

UNITED STATES PATENT OFFICE.

LOUIS GATHMANN, OF CHICAGO, ILLINOIS.

MANUFACTURE OF FLOUR FROM GRAIN.

SPECIFICATION forming part of Letters Patent No. 278,531, dated May 29, 1883.

Application filed March 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, LOUIS GATHMANN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in the Manufacture of Flour from Grain; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to methods in the reduction of grain, and particularly of wheat and other lobated grains, and has for its object the simplification of the process of reduction by the avoidance of much handling, while also seeking to produce pure middlings and flour.

To this end my invention consists in splitting the grain through the crease, whereby the germ and the crease impurities are exposed, then scouring or brushing the fragments for the detachment of the germ and superficial impurities, then removing the detached matters, and finally subjecting the cleaned fragments to high grinding by millstones for the detachment of the bran from the food substance and the reduction of the latter to middlings and flour.

In Letters Patent No. 250,436, granted to me December 6, 1881, the above process, exclusive of the last step, is fully described and made the subject of the claim. In the practical development of the reduction of grain in connection with said patented process, I have found that the high grinding of the cleaned and degerminated fragments of grain by millstones is productive of middlings and flour of such great purity as to require little or no purification, and consequently much less handling in the process of reduction. Now, it is well known that millstone reduction is by far the simplest, most rapid, and most economical method of comminuting the food substance of grain. In the later art of milling their use has been almost wholly abandoned, except in the reduction of middlings, or of the interior grain substance alone after its detachment from the bran. This has been done under the impression that, even in high grinding, the tendency of millstones is to comminute the bran, and therefore to render the middlings and flour impure by the introduction thereinto of bran particles, the removal of which is dif-

ficult and to some extent impracticable. I find that this is not strictly the case, but that when the superficial impurities are first perfectly removed from the entire bran-surface, including that within the crease of the whole berry, by scouring after splitting, as above set forth, the integument has a hard and smooth surface, and may pass through only moderately high set stones without the detachment of any appreciable quantity of the bran substance. It has thus become evident to me that the specks which are introduced into the middlings and flour in the operation of high grinding, and the presence of which has led practically to the abandonment of millstones in reducing bran-bearing grain substance, are derived from the superficial impurities, together with, perhaps, the rough exterior bran-surface, which are both, with the germ, effectually removed by the brushing or scouring of the grain after the latter has been split through the crease, as described in my before-mentioned patent. At all events, it is a fact that by first splitting the grain through the crease and detaching and removing the germ and impurities by scouring, as set forth in said patent, and then grinding, middlings and flour are produced which require little or no purification, and which make the highest grade of flour product. I have even found that the grinding by stones may be continued with the above result until the bran is very clean. Among the advantageous results of such grinding, as may thus be performed by stones, are the avoidance of the repeated handlings and purifications, all of which consume time and power, and are attended with material loss of the finer flour or flour-dust by escape into the mill or dust-room, as well as with a liability to acquisition of dirt from the mill through exposure at spout-openings in conveyers and elsewhere in its passage from one part of the mill to another. By restoring the use of millstones in connection with the method referred to of scouring and cleaning after splitting, a great saving of time, material, power, and cost of machinery now used in repeated purifications is effected, and a product of the highest grade of purity and whiteness is obtained at greatly-reduced cost.

It will not be a departure from my invention

if, after splitting and cleaning as set forth, the grinding by millstones is preceded or alternated by the use of crushing-rolls or other means for breaking down the grain structure and detaching part of the food substance from the bran, albeit such roller crushing is not now believed to be of any material advantage at any stage of the reduction. It is of course immaterial to this invention what treatment may be given to the grain, such as heating, cleaning, hulling or partial hulling, or decortication prior to the splitting.

I am aware that it has been common to first split the grain and thereafter grind it between millstones; but these steps, without the further treatment of scouring or brushing for the detachment of the germ and crease impurities, were wholly without the advantages obtained by the complete method herein described, which contemplates the preparation of the surface of the split kernels and subsequent grinding by

millstones, whereby such stones may be safely used, and the pure products are obtained, as stated, without the loss and cost attending their production by methods at present employed. 25

I claim as my invention—

The process herein described of reducing lobated grain to middlings and flour, which consists in first splitting the grain through the crease, next scouring the fragments produced by splitting, then removing the impurities detached by such scouring, and finally subjecting the cleaned fragments to the grinding action of millstones, substantially as described. 30

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses. 35

LOUIS GATHMANN.

Witnesses:

M. E. DAYTON,
JESSE COX, Jr.