M. DAVIS.

GRAIN DRIER AND COOLER.

APPLICATION FILED MAR. 25, 1920.

1,384,689. Patented July 12, 1921.

Fig. 1.

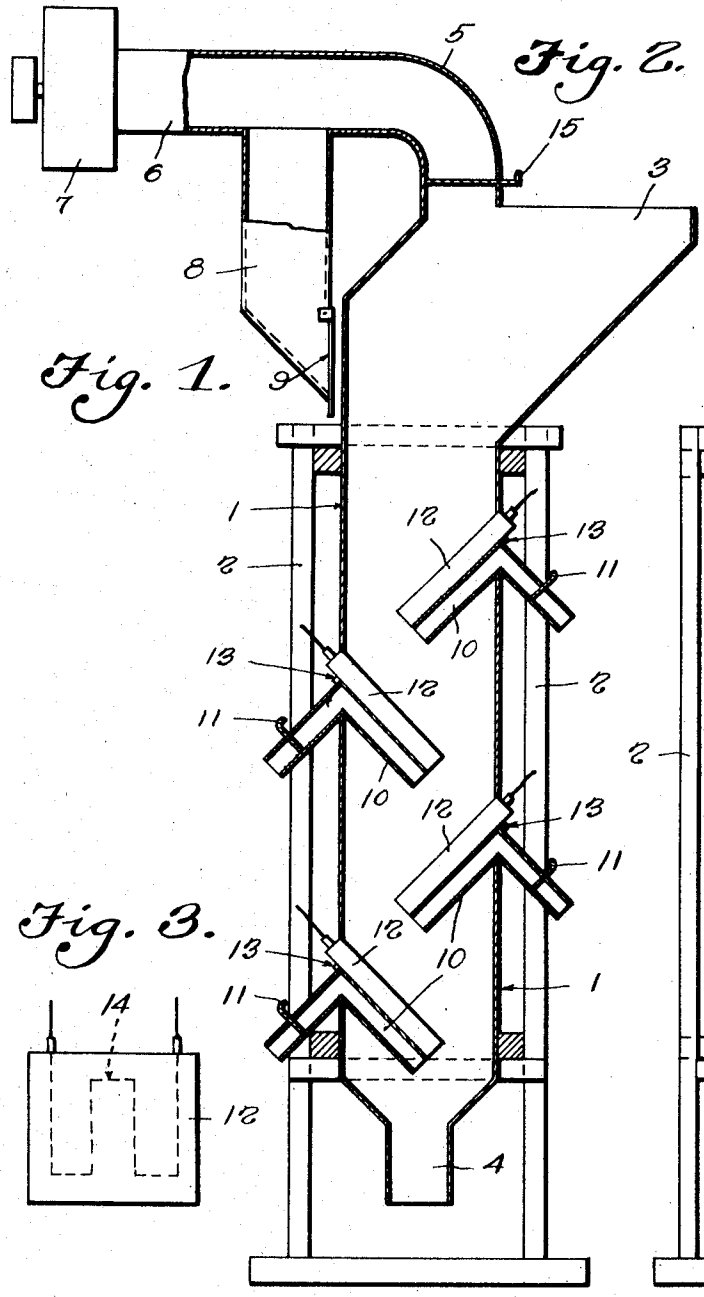


Fig. 2.

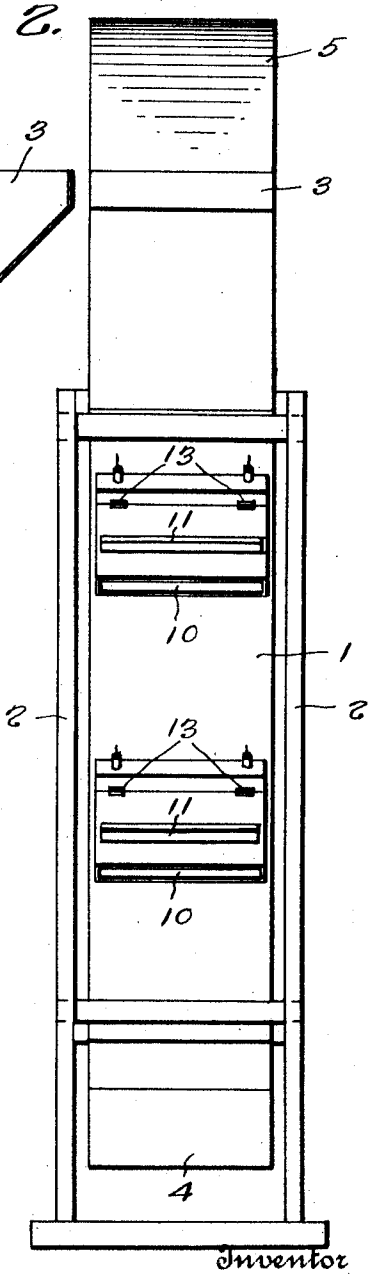


Fig. 3.

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GRAIN DRIER AND COOLER.

1,384,689. Specification of Letters Patent. Patented July 12, 1921.

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To all whom it may concern:

Be it known that I, MONROE DAVIS, a citizen of the United States, residing at Enid, in the county of Garfield and State of Oklahoma, have invented certain new and useful Improvements in Grain Driers and Cleaners; and I do 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.

This invention relates to grain driers and cleaners, primarily intended for drying and cleaning rice.

The principal object of the invention is to provide an apparatus consisting of a casing through which rice or other grain to be dried and cleaned is passed, and containing therein electrically heated members for drying the rice or grain and means whereby dust and dirt may be extracted from the rice or grain as it passes through the casing.

Another object of the invention is to generally improve upon devices of this nature by the provision of a comparatively simple, strong, durable and inexpensive construction, one which will be efficient and reliable in operation, and well adapted to the purpose for which it is designed.

With these and other objects in view, the invention consists of the novel features of construction, and the combination and arrangement of parts as will be hereinafter fully described and claimed.

In the accompanying drawings in which similar reference characters designate corresponding parts throughout the several views:

Figure 1 is a vertical longitudinal sectional view through an apparatus constructed in accordance with this invention.

Fig. 2 is a front view of the apparatus, and,

Fig. 3 is a plan view of one of the electrically heated members.

In the embodiment illustrated the numeral 1 designates a casing which is supported in an upright position by means of a suitable stand or framework 2. Arranged at the upper end or top of the casing 1 is a hopper or grain inlet 3, which preferably projects laterally from the front side of the casing. The lower end or bottom of the casing 1 is contracted to form a grain discharge 4. Communicating with the interior of the casing 1 and leading from the upper end or top of the same is a pipe 5 which is bent so as to extend horizontally and having at the extremity of this horizontally extending portion 6 a suction fan 7. Communicating with the horizontal portion 6 of the pipe and depending therefrom is a box 8 provided on one side with a door 9.

Arranged alternatively in two of the opposite walls of the casing 1, preferably the front and rear walls, are openings through which extend hollow right angular shaped pipes or air ducts 10, the latter being secured to the walls of the casing in any suitable manner adjacent the junctions of their right angularly arranged portions. The portions of the air ducts 10 disposed in the interior of the casing are superimposed and they decline, and the portions of the said ducts which are disposed on the exterior of the casing decline also. These latter portions are provided with slides 11 which control the amount of air allowed to pass through the ducts.

In conjunction with the air ducts 10 are heating elements 12 which are preferably in the form of flat plates and rest upon the inner portions of the ducts and being prevented from sliding inwardly beyond the inner edges of the ducts by means of lugs 13 carried by the plates and engaging the shoulders formed at the junctions of the two portions of the ducts. Arranged within the plates 12 is any suitable form of electric heating means 14.

The pipe 5 is provided with a slide 15 by which the amount of air passing therethrough is controlled.

In using the apparatus, the slides 11 and 15 are either partially or completely opened, the fan 7 is set in motion, and the rice or other grain to be dried and cleaned is poured into the hopper 3. In descending it will be deflected from one declining baffle (which includes the air ducts 10 and plates 12) to another and in so doing will be heated by the hot plates 12 and dried. Simultaneously with the drying of the grain, air will be drawn into the casing through the air ducts 10 and upwardly through the grain into the pipe 5. Dust, dirt or any light matter contained in the grain will be car-

ried into the pipe 5 with the current of air and when it is disposed above the box 8, it will drop into the same, After a quantity of this material has been collected in the box it may be removed therefrom by opening the door 9.

The heating elements 12 resting upon the inner portions of the air ducts 10 and being limited in the inner movement by means of the lugs 13, are easily removable from the casing.

From the foregoing description, taken in connection with the accompanying drawings, the construction, use and operation of the device will be readily understood.

Various changes in form, proportion and in the minor details of construction may be resorted to without departing from the principle of the invention as defined in the appended claims.

I claim as my invention:

1. A device of the class described comprising a casing provided with a grain inlet at its top and a grain discharge at its bottom, a plurality of superimposed declining baffles secured alternatively to opposite sides of said casing and consisting of electrically heated members, and air ducts leading from the exterior of the casing to the interior thereof, and an air discharge at the top of said casing.

2. A device of the class described comprising a casing provided with a grain inlet at its top and a grain discharge at its bottom, a plurality of superimposed declining baffles arranged alternatively at opposite sides of said casing and consisting of right angular shaped air ducts secured at the junctions of their right angularly arranged portions to the walls of said casing and leading from the exterior thereof to the interior of the same, and electrically heated plates supported upon the innermost portions of said air ducts, and an air discharge at the top of said casing.

3. A device of the class described comprising a casing provided with a grain inlet at its top and a grain discharge at its bottom, a plurality of superimposed declining baffles secured alternatively to opposite sides of said casing, means for heating said baffles, air inlets at said opposite sides of said casing adjacent said baffles, and an air discharge at the top of said casing.

In testimony whereof I have hereunto set my hand.

MONROE DAVIS.