(No Model.)

K. HOPKINS.

PROCESS OF AND APPARATUS FOR PRODUCING HOMINY OR HULLED CEREALS.

No. 563,859. Patented July 14, 1896.

Fig. 1.

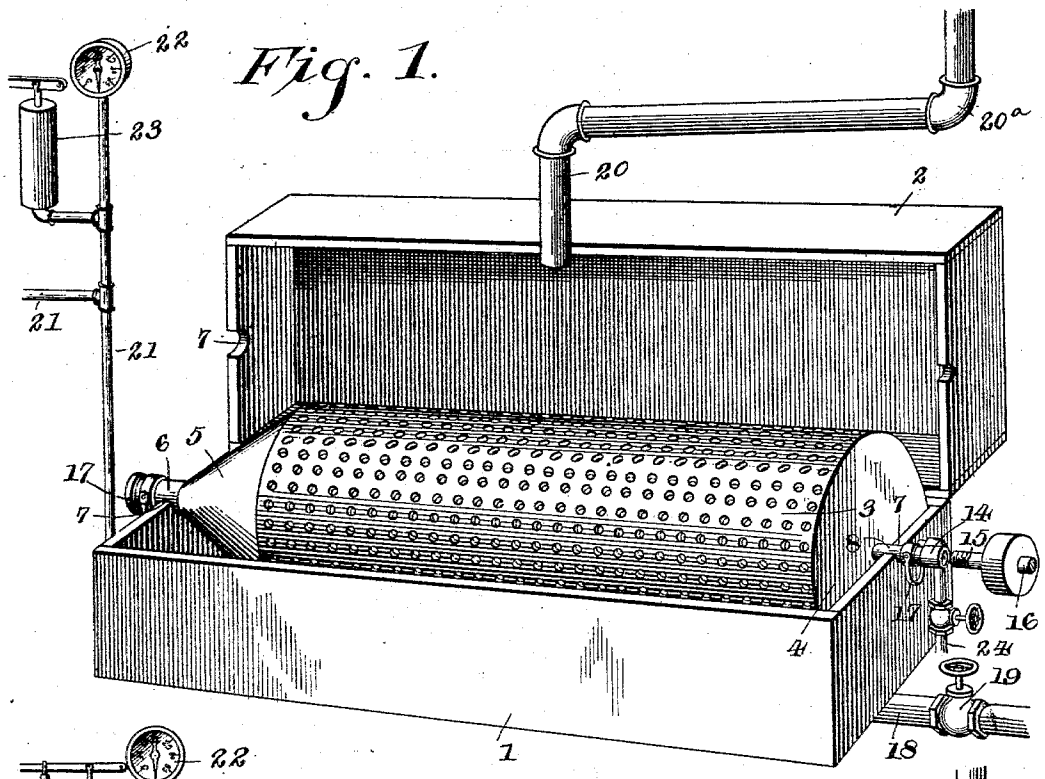
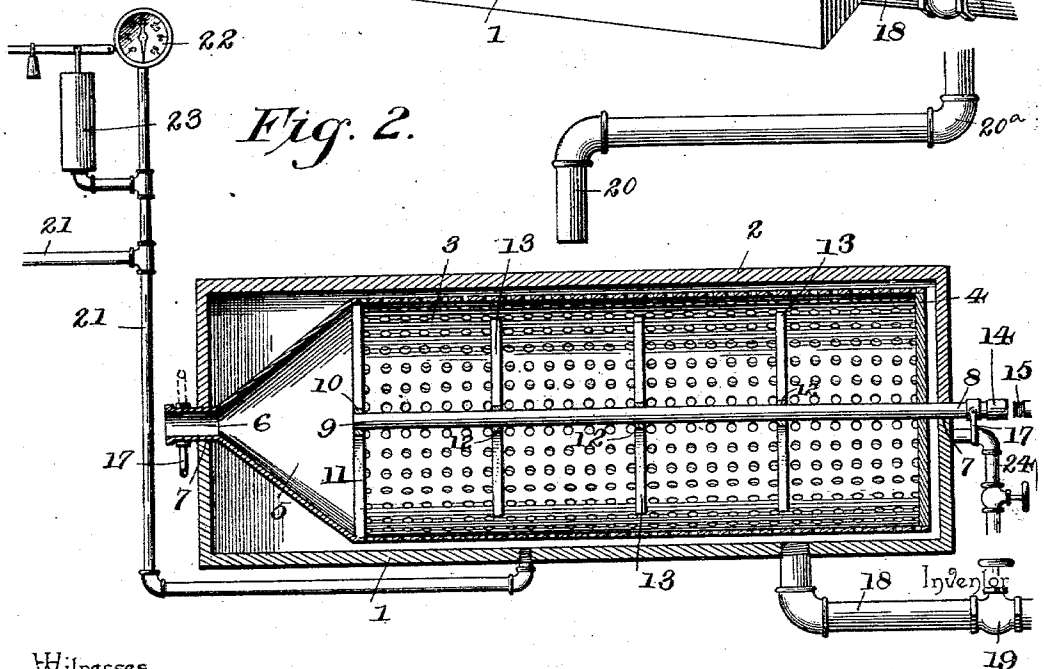


Fig. 2.



Inventor

Witnesses

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UNITED STATES PATENT OFFICE.

KIRK HOPKINS, OF SPRINGVILLE, NEW YORK, ASSIGNOR TO THE WESTERN NEW YORK PRESERVING AND MANUFACTURING COMPANY, OF SAME PLACE.

PROCESS OF AND APPARATUS FOR PRODUCING HOMINY OR HULLED CEREALS.

SPECIFICATION forming part of Letters Patent No. 563,859, dated July 14, 1896.

Application filed December 21, 1895. Serial No. 572,924. (No model.)

To all whom it may concern:

Be it known that I, KIRK HOPKINS, a citizen of the United States, residing at Springville, in the county of Erie and State of New York, have invented a new and useful Process of and Apparatus for Producing Hominy or Hulled Cereals, of which the following is a specification.

This invention relates to apparatus for producing hominy or hulled cereals, and it has for its object to provide an apparatus of this character involving a new process for treating corn or other cereals to produce hominy in large quantities.

To this end the main and primary object of the present invention is to combine in a single apparatus means for positively and effectively carrying out all the steps necessary, in treating cereals, to produce hominy, and in the attainment of this important result the invention contemplates a construction of apparatus by the use of which it is possible to produce very much larger quantities of hulled cereals or hominy than heretofore possible in connection with the ordinary processes of producing this article.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a perspective view of an apparatus constructed in accordance with this invention. Fig. 2 is a central vertical longitudinal sectional view thereof.

Referring to the accompanying drawings, the numeral 1 designates a box-casing constructed of wood or metal in a rectangular form and provided with a hinged cover-section 2, which, when closed onto the lower or main section of the box-casing, completes a closed casing for the reception of the screen drum or cylinder 3, arranged to rotate therein. The screen-drum 3 is made of any suitable perforate sheet metal or other screen material and is of a size so as to nearly completely occupy the space within the box-casing when the cover-section thereof is closed. The said screen drum or cylinder is closed at one end by an imperforate drum or cylinder head 4, and at its opposite end the drum or cylinder is provided with an imperforate conical funnel 5, having at its apex a hollow trunnion-neck 6, which removably rests in a bearing-notch 7 in one end of the box-casing, it of course being understood that a similar bearing-notch 7 is formed in the opposite end of the box-casing to removably receive therein the outer end extension 8 of the horizontal drum-shaft 9.

The drum-shaft 9 passes through the imperforate drum or cylinder head 4 of the screen-drum and is fitted fast at its inner end, as at 10, in a suitable spider 11, secured within one end of the screen-drum, to provide a connection between the drum and its shaft whereby both will rotate together. The drum-shaft 9 has fitted thereon within the screen drum or cylinder a series of spaced agitators 12, essentially comprising a series of agitator-fingers 13, extending radially from the shaft 9, to provide for the agitation or stirring up of the material within the drum when the latter is rotated. The outer end extension 8 of said drum-shaft 9 carries an interiorly-threaded coupling-socket 14, adapted to detachably receive the threaded stem 15 of a suitably-driven shaft 16, which provides means for communicating motion to the screen drum or cylinder at the proper time, and on both said shaft extension 8 and the hollow trunnion-neck 6, outside of the ends of the box-casing, are fitted the hoisting clevises or bails 17, which are adapted to be swung upwardly and engaged by suitable hoisting block and tackle for the purpose of elevating the screen drum or cylinder to fill the same and also to discharge it of its contents.

The box-casing 1 has fitted in its bottom one end of a drain or wash pipe 18, which carries off the wash from within the box-casing, and which is provided at a suitable point with a stop-cock or valve 19, which provides means for cutting off and opening up the flow through the said pipe 18, and in connection with said latter pipe 18 a water-supply pipe 20 is used, which pipe is adapted to be swung on its elbow-joint 20^a to a position to deliver water into the screen drum or cylinder when the cover of the casing is open.

In addition to the pipes 18 and 20 a steam-supply pipe 21 is employed, which pipe is connected at one end with the bottom of the

box-casing, and also has connected therewith at a suitable point an ordinary pressure-indicator 22, and a safety blow-off valve 23. The steam-supply pipe 21 furnishes heat for cooking purposes, as will hereinafter be more particularly referred to, and the steam which is introduced through the pipe 21 into the box-casing and the steam-drum is exhausted from the box-casing through a suitable exhaust-pipe 24, which is preferably connected to the box-casing at one end thereof and above the line of water allowed to remain in the box-casing during the cooking of the washed and hulled cereal.

In using the apparatus, the screen drum or cylinder 3 is lifted out of the box-casing by the means described and inclined at a convenient angle for introducing the corn or other cereal to be treated through the hollow neck 6 into the drum or cylinder. The drum or cylinder is then lowered in place within the box-casing, into which is also placed a bath of potash lye or other suitable chemical, the action of which on the cereal loosens and breaks the hull, so that the same can be readily removed. It will be understood that the screen drum or cylinder is only partly filled with the cereal, so that the same lies within the lower part of the drum when stationary and submerged in the chemical. When the potash or other chemical has acted sufficiently on the cereal, the said chemical is immediately drawn out of the box-casing through the drain or wash pipe 18 and clean water allowed to flow into the box-casing and screen-drum through the top water-supply pipe 20.

A sufficient quantity of wash-water fills the box-casing, so as to entirely submerge the lower portion of the screen drum or cylinder, and at the same time that the water is allowed to flow through the box-casing and the screen-drum the latter is given a rapid rotation by coupling the shaft 16 with the shaft 9 in the manner already described. While the screen-drum rotates, the agitators 12 keep the cereals thoroughly stirred up, so that the combined action of the flowing water and the agitating rotation of the screen drum or cylinder provides means for completely removing the loosened hull from the cereal, while at the same time washing every trace of chemical therefrom. The hulls and other foreign matter pass through the perforations in the screen drum or cylinder and are washed out through the pipe 18.

When the washing process is complete and nothing but clear water is passing out of the pipe 18, the flow through said pipe is cut off, so that a sufficient quantity of water will be allowed to remain in the box-casing for cooking purposes. At this stage nothing but the cereal remains in the drum or cylinder in its natural state, excepting that the hull and eye is removed from each separate grain, and by now introducing steam through the pipe 21 and exhausting the same through the pipe 24 the cereal will be thoroughly cooked, so as to produce hominy. After the production of the hominy the screen drum or cylinder is elevated out of the box-casing and inclined so as to allow the cooked product to be discharged out through the funnel 5 at one end of the drum or cylinder.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. A process for producing hominy or hulled cereals, which consists in introducing the cereal into a vessel and submerging the same in a chemical for loosening and breaking the hull, then subjecting the mass of cereal to agitation within the vessel and flushing clean wash-water therethrough simultaneously with the agitation, and finally subjecting the hulled and washed cereal to the cooking action of water and steam in said vessel, substantially as set forth.

2. In an apparatus for producing hominy, a water and steam tight box-casing having a cover-section, a rotary screen-drum removably mounted in said casing and provided at one end with an imperforate head and at its opposite end with an imperforate conical funnel portion having at its apex a hollow trunnion-neck, a series of agitator-fingers fitted inside of the steam-drum, steam supply and exhaust pipe connections with the box-casing, a drain-pipe connected with the bottom of the casing, and a water-supply pipe arranged to direct water into the drum when the cover of the casing is open, substantially as set forth.

3. In an apparatus of the class described, the casing, a rotary screen-drum mounted in the casing and provided at one end with a hollow trunnion-neck and at its opposite end with a shaft connection having a threaded coupling-socket for connection with a drive-shaft, and hoisting-clevises loosely connected respectively with the trunnion-neck and said shaft extension, substantially as set forth.

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

KIRK HOPKINS.

Witnesses:
JOHN H. SIGGERS,
GEO. C. SHOEMAKER.