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PATENTED AUG. 18, 1903.

G. W. HENKLE.  
FRUIT DRIER.

APPLICATION FILED MAY 27, 1903.

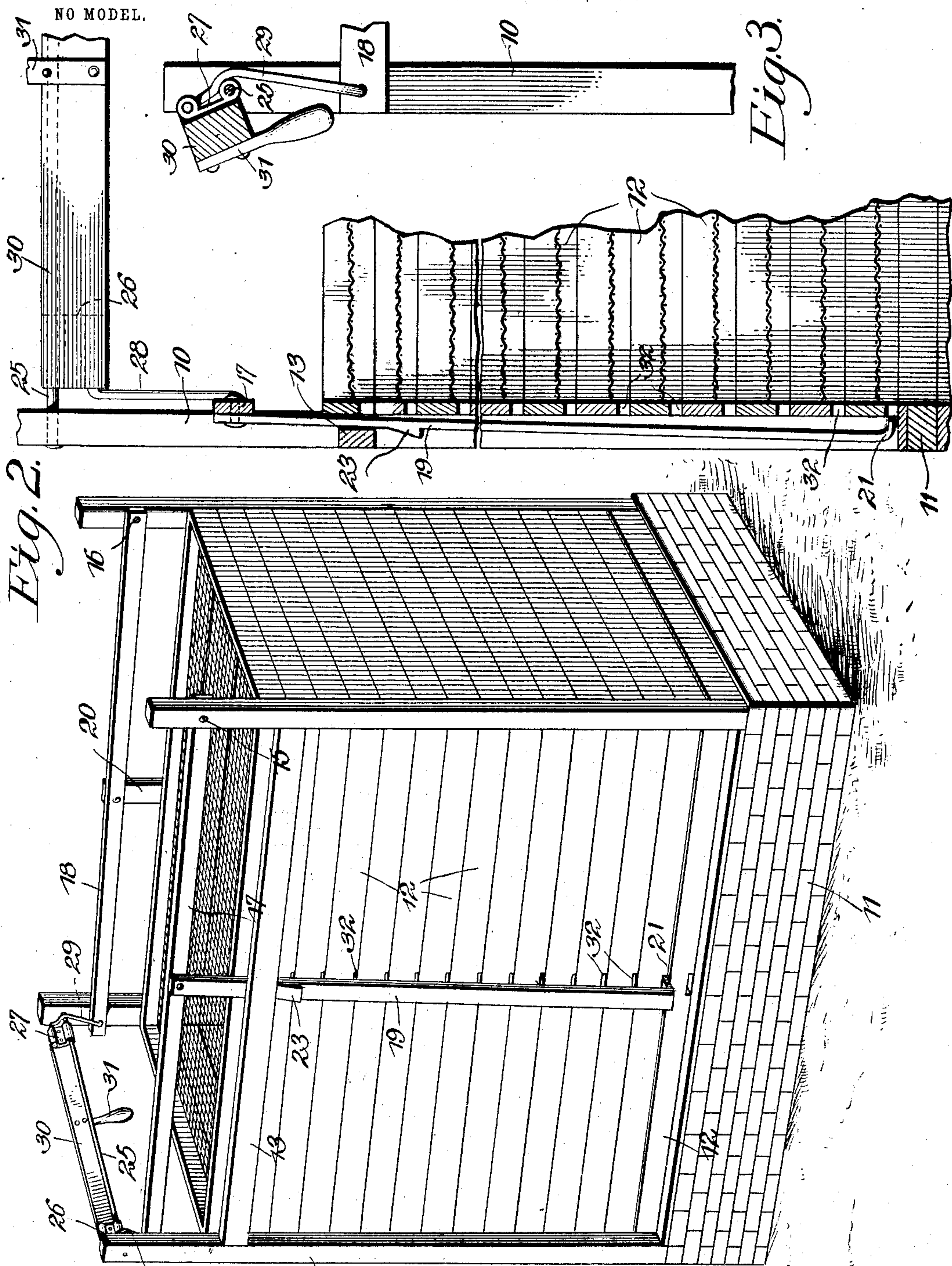


Fig. 2.

Fig. 3.

Fig. 1.

Witnesses  
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# UNITED STATES PATENT OFFICE.

GEORGE W. HENKLE, OF VANCOUVER, WASHINGTON.

## FRUIT-DRIER.

SPECIFICATION forming part of Letters Patent No. 736,849, dated August 18, 1903.

Application filed May 27, 1903. Serial No. 159,012. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. HENKLE, a citizen of the United States, residing at Vancouver, in the county of Clarke and State of Washington, have invented a new and useful Fruit-Drier, of which the following is a specification.

This invention relates to attachments to fruit-driers, more particularly to apparatus of this character wherein a plurality of superimposed trays are disposed in a supporting-framework and through which heated air is caused to rise, and has for its object to temporarily elevate all the trays except the lowermost one to permit of the removal of the latter without disturbing the remainder of the trays; and the invention consists in certain novel features of the construction of the means whereby the above-noted results are accomplished.

In the drawings, in which corresponding parts are denoted by like designating characters, Figure 1 is a perspective view of a drier with the improvement applied. Fig. 2 is an enlarged sectional detail illustrating the construction more fully. Fig. 3 is an enlarged detail illustrating the construction and operation of the lifting mechanism.

The improvement may be applied to any of the various constructions of driers or kilns for fruit, vegetables, and the like in common use wherein the material or product to be treated is arranged in superimposed trays, and in the drawings illustrating the embodiment of the invention, 10 represents the supporting-frame, mounted above the heating-furnace 11 and supporting a plurality of superimposed trays 12, the frame being shown in skeleton form with the sides and ends removed for clearness of illustration. The framework and furnace and the trays are of the usual construction, except that the upper portion of the frame is extended slightly and the sides provided with longitudinal stop-bars 13, one on each side, the inner faces of the stop-bars coming close to the outer edges of the trays, as shown in Fig. 2.

Movably attached to the framework 10 at one end, as at 15 16, are two lever-arms 17 18, extending longitudinally of the framework above and in substantial vertical alinement with the bars 13, as shown. Connected cen-

trally of the lever-arms 17 18 are lifting-bars 19 20, extending alongside the sides of the trays and between the trays and stop-bars 13 and provided with inwardly-turned lower ends 21. The bars 19 20 are preferably formed of metal of suitable resiliency and bent outwardly below the stop-bars, as shown, so that the inwardly-turned ends will be yieldably maintained out of engagement with the trays, as shown in Fig. 2. The lifting-bars will be provided with inclined trip-lugs 23 just below the bars 13, as shown, so that when the bars are elevated the lugs by engaging the stop-bars will forcibly move the lower ends 21 of the bars inwardly beneath the trays, as hereinafter described.

Transversely disposed between the side posts of the frame 10, at the forward or feed end of the apparatus or above the free ends of the lever-arms 17 18, is a rod 25, and upon this rod are mounted for rotation clips 26 27, formed of metal plates, having one end "rolled" around the rod 25 and the other ends similarly rolled and forming bearings for suspension-rods 28 29. The free ends of the suspension-rods are movably connected to the free ends of the lever-arms 17 18, as shown, while the clips 26 27 are connected by a plate 30, extending between side members of the frame 10. The plate 30 is provided centrally with an operating-handle 31, as shown. The side members of the trays 12 will be provided with recesses 32 opposite the paths of the "toes" 21 of the lifting-bars, so that when the latter are moved inwardly by the action of the lugs 23 the toes will pass beneath the trays in position to lift them when the bars are moved upwardly. The lengths of the lifting-bars 19 20 will be so proportioned to the trays that when the lifting-bars are elevated the toes 21 will be moved into the recesses 32 of the second tray from the bottom, thus lifting all the trays above the lowermost one and leaving the latter free to be removed without disturbing the remaining trays. When thus constructed and arranged, the rotation of the plate 30 and its attached clips 26 27 about the rod 25 as a center will reverse the position of the clips and cause the rods 28 29 to elevate the free ends of the lever-arms 17 18 and correspondingly elevate the lifting-bars 19 20, this action



causing the inclined lugs 23 to move the bars inward into the recesses 32 of the second tray 12 from the bottom and elevating all the trays except the lower one and leaving the latter free to be removed, as above noted. The plate 30 and its attachments are then returned to their former position, which releases the trays and permits them to move downward, and as soon as the lowermost of the remaining series of trays reaches its seat the bars 19 20 will be released by the removal of the weight of the trays from the toes 21, so that the "spring" of the bars will throw them into their inoperative position ready for the next action. By this simple means the lowermost tray can readily be removed when required without disturbing the remainder of the trays and without exposing the trays to cold air or other disturbing influences. The lifting-rods 28 and 29 will preferably be curved, as shown in Figs. 1 and 3, so that when the plate 30 and its attached clips 26 26 are reversed, as shown in Fig. 3, the line of draft of the lifter-rods will be thrown outside of the hinge-rod 25 or past its center, and thus form a locking means to sustain the lifted trays in their elevated position as long as required. When a tray is removed from the bottom, a freshly-charged tray may be inserted at the top, thus making the action continuous. By this means the attendant need watch the bottom tray only, and when the treatment of contents thereof is complete it can be removed, as above noted, which greatly simplifies the operation.

The heat may be applied in any desired manner or any required form of heating apparatus or medium employed and various other modifications in the minor details resorted to without departing from the principle of the invention or sacrificing any of its advantages.

Having thus described the invention, what I claim is—

1. In a drier, a supporting-frame, a plurality of trays superimposed within said frame, stop-bars carried by said frame adjacent to said trays, resilient lifting-bars movably disposed between said stop-bars and trays and having inclined trip-lugs adjacent to said stop-bars, and means for moving said lifting-bars longitudinally, to simultaneously connect them with and elevate said trays when moved in one direction, and release them when moved in the opposite direction, substantially as specified.

2. In a drier, a supporting-frame, a plurality of trays superimposed within said frame, stop-bars carried by said frame adjacent to said trays lever-arms movably connected by one end to said frame, resilient lifting-bars movably connected to said lever-arms inter-

mediately of their lengths and extending adjacent to said trays and having inclined trip-lugs adjacent to said stop-bars, means for forcibly operating said lever-arms to cause the longitudinal movement of said lifting-bars, substantially as specified.

3. In a drier, a supporting-frame, a plurality of trays superimposed within said frame, stop-bars carried by said frame adjacent to said trays, lever-arms movably connected by one end to said frame, resilient lifting-bars movably connected to said lever-arms intermediately of their lengths and extending adjacent to said trays and having inclined trip-lugs adjacent to said stop-bars, a plate mounted at one side for rotation upon said frame, connecting means between the free edge of said plate and the free ends of said lever-arms, and means for rotating said plate, substantially as specified.

4. In a drier, a supporting-frame, a plurality of trays superimposed within said frame, stop-bars carried by said frame adjacent to said trays, lever-arms movably connected by one end to said frame, resilient lifting-bars movably connected to said lever-arms intermediately of their lengths and extending adjacent to said trays and having inclined trip-lugs adjacent to said stop-bars, a plate having a rod connected to one longitudinal edge thereof and extended by its ends into engagement with said frame whereby said plate is rotatively connected to the framework, connecting-rods between the other or free edge of said plate and said lever-arms, and means for rotating said plate upon its rod, substantially as specified.

5. In a drier, a supporting-frame, a plurality of trays superimposed within said frame, stop-bars carried by said frame adjacent to said trays, lever-arms movably connected by one end to said frame, resilient lifting-bars movably connected to said lever-arms intermediately of their lengths and extending adjacent to said trays and having inclined trip-lugs adjacent to said stop-bars, a plate having clips upon its ends with bearings at the ends of the clips adjacent to the side edges of the plate, a rod engaging said bearings at one edge of the plate and extending into rotative connection with said frame, and suspension-rods between the other of said bearings and the free ends of said lever-arms, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE W. HENKLE.

Witnesses:

EDWIN M. GREEN,  
P. L. WEST.