

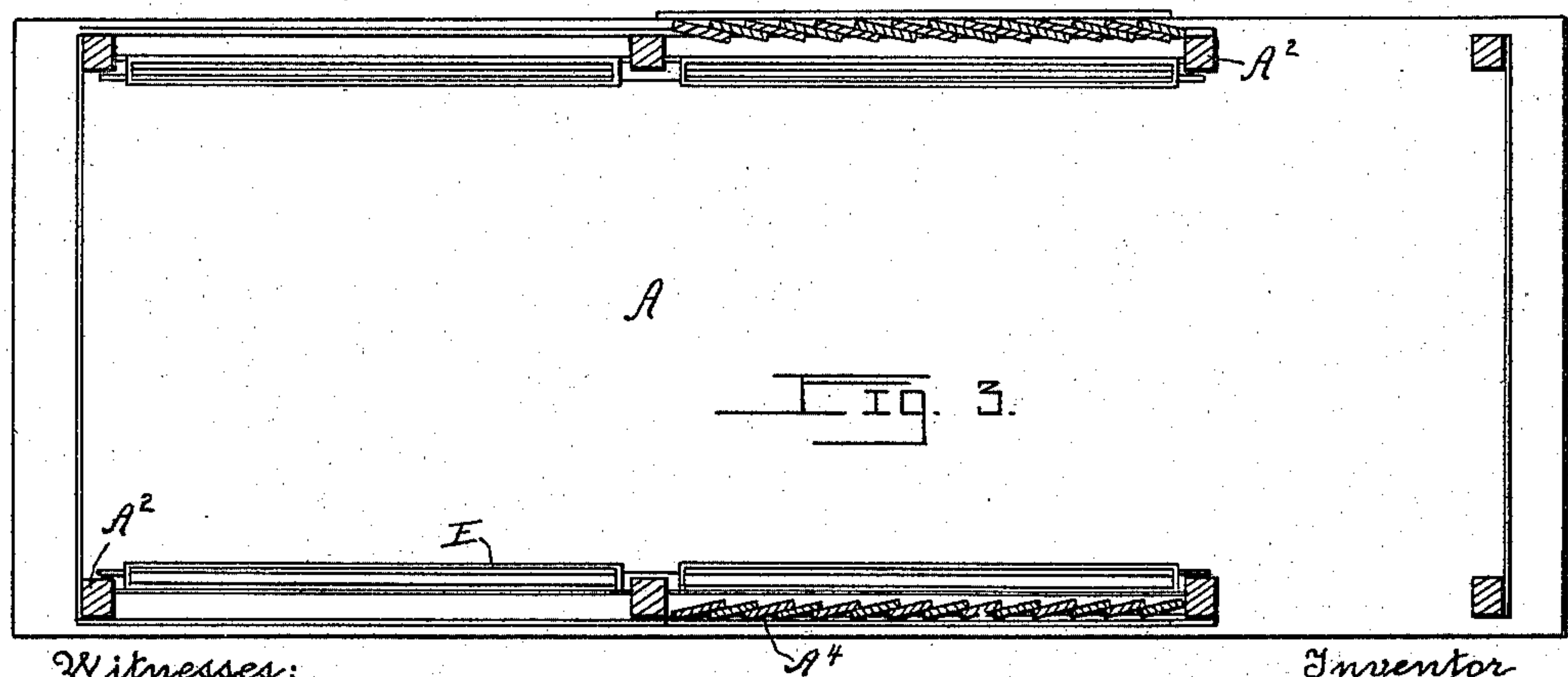
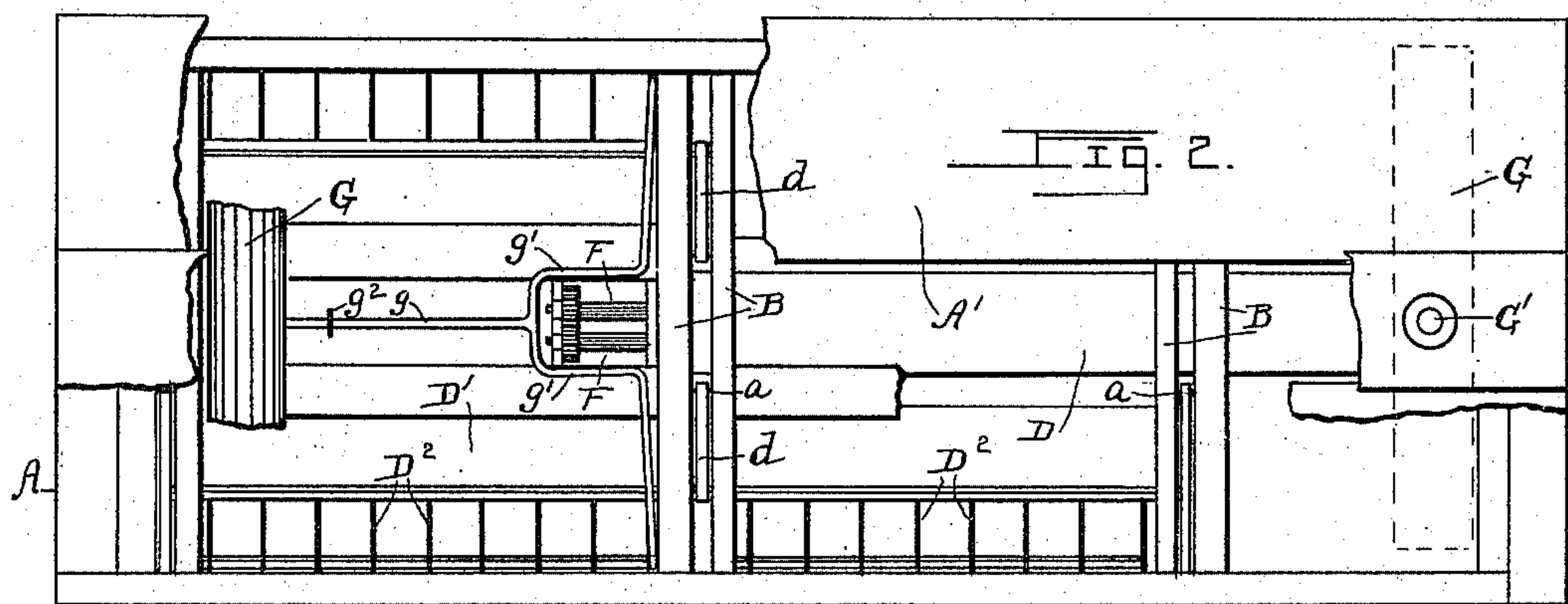
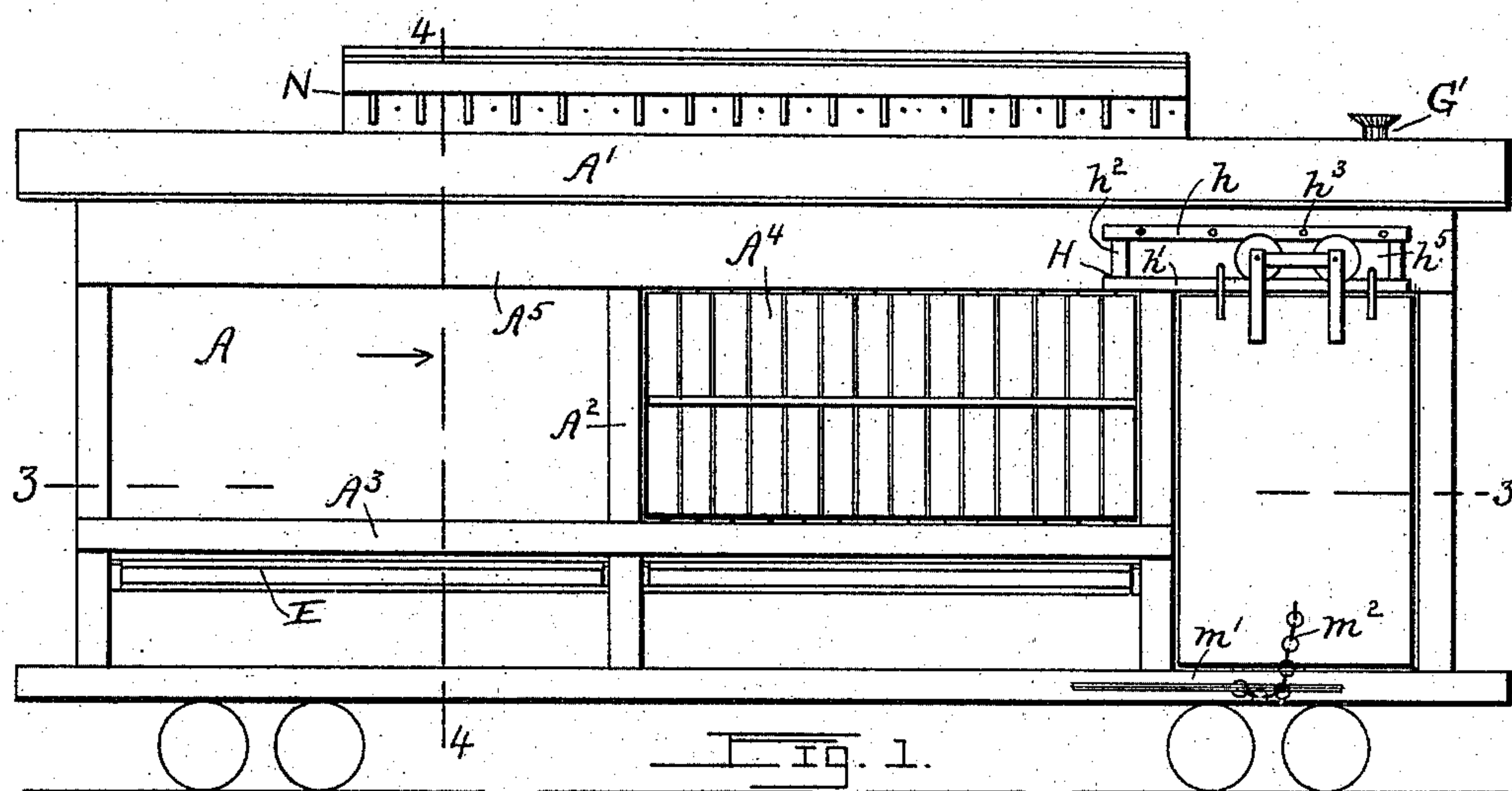
(No Model.)

4 Sheets—Sheet 1.

W. CLINE.  
STOCK CAR.

No. 575,459.

Patented Jan. 19, 1897.



Witnesses:

Wm. M. Hall.  
A. B. Hambright.

Inventor  
Wm. Cline.

By Attorney  
Wm. R. Gerhart

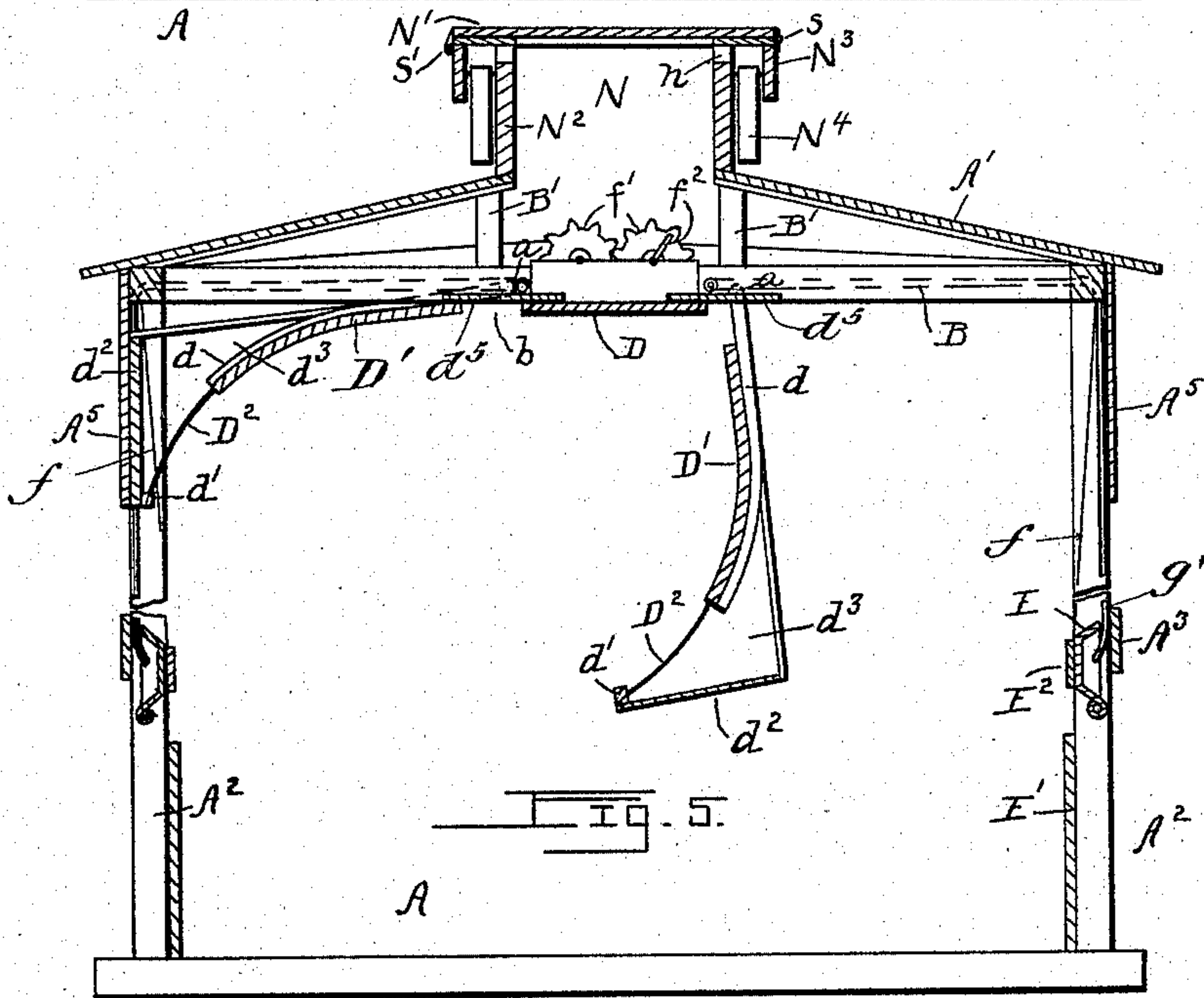
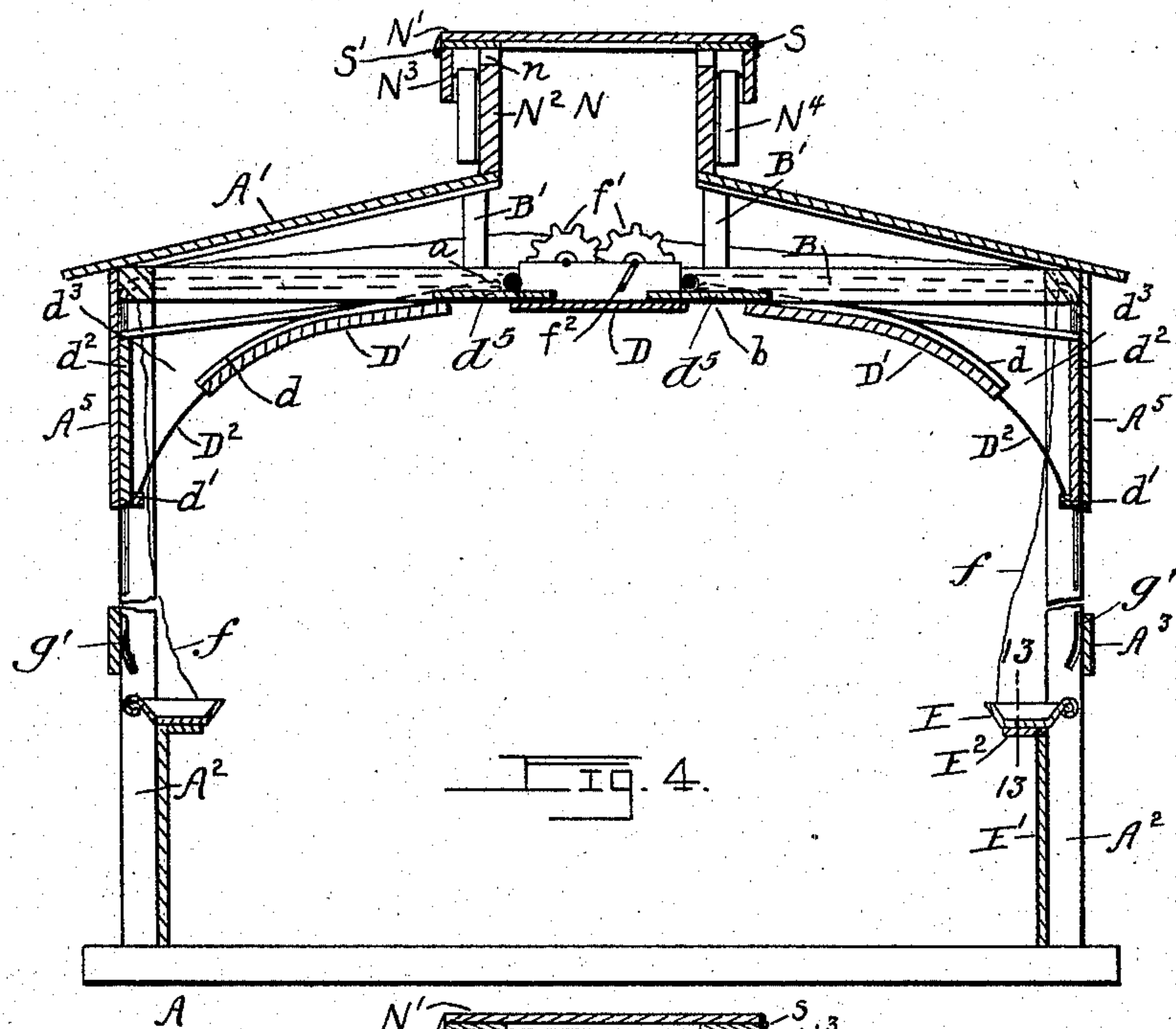
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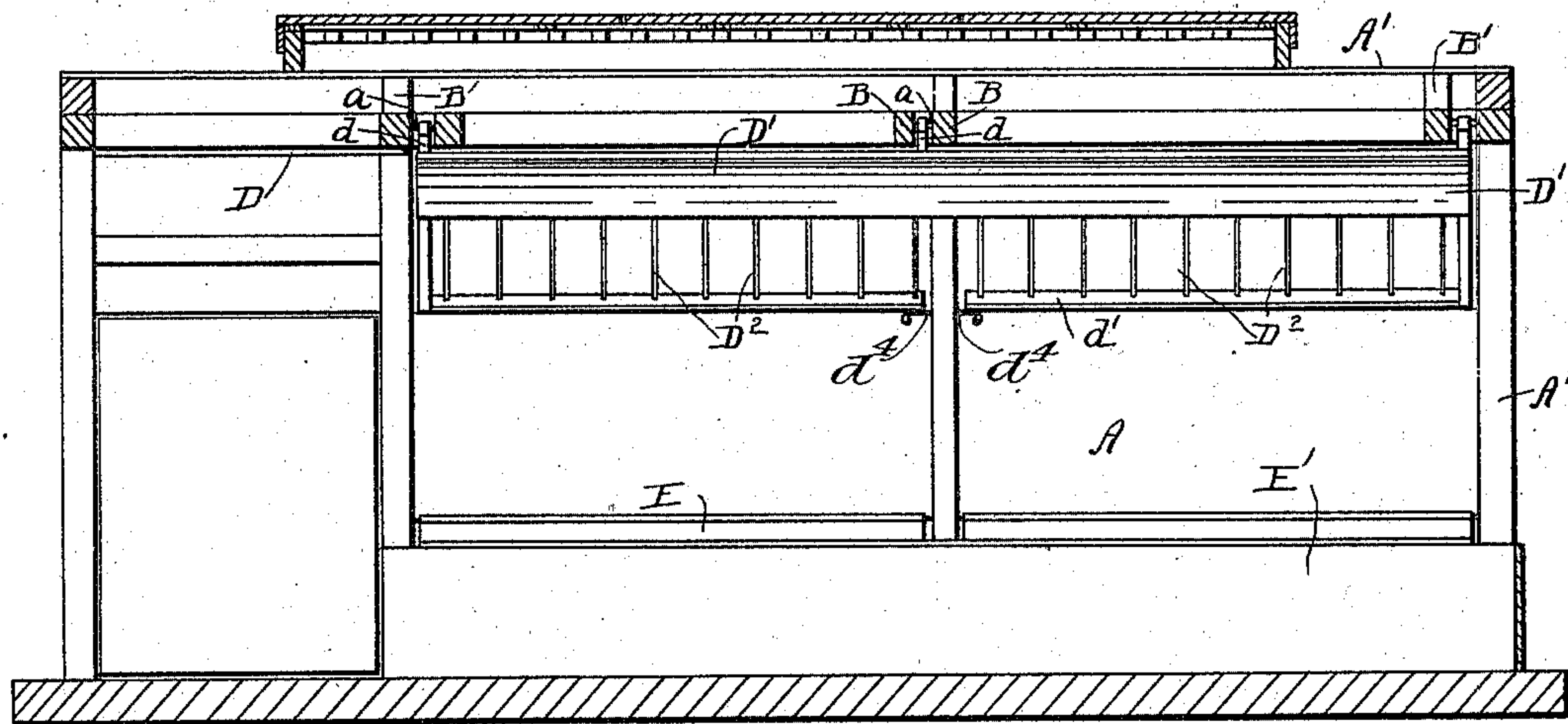
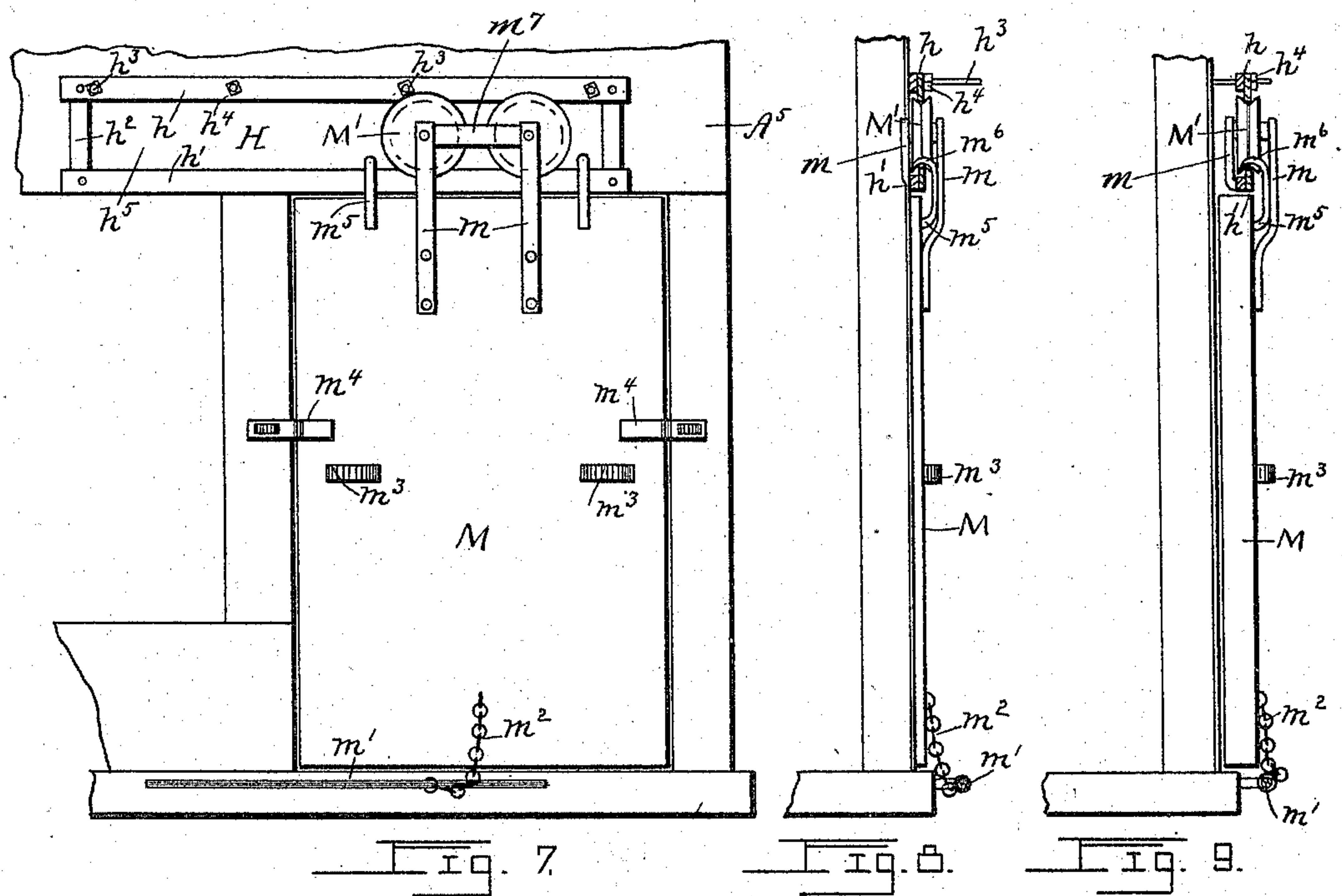
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(No Model.)

4 Sheets—Sheet 4.

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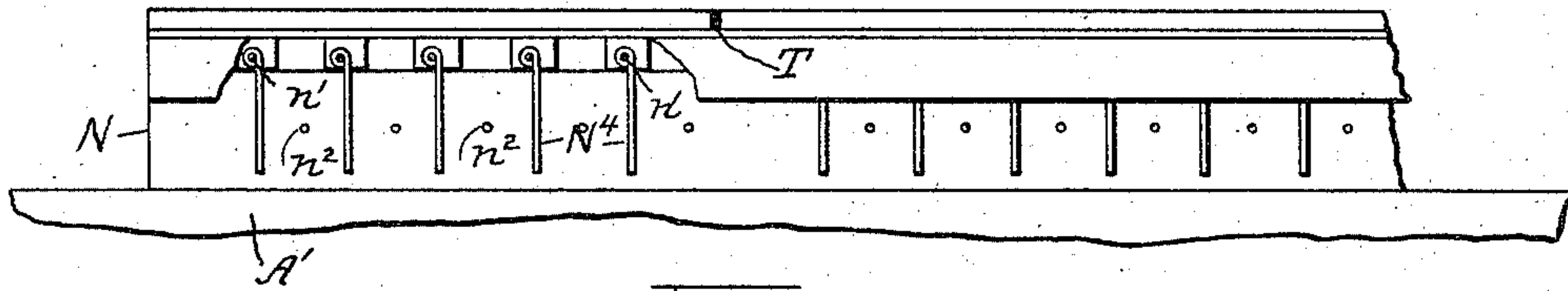


Fig. 11.

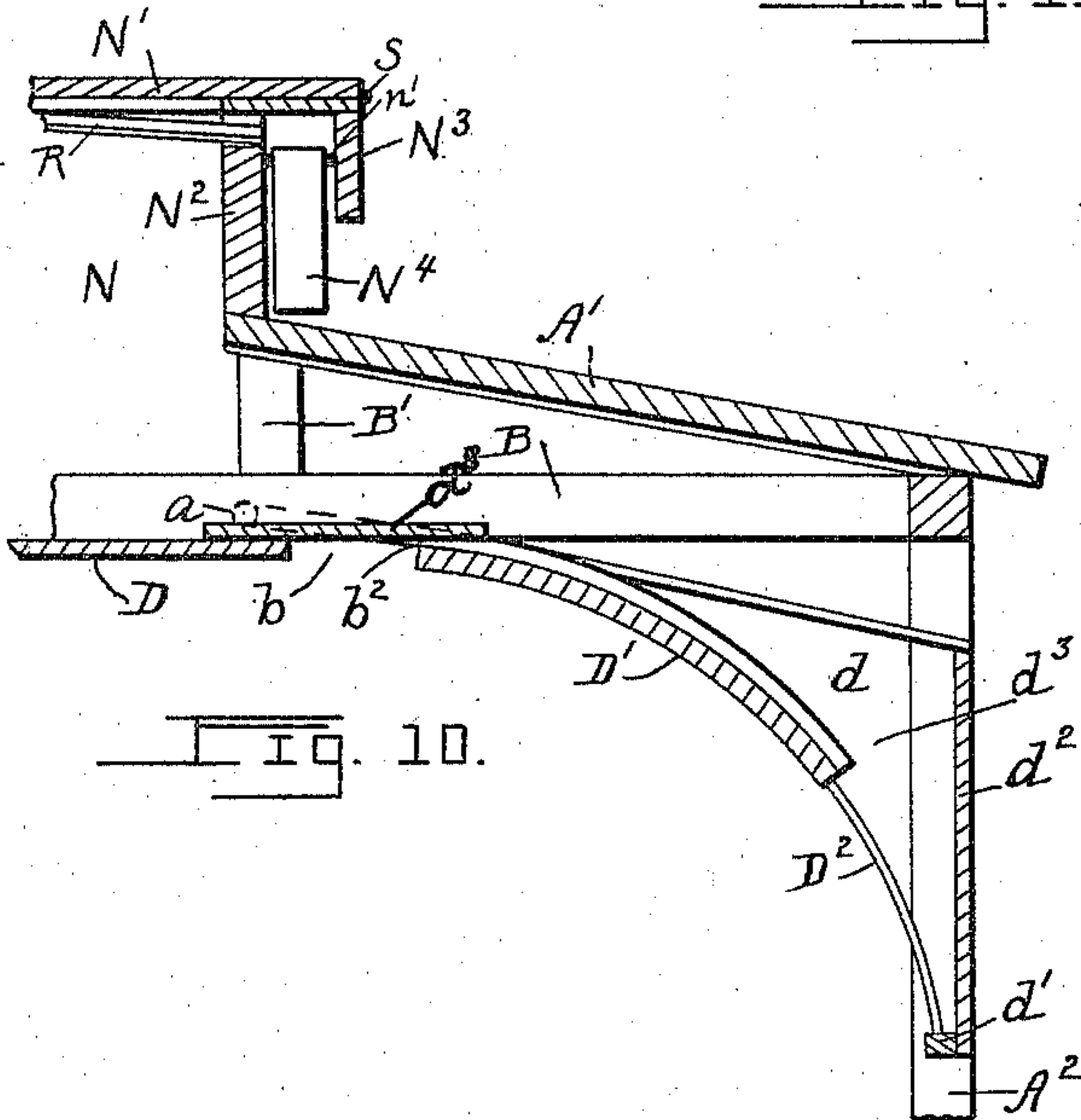


Fig. 10.

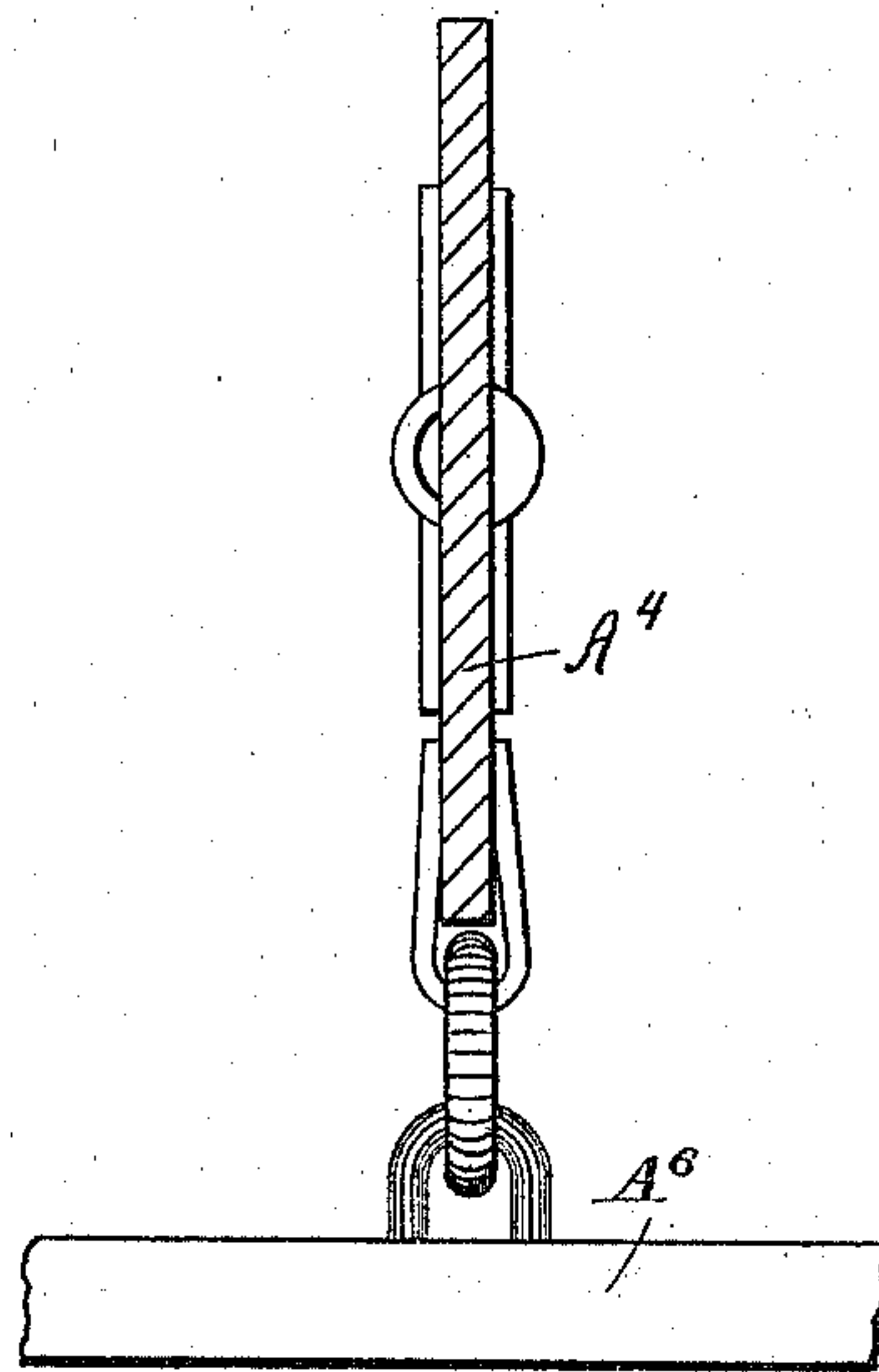


Fig. 14.

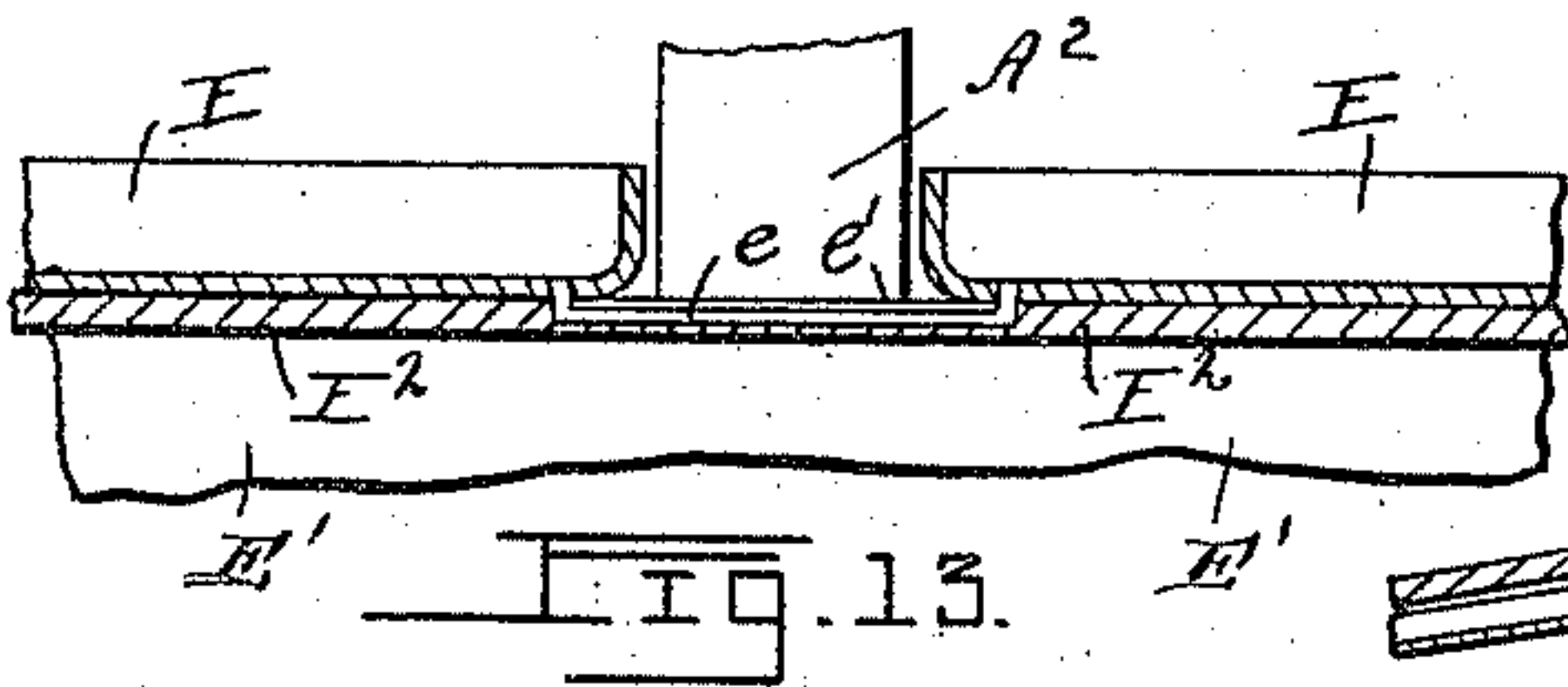


Fig. 13.

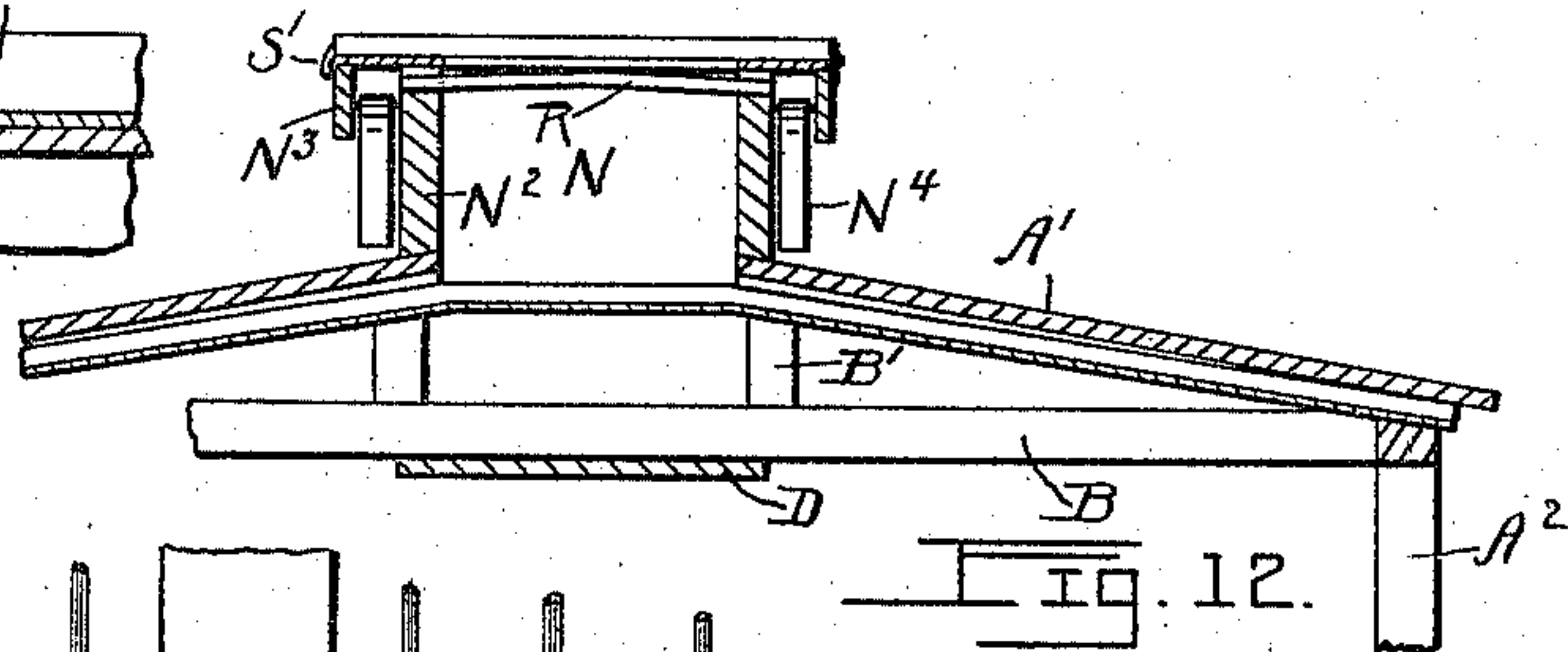


Fig. 12.

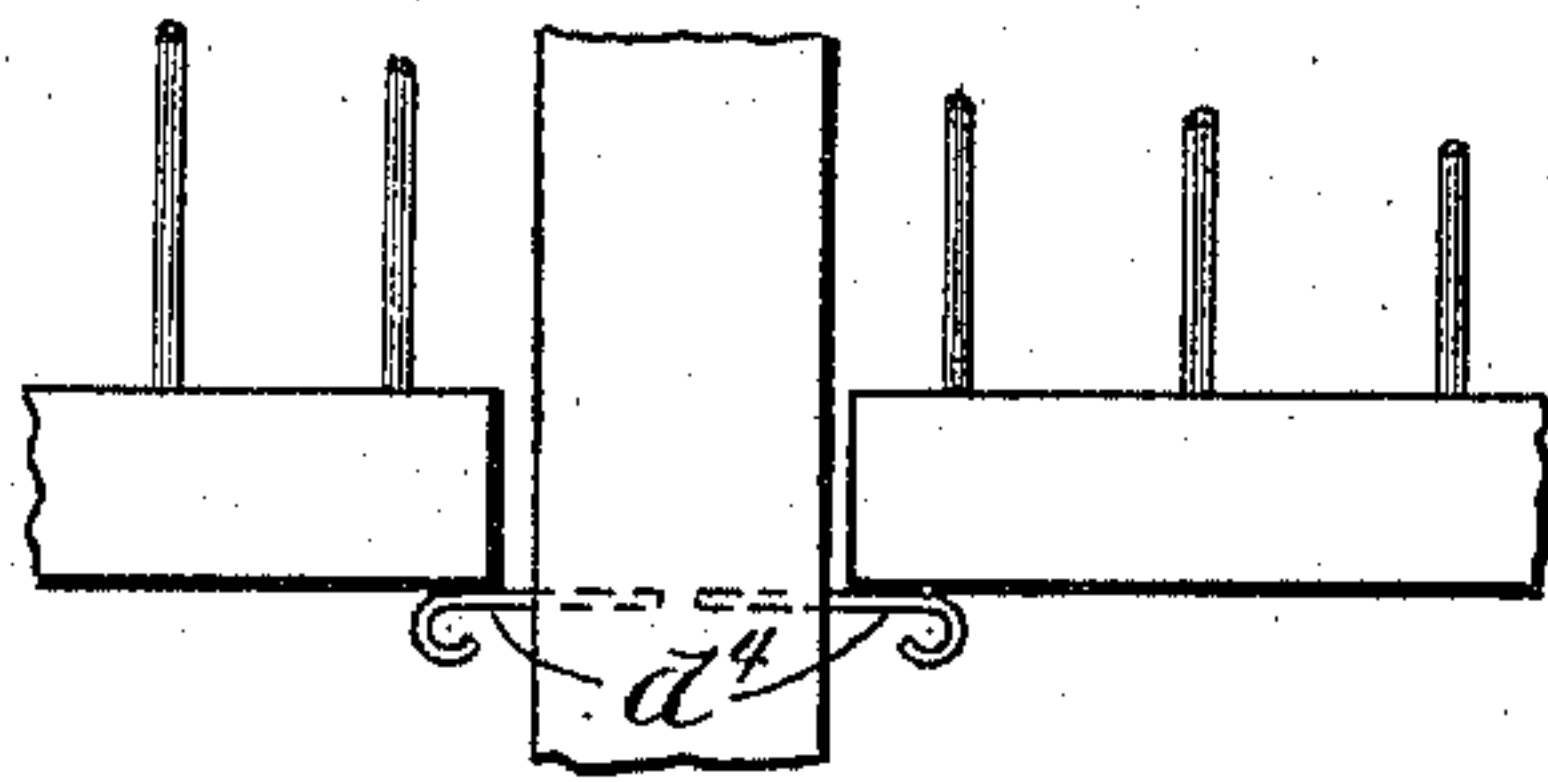


Fig. 15.

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# UNITED STATES PATENT OFFICE.

WILLIAM CLINE, OF LANCASTER, PENNSYLVANIA.

## STOCK-CAR.

SPECIFICATION forming part of Letters Patent No. 575,459, dated January 19, 1897.

Application filed February 14, 1896. Serial No. 579,223. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM CLINE, a citizen of the United States, residing at Lancaster, in the county of Lancaster, State of Pennsylvania, have invented certain Improvements in Stock-Cars, of which the following is a specification.

This invention relates to improvements in that class of stock-cars designed for the transportation of either horses or cattle; and the objects of the improvements are, first, to so construct the car as to avoid any projections therein that might be apt to injure the stock; second, to load hay into the racks and the hay-loft from the inside of the car; third, to automatically feed hay to the racks; fourth, to simplify the construction of the watering-troughs; fifth, to combine a hay-loft with the clearstory; sixth, to construct the car-door that it may be opened and closed more readily than those now in use, and, seventh, to prevent entrance of dust, dirt, and cinders through the ventilation-openings.

The invention consists in the construction and combination of the various parts, as hereinafter fully described and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side view of one end of a car embodying my invention. Fig. 2 is a top plan view, parts being cut away to expose the interior construction of the car. Fig. 3 is a horizontal section on broken line 3 3, Fig. 1. Fig. 4 is a vertical transverse section on broken line 4 4 of Fig. 1, showing the hay-racks and the watering-troughs in the positions occupied thereby when the stock is being fed and watered; and Fig. 5, a similar view on said line 4 4, but showing the manger on one side of the car swung down and the watering-trough turned up in the position occupied thereby when not in use. Fig. 6 is a longitudinal vertical section. Fig. 7 is an enlarged side view of the car-door; Fig. 8, an edge view thereof when in a closed position; and Fig. 9, a similar view, but showing the door drawn out from the side of the car to be opened. Fig. 10 is an enlarged transverse section of the hay-loft and clearstory; Fig. 11, an enlarged side view of a portion of the clearstory, parts being cut away to show the construction more

fully; Fig. 12, a vertical transverse section of a joint between the sections of the top of the clearstory; Fig. 13, a vertical section on broken line 13 13, Fig. 4, showing the connection between the watering-troughs; Fig. 14, a horizontal section of one of the side slats, showing the connection between the same and the bar through which it is operated; and Fig. 15, a face view of the device for upholding the hay-racks.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, A indicates the car; A', the roof thereof, which slants upward from the sides toward the center; A<sup>2</sup>, the side posts of the car; A<sup>3</sup>, stringers secured to the outside of the side posts opposite the watering-troughs, to be described; A<sup>4</sup>, vertical slats pivoted in stringers A<sup>3</sup> and in the lower edge of the sides A<sup>5</sup>, which extend from the roof some distance downward, as shown; A<sup>6</sup>, a rod or bar hinged to all the slats A<sup>4</sup> of each series or group, as shown in Figs. 1 and 4; B, joists extending in pairs transversely of the car, and B' posts on said joists supporting the roof beneath the sides of the clearstory.

On the under side of joists B is secured a horizontal partition D of the width of the clearstory, and which serves as a portion of the ceiling of the car and the floor of a hay-loft. On each side of partition D, and separated therefrom by a longitudinal slot *b*, is a downwardly-curving concavo-convex flap, which has ribs *d*, hinged on rods *a*, supported by and between the pairs of joists B. The end ribs of the flap curve downward to the bottom thereof. Adjacent to partition D sheeting D' is secured to the under sides of ribs *d*, the upper edge of the sheeting being lower than said partition D, and from the lower edge of sheeting D' to the bottom of the flap are vertically-curved slats D<sup>2</sup>, constructed to form a hay-rack, said slats forming a continuation of the curve of sheeting D'. The lower ends of slats D<sup>2</sup> are fixed in a horizontal bar *d'*, to which also is attached an upwardly-extending plate *d''*, that forms the bottom of the rack when the same is lowered, as will be explained, and each end of the rack is closed by a transverse plate *d''*.

When the racks are lowered or swung down,



the plates  $d^2$  on the swinging edges thereof and the transverse end plates  $d^3$  form pockets or receptacles to receive and carry hay. When in their normal positions, the racks are  
 5 upheld by pins  $d^4$ , inserted in holes in the side posts  $A^2$ .

To fill the hay-loft and hay-racks, the pins  $d^4$  are withdrawn, when the racks swing downward, as shown on the right of Fig. 5. Hay  
 10 is then thrown up into the loft from between the sides of the car and the swinging edges of the rack, and the racks themselves are filled, after which said racks are again fastened up in their normal positions. As the  
 15 animals feed from the racks the hay is gradually drawn down from the hay-loft by reason of the intermeshing of the blades thereof, as will readily be understood, the curved shape of sheeting  $D'$  facilitating the downward  
 20 movement of the hay, which is prevented from passing through slots  $b$  by guard-plates  $d^5$ , secured to partition  $D$ , and extending outward over said slots  $b$ , so that there are openings  $b^2$  left between the lower faces of said  
 25 partition and the upper face of sheeting  $D'$ .

$E$  indicates watering-troughs so hinged between the posts that when they are turned up between the same their lower edges are located somewhat below stringers  $A^3$ , as seen  
 30 on the right of Fig. 5, that any water therein may be discharged out of the car. The discharge from the watering-troughs is prevented from splashing or being blown back into the car by sheeting  $E'$ , secured to the inner  
 35 faces of the side posts below said troughs.

To the bottoms of each series of troughs between the side doors of the car and the ends thereof is secured a continuous stringer or plate  $E^2$ , the faces of which, when the troughs  
 40 are folded up, bear against the inside of posts  $A^2$ , and when said troughs are folded down the edges of plates  $E^2$  bear against sheeting  $E'$ , thus limiting the movement of the trough in both directions. This plate  $E^2$  is  
 45 of the same thickness as sheeting  $E'$ , so that when the watering-troughs are folded up and said plate  $E^2$  bears against the posts the inner face thereof and that of sheeting  $E'$  will lie in the same vertical plane, thus avoiding  
 50 any projections of parts against which the animals might injure themselves.

The troughs on both sides of the car are simultaneously upturned, and so held, by cords  $f$ , secured to the outer edge of one of each series of said troughs or to the plates  $E^2$ . These  
 55 cords pass upward over suitable bearings and each is secured to one of two drums  $F$ , located side by side in the hay-loft and having interlocking spur-gears  $f'$ , one of which is provided with a crank-handle  $f^2$ . Power may be  
 60 directly applied to the crank-handle, or said handle may be actuated by a cord (not shown) passing over suitable bearings down into the car, where it is secured, all in any well-known  
 65 manner. By relaxing the cords the troughs are automatically folded down by the weight of stringers  $E^2$ . Water is fed to but one trough

of each series, and is supplied to the others by pipes  $e$ , connecting the bottoms of the troughs and located in recesses  $e'$  in the inner  
 70 faces of stringers  $E^2$ , as illustrated in Fig. 13, that said pipes  $e$  may not project into the car when the watering-troughs are turned up.

$G$  indicates a reservoir located in an end of the hay-loft and from which the watering-troughs are fed by a pipe  $g$ , extending toward  
 75 drums  $F$ , where it is divided into two branches  $g'$ , which pass around opposite sides of said drums to the adjacent joists, thence outward along said joists to the posts supporting the  
 80 same, and then down the posts to and above one of the troughs on each side of the car. The flow of water is controlled by a cock  $g^2$  in pipe  $g$ , said cock being actuated by hand or by a rod passing down into the car in any  
 85 well-known manner. The reservoir is filled through a funnel  $G'$ , extending up through the roof of the car, or in any other desirable way.

$H$  indicates shifting frames located over the  
 90 doorways in the sides of the car, and through which the stock is loaded and unloaded. Each frame comprises two horizontal bars  $h$  and  $h'$ , placed one above the other, and connected by vertical bars  $h^2$ . The upper horizontal bar  $h$  is supported by studs  $h^3$ , projecting  
 95 from the side of the car and passing loosely through perforations in bar  $h$ . Frame  $H$  is adapted to be moved from and toward the side of the car on studs  $h^3$ , its outer movement being limited by heads or nuts  $h^4$ .  
 100 There is an open space or wide slot  $h^5$  between bars  $h$  and  $h'$ , and on bar  $h'$  in slot  $h^5$  are mounted rollers  $M'$ , having grooves that engage said bar  $h'$ , the spindles of rollers  $M'$   
 105 being connected by a rigid bar or plate  $m^7$ .

The door  $M$  has tension-plates  $m$  secured to its top, which extend up on opposite sides of bar  $h'$  and rollers  $M'$ , and in the upper ends of these parts are journaled said rollers,  
 110 which support the door, the bottom of which has a sliding connection, by a chain  $m^2$ , with a horizontal bar  $m'$ , that has its ends secured in the side of the car. The door is designed to fit in between the door-posts when frame  
 115  $H$  fits up toward the side of the car, and when said door is to be opened it is pulled outward by means of grips or handholds  $m^3$ , until it is clear of said posts, the frame  $H$  moving  
 120 outward on studs  $h^3$  with the door. After being so drawn out the door is pushed aside, the rollers  $M'$  traveling on bar  $h'$ . When the door is to be again closed, it is moved back opposite its opening in the car and then pushed  
 125 inward between the door-posts, plate  $H$  also sliding inward on studs  $h^3$  at the same time. The door is then secured by any suitable means. In the drawings at  $m^4$  it is shown as fastened by hasps and staples, though I do not confine myself to any particular mode of  
 130 securing it.

In addition to tension-plates  $m$  hook-rods  $m^5$  are attached to the door, the hooks  $m^6$  on which rods take over bar  $h'$ , but do not nor-



mally bear on the same, being simply designed to sustain the door in case tension-plates *m* give way.

*N* indicates the clearstory, the ends whereof are closed. The top *N'* projects beyond the side walls *N*<sup>2</sup> of the clearstory, and flush with the edges of said top are curtains *N*<sup>3</sup> on each side, that depend below a series of ports or openings *n* in side walls *N*<sup>2</sup> immediately below top *N'*. Between side walls *N*<sup>2</sup> and curtains *N*<sup>3</sup> deflectors *N*<sup>4</sup> are pivoted at their upper ends between and just below ports *n*, as shown at *n'*. The lower ends of deflectors *N*<sup>4</sup> swing freely about the pivots *n'*, so that they are blown backward from the direction in which the car is moving and prevent the entrance through ports *n* of cinders, dust, and smoke. Below the pivot or hinge rods *n'*, but between ports *n*, are stops *n*<sup>2</sup>, formed of rods extending between curtains *N*<sup>3</sup> and side walls *N*<sup>2</sup>, and which limit the swing of deflectors *N*<sup>4</sup>. The rods *n'* secure curtains *N*<sup>3</sup> to the walls of the clearstory, the ends of the spaces between said curtains and said walls being closed by lateral extensions of the ends of said clearstory. Top *N'* is divided transversely into sections, as illustrated at *T*, hinged on one side to the clearstory, as shown at *S*, and detachably connected therewith on the other side, as seen at *S'*. Under the joints between the sections of this top are located transverse troughs *R*, that slope from the center outward through the side walls and curtains of the clearstory. These troughs catch any water that may pass between the sections of top *N'* and carry off the same. Should the hay on partition *D* need to be pushed down, or should any of the mechanism on said partition require attention, access is had thereto by raising one or more of said top sections. The hay may also be put into the racks and loft through this top.

It will be observed that the flaps forming the sides of the ceiling of the car and the slats of the hay-rack present concave surfaces toward the inside of the car, so that there are no bulges or angles against which the animals can injure their heads. This part of the construction is of special importance, as with hay-racks that present convex surfaces toward the inside of the car the animals are apt to have the tops of their heads badly cut, and this to such an extent that in many cases horses have been entirely ruined.

I do not confine myself to the details of construction herein shown and described, as it is obvious that many changes may be made therein without departing from the principle and scope of my invention.

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

1. The combination, in a car, of a feed-rack subtending an upper angle of the car, a hinge connection between one edge of the feed-rack and the car-body and located on one side of the subtended angle, and a detachable con-

nection between the other edge of the feed-rack and the car-body and located on the other side of said subtended angle, the detachable edge of the feed-rack being adapted to be swung back into the car, for the purpose specified.

2. The combination, in a car of a feed-rack subtending an upper angle of the car, a hinge connection between one edge of the feed-rack and the car-body and located on one side of the subtended angle, and a detachable connection between the other edge of the feed-rack and the car-body and located on the other side of said subtended angle, the detachable edge of the feed-rack being adapted to be swung back into the car, said detachable edge of the feed-rack having a pocket or receptacle formed on the inner side thereof, for the purpose specified.

3. The combination, in a car, of a feed-rack subtending an upper angle of the car, a hinge connection between the upper edge of the feed-rack and a portion of the car-body in the plane of a horizontal side of said angle, a detachable connection between the lower edge of said feed-rack and a car-wall forming the vertical side of said angle, the detachable edge of the feed-rack being adapted to be swung back into the car, the upper portion of the feed-rack being constructed of sheeting and the lower portion of slats, for the purpose specified.

4. The combination, in a car, of a feed-rack subtending an upper angle of the car, a hinge connection between the upper edge of the feed-rack and a portion of the car-body in the plane of a horizontal side of said angle, a detachable connection between the lower edge of said feed-rack and a car-wall forming the vertical side of said angle, the detachable edge of the feed-rack being adapted to be swung back into the car, the upper portion of said feed-rack being constructed of downwardly-curved sheeting and the lower portion of slats forming a continuation of the curve of the sheeting, for the purpose specified.

5. The combination, in a car, of a feed-rack subtending an upper angle of the car, a hinge connection between the upper edge of the feed-rack and a portion of the car-body in the plane of a horizontal side of said angle, a detachable connection between the lower edge of said feed-rack and a car-wall forming the vertical side of said angle, the detachable edge of the feed-rack being adapted to be swung back into the car, and a projection or plate on the inner side of the lower edge of the rack, for the purpose specified.

6. The combination, in a stock-car, of a feed-rack subtending an upper angle of the car, a hinge connection between the upper edge of the feed-rack and a portion of the car-body in the plane of a horizontal side of said angle, a detachable connection between the lower edge of said feed-rack and a car-wall forming the vertical side of said angle, the detachable edge of the feed-rack being adapted



to be swung back into the car, the upper portion of the feed-rack being constructed of sheeting and the lower portion of slats, a projection or plate on the inner side of the lower edge of the feed-rack, and a transverse plate closing each end of said feed-rack, for the purpose specified.

7. In a stock-car, a feed-rack comprising intermediate ribs, end ribs extending below the intermediate ribs, a hinge connection between the upper ends of said ribs and the car-body, a horizontal bar connecting the lower extremities of the end ribs, sheeting secured to the ribs adjacent to the hinges thereof, and slats having their ends fixed in the lower edge of the sheeting and in said horizontal bar, the lower edge of the feed-rack being adapted to swing back into the body of the car, in combination with means for detachably securing said lower edge of the feed-rack to a wall of the car, for the purpose specified.

8. The combination, in a stock-car, of a hay-loft arranged in the top of the car and having a side thereof opening into the car, a feed-rack having its upper edge located adjacent to the bottom of the hay-loft in front of the opening therein, a hinge connection between the upper portion of the feed-rack and the car-body, the lower edge of the feed-rack being adapted to swing back into the body of the car, and means for detachably securing said lower edge of the feed-rack to a wall of the car, for the purpose specified.

9. The combination, in a stock-car, of a hay-loft arranged in the top of the car and having a side thereof opening into the car, a feed-rack having its upper edge adjacent to the bottom of the hay-loft in front of the opening therein, a hinge connection between the upper portion of the feed-rack and the car-body, an extension from the bottom of the hay-loft over the upper edge of the feed-rack, the lower edge of the feed-rack being adapted to swing back into the body of the car, and means for detachably securing said lower edge of the feed-rack to a wall of the car, for the purpose specified.

10. In a stock-car, a hay-loft arranged longitudinally of the center of the car, feed-racks comprising downwardly-curving ribs hinged to the joists of the car on each side of the hay-loft, the end ribs of each feed-rack extending below the intermediate ribs, horizontal bars connecting the lower extremities of the end ribs, sheeting secured to the ribs, the upper edges of the sheeting being adjacent to and somewhat below the floor of the hay-loft, slats forming a continuation of the curves of the sheeting and having their ends secured in the lower edges of said sheeting and in said horizontal bars, projections or plates attached to the horizontal bars and constructed to form bottoms for the feed-racks when the same are swung back into the body of the car, and transverse walls closing the ends of the feed-racks, in combination with extensions from

the bottom of the hay-loft over the upper edges of the sheeting, and means for detachably securing the lower edges of the feed-racks to the walls of the car, substantially as and for the purpose specified.

11. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, a plate secured to the bottoms of said troughs and adapted to engage the posts when the troughs are upturned between said posts, and means for securing the troughs in such upturned position, for the purpose specified.

12. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, a plate secured to the bottoms of the troughs and adapted to engage the posts when the troughs are upturned between the same, pipes connecting said troughs, and means for securing the troughs in such upturned position, for the purpose specified.

13. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, a plate secured to the bottoms of said troughs, and adapted to engage the posts when the troughs are upturned between the same, and pipes connecting the troughs and located in recesses in said plates, for the purpose specified.

14. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, sheeting on said posts below the watering-troughs, and a plate of the thickness of said sheeting secured to the bottoms of the troughs and adapted to engage the posts when the troughs are upturned between the same, for the purpose specified.

15. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, sheeting on said posts below the watering-troughs, a plate secured to the bottom of the troughs and adapted to engage the posts when the troughs are upturned and to bear against the sheeting when said troughs are in position for use, for the purpose specified.

16. The combination, in a stock-car, of watering-troughs journaled in and between the posts of the car, sheeting on said posts below the watering-troughs, a plate of the thickness of said sheeting secured to the bottoms of the troughs, said plate being adapted to engage the posts when the troughs are upturned and to bear against the sheeting when said troughs are in position for use, pipes connecting the troughs and located in recesses in said plate, and means for securing the troughs in an upturned position, for the purpose specified.

17. The combination, in a car, of outwardly-projecting studs or pins located above a doorway therein, a frame comprising two horizontal bars arranged one above the other and connected at their ends, said studs or pins loosely engaging perforations in the upper horizontal bar of said frame, the frame being adapted to be moved back and forth on said



studs, a grooved roller located in the space between said horizontal bars and resting upon the lower one thereof, a door constructed to be moved into and out of the doorway, and a strap connecting the spindle of the roller and the door for the purpose specified.

18. The combination, in a car, of outwardly-projecting studs or pins located above a doorway therein, a frame comprising two horizontal bars arranged one above the other and connected at their ends, said studs or pins loosely engaging perforations in the upper horizontal bar of said frame, the frame being adapted to be moved back and forth on said studs, a grooved roller located in the space between said horizontal bars and resting upon the lower one thereof, a door constructed to be moved into and out of the doorway, a strap connecting the spindle of the roller and the door, and a rod secured to the door and having a hook on the end thereof taking over and above a bar of said frame, for the purpose specified.

19. The combination, in a car, of outwardly-projecting studs or pins located above a doorway therein, a frame comprising two horizontal bars arranged one above the other and connected at their ends, said studs or pins loosely engaging perforations in the upper horizontal bar of said frame, the frame being adapted to be moved back and forth on said studs, grooved rollers located in the space between said horizontal bars, both said bars engaging the grooves in the rollers, a rigid bar connecting the spindles of the rollers, a door constructed to be moved into and out of the doorway, and straps connecting the spindles of the rollers and the door, for the purpose specified.

20. The combination, in a car, of outwardly-projecting studs or pins located above a doorway therein, a frame comprising two horizontal bars arranged one above the other and connected at their ends, said studs or pins loosely engaging the upper horizontal bar of said frame, the frame being adapted to be moved back and forth on said studs, grooved rollers located in the space between said

horizontal bars, both said bars engaging the grooves in the rollers, a rigid bar connecting the spindles of the rollers, a door constructed to be moved in and out of the doorway, straps connecting the spindles of the rollers and the door, a horizontal rod secured to the car below the door, and an extensible, movable connection between the door and the rod, substantially as and for the purpose specified.

21. The combination, in a car, of a clear-story having ports in the side walls thereof, the top of the clearstory extending out beyond said side walls, longitudinal curtains attached to the sides of said top and depending in front of the ports, and swinging deflectors having their upper ends hinged between the side walls and said curtains, for the purpose specified.

22. The combination, in a car, of a clear-story having ports in the side walls thereof, the top of the clearstory extending out beyond said side walls, longitudinal curtains attached to the sides of said top and depending below said ports, and swinging deflectors having their upper ends hinged in the side walls and said curtains and extending below the curtains, for the purpose specified.

23. The combination, in a car, of a clear-story having ports in the side walls and adjacent to the top thereof, the top of the clear-story extending out beyond said side walls, longitudinal curtains attached to the sides of said top and depending below the ports, swinging deflectors having their upper ends located between and below said ports, said upper ends of the deflectors being hinged in said side walls and curtains and depending below the curtains, stops between the swinging ends of the deflectors to limit the movement thereof, and plates closing the ends of the channels between the side walls and the depending curtains, substantially as and for the purpose specified.

WILLIAM CLINE.

Witnesses:

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WM. R. GERHART.