

E. L. WALLACE & F. MEYER.

DRIER.

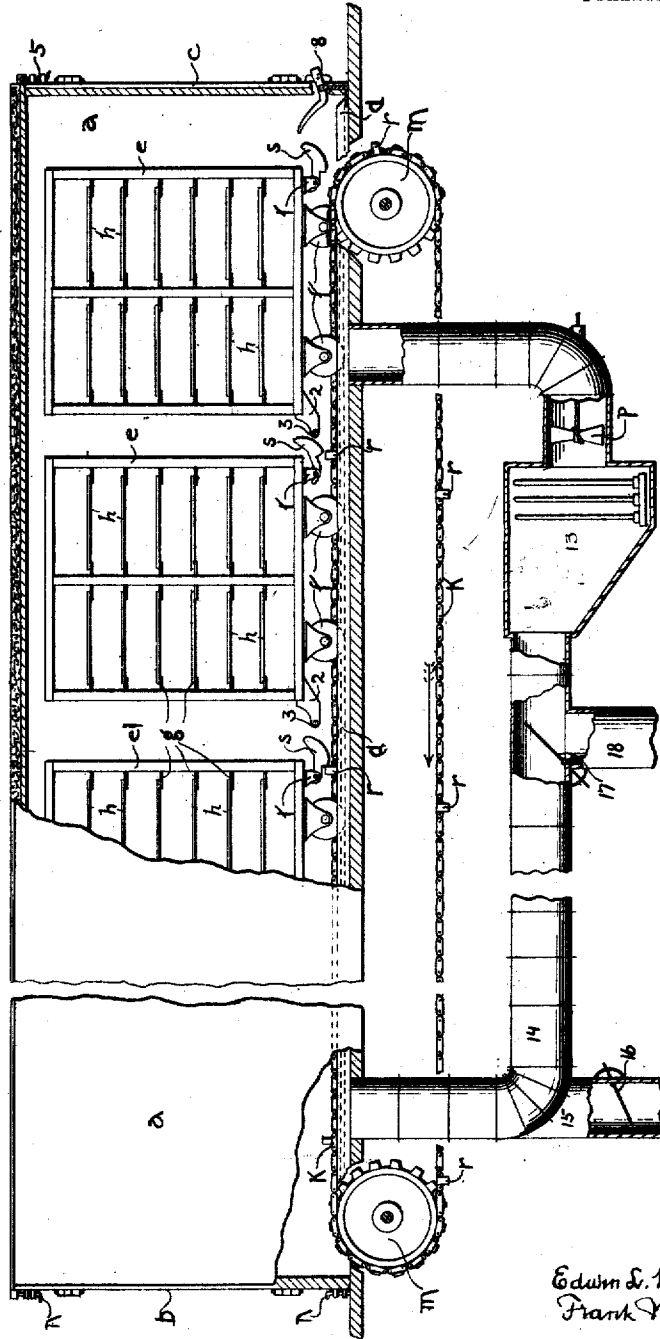
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922,070.

Patented May 18, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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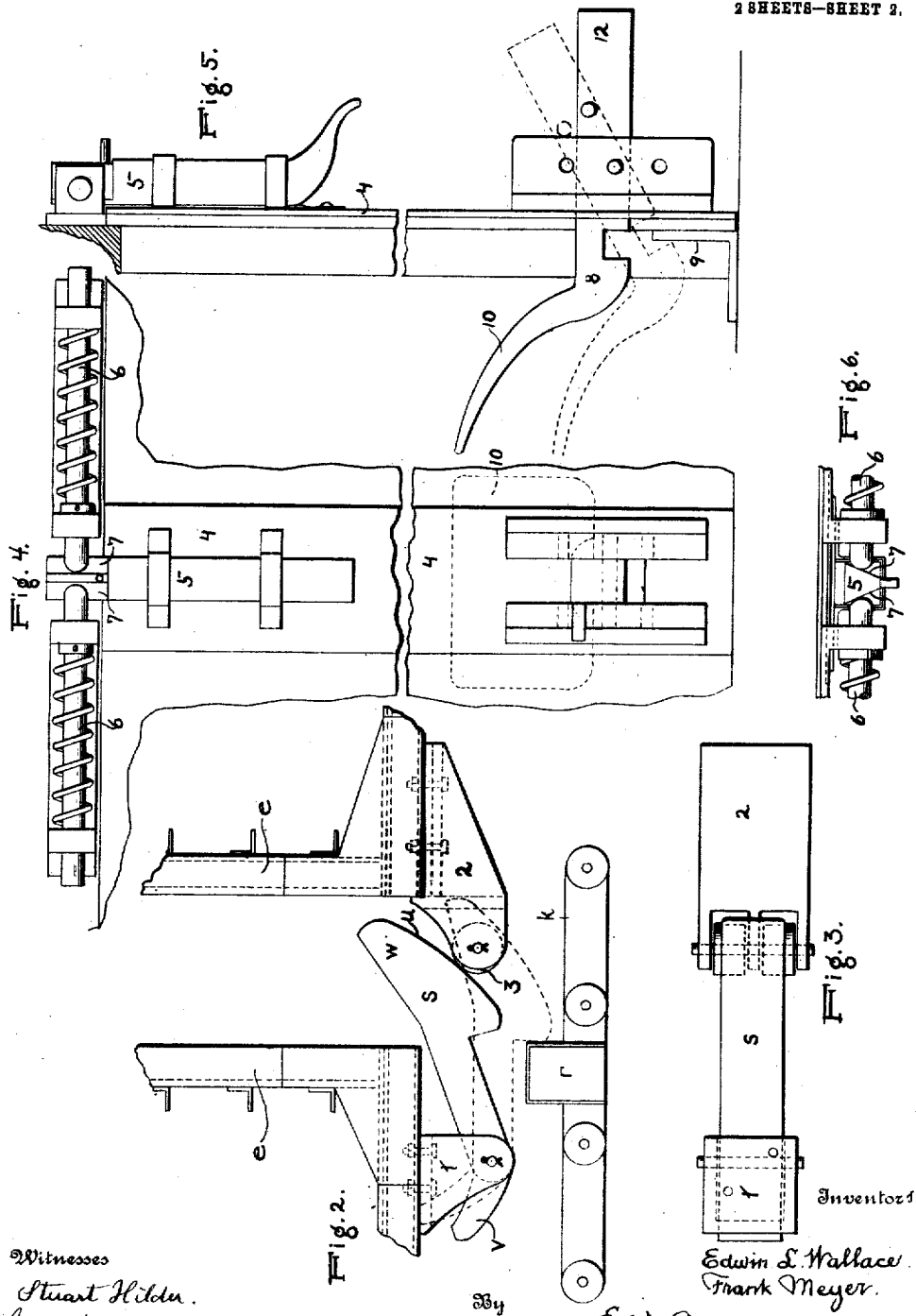
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UNITED STATES PATENT OFFICE.

EDWIN L. WALLACE AND FRANK MEYER, OF NIAGARA FALLS, NEW YORK, ASSIGNORS, TO
THE SHREDDED WHEAT COMPANY, OF NIAGARA FALLS, NEW YORK.

DRIER.

No. 922,070.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed February 12, 1906. Serial No. 300,817.

To all whom it may concern:

Be it known that we, EDWIN L. WALLACE and FRANK MEYER, both citizens of the United States, and residents of Niagara Falls, in the county of Niagara and State of New York, have made a certain new and useful Invention in Driers; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation partly in section of our invention as applied. Fig. 2 is a detail fragmentary view showing parts in position for unlatching the hook *s* from the catches *r*. Fig. 3 is a top plan view of the same with chains *k* removed. Fig. 4 is a detail front view of the hook *s* and bolt *5* with adjacent parts. Fig. 5 is a detail side view of the same. Fig. 6 is a detail top view of the bolt *5* and adjacent parts.

The invention relates to evaporators or drying machines, and it consists in the novel construction and combination of parts as hereinafter set forth.

The object of the invention is to facilitate drying or evaporating large quantities of small articles, contained in moving carriers or racks.

In the accompanying drawings, illustrating the invention the letter *a*, designates an elongated casing or hot air chamber, which is provided at one end with doors *b*, and at the other end with doors *c*. Along the casing extend guides or trackways *d*, which are designed to keep the racks *e*, in proper position in line with each other, while moving through the casing. In the construction illustrated, the casters *f*, of the racks *e*, engage the guideways *d*. Each rack is a rectangular frame, on four casters, provided with slide-ways *g*, for the drying pans *h*, which are movable. As each rack is arranged to hold a large number of these pans, the evaporator is designed to have great capacity. The drying pans are usually light frames of wire cloth bound with metal.

Along the bottom of the casing and entirely within the same extends centrally the upper branch of an endless chain or conveyor *k*, which is operated by suitable power applied to the shaft of one of its sprocket

wheels *m*, in such wise that the chain has a continuous slow movement timed to provide as nearly as practicable for drying of the articles in a rack while it is moving from one end of the casing to the other.

Hot air from a stove or heater *13*, enters the casing at one end and is caused to move through said casing by means of a suction fan *p*.

At the entrance end of the casing, the doors *b*, are designed to be laterally hinged, and to meet in the center, where they engage by lapping, and are secured in closed position by bolts *n*. In order to introduce a rack into the casing, these doors are opened and, after the rack has been pushed in, quickly closed.

At certain distances apart along the driving chain, are located upward projecting catches *r*, which are attached to, or form part of links of, said chain. These catches are usually of rectangular form in section, and they are designed to readily engage gravitating hooks *s*, of the racks, as well as to become readily disengaged therefrom as the driving branch of the chain turns downward at the end of the casing floor in passing through an opening therein within the casing to return to the entrance end through an opening in the floor, also within the casing. As the rack is pushed into the casing, the chain in its movement toward the discharge end of said casing, engages by its link catch, the hook *s*, of said rack which is pivoted to a bracket *t*, which is centrally secured to the bottom of the front of the rack in such wise that it is in line with said chain and projects slightly in front of the rack. The hook *s*, is a gravitating hook, and it is provided at its rear end with an upturned stop portion *v*, which is designed to engage the bottom of the bracket plate, to prevent the hook shank from becoming inclined downward below the horizontal. The hook end or head *w*, however, can easily rise, and it is provided with a sloping or beveled lower edge or face *u*, for a purpose hereinafter explained. As the drive chain reaches the discharge end of the casing, its downward movement over the sprocket wheel at this end, releases the rack hook from the link catch, and the rack therefore remains stationary in the casing at its discharge end near the discharge doors, where it can be kept until the drying is completed. The rack is provided with a base bracket *2*,

which projects slightly in rear of its bottom centrally and is provided with a roller bearing 3. It is apparent that as the first rack remains stationary in the discharge end of the casing, the next rack on the chain will be soon brought up to it, and would push it against the doors c, breaking them open, were it not for the engagement of the under beveled head of its hook with the bearing 3, of the rack in front, whereby said hook is lifted out of engagement with the drive chain. In a similar manner all the racks which come in rear contact are disengaged from the drive chain, until the front rack is discharged. The discharge doors c, are laterally hinged, and meet in the center, closing by a broad flange or lap joint. The lap flange 4 is provided at its upper end with an upward sliding bolt 5, the upper end of which is designed to engage the ends of two spring pins 6, which impinge against the beveled sides 7, of said end. By drawing the bolt 5, downward the doors become unfastened at the top.

The bottom fastening consists of a pivoted hook 8, which is designed to engage a catch 9, rising from the floor of the casing, by gravitation. This hook has an upward and rearward inclined arm 10, which is at the proper height and in position to engage the hook of the rack, should such rack be forced against the doors, through any failure of the rack hooks in rear to become disengaged from the drive chain. In case of such an accident, the doors will give at the top through the automatic disengagement of the spring pin catches from the beveled end of the fastening bolt 5. And the gravity hook at the bottom of the doors being raised out of engagement by the hook of the rack, the doors will at the same time give way at the bottom. The end 12, of the bottom fastening hook 8, is designed to project through the flange of the door, in position to be easily depressed by the foot of the attendant, such action disengaging the lower part of the doors, whose upper portions can be at the same time disengaged by pulling down the slide bolt 5.

The heater 13, is usually provided with an elongated tube, 14, one end of which communicates with the entrance end of the casing, and the other end of which communicates with the discharge end thereof. That portion of the tube which communicates with the entrance end is provided with an outlet pipe 15, and at this junction is placed a damper 16. A damper 17, is also located near the cold air inlet 18, of the heater. The course of the heated air is toward the entrance end of the casing and through the pipe 14, back to the heater.

Having thus described the invention, what we claim and desire to secure by Letters Patent is—

1. In an evaporator, the combination with

an endless drive chain, having a series of catches of a series of horizontally traveling racks, their normally horizontal automatic engaging hooks and disengaging bearings.

2. In an evaporator, the combination with an elongated casing, and its guides, of an endless drive chain, having a series of catches, and a series of horizontally traveling racks each having a forward projecting automatic engaging hook and a rear disengaging bearing.

3. In an evaporator, the combination with an elongated casing and its discharge doors, of guide-ways in said casing, an endless drive chain, its series of catches and a series of horizontally traveling racks, their pivoted gravitating hooks and their disengagement bearings.

4. In an evaporator, the combination with an elongated casing and its pivoted discharge doors, of guide-ways in said casing, an endless drive chain, its series of catches, a series of horizontally traveling racks, their pivoted horizontal hooks, and means for fastening said discharge doors.

5. In an evaporator, the combination with an elongated casing, its pivoted discharge doors, and their fastening devices, of guide-ways in said casing, an endless drive chain, its series of catches, and a series of racks having forward projecting gravity hooks.

6. A drying machine, comprising a casing, means for introducing a drying medium thereto, means for exhausting the drying medium from said casing, a conveyer passing from end to end of said casing and terminating at each end within the same, a rack or racks for carrying the material, gravity hooks carried by said rack or racks for engaging the conveyer, and provided with means whereby said hooks are automatically released from the conveyer when they meet an obstruction to thereby bring the racks to rest.

7. A drying machine, comprising a casing, means for introducing a drying medium thereto, means for exhausting the drying medium from said casing, a conveyer passing from end to end of said casing and terminating at each end within the same, racks for carrying the material to be dried, dogs carried by the conveyer, and hooks associated with the racks for engaging said dogs for propelling the racks through said casing.

8. A drying machine, comprising a casing, means for introducing a drying medium thereto, means for exhausting the drying medium from said casing, a conveyer passing from end to end of said casing and terminating at each end within the same, racks for carrying the material to be dried, dogs carried by the conveyer, and gravitating hooks associated with the racks for engaging said dogs for propelling the racks through said casing.

9. A drying machine, comprising a casing,

means for introducing a drying medium thereto, means for exhausting the drying medium from said casing, a conveyer passing from end to end of said casing and terminating within the same, racks for carrying the material to be dried, dogs carried by the conveyer, and gravitating hooks associated with the racks for engaging said dogs for propelling the racks through said casing, said hooks being provided with actuating heads which when met by an obstruction are adapted to effect automatic disengagement of the hooks from said dogs.

10. A drying machine, comprising a casing, means for introducing a drying medium thereto, a conveyer passing from end to end

of said casing and terminating within the same, a rack or racks for carrying the material, gravity hooks carried by said rack or racks for engaging the conveyer and provided with means whereby said hooks are automatically released from the conveyer when they meet an obstruction to thereby bring the racks to rest.

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

EDWIN L. WALLACE.
FRANK MEYER.

Witnesses:

W. B. BUTLER.
V. W. SLATE.