(No Model.) 2 Sheets—Sheet 1.

M. REYNOLDS, Jr.

FRUIT DRIER.

No. 331,548. Patented Dec. 1, 1885.

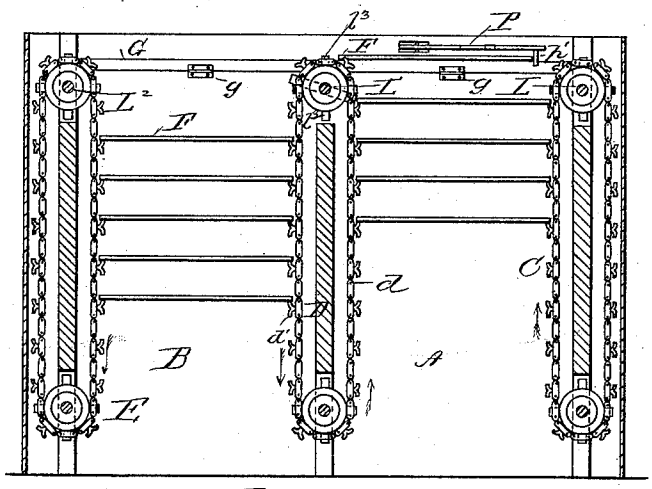


Fig. 1

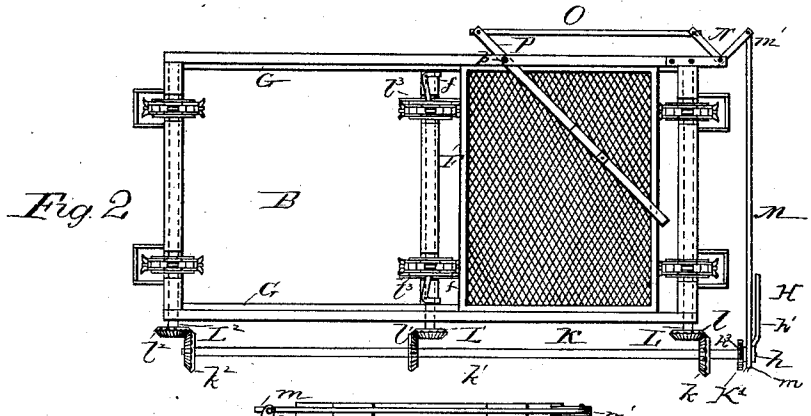


Fig. 2

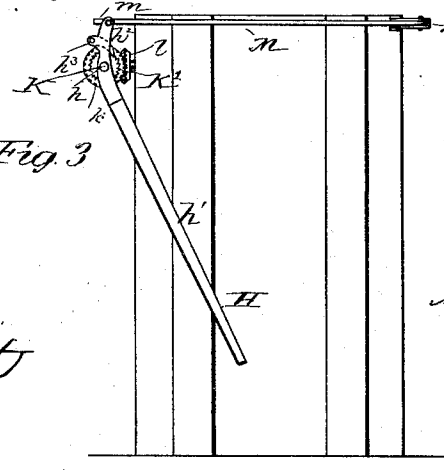


Fig. 3



Fig 6

WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

M. REYNOLDS, Jr.

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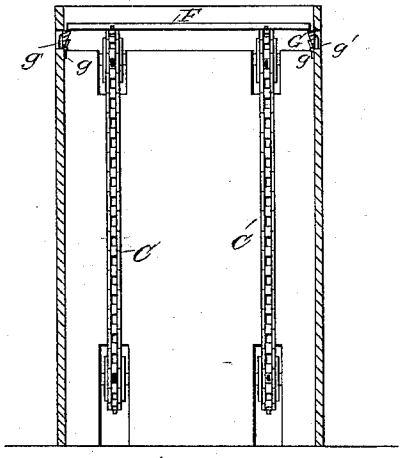


Fig 4

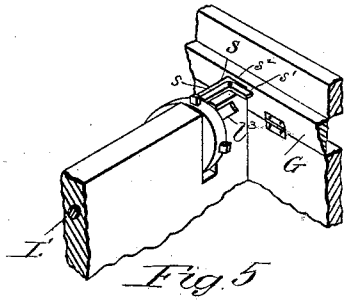


Fig 5

WITNESSES

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UNITED STATES PATENT OFFICE.

MYERS REYNOLDS, JR., OF MILTON, DELAWARE.

FRUIT-DRIER.

SPECIFICATION forming part of Letters Patent No. 331,548, dated December 1, 1885.

Application filed September 17, 1884. Serial No. 143,318. (No model.)

To all whom it may concern:

Be it known that I, MYERS REYNOLDS, Jr., a citizen of the United States, residing at Milton, in the county of Sussex and State of Delaware, have invented certain new and useful Improvements in Fruit-Driers; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a vertical longitudinal section; Fig. 2, a plan view; Fig. 3, an end elevation; Fig. 4, a vertical transverse section; Fig. 5, a perspective of a detail; and Fig. 6, a detail section, enlarged, of arm.

My invention has relation to fruit-driers having two flues, in which the fruit on trays first goes up one flue and then goes down the other, the trays being carried on chains, and, when they reach the top of the drier, moved over from the chains in the ascending flue to those in the descending flue.

My improvements consist in the peculiar construction and combinations of parts for moving the chains and for transferring the trays, substantially as hereinafter fully set forth, and as specifically claimed.

Referring to the accompanying drawings, which illustrate a fruit-drier with my improvements applied thereto, A is the ascending and B the descending flue. C is the ascending side chain, and *d* the ascending side of the middle chain, D, the side *d'* of latter being descending. E is the side descending chain. F F are trays sustained on projecting lugs or fingers on the chains. G G are boards hinged at *g g* to the upper sides of the drier, which said boards open outwardly, as hereinafter explained, and have outside springs, *g' g'*, which tend to press them inwardly. As the trays successively ascend these boards are pushed out to allow the trays to pass them, and when a tray gets above them they spring inwardly beneath the tray, supporting the latter clear of the lifting-chains. To move the trays successively over from the ascending to the descending flue, a lever, H, is depressed. This lever is fulcrumed at *h* on a shaft, K, its long arm *h'* forming its operating-handle, and its short arm h^2 being pivotally secured to one end, *m*, of a connecting-rod, M, whose other end, *m'*, is secured to one arm of a bell-crank lever, N, supported on the wall of the drier. The other arm of said lever N is fastened to a rod, O, which forms connection with a lever, P, fulcrumed on the wall of the drier at *p*, and carrying at its free end a depending anti-friction roller, *p'*. Said lever P is hinged at or about its middle, as shown at p^2, and provided with a spring, p^3, one end of which is rigidly fastened at p^4, the other end fitting beneath a pivoted strap or stirrup, p^5. By means of this construction the lever P is rendered rigid and unbending in one direction—that is, when pushing a tray from the ascending to the descending tray—but may be bent or doubled back at or about its middle in the reverse direction.

On the shaft K are beveled wheels $k\ k'\ k^2$, which gear with other like wheels, $l\ l'\ l^2$, on shafts L L' L^2, having sprocket-wheels, by means of which the chains are moved. The lever H is provided with a spring-pawl, h^3, which engages on the downward movement of said lever with a ratchet, K', on the shaft K, whereby on the depression of the said lever the shaft K and shafts L L' L^2 are moved, lifting the trays in the ascending flue and lowering those in the descending flue.

On the shaft L' there are wipers or arms l^3 l^3, which, as said shaft is revolved, come into contact with the inwardly-projecting arms *s s* of bell-crank levers S, which are pivoted at s^2 s^2 on the central partition of the drier, thus causing the outer arms, *s' s'*, of said levers S S to press the spring-boards G G outwardly, allowing the topmost ascending tray to pass them, and at the same time depriving the topmost transferred tray of its support, and allowing it to fall on the upper lugs or fingers of the lowering-chain.

Doors or shutters may be provided in the sides of the drier to permit the insertion and withdrawal of the trays, and any suitable form of furnace or generator may be employed to secure the required heat for evaporating purposes.

The operation is substantially as follows: The trays laden with fruit are introduced one after another through a suitable opening having a door or shutter at or near the bottom

of the ascending flue and laid on the lowest fingers or lugs of the chains in said flue. After introducing a tray the lever H is depressed by the operator. This movement causes the chains to travel, as indicated by the arrows, and the tray or trays to be lifted until, eventually, the first-inserted tray reaches the top of the ascending flue and passes the spring-boards. These boards then fly back beneath and support said tray clear of the ascending chain. The next downward movement of the lever H communicates motion to the shifting-lever P, and the latter pushes the tray to position over the descending flue, said shifting-lever then assuming its first position. At the next downward movement of the lever H the spring-boards G G are pushed out by the means already described, allowing the transferred tray to drop onto the topmost fingers of the lowering-chains in the descending flue. The working of the lever H being continued, the trays are lifted in the ascending flue and successively transferred to and lowered in the descending flue, being afterward removed from the latter at any suitable point where egress is provided for them.

The purpose of making the shifting lever P hinged, as described, is to permit bending back to allow the ascending trays to pass up by the roller on the end of the lever P.

What I claim as my invention is as follows:

1. In a fruit-drier having ascending and descending flues and lifting and lowering chains therein, the combination, with the chain-shafts L L′ L², of shaft K and lever H, said shafts having gear-wheels *l l′ l²* and *k k′ k²*, and said lever having a spring-pawl, k^3, engaging with a ratchet, K′, on said shaft K, substantially as shown and described.

2. The combination, with a fruit-drier having ascending and descending flues, and mechanism for lifting and lowering trays therein, of a shifting-lever, P, for transferring said trays from one flue to the other, substantially as shown and described.

3. In a fruit-drier having ascending and descending tray-carriers, the combination therewith of a device for transferring the trays from one to the other of the tray-carriers, said device comprising the lever P, pivoted at one end to the frame of the fruit-drier, and adapted to engage with the trays successively at its other end, the rods O and M, and bell-crank N, connecting said lever P to the lever H, from which it receives motion, substantially as described.

4. In a fruit-drier, the combination, with the lifting and lowering chains and their shafts and the shifting-lever P, of lever H, carrying a pawl which engages with a ratchet on the shaft from which said chains receive motion, and being connected to said lever P, substantially as shown and described, whereby the operation of said lever H causes the chain to travel and the shifting-lever to operate, as set forth.

5. In combination with a fruit-drier having two flues, and mechanism, substantially as described, for raising trays through one flue and lowering them through the other, the hinged spring-boards G G on opposite sides of the drier, extending from one flue to the other, forming supports for the trays, and serving as rails or ways on which said trays are successively moved from one flue to the other, substantially as shown and described.

6. In a fruit-drier, the combination, with ascending and descending chains and the sprocket-wheels on which said chains are carried, of spring-boards G G, hinged to the frame of the drier, levers S S, also pivoted upon the frame, and wipers l^3 l^3, secured to the sprocket-wheels, and adapted to engage with said levers and move the hinged boards outwardly, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of September, 1884.

MYERS REYNOLDS, JR.

Witnesses:

CHAS. C. OVERTON,

VIRGINIA S. OVERTON.