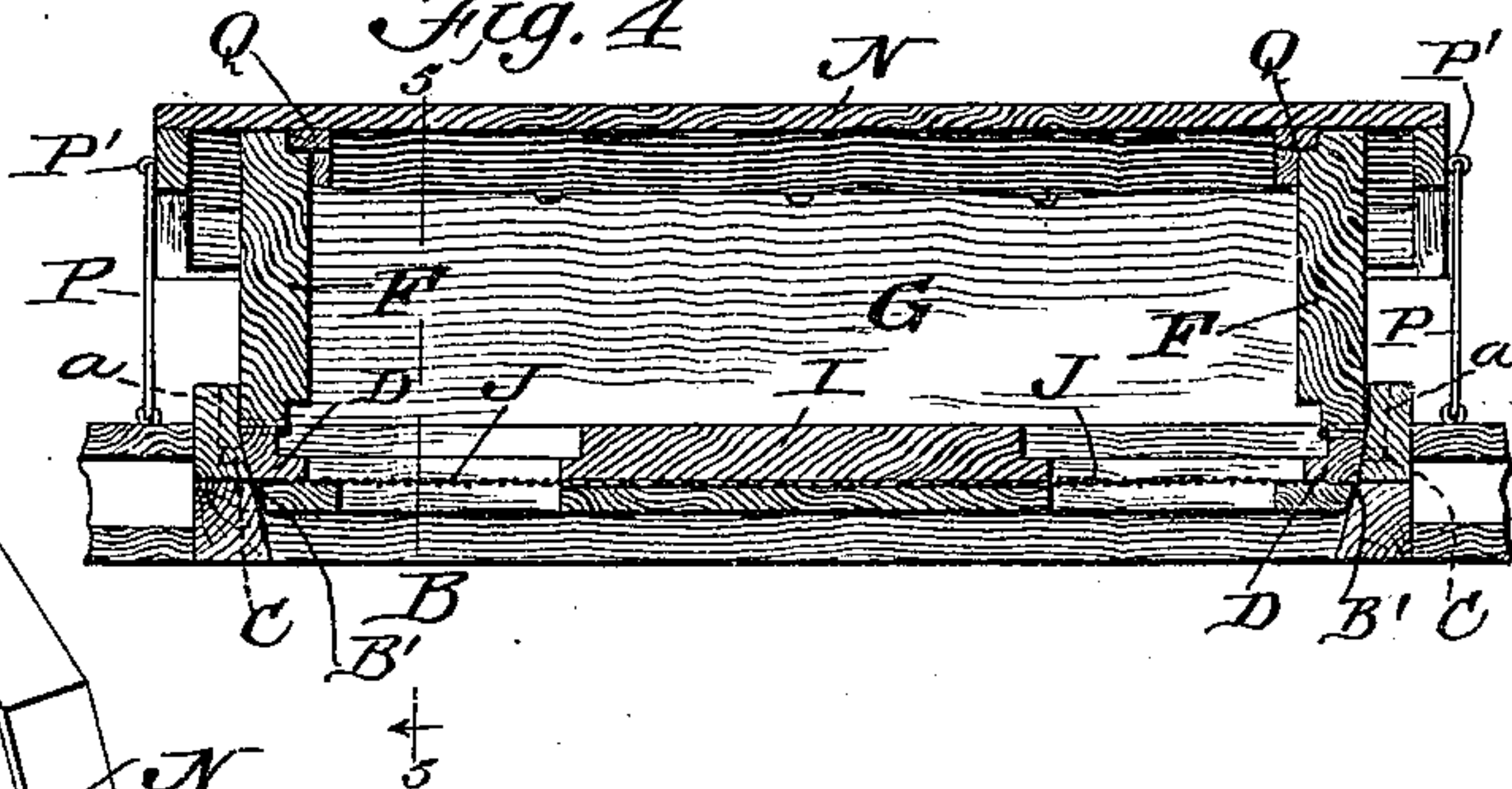


Fig. 3

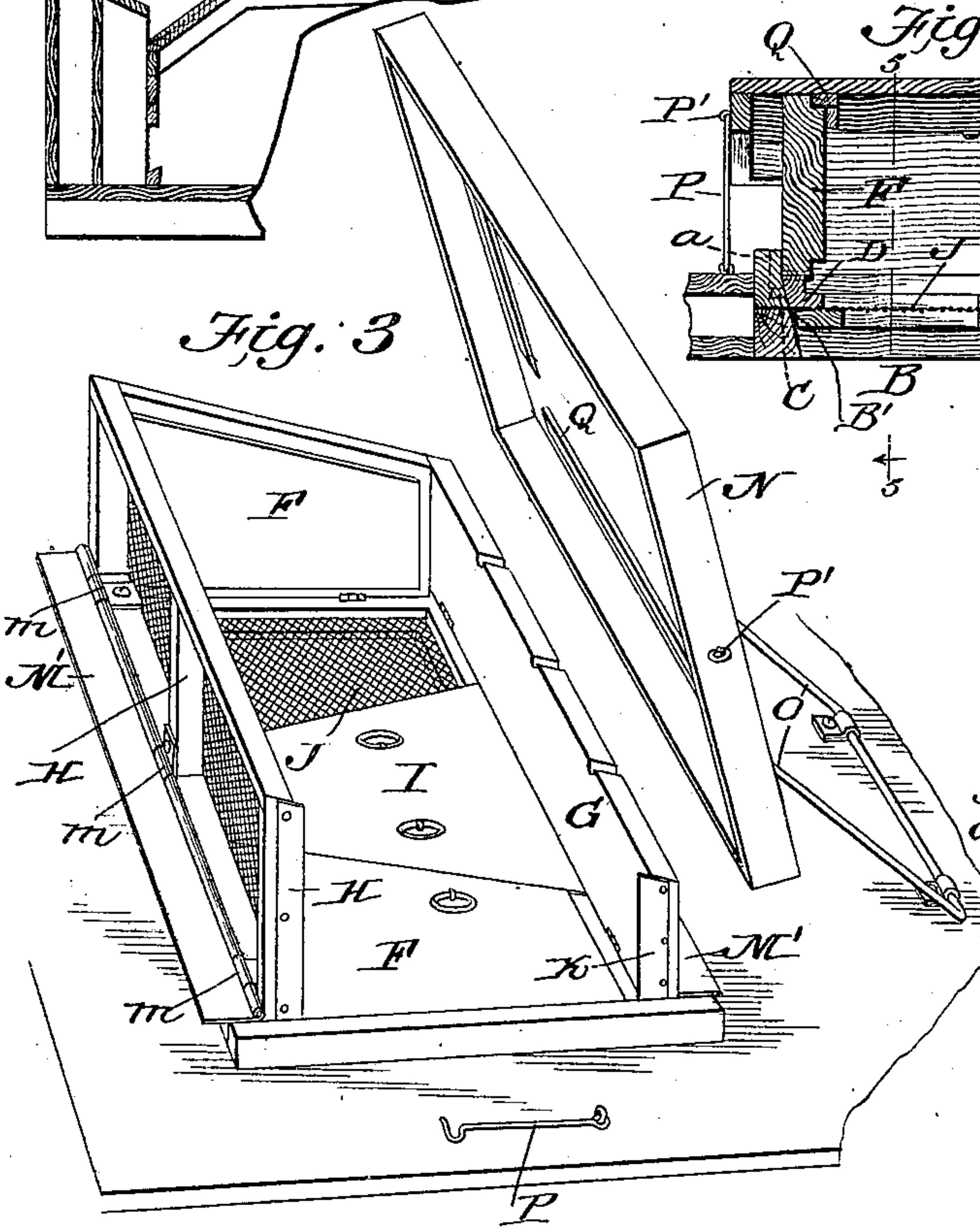


Fig. 5.

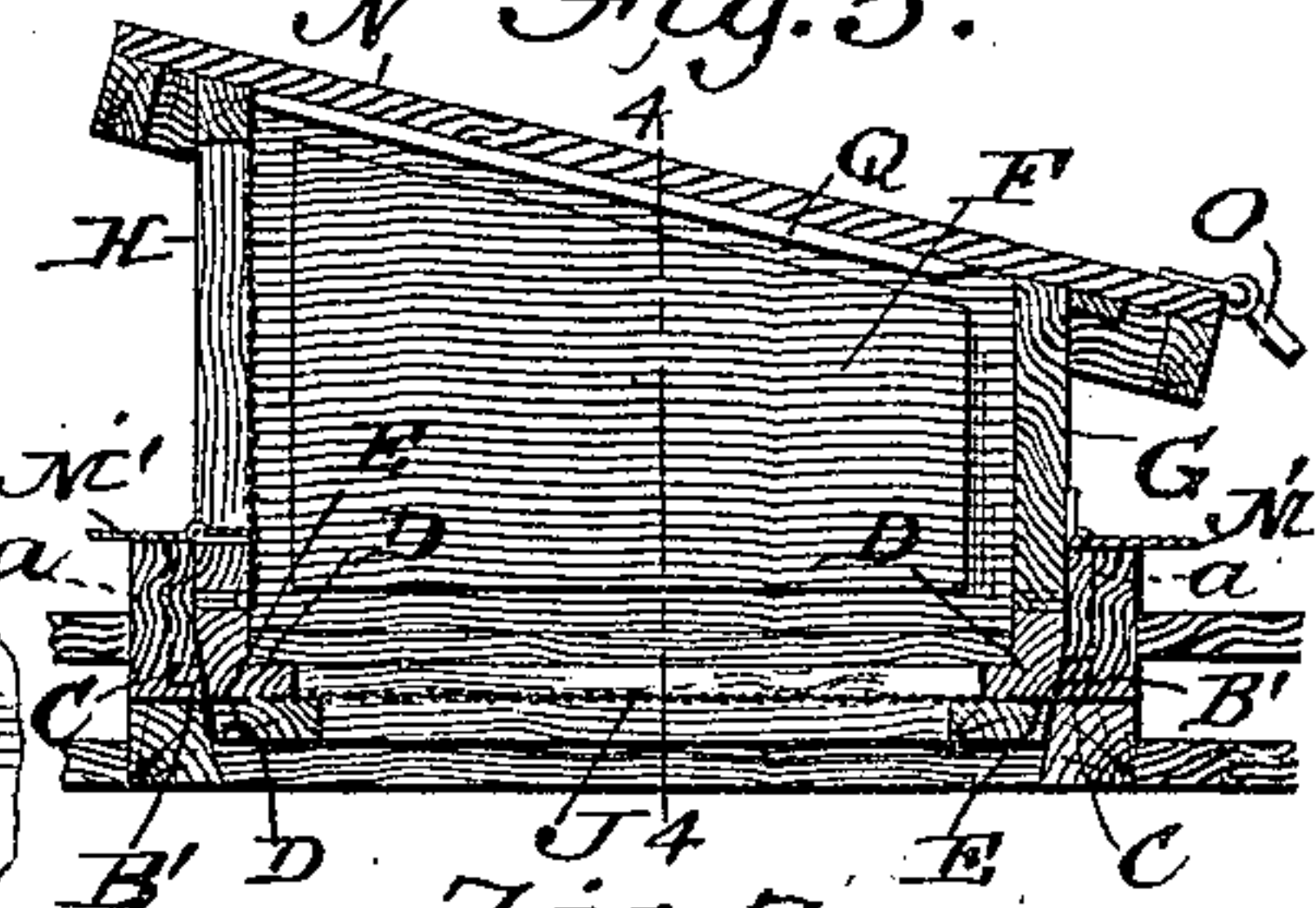
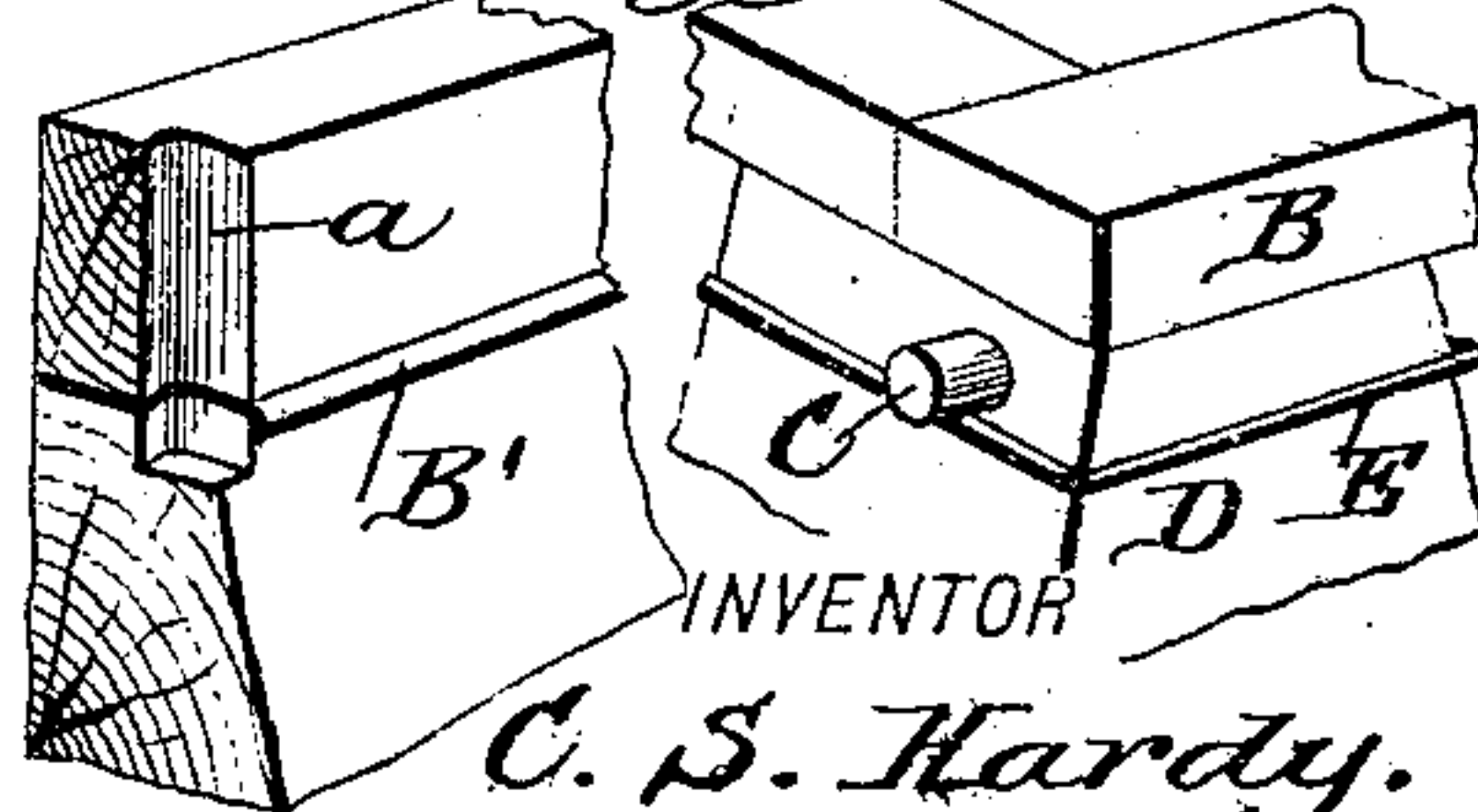


Fig. 7.

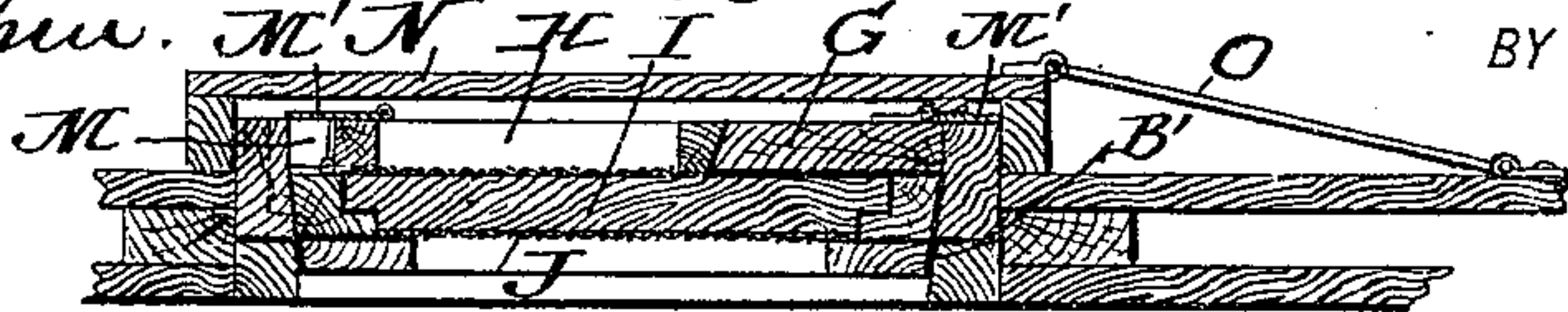


WITNESSES:

M. D. Bloude

P. B. Turpin.

Fig. 6.



C. S. Hardy.

BY Munn & Co.

ATTORNEYS.

(No Model.)

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Fig. 8.

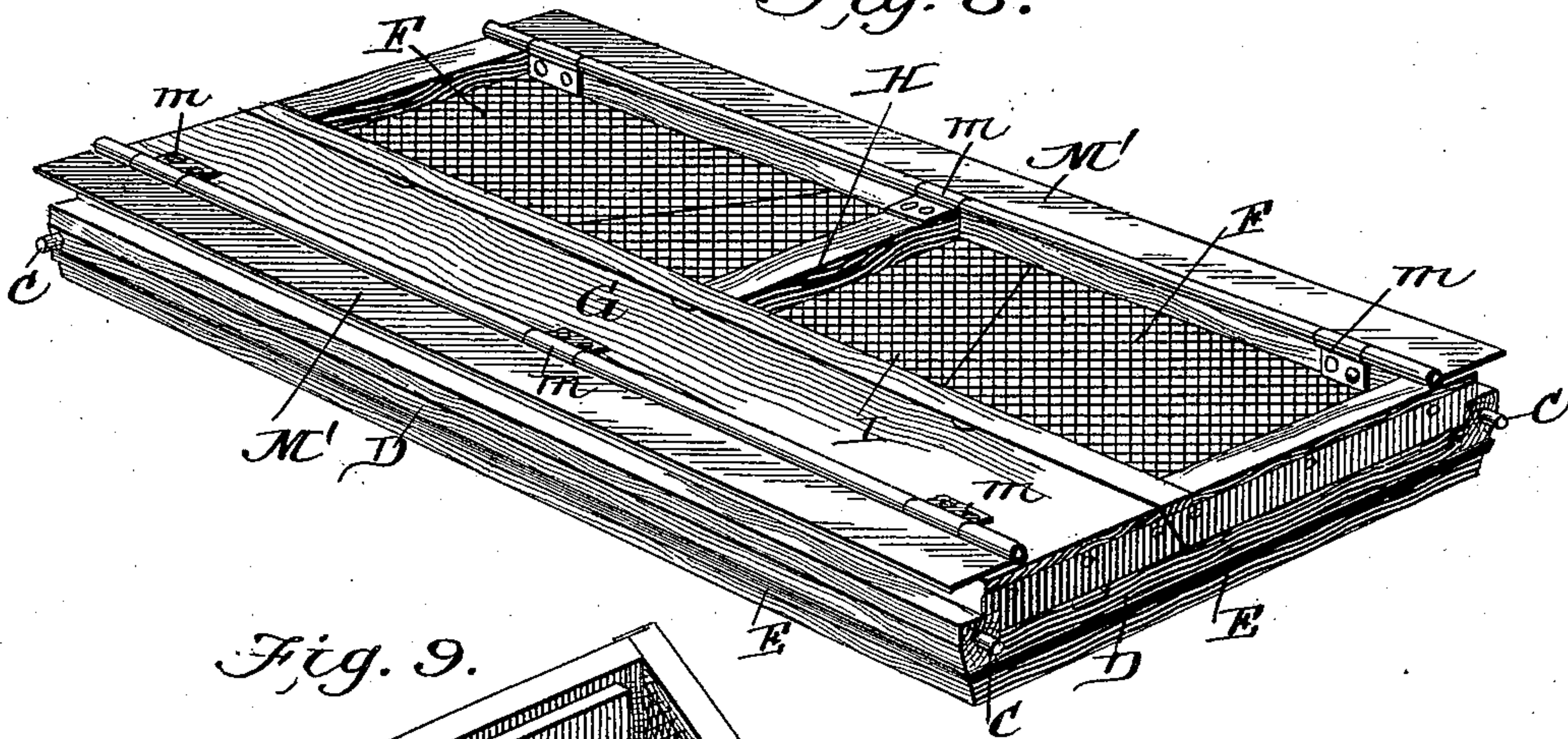
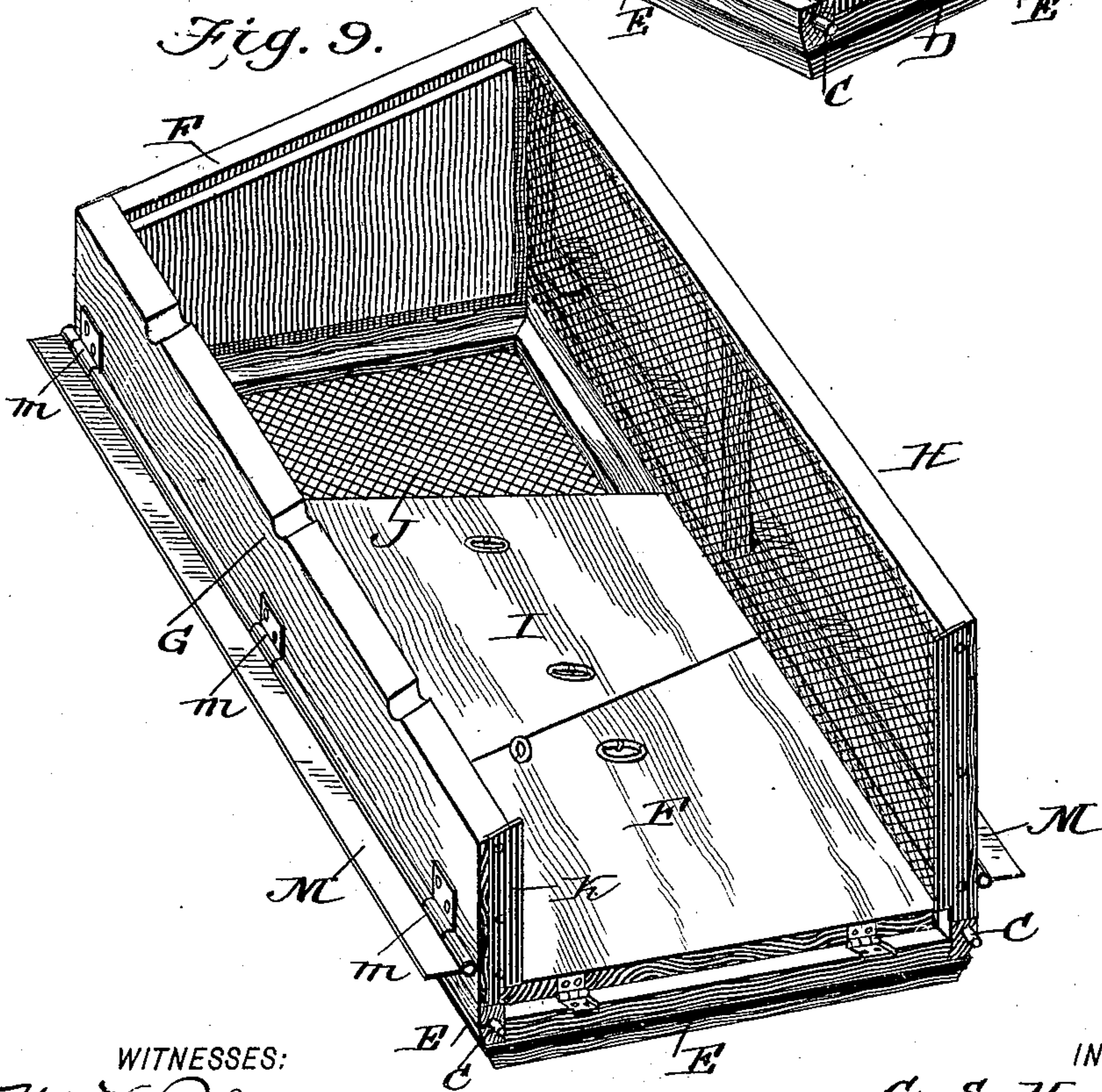


Fig. 9.



WITNESSES:

M. D. Bloudey,
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INVENTOR

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UNITED STATES PATENT OFFICE.

CHARLES S. HARDY, OF SAN DIEGO, CALIFORNIA.

REFRIGERATOR-CAR.

SPECIFICATION forming part of Letters Patent No. 565,351, dated August 4, 1896.

Application filed May 17, 1895. Serial No. 549,676. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. HARDY, residing at San Diego, in the county of San Diego and State of California, have invented a new and useful Improvement in Refrigerator-Cars, of which the following is a specification.

My invention is an improvement in refrigerator-cars, and particularly in the so-called "ice-plug" and cooperating parts, which also cooperates with a lid in closing the openings that receive ice in roof of car. The ice-plug is known to those skilled in the art as being a separate and distinct structure and not attached to outer lid. It is specifically used to further insulation in closing openings that receive ice. It differs from the lid that is provided with an insulated face, but is used in addition to such lids. All lids are operated from hinges attached to roof of car, and cannot fit as closely as the ice-plug, which is placed in the opening in the same manner that a cork is placed in a bottle. The ice-plug also leaves an air-space between itself and the outer lid, which is beneficial. All ice-plugs are constructed of non-conducting material and with beveled sides which are covered with flexible material near their top and bottom edges, which completes the sealing of the ice-plugs against the matched beveled walls of the ice-openings when the plug has been adjusted, and hence it will be understood that the ice-plug is a separate and distinct structure and used in completing the partial effect of the outer lid in perfecting insulation, the heart of the plug being adapted to open up and allow the air to pass through it to the interior of the car, the object being to so construct the ice-plug that it may efficiently serve as an insulating closure for the ice-opening and may have its parts readily adjusted to cooperate toward producing a ventilator.

To this end the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a vertical longitudinal section of one end of a car provided with my improvement. Fig. 2 is a perspective view of the device adjusted for use as a plug, parts being broken away and others shown in section. Fig. 3 is a perspective

view, some of the parts being in position for use as a plug and others for ventilating purposes. Fig. 4 is a section on line 4 4 of Fig. 5. Fig. 5 is a section on line 5 5, Fig. 4. Fig. 6 is a section of the device with the parts as in use as a plug, and Fig. 7 is a detail perspective view. Fig. 8 is a detail perspective view of the plug folded, and Fig. 9 is a detail perspective view of the plug partially unfolded.

In practice it is usual to provide four ice-supply openings A, two at each end of the car, such openings leading to the ice-holders within the car, which holders may manifestly be of any desired construction. The walls of these openings A in the construction shown are provided with packing-strips B', and in the walls of such openings I form notches or seats *a* for pins or projections C on the frame of the ice-plug presently described. These pins or projections and the notches or seats prevent the plugs from being put in wrong and also bring them to a level bearing in their openings. The plug B has at the outer edge of its frame D packing-strips E, which, together with the packing-strips of the ice-supply opening, secure a tight fitting of the plug within its opening. To the frame D are pivoted the end sections F, the rear section G, and the front section H, and within such frame I fix the section I, the opposite edges of which coincide with the swinging edges of the end sections F, and the latter fit, in the folded position thereof, closely against the edges of the fixed section and are held in position by sections H and G when all parts are closed. These end sections and the fixed section are imperforate, so that when the end sections are folded down in closed position they, with the fixed section, form an imperforate plug which will operate to secure a perfect insulation. These end sections and the fixed section may be packed in any suitable manner and with any suitable material. The plug-frame is provided between the fixed section and its ends with the fixed netting or screen J. The front and rear sections are hinged to the frame and may turn down flat upon the end and intermediate section, or to an upright position, as may be desired, and these side sections are provided with end flanges K, which overlap the end sections when

the parts are adjusted for use as a ventilator and produce a tight joint between the side and end sections. When the end sections are turned down and the side sections are folded down upon the end sections and the plug is fitted in the ice-opening, spaces are left at M between the hinged edges of the side sections and the plug-frame. To close these spaces to prevent cinders and the like from getting therein and injuring the plug, I provide cover-plates M', hinged at m to the sections and arranged to overlap the spaces when the side sections are folded flat. At the same time these cover-plates permit the side sections to be readily raised to position for use as a ventilator. The front section is made in the form of a screen and the rear section is preferably imperforate. It will be noticed that the front section and the rear section are inclined transversely at their free edges, while the end sections are inclined longitudinally at their free edges, and the inclinations are similar, so that when the several sections are raised to upright position their inclined edges will coincide and lie in a common plane to properly receive the lid N. This lid N has its swinging connection with the car, such connection being preferably in the nature of a bail O, jointed at one edge to the car and at its other edge to the lid, so the latter may be adjusted to close the ice-opening or to rest upon the folding sections of the plug to complete the ventilator. In the latter adjustment the lid is secured by suitable fastenings, preferably hooked rods P, secured to the car and engaging eyes P' on the lid. This lid is provided on its under side with portions for engagement by the sections of the plug, such portions being preferably cleats Q on the under side of the lid, as shown.

By my invention I provide a plug whose parts are adjustable to permit the convenient conversion of the plug into a ventilator, such construction in no way impairing the efficiency of the plug, but combining in one structure both the plug and the ventilator. This enables me to use the same plug in the winter months, when the refrigerator-cars are employed in the shipment of fruit without ice, and to readily convert such plug into a ventilator. This avoids the use of separate structures and insures the provision of the car with either an ice-plug or a ventilator, as may be desired.

My device is advantageous in cars having folding ice-tanks, as the common ice-plug cannot be conveniently used in connection with these cars, as no space would be left in which to store the plug when tanks were folded and cars used for cargoes requiring ventilation only. Before closing my description I wish it to be understood that my invention and my claims will apply specifically to an improved construction of a true and effective convertible inner ice-plug that may be changed to a ventilator, when required, without removing the ice-plug, and the parts

of which cooperate, and are at all times employed, thus differing from a mere frame or an insulated outer lid having parts that in no way furnish insulation and will form a ventilator only.

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

1. In an apparatus substantially as described, an inner ice-plug having a foldable section whereby its heart may open up and adapt it to cooperate with the lid or hatch in forming a ventilator and an outer lid or hatch-door, substantially as described.

2. In an apparatus substantially as described, the combination of a separate outer lid or hatch and an inner ice-plug having folding sections which may be adjusted to cooperate with other parts of such plug in its use as an ice-plug or to open up the said plug and cooperate with the separate lid or hatch in forming parts of a ventilator, all substantially as shown and described.

3. In an apparatus substantially as described, an inner ice-plug comprising a frame and a series of sections foldable therein whereby they may cooperate in forming parts of an ice-plug and also of a ventilator and a separate lid adapted as a cover for both the plug and ventilator, substantially as set forth.

4. An apparatus substantially as described comprising the lid or hatch and an inner ice-plug having parts which may be adjusted to cooperate with other parts of said plug in performing its functions as an ice-plug or which may be adjusted to cooperate with the lid or hatch in operating as a ventilator substantially as shown and described.

5. In a convertible ice-plug and ventilator, the combination with the screen-section of imperforate sections extending throughout the area of the screen in the folded adjustment of the parts, substantially as set forth.

6. In a convertible ice-plug and ventilator, a plug made in sections whereby it may cooperate in forming a ventilator, and having imperforate sections which when the plug is folded or closed extend throughout the area thereof whereby the latter will when folded effectually close its opening substantially as described.

7. The combination with the car having the ice-opening, and the ice-plug fitted thereto and having sections capable of adjustment to form parts of a ventilator, of the lid, and a swinging connection between said lid and the car whereby the lid may be applied directly to close the ice-opening or upon the ice-plug sections when the latter are adjusted to form parts of the ventilator, substantially as set forth.

8. An ice-plug provided with a hinged section and with a cover-flap jointed to said section and guarding the joint between the latter and its support, substantially as set forth.

9. A convertible ice-plug and ventilator having folding end and side sections and hav-

ing attached strips overlapping the joints between said side and end sections, substantially as set forth.

10. A separate convertible ice-plug and ventilator having the ice-plug provided with folding end and side sections that open upward, the free edges of the side sections being inclined transversely and those of the end sections being inclined longitudinally the edges of both side and end sections coinciding in a common plane when the sections are adjusted to position for use as a ventilator and a lid or cover substantially as set forth.

11. An ice-plug provided with hinged side sections opening upward and having cover-plates overlapping the hinged edges thereof in the folded position of same substantially as set forth.

12. A ventilator composed of hinged sections and adapted to fold out of way when not in use as a ventilator the front and rear sections provided with flanges that seal the joints between side and end sections and assist in holding said sections in a vertical position when in use as a ventilator, substantially as set forth and described.

13. In an apparatus substantially as described, a plug having sections folding to form a closing-plug and opening to form parts of a ventilator, substantially as set forth.

14. A plug comprising a frame, a central fixed imperforate portion, imperforate end sections hinged to the frame and fitting at their swinging edges snugly to the edges of the fixed portion and the hinged front and rear sections turning down upon the end sec-

tion and fixed portion, substantially as set forth.

15. The car having the opening provided in its walls with notches or seats combined with the plug fitted to said opening and having pins or projections entering said seats substantially as set forth.

16. The combination of the car having the ice-opening, the plug fitted to said opening and having sections adjustable to position to cooperate in forming a ventilator the lid fitted to close the ice-opening and having on its under side seats for engagement by the adjustable sections of the plug when the latter are set for use as a ventilator and fastenings for said lid, substantially as set forth.

17. The combination of a plug having imperforate sections which when the plug is folded or closed extend throughout the area thereof, some of such imperforate plug-sections being adapted to cooperate in forming the ventilator, and the cover forming the top of the ventilator and a protecting cover for the plug substantially as shown and described.

18. The combination with an outer lid or cover of an inner ice-plug having folding sections forming with the cover a ventilator when unfolded and forming a dead-air space with said cover when the sections are folded for use as an ice-plug, substantially as described.

CHARLES S. HARDY.

Witnesses:

H. M. JACOBY,
GEO. N. O'BRIEN.