(No Model.)

F. MELKERSMAN.

METHOD OF AND APPARATUS FOR MANUFACTURING HOMINY, GRITS, &c.

No. 265,620. Patented Oct. 10, 1882.

Fig. 1.

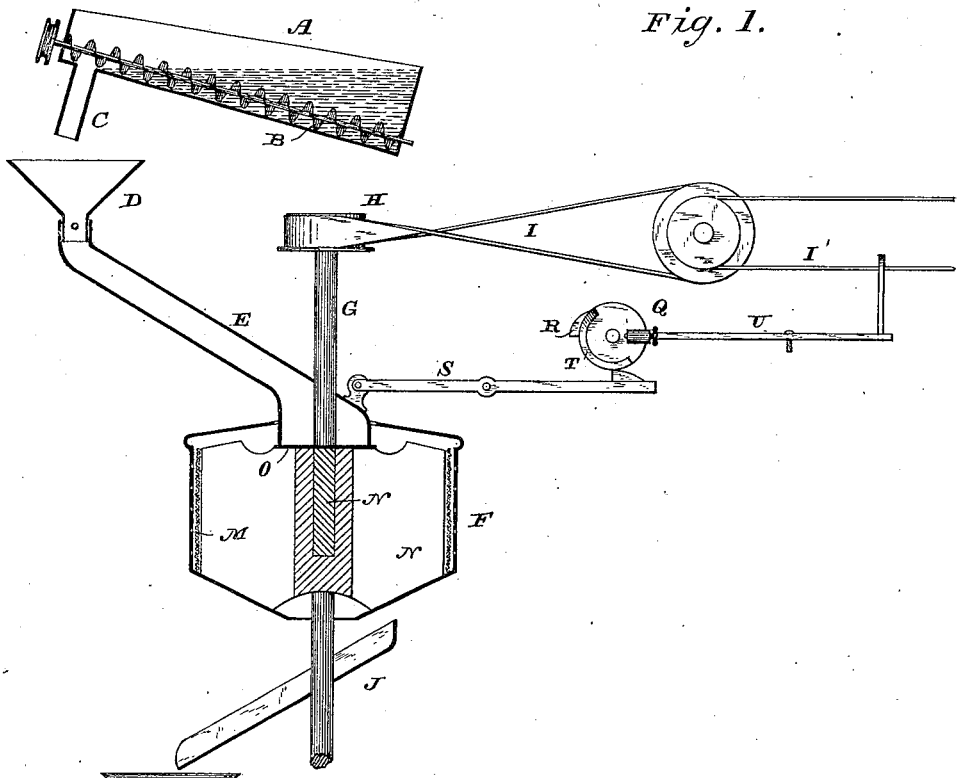
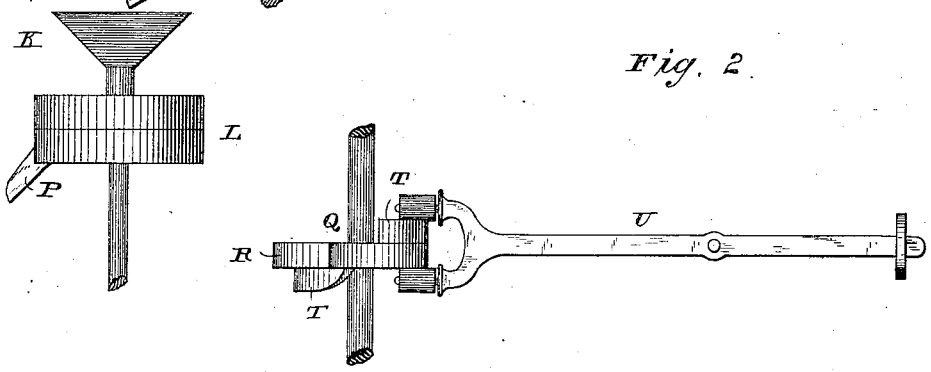


Fig. 2.



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METHOD OF AND APPARATUS FOR MANUFACTURING HOMINY, GRITS, &c.

SPECIFICATION forming part of Letters Patent No. 265,620, dated October 10, 1882.

Application filed August 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH MELKERSMAN, of St. Charles, in the county of St. Charles and State of Missouri, have invented an Improved Method of and Apparatus for Manufacturing Hominy, Grits, and other Granulated Products, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to manufacture hominy, &c., by means of machinery, part of which is novel, and by means of which I carry out my improved method, which consists in, first, washing and soaking the grain; second, partially drying it; third, cracking it; and, fourth, separating the hulls, chaff, or bran from the granulated product.

In the accompanying drawings, Figure 1 is an elevation, partly in section, of so much of my apparatus as is necessary to illustrate what is new in the same, and also to illustrate the operation of my improved mechanical method of manufacturing hominy, &c. Fig. 2 is a plan view of a rotary cam and belt-shifter detached.

A indicates a suitable soaking and washing receptacle, partially filled with water, as indicated, and provided with an internal feed-screw, B, to which a slow rotary movement is given by any suitable mechanical means of ordinary character. The bottom of this receptacle is preferably inclined upward to the delivery spout or opening C, immediately over a hopper, D. The grain is placed in the water within the receptacle A, at its lower end, and the screw B gradually feeds it forward, and it drops out of the opening C into the hopper D. The rapidity of the screw should be such as to allow the grain to soak in the water while being gradually fed out for a short period—from a half-minute to a minute will generally be sufficient.

E indicates a spout, pivoted at the bottom of the hopper D and leading into the top of the rotating drier F. This drier is secured to a vertical shaft, G, mounted in suitable bearings in a suitable frame, (not illustrated,) and to be driven by a belt-pulley, H, and band I, or by any other suitable driving mechanism. The body of the drier is preferably cylindrical, with a receiving-opening at its top, with which the spout E communicates, and a delivery-opening in its conical bottom, from which the partially-dried grain is dropped upon an inclined chute, J, and thence into the hopper K of a suitable cracking or granulating mill, L. The side wall of the drier is perforated, as indicated, and lined within by a reticulated fabric or wire-cloth, M. It is supported upon the shaft G by means of spider-arms N, of any suitable shape or character, or otherwise. On top of these arms rests a disk or plate, O, for the support of the lower end of the spout E, which normally rests upon it, and while resting upon this disk the mouth of the spout is closed, it being circular, as illustrated, and the shaft G passing loosely through it. The perforated side wall of the drier might be dispensed with, and the reticulated fabric, where strong enough to be used alone, constitute the side wall. The rotary motion of this drier is made intermittent by mechanism which will presently be described, and the feed from the hopper D and spout E are also made intermittent by the action of the same mechanism. The result is that after the drier has been started the feed takes place through the spout E, the lower end of which is raised for the purpose until a sufficient charge for the drier has been deposited within it. This feed takes place when the drier is under rapid rotary motion, and consequently the charge is instantly thrown outward by the arms N, and is held by centrifugal force in contact with the wire cloth M, and will not pass down out of the lower delivery-opening. As soon as the charge is completed the lower end of spout E is automatically dropped upon the disk O and the feed cut off. The rapid rotary motion of the drier continues a suitable time to dry the charge within, when it is stopped by mechanism not yet described, and gravity instantly delivers the charge down along the conical bottom out of the discharge-opening of the drier and into the mill-hopper K. The wire-cloth, being rough and presenting great numbers of openings, keeps the grain from packing too closely and affords egress for the water, which centrifugal force rapidly and thoroughly throws off, speedily preparing the kernels for granulation. The grain partially dried, having been delivered to the mill-hopper K, passes into the mill L in a suitable condition to be granulated.

Any suitable mill for granulating may be em-

ployed; but I prefer to employ a mill of the character of an ordinary large-sized coffee-grinding mill, but of much larger dimensions—such as commonly found in drug-stores—capable of adjustment in its granulating mechanism so as to produce a coarse or fine granulation at will, as is well understood. A succession of mills for fine reductions may be employed, as is usual. After the milling has been done the products—viz., the chaff or bran and the pure granulations of the grain-kernels—are delivered by means of a spout, P, or otherwise to the usual bolting or fanning mechanism (not illustrated) for separation.

It only remains now to describe the mechanism by which the drier and the feed-spout E are operated intermittently.

Q indicates a rotary cam, provided with a catch or lifter, R, which engages once during each rotation of the cam with a lifting-lever, S, which engages at its opposite end with the spout E. This cam is provided upon opposite sides with inclined projections T T, which alternately bear against the straddling-arms of the pivoted belt-shifter U to shift the driving-belt I from a fast to a loose pulley, (not illustrated,) and thus give motion or rest to the drier. This mechanism is so timed that the drier shall be in full rotary motion at the instant the spout E is lifted. This spout will only remain lifted for a single moment, as gravity will cause the charge to be fed to the drier almost instantly. The mechanism is also timed so that the drier will rotate sufficiently for about a half minute to throw off the water from the kernels before it is emptied.

By means of my improved method, and particularly on account of the soaking and afterward partially drying of the kernels of grain, immediately followed by reducing or granulating, I am enabled to produce hominy, grits, or other or finer granulations with little waste and with a very perfect and economical separation of the skin or hull from the more valuable products. I am able, as will be perceived, to make the whole operation practically continuous and automatic, the only intermission being that slight one which takes place in the drying operation, and which does not disturb the practical continuity of the whole work. By this plan I greatly reduce the power ordinarily found necessary in the manufacture of hominy, grits, &c., and I am also enabled to dispense with skilled labor, and to remove the hulls and other inferior products with remarkable perfection.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The improved method of manufacturing hominy, grits, &c., hereinbefore described, which consists in first cleaning and soaking the grain, then partially drying it, then reducing and granulating it, and finally separating the granulations from the hulls or other light and imperfect products, as set forth.

2. The combination, in a hominy-manufacturing apparatus, of a soaking-receptacle, a drier operating intermittently, and a granulating-mill with connecting mechanism, whereby the grain is automatically and intermittently fed from the soaking-receptacle to the drier, and thence to the granulating-mill, substantially as and for the purpose set forth.

3. The combination of the soaking-receptacle, the feeding-screw, the hopper D, the pivoted spout E, and the drier, substantially as and for the purpose set forth.

4. The combination of the hopper D, the pivoted spout E, the shaft G, passing through the delivery end of the spout, the disk O, and the drier with means for raising and lowering the end of the spout to coincide with the motion or rest of the drier, whereby the feed of the grain and the action of the drier are intermittent, substantially as and for the purpose set forth.

5. The combination of the cam Q, provided with the catch R and projections T T, with the belt-shifter, lifting-lever S, and the pivoted spout E, substantially as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name this 1st day of August, A. D. 1882.

FRIEDRICH MELKERSMAN.

Witnesses:
MARCUS S. HOPKINS,
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