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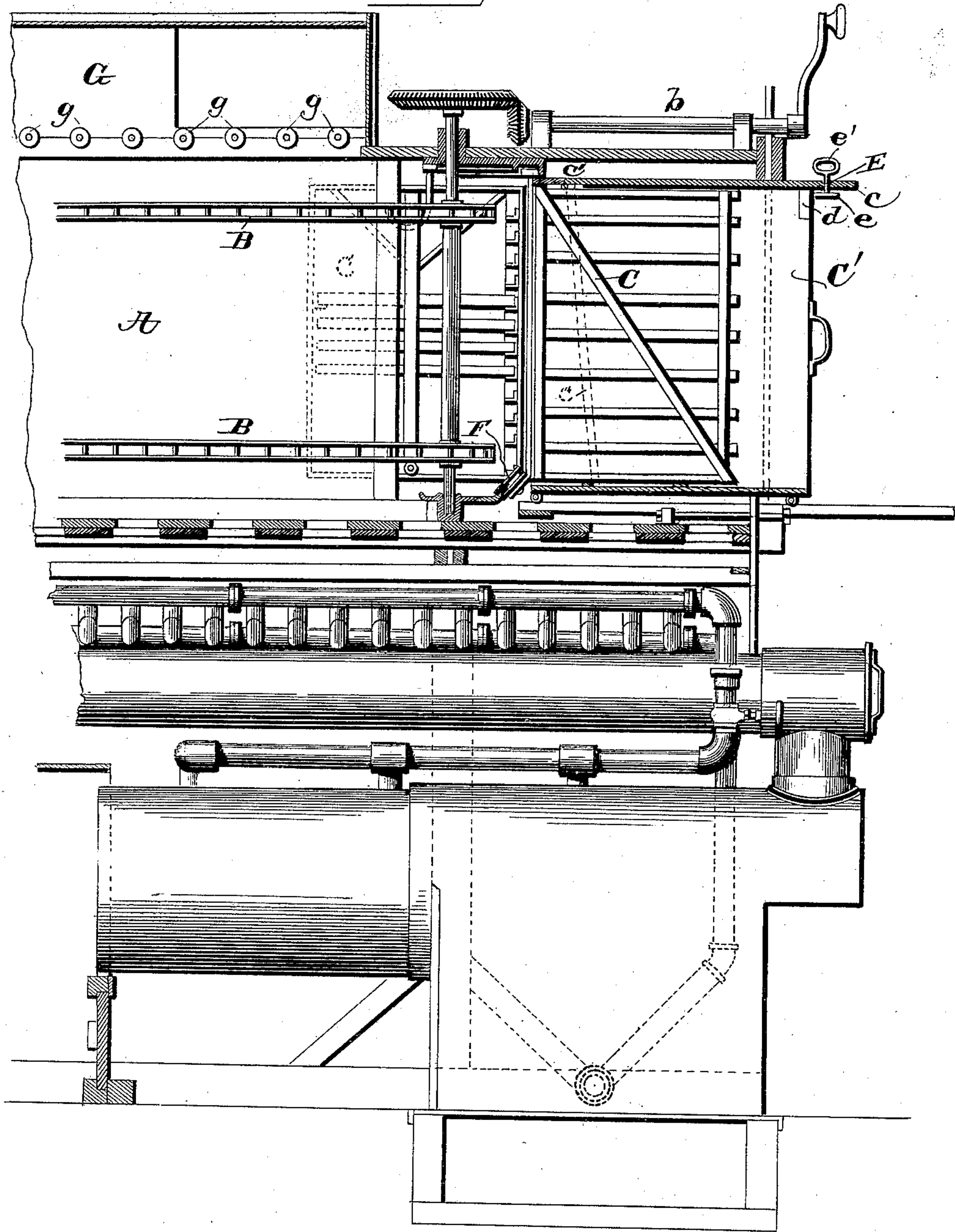
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G. & F. FRICK.
DRIER FOR FRUIT AND LIKE ARTICLES.

No. 417,014.

Patented Dec. 10, 1889.

Fig. 1



WITNESSES

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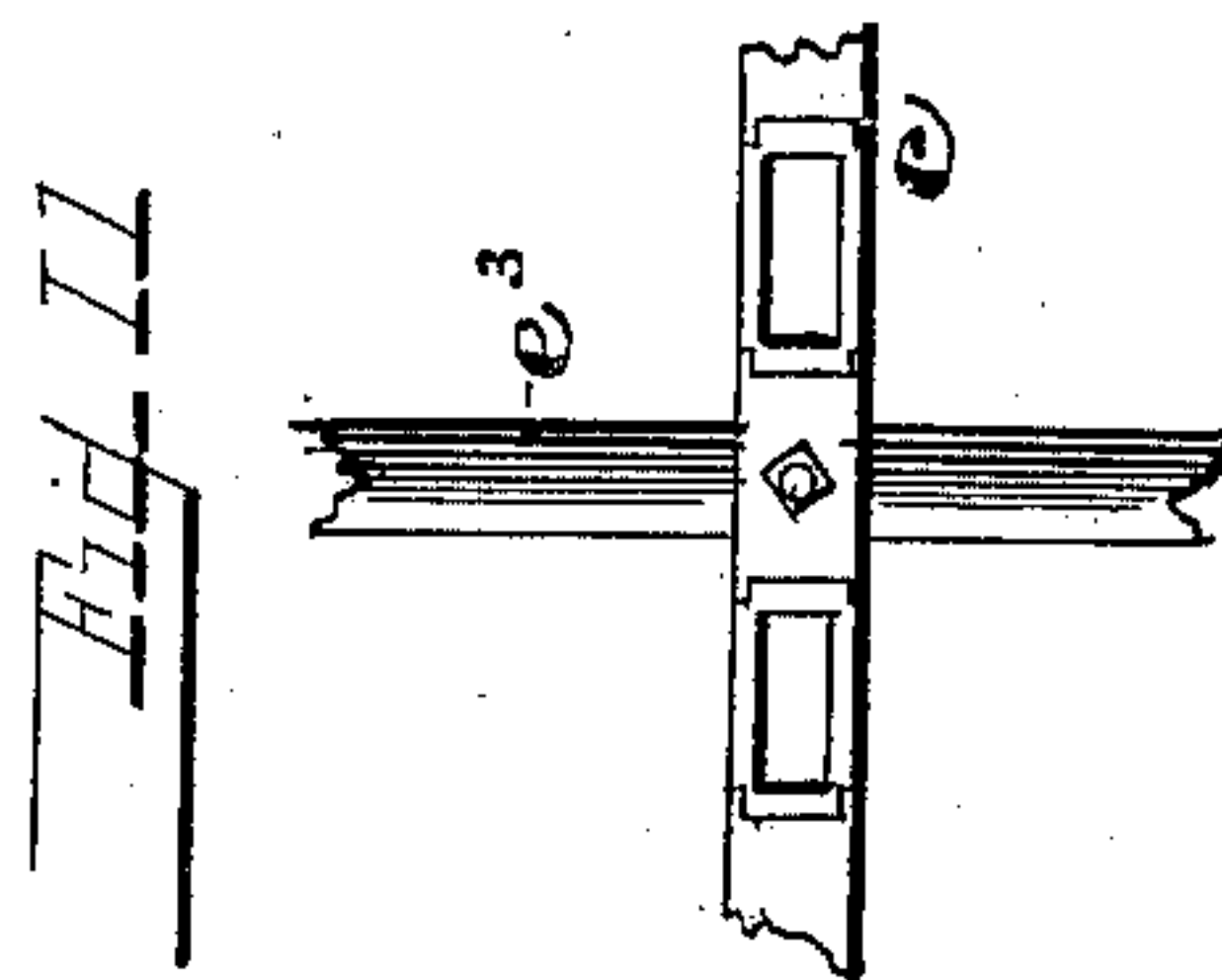
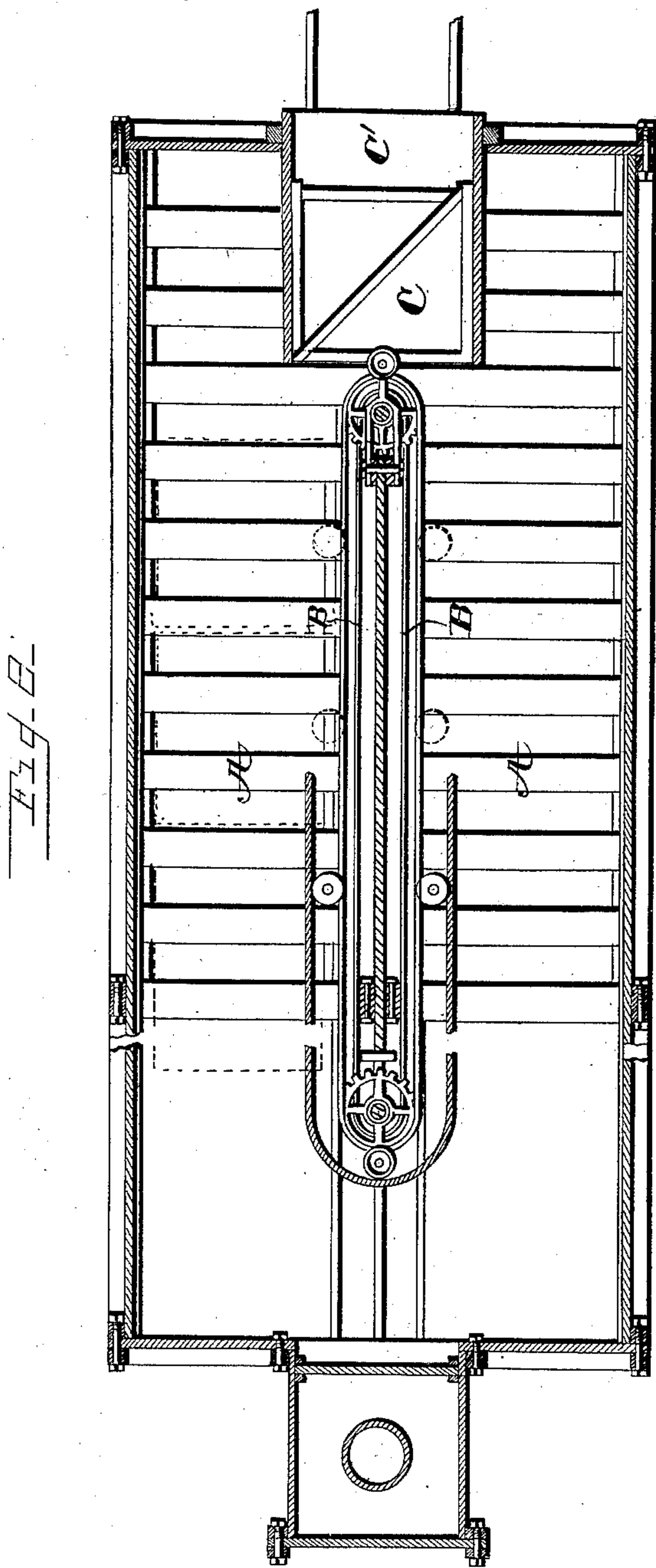


Fig. 3

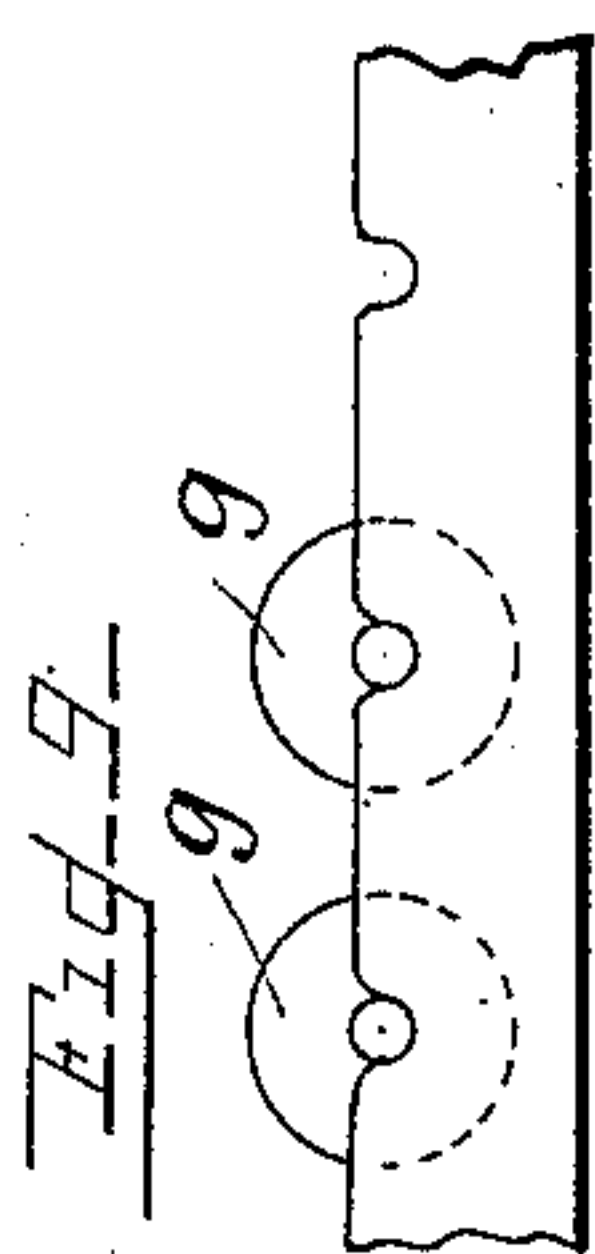
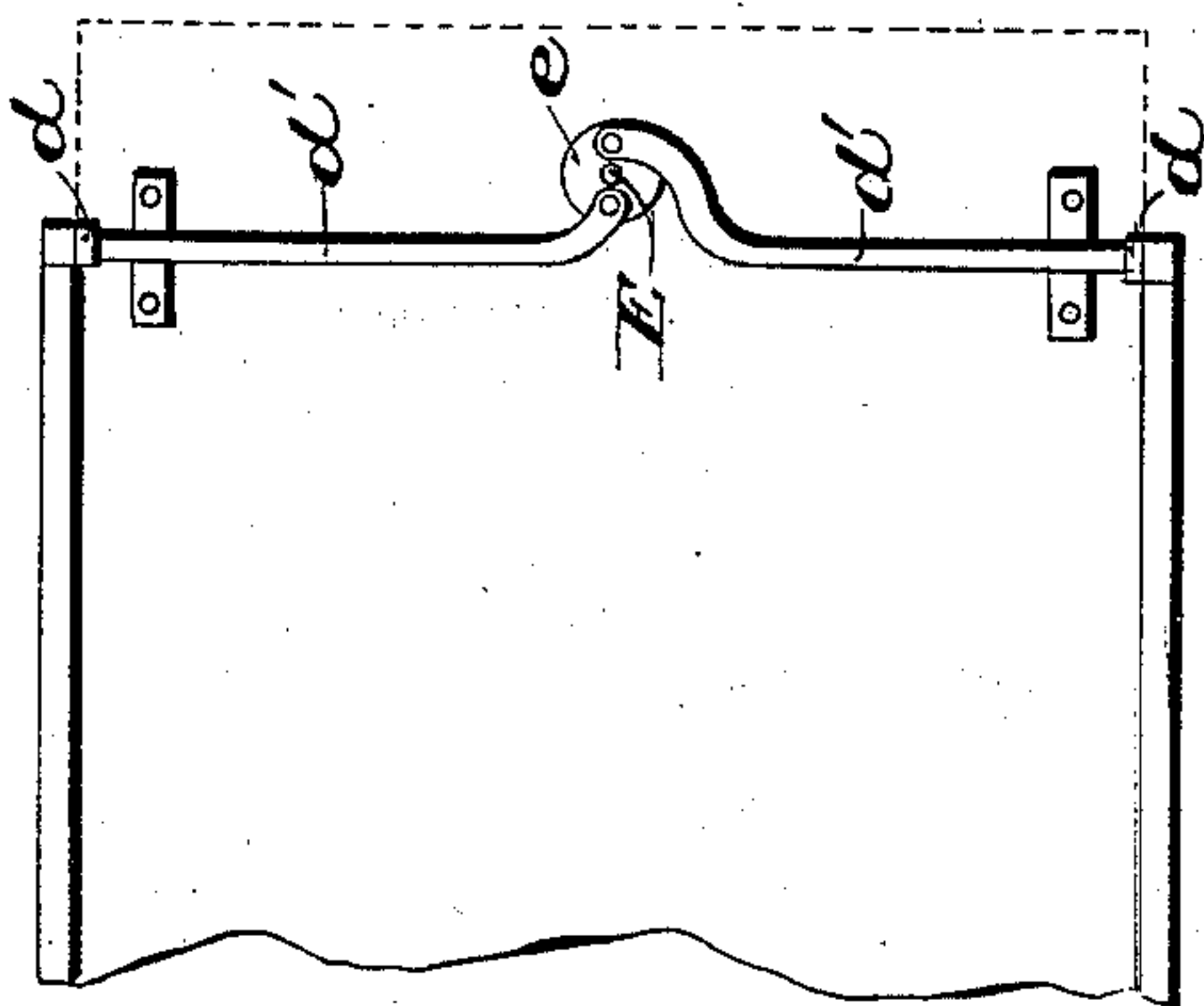


Fig. 6



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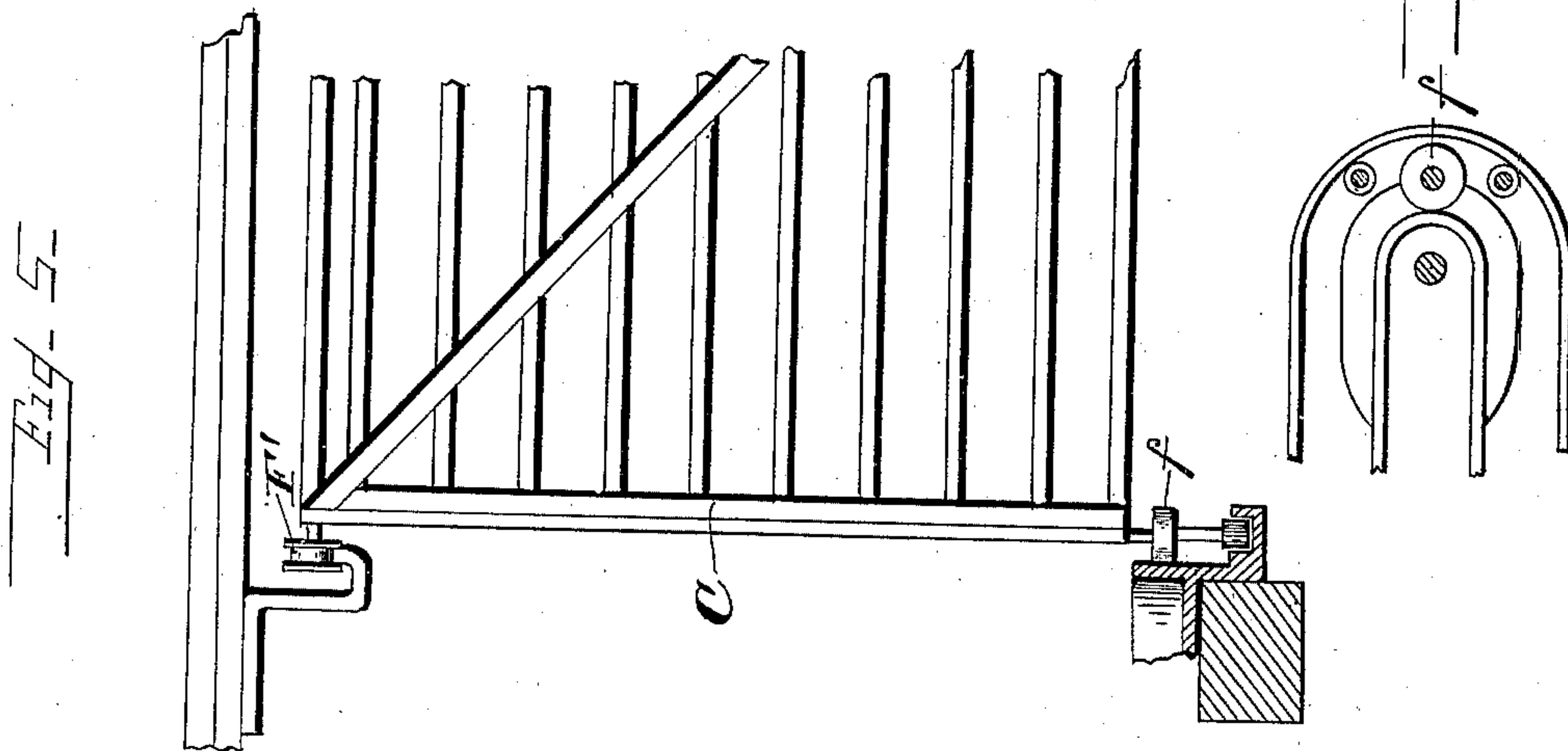
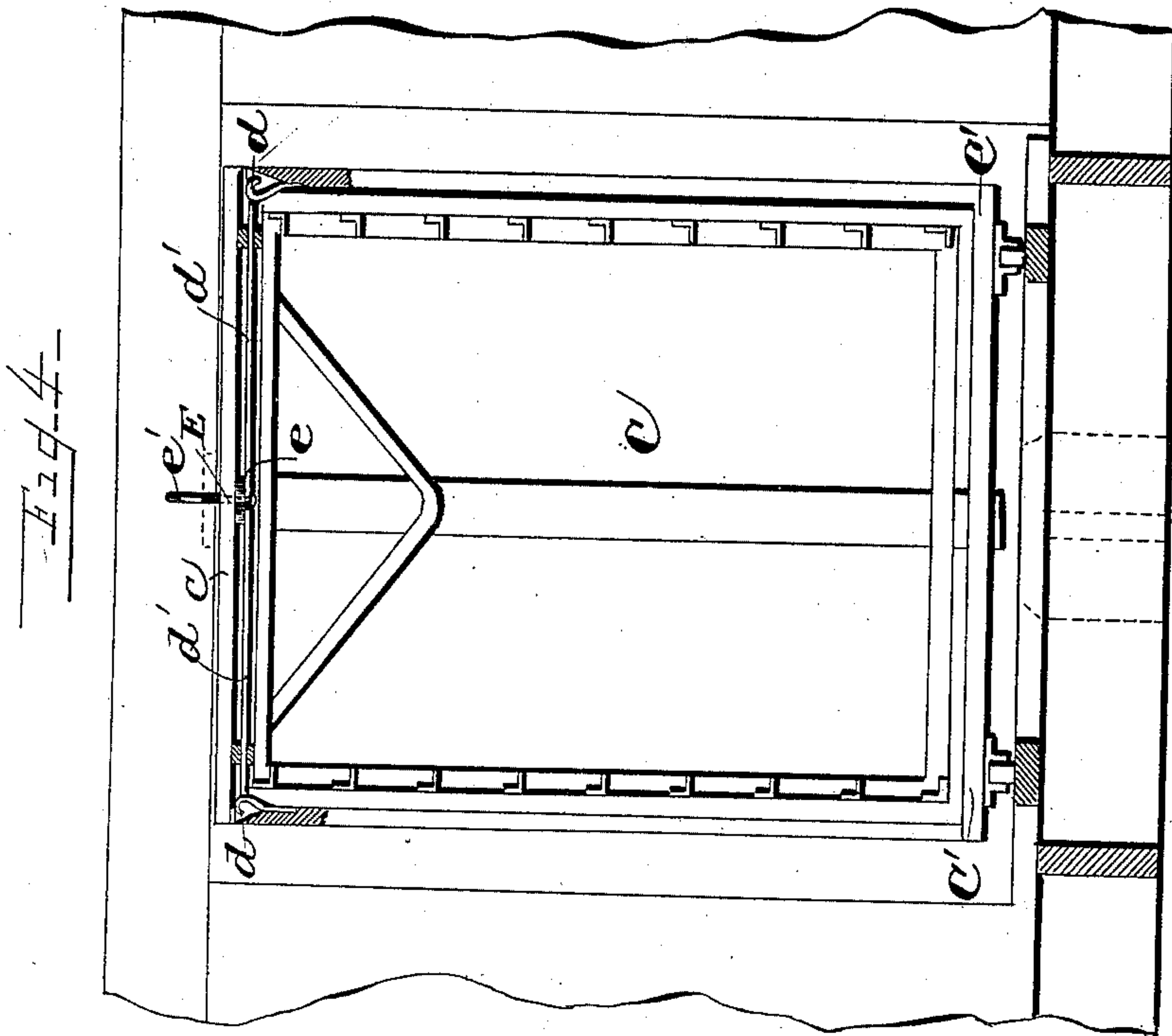
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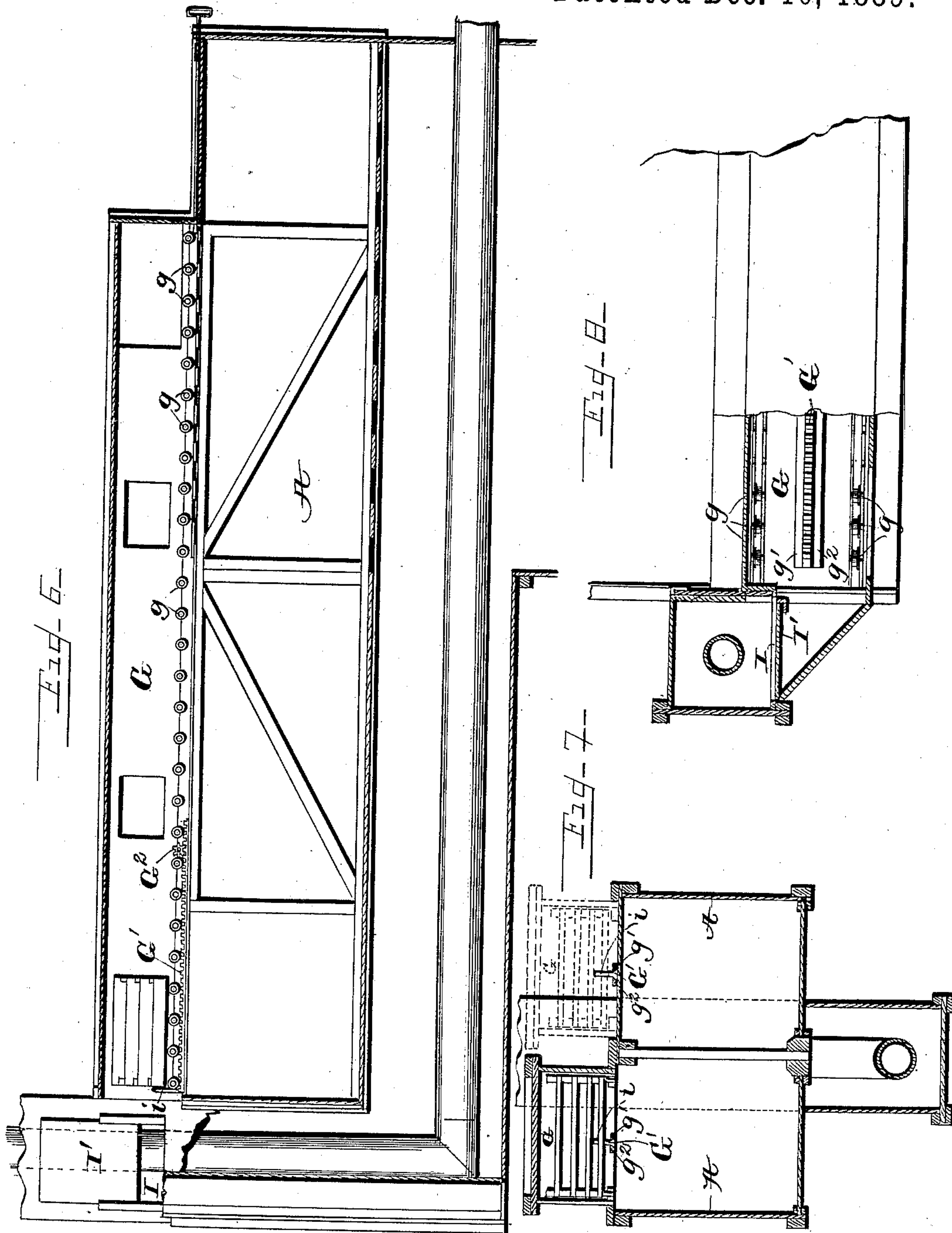
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UNITED STATES PATENT OFFICE.

GEORGE FRICK AND FREDERICK FRICK, OF WAYNESBOROUGH, PENN-
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DRIER FOR FRUIT AND LIKE ARTICLES.

SPECIFICATION forming part of Letters Patent No. 417,014, dated December 10, 1889.

Application filed December 18, 1888. Serial No. 293,972. (No model.)

To all whom it may concern:

Be it known that we, GEORGE FRICK and FREDERICK FRICK, citizens of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Driers for Fruit and Like Articles; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to the class of driers for fruit, vegetables, and like articles; and it consists in certain details of construction, which are hereinafter fully disclosed.

In the accompanying drawings, Figure 1 is a partial vertical longitudinal section of a drier embodying our invention. Fig. 2 is a horizontal section. Fig. 3 is a detail of parts. Fig. 4 is a partial front view. Fig. 5 is a detail of one form of the crate-supporting devices. Fig. 5^a is a plan of the construction of the lower guideway at the turning-points. Fig. 6 is a reduced longitudinal vertical section of the drying and finishing chambers. Fig. 7 is a transverse vertical section of the same. Fig. 8 is a partial horizontal section of a finishing-chamber. Figs. 9 and 10 are details of the supporting-rollers of the finishing-chamber and their bearings. Fig. 11 is a view illustrating the connection between the crates and chains.

In our construction the main body A of the drier is of greatest extent in a horizontal direction, or in a direction more or less inclined to a true horizontal. Within this main body and operatively supported in planes parallel with the general plane of the main body A are two endless sprocket-chains B B, extending one above the other in the direction of the greatest extent of the same, but with a space at each end about equal to that on each side of the same. These chains are operated by crank-shaft b and gearing, as shown. To these chains are attached crates or cages C, which are supported by or upon some rigid portion or track and are guided and impelled by the chains B rearward on one side of the drier, returning on the other.

In Fig. 11 I have shown means for attach-

ing the crates to the chains, which consist of a bolt passing through the wall of said crate and a bar secured to the same through one of the links of the chains, said bolt being provided with a nut; but other means may be employed for the same purpose.

The apparatus for heating the current or currents of air passed through the drier to effect the drying of the articles therein is preferably located below the main body A, and a valved connection is preferably interposed between the two. It is desirable when a crate or cage is to be filled or emptied that this should be effected with as little inconvenience as possible to the operator and without stopping the operation of the drier as far as the other crates are concerned. Each crate, though made of a frame or skeleton form, has a solid or closed back.

In order to accomplish the shutting off of a single crate, we provide a construction shown in Figs. 1, 2, 3, and 4. In Fig. 2 a crate is shown in position to be filled or emptied.

C' is a movable vestibule of box-like structure having four walls—top, bottom, and two sides. These parts are arranged to encompass a single crate, which is at the front of the position in which a crate or cage is filled or emptied, and when in its outermost position the top c, hinged at c', folds into the position shown in dotted lines in Fig. 1, forming a door and closing the drying-chamber. This vestibule is preferably mounted on rollers or wheels running on tracks, any desired form of which may be employed. The top c is held up, when raised, by the construction shown in Figs. 3 and 4.

d d are spring-catches fixed to the side walls of the movable vestibule, which permit the top c, in rising, to pass, but which spring inward after it has passed and prevent its downward movement. To the under side of the top c are mounted two sliding rods d' d', in line with the springs d d. These rods are pivoted to a disk e on the lower end of a short shaft E, provided with a hand-grasp e'. By turning this shaft the rods d' d' are forced outwardly, and coming into contact with the springs d compress them, allowing the top c to descend.

The operation will be readily understood from the foregoing. The crate or cage having been placed in the proper position, the vestibule is moved inward until the inner end is even with the rear of the crate. As the vestibule moves inward, the top in its folded position is engaged by the top of the framing of the crate or cage and is raised into a horizontal position automatically. Other devices may be provided to accomplish this, or it may be raised by the hand of the operator.

Instead of the crate or cage being borne by the wheel F, as shown in Fig. 1, it may be borne by a traveler or wheel F', engaging a track near the roof of the drying-chamber. Where this construction is employed the lower part of the crate is provided with a traveler f, engaging a vertical wall to maintain the crate in a vertical position. On each side of this traveler are friction-rolls, which engage a curved grooved track at the points of turning to steady the crate at that point and prevent an undue swinging movement.

When the materials operated upon are not completely dried on their return to the front of the drier, or have not dried evenly, it is frequently desirable to complete the operation by submitting them to lower temperatures the requisite time to accomplish this. To provide an economical and convenient means for doing this, we provide our drier with one or more finishing-compartments G above the drying-chamber. The bottom or floor of this chamber is provided with rollers gg, placed in two rows running longitudinally of the same. This chamber may have a metal flooring, as shown at Fig. 7, or it may have a part wooden and part metal flooring, with or without valve communication with the drying-chamber. The chamber communicates with the exit or uptake for the drying-chamber through an aperture I, closed by a sliding damper or valve I'. Between the lines of rollers gg at the rear end of the chamber are two guides g' g², between which is movably mounted the rack-bar G', which has the upwardly-projecting arm i. This rack is engaged by a pinion G², which is on a shaft mounted in suitable bearings, and has one end extending beyond the outer wall of the chamber, where it is provided with a crank, by which it is operated.

The finishing-room is preferably made of such size that the trays from the drying-room can be transferred thereto and used therein. We may, however, use separate trays of deeper construction and may place them upon one another, as shown in the drawings; or we may employ supporting-crates similar in construction to those used in the drying-chamber. Very deep trays may be used when very light articles are to be dried, and we may sometimes construct the finishing-chamber so that the crates or cages used in the drying-chamber can be employed therein.

In Figs. 9 and 10 we have shown in detail

our preferred form of supporting-rollers for the finishing-chamber and the manner of mounting them. This form of roller is preferred, as the flanges serve as guides for the trays or crates in their passage through the chamber. The chamber is provided with a door at each end, through which the trays may be put into and withdrawn from the chamber. It is also provided with smaller doors or windows to permit access to the interior and allow the operator to observe the condition of the articles therein. The chamber is shown as adapted to receive the trays at the rear end of the chamber G; but they may be introduced near the front end, if desired. In such case the rack G' would be placed in the front portion of the chamber. The trays receive the partially-dried materials and are placed within the chamber, the rack being moved so as that the arm i shall be between the trays and the end of the chamber. As many trays are placed one upon the other as are desired and the pinion turned until the arm i, coming against the lower tray, moves it and the trays on it until room is made for the admission of another tray or trays. The rack is then returned to its original position and the operation is continued at such intervals as desired or until the chamber is filled. The trays are permitted to remain in the chamber as long as desired. The heat of the chamber is regulated by the damper I' or the valve construction at H, controlling the admission of air to the chamber, or by both.

In Figs. 7 and 8 we have shown the drier provided with but a single finishing-chamber, an additional chamber being shown in dotted lines in Fig. 7. These finishing-chambers may be constructed in one and separated by a division or partition.

What we claim, and desire to secure by Letters Patent, is—

1. A drier having movable crates or cages and provided with a movable vestibule, and supports for said vestibule permitting the same to be passed within the drier for isolating a single crate or cage therein, substantially as described.

2. A drier having movable crates or cages and provided with a movable vestibule for isolating a single crate or cage within the drier, and guides or tracks for said vestibule extending within the drier, substantially as described.

3. A drier having movable crates or cages and provided at one wall with an opening a little larger than a crate or cage, a movable vestibule for isolating a single crate or cage, and tracks or guides for said vestibule extending through said opening within the drier, whereby the vestibule can be withdrawn from the drier through said opening or passed within the drier to isolate a crate or cage, substantially as described.

4. The combination, with a drier, of a movable vestibule for isolating a single crate or

cage, said vestibule being provided with a hinged top adapted to be let down, forming a door for closing the front of the drier, substantially as described.

5 5. In a drier, the combination, with the bottom and sides of a movable vestibule, of the hinged top and the spring-catches therefor, substantially as described.

10 6. The combination, in a drier, with the bottom and sides of a movable vestibule, of a hinged top, spring-catches therefor, and bars adapted to bear against said catches to release the same, substantially as described.

15 7. In a drier, the combination, with the bottom and sides of a movable vestibule, of a hinged top, spring-catches therefor, a shaft provided with a crank-disk, and bars connected to said crank-disk and adapted to bear against said catches to release the same, substantially as described.

8. In a drier, the combination, with horizontally-disposed sprocket-chains and a suspension-track, of a crate or cage attached to said chains and movably suspended on said track, substantially as described.

25 9. In a drier, the combination, with horizontally-disposed sprocket-chains, a suspension-track, and a guide parallel with the sprocket-chains, of a crate or cage attached to said chains, movably supported on said track, and provided with a traveler engaging said guide, substantially as described.

30 In testimony whereof we affix our signatures in presence of two witnesses.

GEO. FRICK.
FREDK. FRICK.

Witnesses:

D. M. GOOD, Jr.,
GEO. RINGLE.