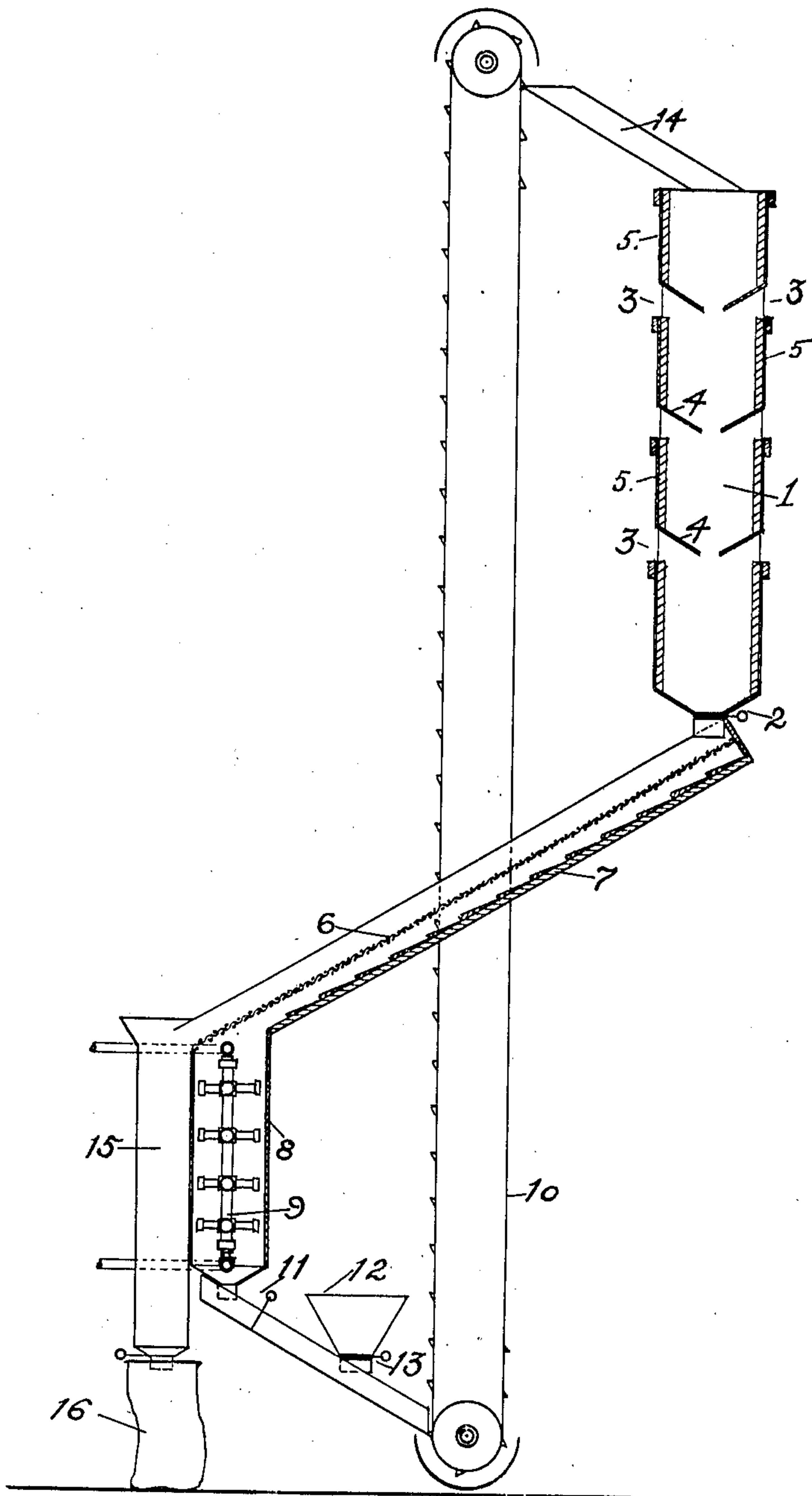


R. W. JESSUP.
CONDITIONING WET CEREALS.
APPLICATION FILED OCT. 14, 1907.

916,448.

Patented Mar. 30, 1909.



WITNESSES

Wm. F. Drew.
L. W. Seely

INVENTOR

Robert W. Jessup.
by *Wm. F. Booth*
ATTORNEY

UNITED STATES PATENT OFFICE.

ROBERT W. JESSUP, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-HALF TO FAIRFAX H. WHEELAN, OF SAN FRANCISCO, CALIFORNIA.

CONDITIONING WET CEREALS.

No. 916,448.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed October 14, 1907. Serial No. 397,241.

To all whom it may concern:

Be it known that I, ROBERT W. JESSUP, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Conditioning Wet Cereals, of which the following is a specification.

My invention relates to the art of conditioning wet cereals, particularly wheat.

My invention consists in first commingling the wet or damp cereal with heated sand to effect a heat interchange, and, then, in separating the sand from said cereal.

The object of my invention is to provide a simple, effective and economical process of raising the grade of, or as it is termed in the art, conditioning wet cereals, particularly, wet or damp wheat, to render it marketable.

In the accompanying drawing, in which the figure is a sectional elevation, I show a simple form of apparatus in which my invention may be carried out; though it is to be understood that I do not confine myself to such apparatus, as it is obvious that other forms may be used.

In this apparatus, 1 is the commingling or heat-interchanging chamber, the discharge of which is provided with a suitable controllable gate 2. A good construction for this chamber is to make in its sides, a vertical series of openings 3, through which project inwardly the bent ends 4 of plate 5 secured to the outside of the chamber. These bent plates thus divide the chamber into a series of communicating compartments, and the openings 3 provide vents for the steam and also permit inspection.

6 is a screen of a mesh suitable for the separation of the sand from the material being operated upon, say, for example, wheat.

7 is a chute underlying the screen, to receive the separated sand.

8 is a heater chamber of suitable character, to which the chute 7 delivers the sand. Any means may be employed to heat this chamber, such, for example, as the steam pipes 9.

10 is an elevator of suitable form, such, for instance, an endless cup-elevator, as indicated. The discharge 11 from the heater delivers the heated sand to this elevator.

12 is a supply bin, the discharge 13 from which delivers the damp or wet grain to the

sand discharge 11, by which it is delivered, with the heated sand, to the elevator cups. The elevator has the discharge spout 14 which delivers the heated sand and the wet grain to the commingling or heat-interchanging chamber 1.

15 is a passage to receive the grain from the screen surface, after the sand has been separated from it.

The process carried out in this apparatus, and described in terms of wheat, is as follows:—Sand being supplied to the heater chamber 8 is heated therein and is delivered in proper portions or quantity to the elevator cups. Wet wheat from the bin 12 is also delivered in proper quantity, with the heated sand, to said elevator cups. The heated sand and the wet wheat are delivered to the chamber 1 in which they are commingled and their heat interchanged, in such wise that the wheat is relieved of its excessive moisture. When the chamber 1 is filled, and the wheat relieved of its moisture, its contents is discharged upon the screen 6 in a continuous stream the size of which is governed by the time necessary to take up the excess of moisture from the wheat in said chamber. I find about ten minutes sufficient for very wet grain. The sand falls through the screen upon the chute 7, while the wheat passes down over the screen, effectually shaking its grains clear of any clinging sand, and is delivered to the passage 15 and thence to a sack 16 or other receptacle, in which, due to the heat it received from the sand, it completes the conditioning process as it cools. The sand separated from the wheat by the screen is delivered by the chute 7 to the chamber 8 and is reheated and used again as before.

I find that the quantity of moisture abstracted from the wheat is not sufficient to prevent the sand from flowing; but, as each grain of sand is non-porous or non-absorbent, the moisture adheres to its surface only. This surface moisture, on account of the heat of the sand, is rapidly evaporated. It is well to agitate the sand after its separation from the wheat, in order to segregate its grains, that the evaporation may be more effective, and to prevent massing. This may be accomplished in any suitable manner, as, for example, by making the

chute 7 of a series of steps, as shown, so that the sand in passing over the chute will repeatedly drop from one step to the next, and thus separate its grains.

5 In the commingling chamber here shown, the materials passing to the successive compartments, are better mingled, alternately spreading out and being congested again, thereby interchanging their heat in the best
10 manner, and getting rid of the steam through the openings 3, which latter, also, by giving opportunity for inspection, provide for the proper regulation of the discharging stream at the bottom, to suit the condition of the
15 evaporation as found by observation at the several points or stages of the course of the commingled materials through the chamber.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent is:—

The process of conditioning a wet cereal, which consists, first, in commingling it with sand heated to a temperature adapted to raise the grade of said cereal by evaporating the excess of moisture therefrom; and, second, in separating the sand from the cereal after an interchange of heat sufficient only to effect said evaporation.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT W. JESSUP.

Witnesses:

J. M. KEEN,
E. L. CAMPBELL.