

No. 657,441.

Patented Sept. 4, 1900.

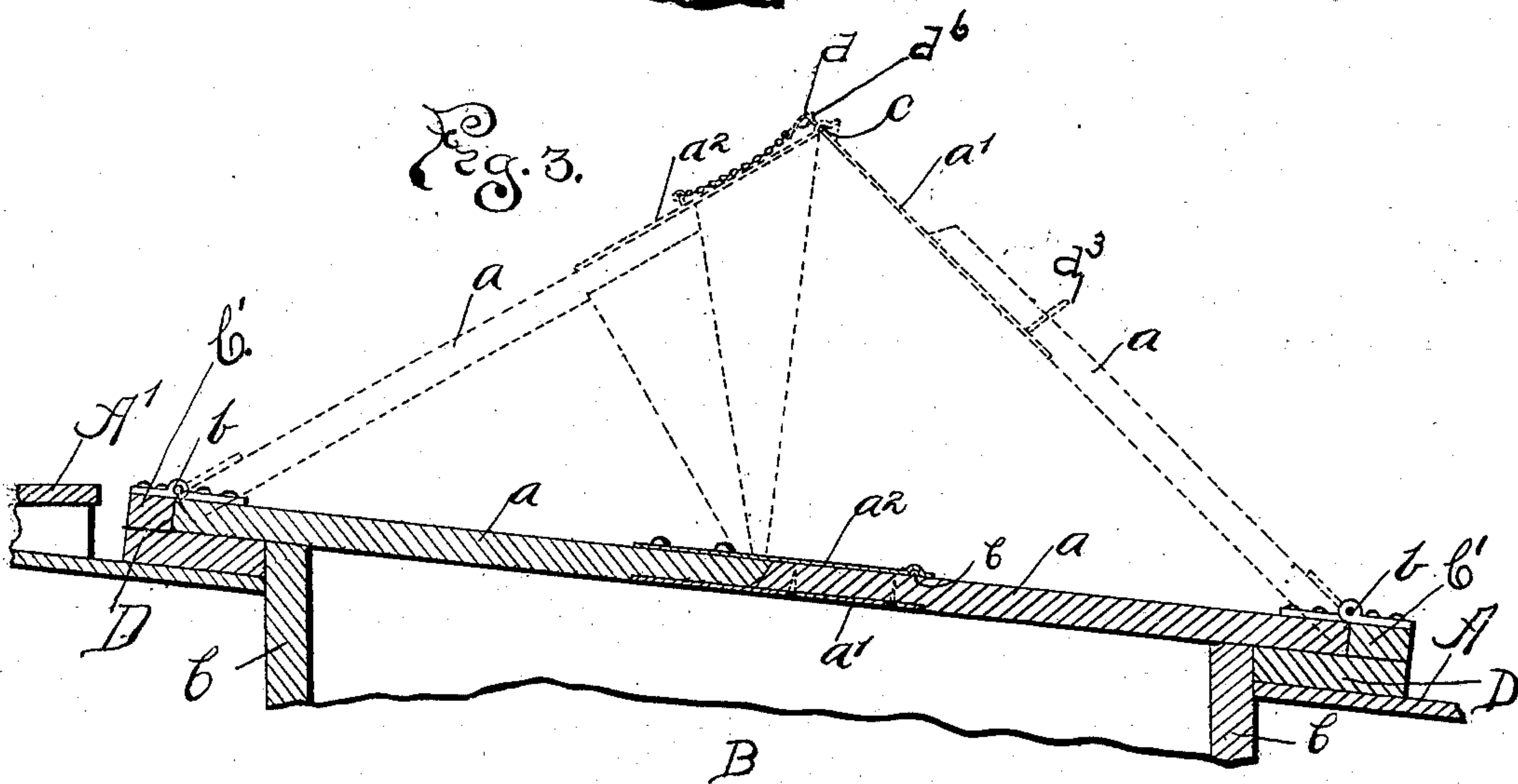
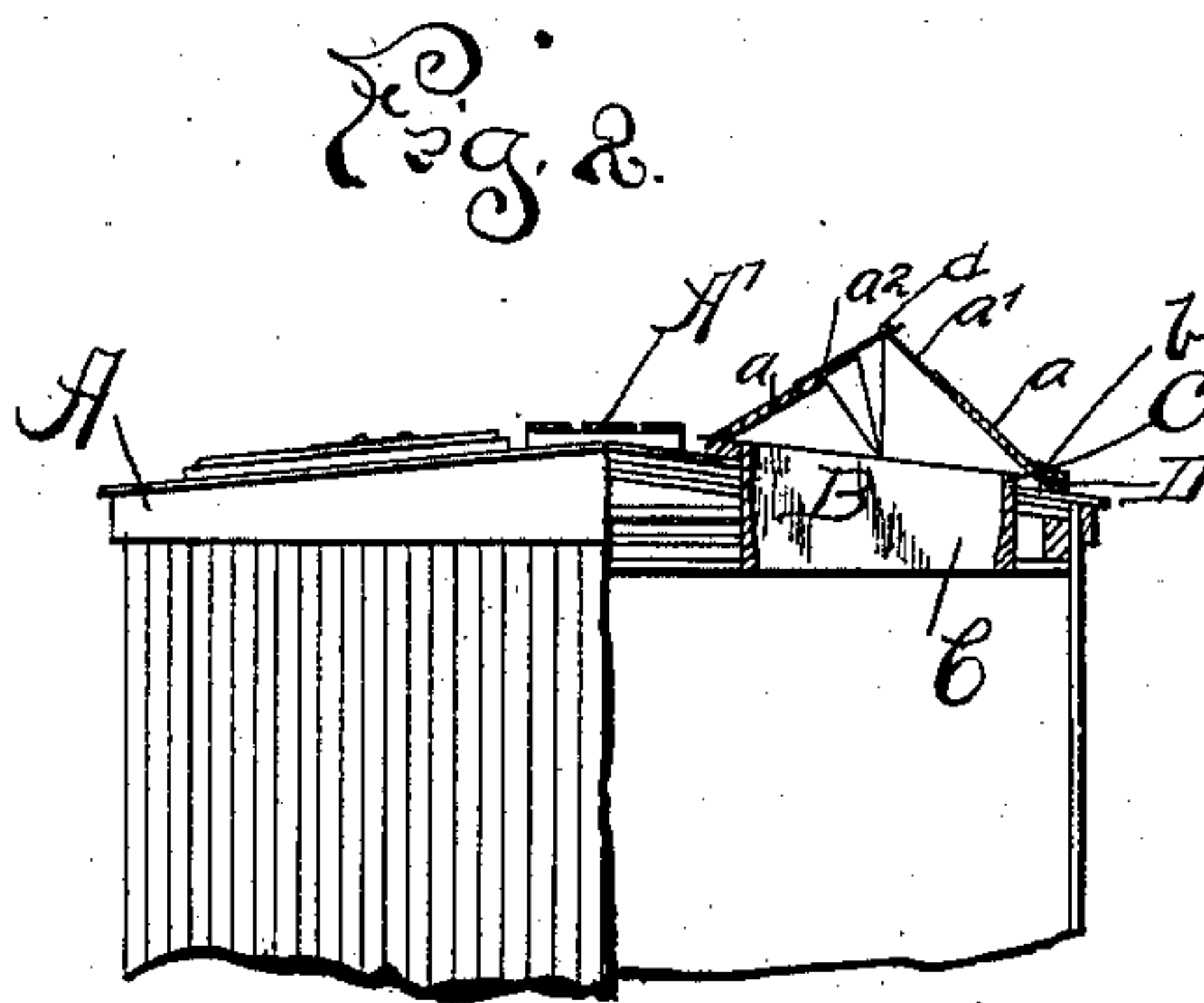
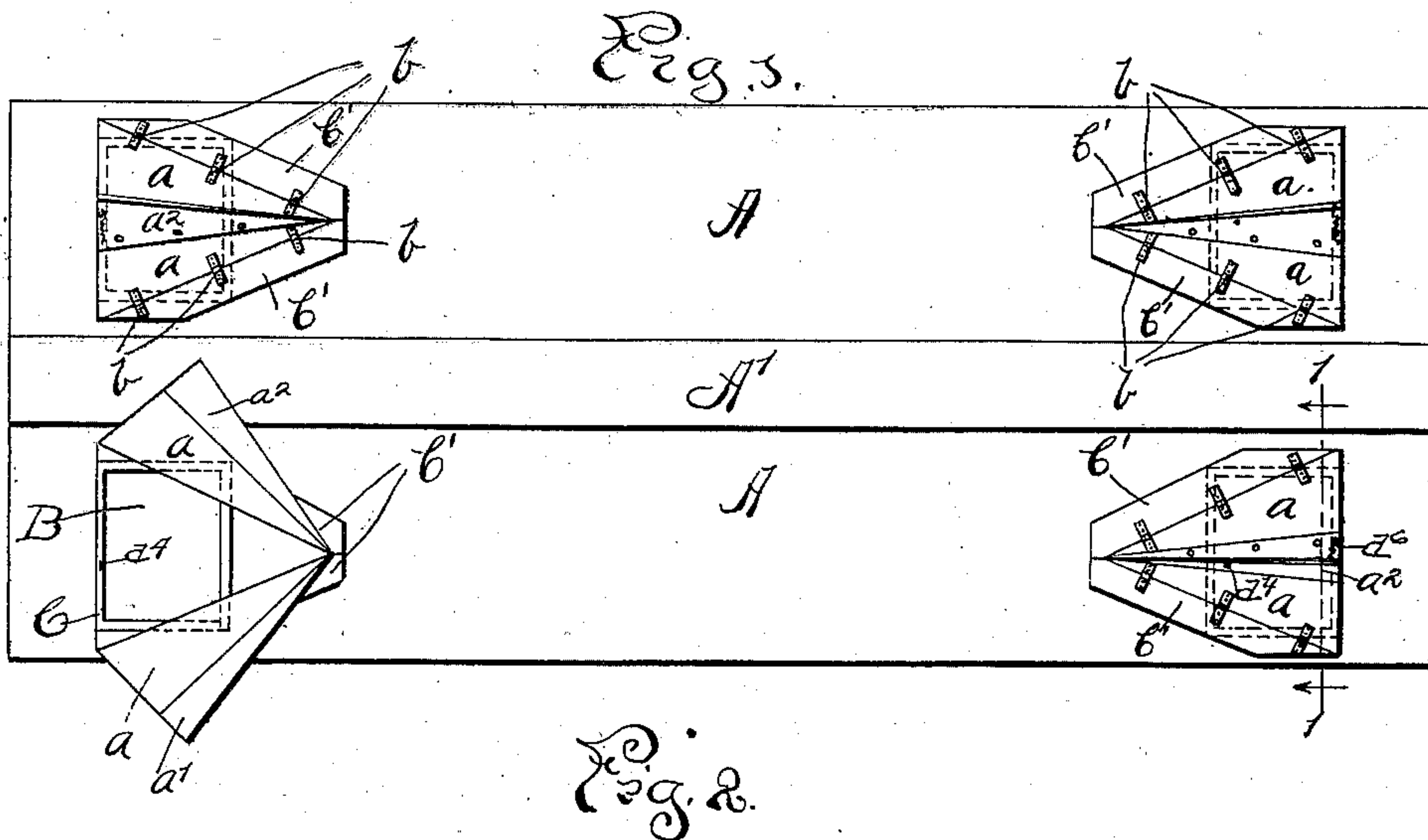
H. M. McINTOSH.

VENTILATING HATCH FOR REFRIGERATOR CARS.

(Application filed Aug. 27, 1898.)

(No Model.)

4 Sheets—Sheet 1.



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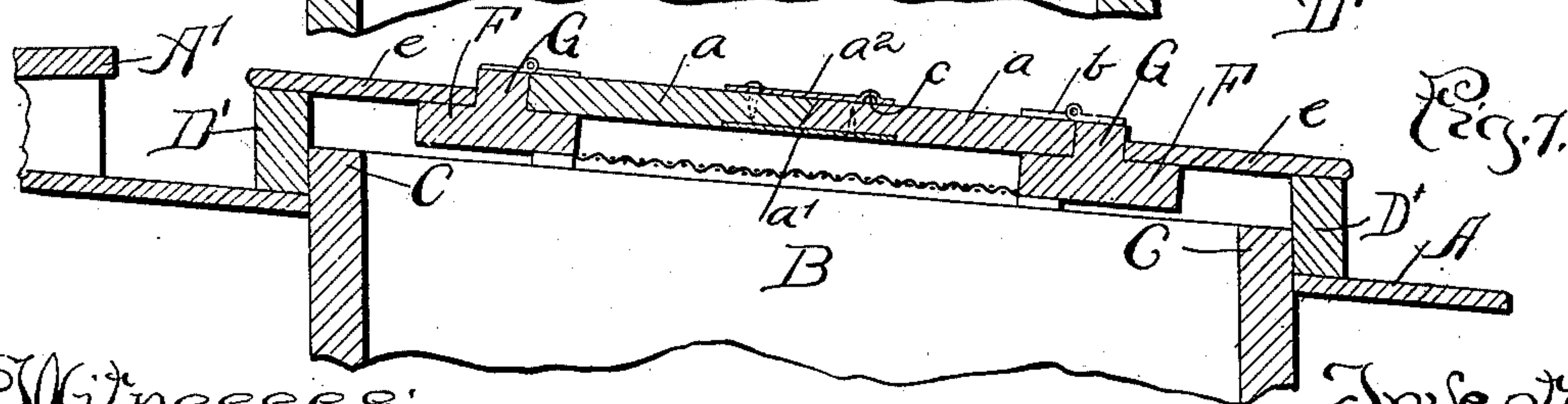
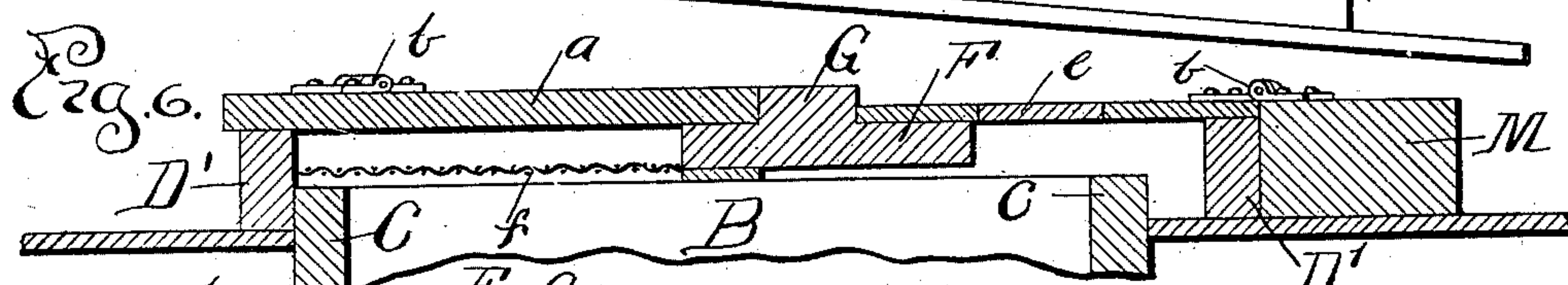
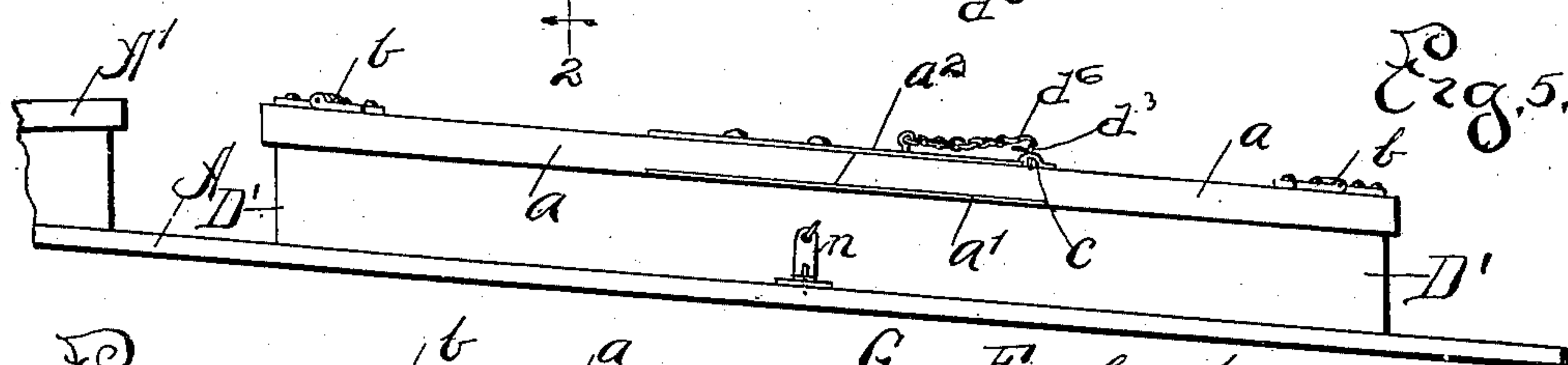
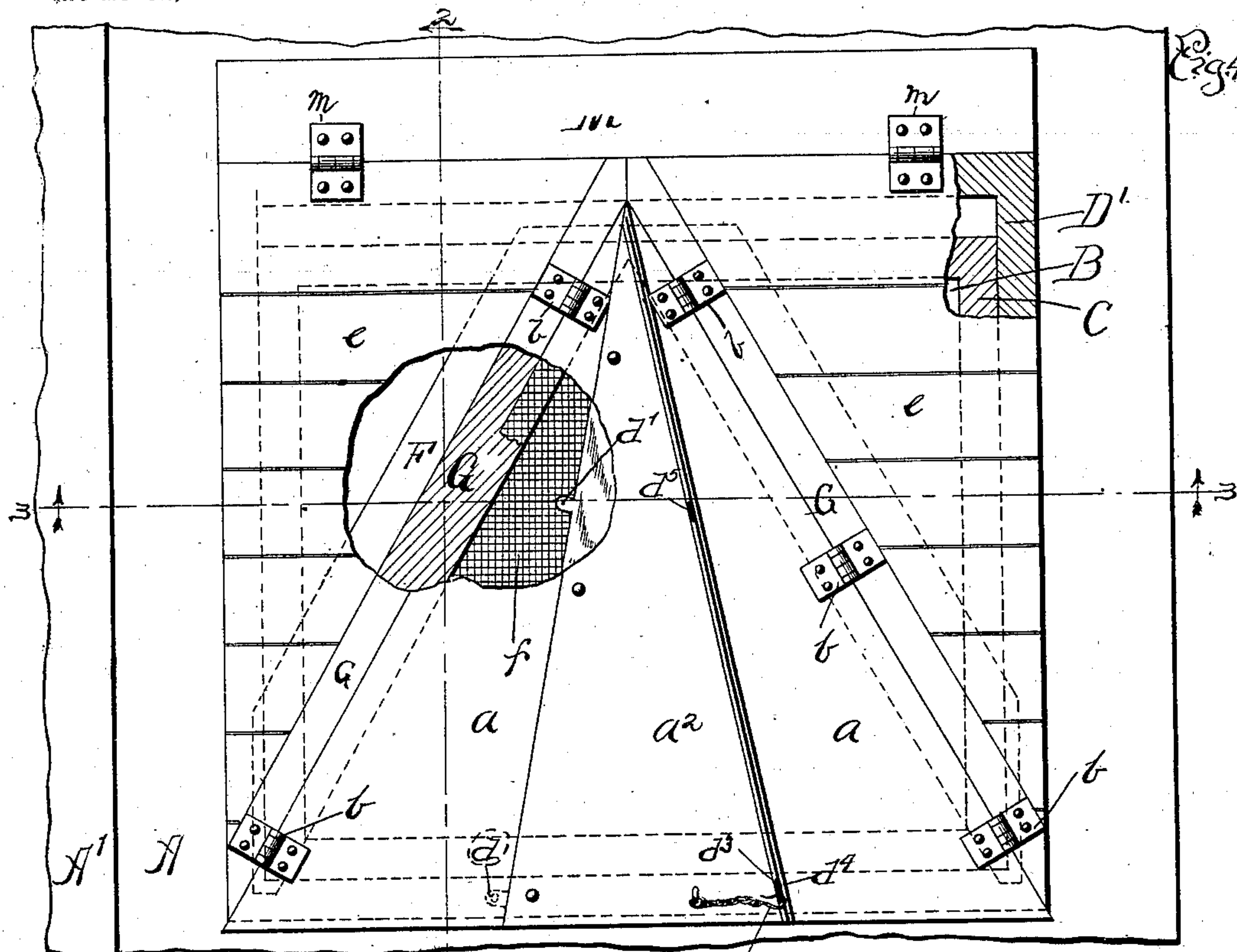
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VENTILATING HATCH FOR REFRIGERATOR CARS.

(Application filed Aug. 27, 1898.)

(No Model.)

4 Sheets—Sheet 2.



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**Patented Sept. 4, 1900.**

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## VENTILATING HATCH FOR REFRIGERATOR CARS.

(Application filed Aug. 27, 1898.)

(No Model.)

**4 Sheets—Sheet 3.**

Fig. 8.

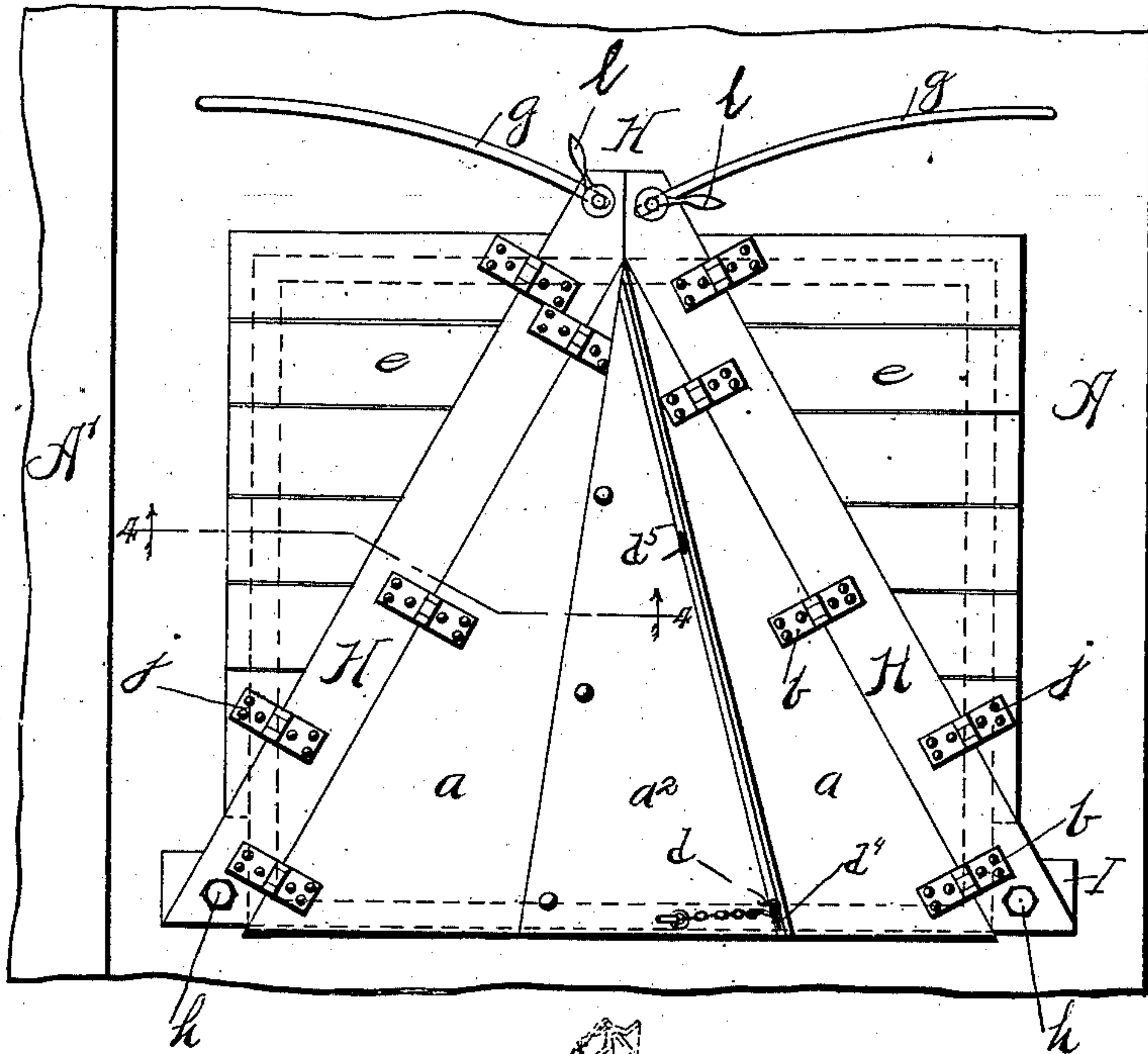


Fig. 9.

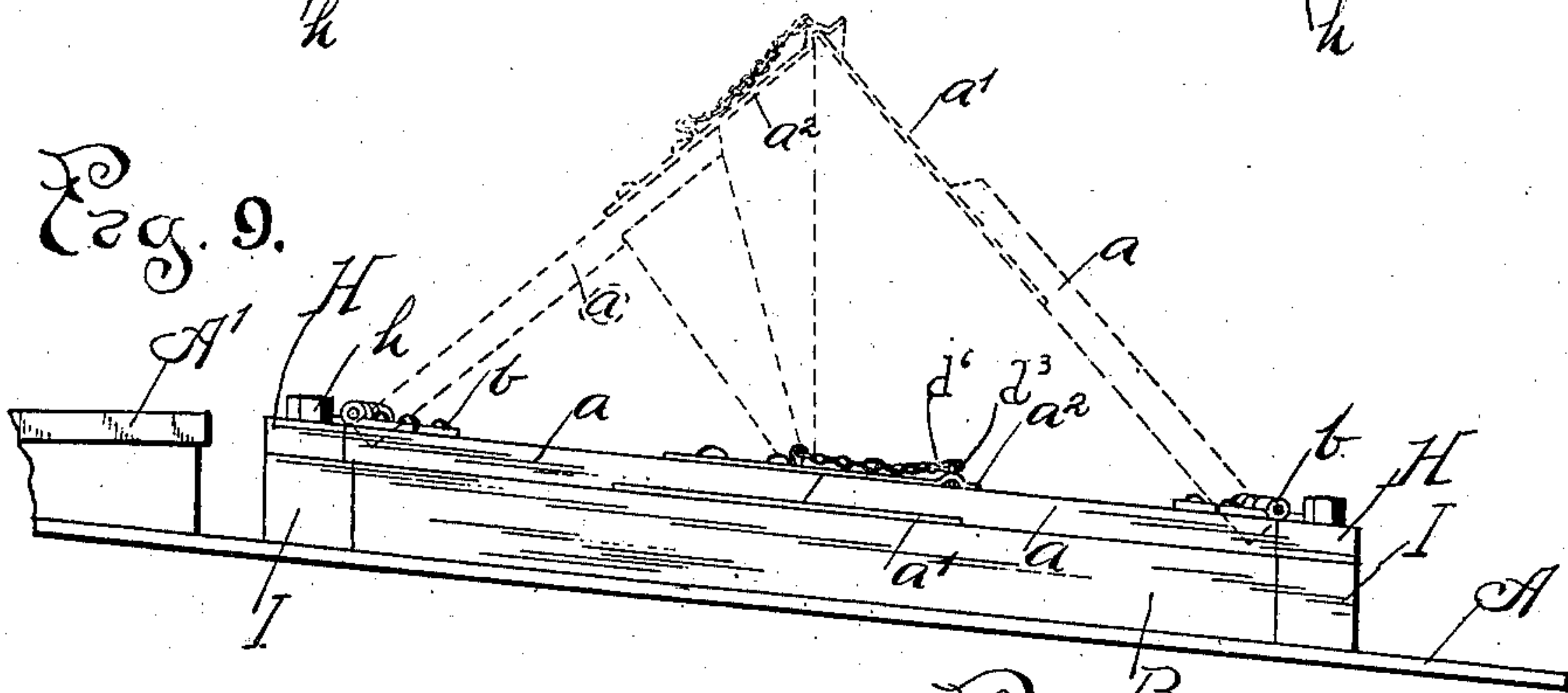
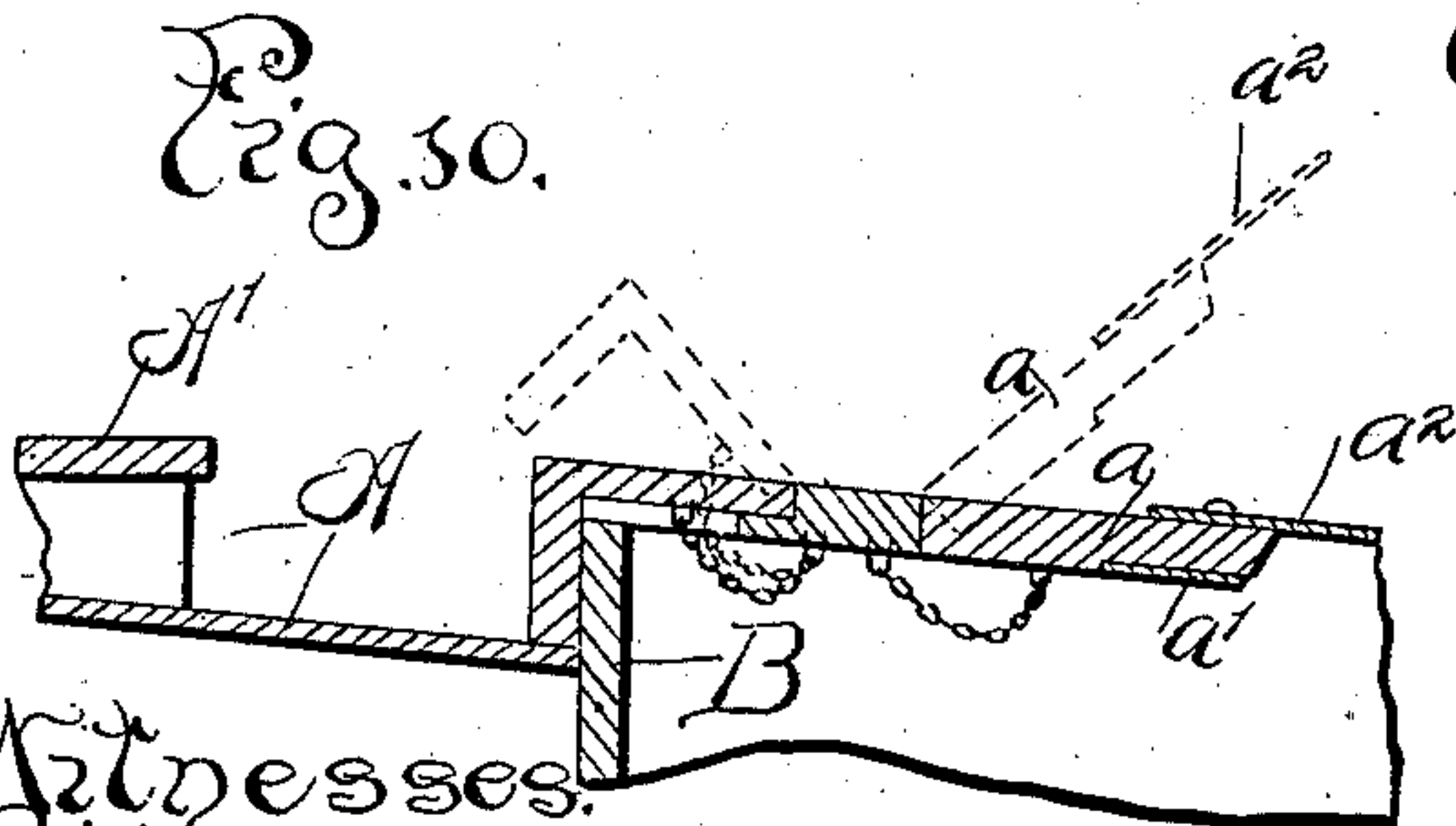
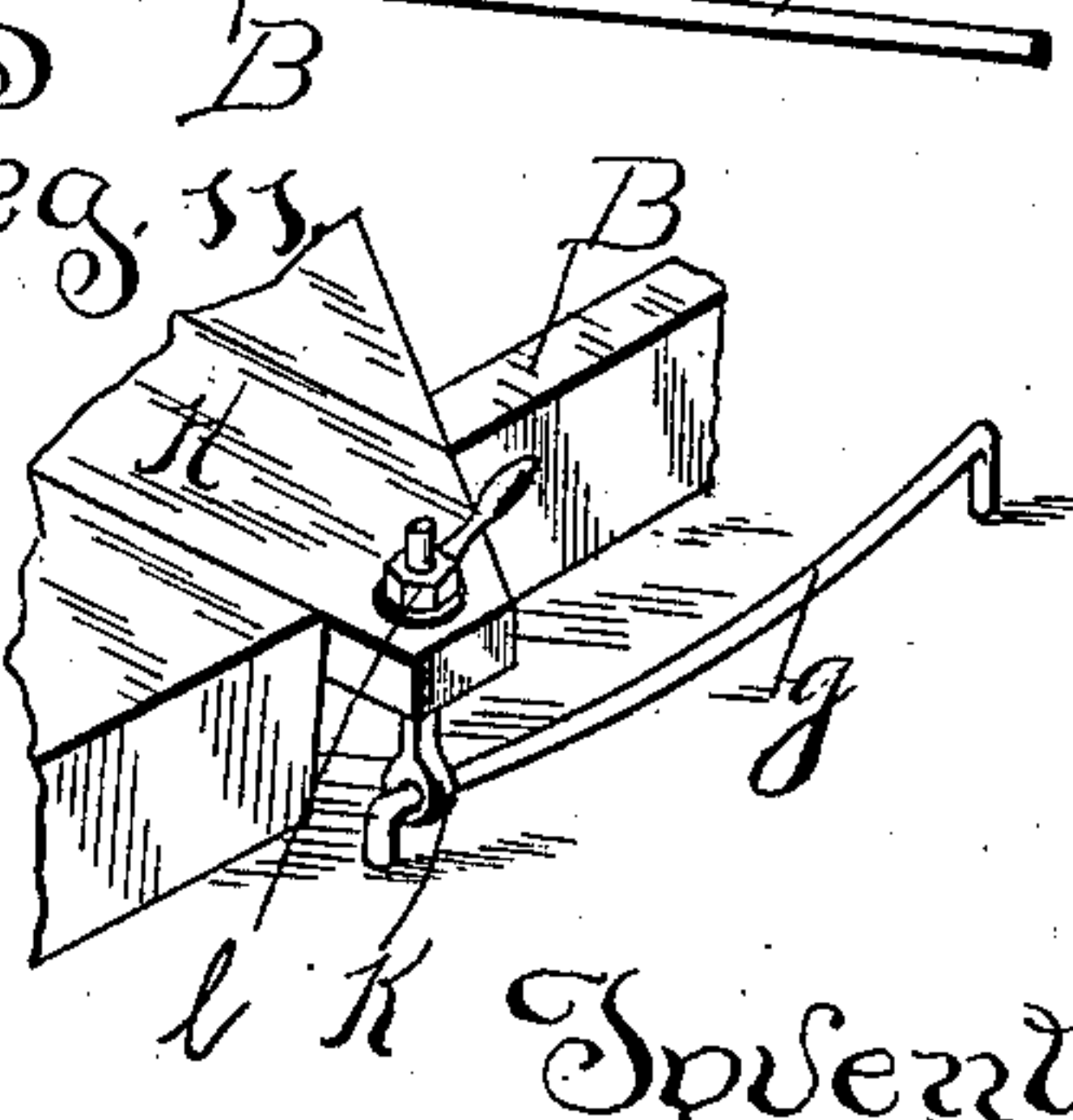


Fig. 30.



Feb. 11.



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# UNITED STATES PATENT OFFICE.

HARRY M. MCINTOSH, OF CHICAGO, ILLINOIS.

## VENTILATING-HATCH FOR REFRIGERATOR-CARS.

SPECIFICATION forming part of Letters Patent No. 657,441, dated September 4, 1900.

Application filed August 27, 1898. Serial No. 689,629. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY M. MCINTOSH, a citizen of the United States of America, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilating-Hatches for Refrigerator-Cars, of which the following is a specification.

My invention relates to hatches which are also used for ventilating purposes.

The objects of my improvement are to provide secure covers or hatches for the ice-holes or hatchways of refrigerator-cars, to utilize such hatches for ventilating-hoods by which the current of air caused by a moving train can be turned downwardly and directed through the body of the car with the greatest possible force, unimpeded by unnecessary obstructions, and to simplify the construction of the necessary parts and reduce the possibility of their loss or destruction. I attain these objects by the means and by the arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the top of a refrigerator-car with one form of apparatus embodying my improvement attached. Fig. 2 is a view, partly in end elevation and partly in transverse section, of the end of a refrigerator-car with the form of my invention shown in Fig. 1 applied thereto. Fig. 3 is an enlarged sectional view of the same form of my improved hatch on the dotted line 1 1 of Fig. 1, represented as closed by the solid lines and open for ventilation by the dotted lines. Fig. 4 represents another form of apparatus embodying my invention wherein the ventilating-lids are hinged to a hatch, which in turn is attached to the car-roof, a portion being broken away to show the internal construction. Fig. 5 is a front view of the construction shown in Fig. 4. Fig. 6 is a longitudinal section of the same, taken on the dotted line 2 2, looking in the direction of the arrows. Fig. 7 is a transverse sectional view of Fig. 4, taken on the dotted line 3 3, looking in the direction of the arrows. Fig. 8 shows another arrangement embodying the principles of my device in which the triangular lids are hinged, together with the remaining portions of a rectangular hatch-cover, to a pivotally-

attached diagonal framing. Fig. 9 is a front elevation of the same, the wings being indicated in the raised position by dotted lines. Fig. 10 shows the left half of Fig. 8 in transverse section on the dotted line 4 4. Fig. 11 is a detail perspective of the rear fastening of the diagonal framing. Fig. 12 shows another arrangement embodying the principles of my invention in which the hatch is divided centrally and the two parts are separately hinged. Fig. 13 is a transverse sectional view of the same on the dotted line 5 5. Fig. 14 is a transverse sectional view of a portion of the same, taken on dotted line 6 6. Fig. 15 is a longitudinal sectional view of Fig. 12, taken on the dotted line 7 7. Fig. 16 is an enlarged sectional view of a method of fastening lids in an open position. Fig. 17 is an enlarged perspective of a method of fastening the lids closed to form a ventilating-hood.

The use and construction of railway refrigerator-cars, in which perishable products like meats, fruit, and the like are transported, are well understood and no detailed description of either is necessary. It is sufficient to say that such cars have their external portions carefully constructed with reference to non-conduction of heat and cold and that the modern if not the universal practice is to build ice boxes or chambers in each end of the car to contain ice when refrigeration of the contents of the car is necessary. Two openings or hatchways are placed over each ice-box, one on either side of the roof, through which ice is introduced. These openings are provided with covers or hatches by which they can be securely closed. There are, however, seasons of the year and portions of the journey on many long routes in which the use of ice is not desirable, but during which it is necessary to ventilate the interiors of the cars. The hatchways are the most convenient and practicable medium through which the air can be conducted into and from the car. It is the common practice to hinge the hatches or covers to the car-deck at the portion of the hatchway most remote from the end of the car. When ventilation is desired, the hatches are raised and supported in an inclined position toward the car ends. The motion of the train creates an air-current



which is caught by the foremost of the covers so inclined, deflected downwardly into the car, and forced out at the rear openings. Many methods have been devised to hold the  
 5 hatches in proper ventilating position and separately or in combination to protect the opening thus left. This has usually been done by screens and side wings hinged to the cover or to each other and arranged to be  
 10 folded upon each other or upon the cover when not in use or to be disposed in pockets or receptacles formed for the purpose. The necessity of such storage in limited space requires such screens and wings to be made of  
 15 comparatively-light material, which when framed or hinged together are very liable to breakage or injury under the careless handling and severe conditions of railway service. The hatches inclined as described  
 20 do not furnish the most ready passage for air-currents, and the use of a perpendicular or nearly-perpendicular screen seriously impedes the passage of the ventilating-current. My improvements meet and overcome these  
 25 difficulties, as will hereinafter be more fully explained, reference being had to the drawings, in which the same letters represent like parts throughout.

A represents the top of a refrigerator-car, and A' the foot or running board, extending from end to end of the same. B represents the ice-openings or hatchways, and C the raised edge or coaming surrounding the same. These parts may be of the usual or any well-  
 35 known or convenient construction.

The covering or hatch to which my invention particularly relates comprises triangularly-shaped lids  $a$ , which in the form shown in Fig. 1 are attached by hinges  $b$  to the forwardly-diverging hinge-cleats C'. The latter  
 40 are suitably raised from the top of the car by the timbers D and placed in the form of the letter V, so as to embrace the greater part of the ice-openings B. The said lids meet centrally of the opening and when the meeting-point is properly protected form a complete hatch or cover. In order to provide such protection for the meeting-point for the lids and also to provide means for holding the lids in  
 45 proper relative position when raised, the under side of the lid (the right one in Fig. 3) is grooved to admit the insertion of a plate  $a'$ , which is securely fastened thereto. The plate  $a'$  projects beyond the opening between the  
 50 lids and is seated in a corresponding depression in the other lid, thus making a uniformly-level surface underneath. In order to provide means for locking the lids in open position, staples  $d$  and  $d'$  may be attached to the  
 55 edges of  $a'$  in substantially the same horizontal plane. The other lid  $a$  may be provided in like manner with a broad projecting plate  $a^2$ , which, if desired, may be provided with a shallow groove  $c$  on its under side, along the  
 60 outer edge thereof and a short distance therefrom, and through the said plate are made the openings  $d^4$  and  $d^5$ . It will be seen that

when the lids are closed and the staple  $d^3$  is passed through the opening  $d^4$  and is sealed by the sealing-hook  $d^6$  complete protection  
 70 is given against weather and against entry except as the sealing devices are broken. When it is desired to form a ventilating-hood, the covers are raised, as shown by the dotted lines in Fig. 3, the edge of the lip  $a'$  is fitted  
 75 to the groove  $c$  throughout its length, and the staples  $d$  and  $d'$  are passed, respectively, through the openings  $d^4$  and  $d^5$ , being sealed at  $d$  by the sealing-hook  $d^6$ . A triangularly-formed hood is thus produced, its largest end  
 80 being presented to the end of the car and adapted to receive and convey the full current of air as a forced draft caused by the movement of the train. Such current of air being thus deflected and to a certain extent  
 85 compressed, it is much more readily forced through a horizontal screen closing the ice-opening, as shown in Figs. 4 and 8, than if the screen were applied at the front of the hood, as is now frequently done.  
 90

In the construction of my device as shown in Figs. 4 to 7, inclusive, in which the plan view of the top of an ice-hatch fitted with my device is shown, a substantial framing D' surrounds the hatch-coaming C. Framing-tim-  
 95 bers F extend diagonally from the central rear portion of the hatch-cover to the forward corners of the same. A hinge-cleat G extends centrally throughout the length of the said diagonal timbers F. A substantial decking  $e$   
 100 is applied to the upper surface of the framework thus formed, extending as far as the hinge-cleat G. The latter being applied centrally to the diagonal timbers F, as explained, forms a rabbet, into which are attached by  
 105 the hinges  $b$  the two triangular lids  $a$ , as heretofore explained. The operation of the lids in this case is not in any way different than when applied directly to the car, either when closed or when used as a ventilating-hood.  
 110 If desired, the screen may be fitted in the triangular space beneath the said lids and between the diagonal timbers F and may thus be fixed permanently in that position. The entire structure thus formed is attached by  
 115 hinges  $m$  to the hinge-cleat or timber M, placed transversely of the car in the rear of the ice-openings, so that the whole can be turned back to clear the opening. A suitable hasp or other  
 120 fastening device  $n$  to lock the hatch when closed may be provided. It will be observed that in this form of my device when the triangular lids are closed the operation of the hatch or cover as a whole is in every respect  
 125 that of those now in use and unprovided with ventilating appliances. The screen  $f$  is practically an integral part thereof and fully protected against injury whether the hatch is opened or closed, and it will be further observed that as long as the opening is used  
 130 only for ventilating and the ice-plug or insulating medium provided therefor is unused the hatch proper need not be opened. All that is necessary to give complete ventilation



without disturbing the complete protection of the car is to open the lids *a* and to place and fasten them in proper relative positions.

The foregoing description applies also to the forms of my improvement shown in Figs. 8 to 11, inclusive, except to the special features therein shown and which will now be described. In the form shown in Fig. 8 diagonal timbers *H* extend from a central point in the rear of the hatch-opening, respectively right and left to the forward corners of the same, where they are pivotally connected by the bolts *h h* to the timbers *I I*. The triangular lids, above referred to, are arranged to form a cover for the internal triangular spaces thus formed. The remainder of the hatch-covering may be framed and built in the usual manner to be pivotally attached to the diagonal timbers *H H* by the hinges *j j*. In the arc of the circles of which the pivots *h h* are the center are guide-rods *g*, attached at their extremities to the car top or framing and which pass through the eyebolt *k*. The latter in turn passes through the rear ends of the diagonal timbers *H H*, where it is securely fastened by some suitable device, as the wing-nut *l*. The object of thus arranging the portion of the decking outside the triangular timbers *H* is to allow the same to be turned upwardly from the roof of the car when it is desired to open the hatches, and by loosening the attachment of the timbers *H* at the rear the same can be swung to each side, guided by the rods *g*, thus exposing the ice-opening throughout its full capacity. In this form of the device the screen can, if desired, be hinged to a convenient portion of the ice-opening, as shown in Fig. 15, being swung out of the way or adjusted in any other convenient method.

The construction shown in Fig. 12 is substantially like the form shown in Fig. 4, but having the main hatch divided longitudinally in two parts, which are suitably hinged, upon each of which are respectively turned back the lids above described. If desired, the screen to be used in combination with this form of my device may be separate therefrom and hinged to a convenient portion of the hatch-coaming, as shown in Fig. 15, or, as is evident, it may be divided and one half attached to each of the two main portions of the hatch.

I have now set forth the nature and objects of my invention and illustrated the same by several operative and practical examples. I do not, however, intend to limit myself to any particular form of construction; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a refrigerator-car having an ice-opening; of a cover for the ice-opening comprising lids adapted to open and close on opposite sides of the ice-opening on axes converging toward each other and trending lengthwise of the cars and means for securing the lids together in raised position and closing the opening between the edges of the lids to provide a hood whereby the air

entering between the lids is deflected and led as a forced draft into the ice-opening.

2. The combination, with a refrigerator-car having an ice-opening; of a cover for the ice-opening comprising lids having overlapping edges and adapted to open and close on opposite sides of the ice-opening on axes converging toward each other and trending lengthwise of the car, locking devices located along the overlapping edges of the lids, and means for securing the lids together in raised position and closing the opening between the edges of the lids to provide a hood whereby the air entering between the lids is deflected and led as a forced draft into the ice-opening.

3. The combination, with a refrigerator-car having an ice-opening; of a cover for the ice-opening comprising lids having underlapping and overlapping plates respectively and adapted to open and close on opposite sides of the ice-opening on axes converging toward each other and trending lengthwise of the car, and means for securing the plates together when the lids are in raised position to provide a hood whereby the air entering between the lids is deflected and led as a forced draft into the ice-opening.

4. A refrigerator-car having an ice-opening in the roof thereof, a hatch or cover for the said opening, said hatch being pivotally connected to the roof of the car and provided with pivoted sections or lids having an extension-plate on the first adapted to fit under the second and an extension-plate on the second adapted to fit over the first, said lids or sections adapted when raised to form a ventilating-hood, substantially as described.

5. A refrigerator-car having an ice-opening in the roof thereof, a hatch or cover for the said opening divided longitudinally into two sections each independently and pivotally connected with the roof of the car, said hatch being provided with convergently-hinged overlapping lids, one to each section, constructed with a fixed extension-plate on the first adapted to lap under the body of the second and a fixed extension-plate on the second adapted to lap over the body of the first, and means for securing the said lids together when in a raised position with their edges meeting, substantially as described.

6. A refrigerator-car having an ice-opening in the roof thereof, a hatch or cover for said opening divided into two sections, each independently and pivotally connected with the roof of the car, a ventilating-opening in the said cover and a screen to protect the same, said hatch or cover being provided with convergently-hinged lids, one to each section, constructed with a fixed extension-plate on the first adapted to underlap the body of the second and a fixed extension-plate on the second adapted to overlap the body of the first, with locking devices along the exposed edges of the said plates, substantially as described.

7. In combination with a refrigerator-car



having a rectangular ice-opening in the roof thereof, timbers pivotally connected with the front corners of the opening and normally meeting at the rear side, means for movably  
5 securing the meeting ends of the said timbers, triangular overlapping lids hinged to said timbers and adapted to close the space between them when shut, means for securing the proximate edges of these lids together  
10 when raised, to form a ventilating-hood, and wings secured to the outer edges of said timbers to close the remaining portions of said rectangular opening, substantially as described.

15 8. In combination with a refrigerator-car having a rectangular ice-opening in the roof

thereof, timbers pivotally connected with the front corners of the opening and normally meeting at the rear side, means for normally  
20 securing the meeting ends of said timbers, triangular lids pivotally attached to said timbers and adapted to close the space between the same when shut and to form a ventilating-hood when open, and triangular wings  
25 hinged to the outer edges of said timbers and adapted to close the remaining portions of the rectangular opening, substantially as described.

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