

(No Model.)

2 Sheets—Sheet 1.

E. T. EARL.
VENTILATOR FOR REFRIGERATOR CARS.

No. 584,283.

Patented June 8, 1897.

Fig. 1.

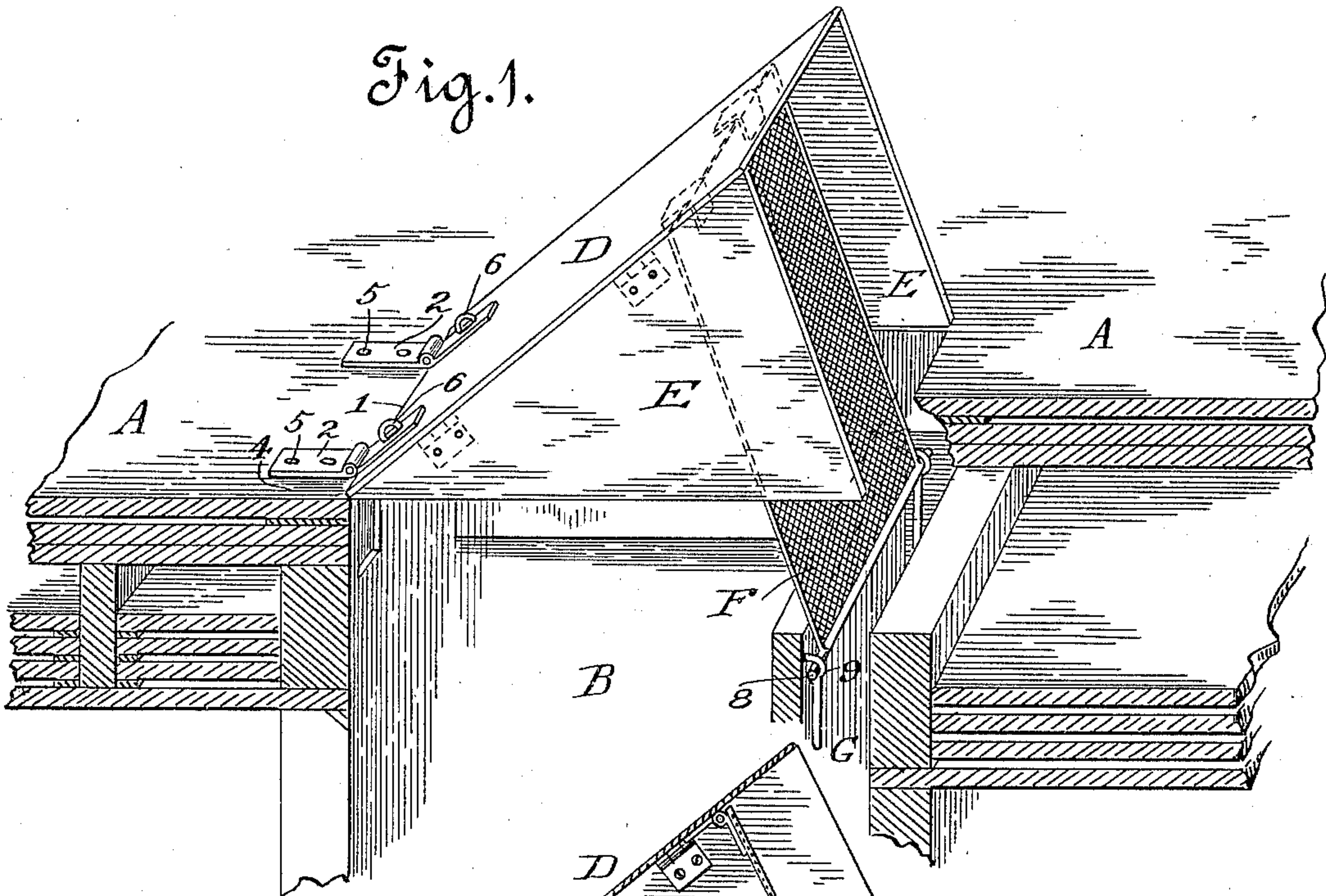
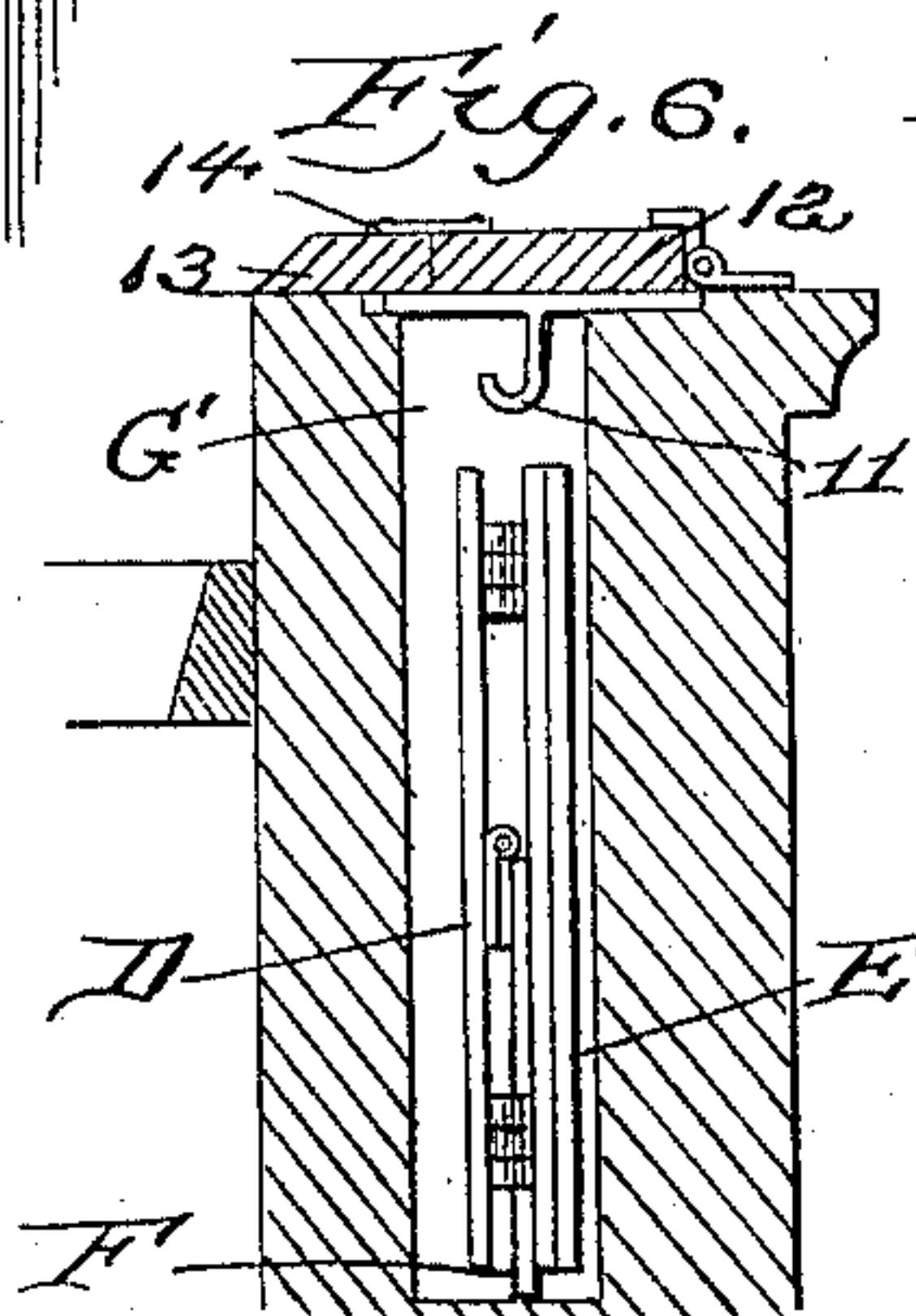
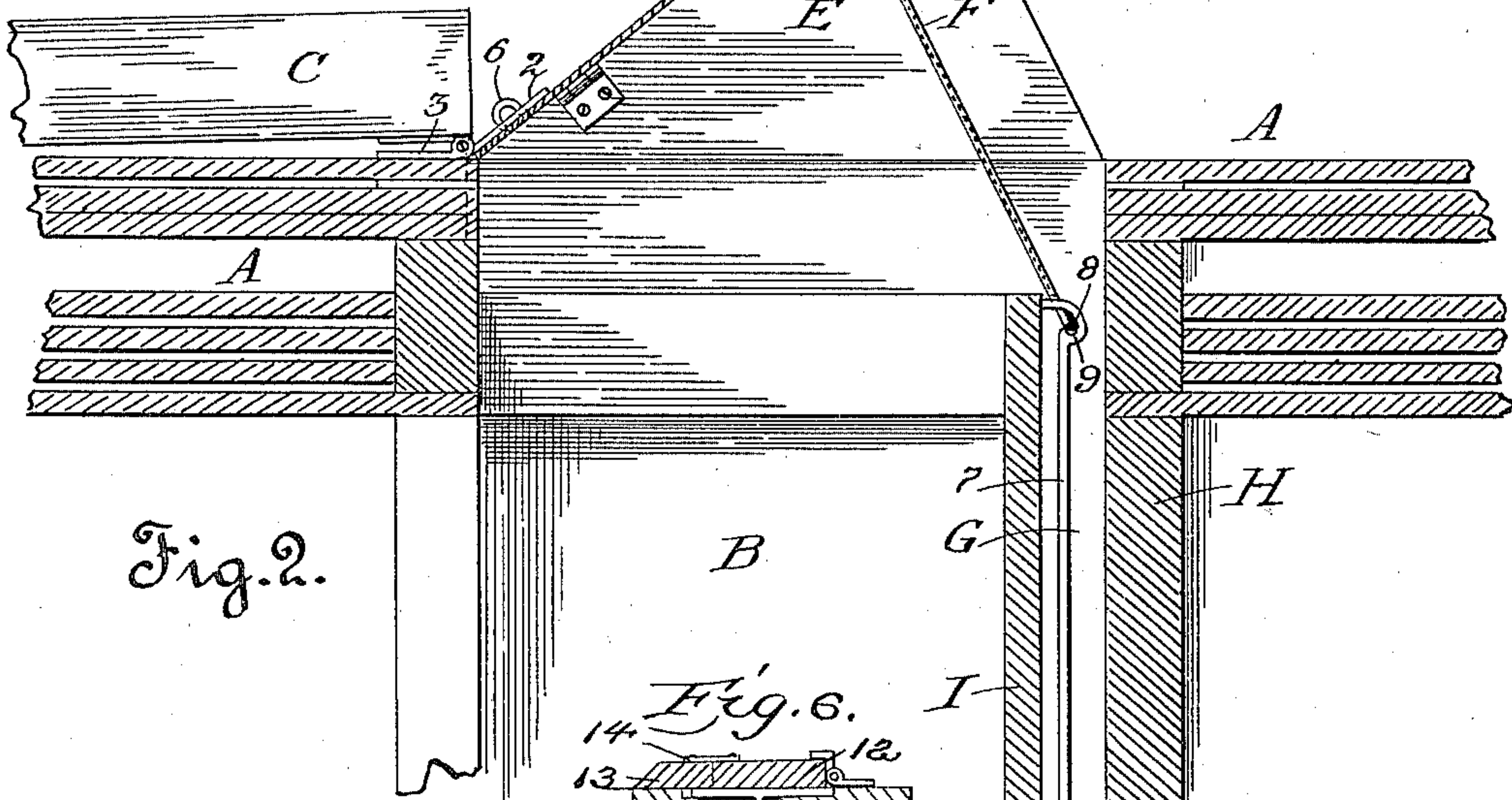


Fig. 2.



Witnesses.

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Fig. 3.

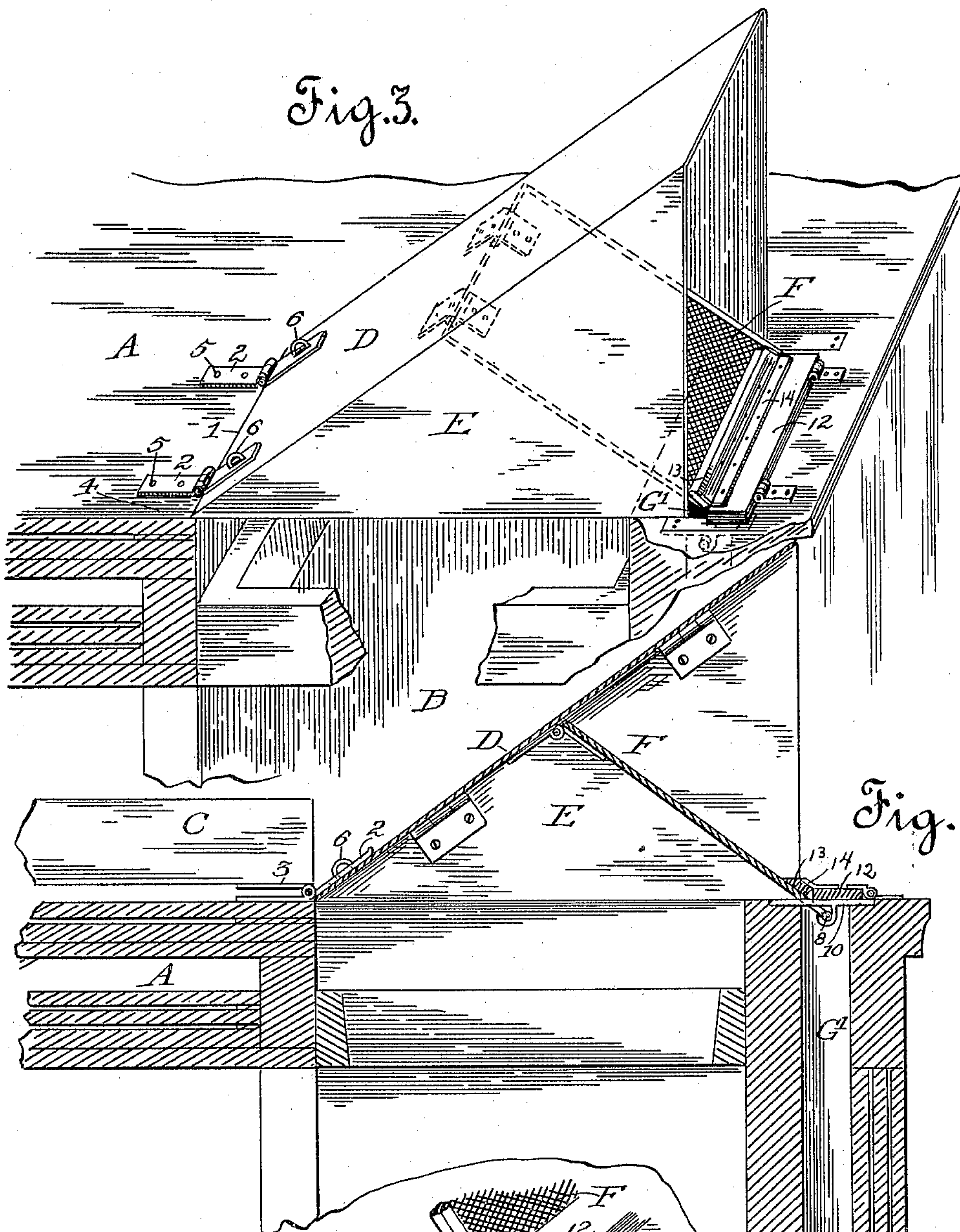


Fig. 4.

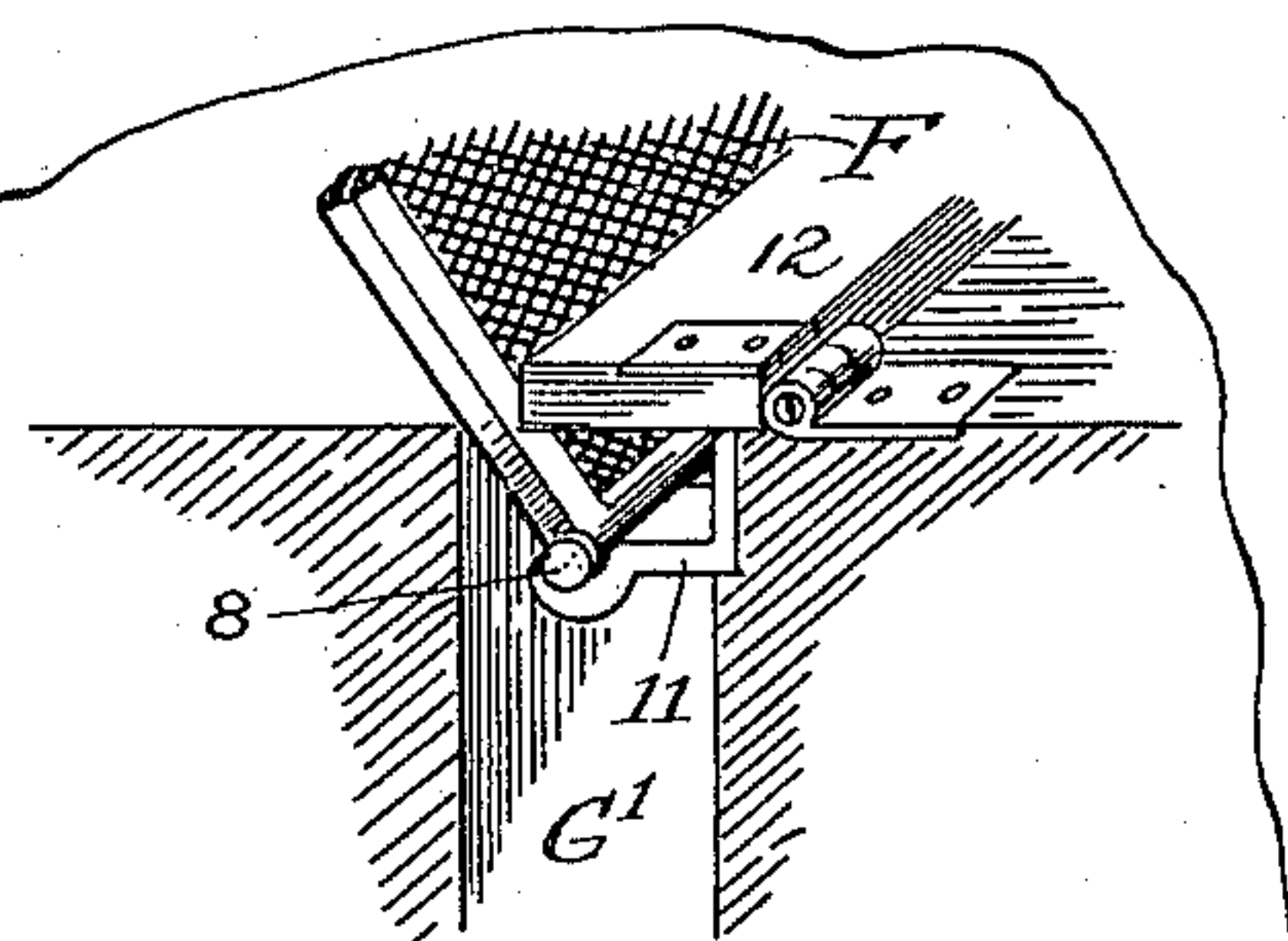


Fig. 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

EDWIN T. EARL, OF OAKLAND, CALIFORNIA.

VENTILATOR FOR REFRIGERATOR-CARS.

SPECIFICATION forming part of Letters Patent No. 584,283, dated June 8, 1897.

Application filed September 28, 1896. Serial No. 607,257. (No model.)

To all whom it may concern:

Be it known that I, EDWIN T. EARL, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Ventilators for Refrigerator-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to cars for the transportation of perishable substances of the kind now known as "combined ventilator and refrigerator cars." Such cars are provided with one or more ice-tanks at each end which are filled with ice through openings or ice-holes in the car-roof; and the method of ventilation consists in forcing air through these openings at one end into and through the ice-tanks at that end, through the body of the car and its perishable freight, and out through the ice-tanks and ice-holes at the other end. The forced draft of air is ordinarily produced by the motion of the car, and as the construction is alike at both ends such ventilation is maintained, no matter in which direction the car is traveling, so long as the ice-holes are open. These ice-holes are usually provided with heavy insulated lids, which can be closed down when the tanks are iced to make the car a refrigerator in warm weather or to insulate the contents of the car in excessively cold weather. These lids are of course raised to permit the car to be ventilated, and it has been found expedient and desirable to utilize them when so raised as deflectors to direct the air into the ice-holes, and thus produce a better and more effective draft and ventilation. In reissued Letters Patent No. 11,324, granted to me April 18, 1893, I described and showed means for supporting these lids in partially-raised position, such means being foldable in order that the lid might be closed without obstruction. I also described and showed in said reissue screens for excluding cinders from the draft-openings, which screens were connected to the lids and were foldable for the same reason. In the construction described in said reissue the heavy ice-hole lid formed an essential part of the ventilating device or structure. Such a construction is open to certain objections and possesses cer-

tain disadvantages. The ice-hole lid, as stated, is very heavy and hard to handle, and this makes it difficult to properly manipulate such lid and foldable devices connected to it. Furthermore, foldable devices carried by the lid are necessarily exposed to injury at all times when the lid is thrown back while the car is being iced. This recharging of the ice-tanks takes place very frequently on long routes of travel, and hence the foldable devices, constituting part of the ventilator and folded upon the lower side of the lid, are, when the lid is thrown back, liable to be injured by the men engaged in breaking up the ice or by their tools. These disadvantages, all of which grow out of the use of the ice-hole lid as part of the ventilating structure, are entirely obviated by my present improved construction, because I do away entirely with the ice-hole lids for any purpose excepting their primary one, which is to close the ice-holes and insulate the car. My present ventilator structure is entirely independent of these lids, and so can be made not only light and easy to handle, but can be conveniently disposed of when not in use in such a way as to avoid all risk of injury.

In the accompanying drawings I have shown one practical embodiment of my invention in the form in which I prefer to construct it.

Figure 1 is a perspective view of part of the roof and one ice-tank of a car, broken away in such a manner as to show all the parts of my device. Fig. 2 is a longitudinal section of the same. Fig. 3 is a perspective similar to Fig. 1, but showing a somewhat modified construction. Fig. 4 is a longitudinal section of the same. Fig. 5 is a detail view showing a modified construction of support or bearing for the screen.

The car having the roof A and the ice-tank B requires no particular description, as its construction in these respects is well known. It will be understood, however, that one or more of these ice-tanks is located at each end of the car and that each tank is provided with the heavy hinged lid or door C, which in the present case performs only the function of opening and closing the ice-tanks. This door is shown in Figs. 2 and 4, but is omitted from Figs. 1 and 3 to avoid obscuring other parts.

Its relation to Figs. 1 and 3 is, however, made clear from Figs. 2 and 4 and the description.

To the rear edge 1 of the ice-tank is hinged a comparatively light lid or door D, of wood or metal. The hinges 2 of this lid are set between the hinges 3 of the heavy main lid or, in other words, are placed far enough inward from the side line or edge of the ice-tank to leave room for the hinges 3 outside of them. The numeral 4 in Figs. 1 and 3 indicates the position of the hinges 3. The lid D is detachable from the car-roof and either with or from the hinges 2. In the drawings these hinges are secured to the roof, as shown at 5, and the lid D is detachably connected by staples 6 to the leaves of the hinges; but it is obvious that the hinges could be secured to the lid and detachably connected to the roof. In either case the lid D, when the main lid is thrown back, Fig. 2, can be elevated at an angle to form the top and rear of the ventilator above the ice-hole.

To the side edges of the lid D are hinged wings E of triangular shape, which are foldable, so that they can rest upon the roof near the edges of the ice-hole in order to support the lid, or can be turned inwardly and under the lid, so as to lie flat. A screen F is hinged to the lid near the front edge, which is also foldable from its position at right angles to the lid, Fig. 1, to a position in line with or parallel to the lid. This screen covers the draft-passage formed by the lid and side wings and excludes cinders from the ice-hole.

As thus far described I have provided a ventilator consisting of a lid supplementary to the main lid and having supporting and screening devices, such ventilator being bodily detachable from the car-roof to permit the main lid to be closed and capable of being folded flat into smaller compass to permit it to be stowed away safely and out of the way.

For the purpose of furnishing means for stowing the ventilators bodily the car-roof is provided with receptacles, which can be made in different ways and can be either horizontal or vertical. I have shown in the drawings practical means for this purpose, which I shall now describe.

A receptacle G is formed adjacent to the ice-hole of sufficient size to receive the folded ventilator. The roof itself can carry this receptacle horizontally, or, as shown, it may extend down vertically below the roof. One wall of the receptacle, Fig. 2, is the front wall or partition H of the ice-tank. The other wall I is shortened at the top, so as not to obstruct the closing of the main ice-hole lid when the ventilator is detached. I prefer to provide vertical guides 7 7 for the pintles 8, which project from the frame of the screen at its lower edge, and to form stops or seats 9 at the upper ends of these guides, in which the pintles rest when the screen is elevated and against which they are forced by the inclined position of the screen with the lid resting upon its upper edge. Instead of these

guides simple projections or shoulders could be made for the edge of the screen to rest upon.

By detaching the ventilator from the car-roof where it is hinged its rear end can be pulled forward until the top is parallel with the screen, which produces the same effect as folding the screen inwardly and under the lid. The side wings can now be folded inwardly and upon the screen, and the whole structure (now flat) can be placed in the receptacle and out of the way and the main lid can be closed. It is, however, practicable to first push the screen into the receptacle and to lift the rear end of the lid into line with the screen, so that the wings can be folded, and then cause the lid and wings to follow the screen into the receptacle. I prefer, however, to fold the lid and screen parallel, because they are then in a more compact form and can be placed in a smaller receptacle.

The modifications shown in Figs. 3 and 4 relate to another manner of constructing a pocket to receive the ventilating structure. Instead of forming the pocket in the ice-tank, as shown in Figs. 1 and 2, such pocket is formed separately in the car structure and outside the ice-tank, as represented at G'. Since the pocket G' extends up to the level of the car-roof, the screen is hinged to the lid D far enough back, as shown, to permit the lower rear edge of the lid to be pulled forward without disconnecting the screen from the supports 10.

In Fig. 5 I have shown a modification of the supports for the screen, represented at 11, the object of which is to support the screen and yet permit it to be bodily detached from the car.

I prefer to cover the opening of the pocket with a hinged flap or cover 12, as shown in Figs. 3, 4, and 5. This flap is hinged to the roof and may simply extend across the pocket to the screen, as in Fig. 5, or, as in Figs. 3 and 4, it may be provided with a small supplementary flap 13, hinged by a flexible strip 14 to the flap 12, which will overlie the edge of the screen at a parallel angle and affords more complete protection to the pocket.

I do not, as will have been understood, desire to limit myself to details of construction described and shown for the purpose of illustrating practical embodiments of my invention, but not the only embodiments, since modifications may be made in the construction without departing from the spirit of the invention.

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

1. In combination with a car having ice-tanks and ice-holes in its roof, main ice-hole lids permanently hinged to the car-roof, supplementary lids, detachably hinged to said roof, and foldable supports carried by said supplementary lids, whereby said supplementary lids and their supports form a ventilat-

ing structure, when the main lid is open, but can be removed by detaching the hinge-joint to permit the main lid to be closed, substantially as described.

5 2. In combination with a car having ice-tanks and ice-holes in its roof, a main ice-hole lid for insulating the car permanently hinged to the car-roof, a supplementary lid detach-
10 ably hinged to said roof, foldable supports hinged to said lid, and a foldable screen also hinged to said lid, whereby said supplementary lid and its supports and screen form a ventilating and screening structure when the
15 main lid is open, but can be removed by detaching the hinge-joint, to permit the main lid to be closed, substantially as described.

3. In combination with a car having an ice-

tank, and an ice-hole in its roof, an ice-hole lid for insulating the car, permanently hinged to the car-roof, a separate foldable structure 20 including a screen, movably hinged to the edge of the ice-hole so as to form a ventilating and screening structure when the main lid is raised, and a receptacle formed in the car to hold and retain said structure when 25 folded and not in use, whereby the insulating-lid can be closed.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 4th day of September, 1896.

EDWIN T. EARL.

Witnesses:

L. W. SEELY,
M. R. SEELY.