

UNITED STATES PATENT OFFICE.

JONATHAN MILLS, OF CHICAGO, ILLINOIS.

PROCESS OF REDUCING GRAIN.

SPECIFICATION forming part of Letters Patent No. 233,536, dated October 19, 1880.

Application filed July 9, 1880. (No specimens.)

To all whom it may concern:

Be it known that I, JONATHAN MILLS, of Chicago, State of Illinois, have invented certain new and useful Improvements in Processes of Reducing Grain; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to processes in the reduction of wheat and other grains for food; and it consists in first splitting or breaking the kernels for the purpose of releasing the germs and dirt lodged in the crease; and, second, crushing the broken grain for the purpose of depressing the torn and prominent edges of the integument, preparatory to further reduction, in order that such edges may be less exposed to the action of the stones or other reducing agents, and therefore in less degree abraded and comminuted in the operation of further reduction.

It also consists in the steps above mentioned with the following step, namely: sifting or otherwise separating the chit and impurities from the broken grain interposed between the breaking and crushing, as hereinafter fully set forth, and pointed out in the claims.

The general purpose of the invention herein set forth lies in the line of modern improvement in flour-making, which aims to make purer and whiter flour by excluding the chit, the seam or crease impurities, and bran particles. Said invention has more especial reference to the improvement of the product known as "first" or "wheat" flour.

It is now well understood that coarse cracking, splitting, or breaking the wheat for the purpose of releasing the germ and crease impurities is desirable as a first step in reduction. Such breaking of the berry, however, tears the bran more or less and leaves raw edges of the bran exposed at prominent angles of the broken grain, so that if it is in this condition submitted to the stones for further reduction these ragged and exposed edges are abraded and fine particles are detached therefrom, which pass the bolts with the flour, and cannot therefore be separated out. The presence of these particles therein gives to the flour a darker shade and materially lowers its market grade and value.

The only way to obviate this difficulty is to

prevent the comminution of the bran at its edges in the first place, and this is the object of my invention.

By subjecting the broken grain to moderate crushing pressure the form of the fragments is changed from irregular and angular shape to flat bodies. The edges of the bran, which, in the uncrushed fragments of simply broken grain, would be first encountered by the stones in grinding, and thereby rasped off in comminuted particles, are, in the flattened form, located at the margins of the flakes, or are otherwise pressed down into positions where they in great measure escape the severe action of the stones.

The improved result in color and purity of the first flour from thus crushing the broken grain preliminary to grinding is marked and valuable.

I prefer to break the grain and to separate the product before thus crushing or pressing the grain-fragments, since I may thus more readily and somewhat more perfectly remove the chit and dirt than by sifting after crushing; but, so far as the abrasion of the bran edges in subsequent grinding is concerned, the result is manifestly not affected by the interposition of the step of sifting.

In Letters Patent of the United States No. 223,056, granted to me December 30, 1879, a method and devices for the effective degermination of grain are fully set forth, said method being by splitting the berries through the crease. While the process herein described is not restricted to said method, I prefer to break the grain by thus splitting it through the crease as a more effective and otherwise desirable means of releasing the germs and dirt than cracking as generally practiced. Particularly is this true if followed immediately by sifting, for the reasons set forth in said Letters Patent.

Suitable means for crushing the broken grain are found in the ordinary smooth iron cylinders or rolls commonly used for crushing whole grain, the action of said rolls being simply to flatten the grain-fragments without abrasion of their coating or to any considerable extent detaching the food substance.

I claim as my invention—

1. In the reduction of grain to middlings or flour, the process described, which consists in

100

first breaking or splitting the grain for the release of the germ and impurities lodged in the crease, and thereafter flattening the fragments of grain into flakes to depress the projecting
5 bran fibers and edges preparatory to further reduction, substantially as and for the purpose set forth.

2. In the reduction of grain to middlings or flour, the process described, which consists in
10 first breaking or splitting the grain for the release of the germ and impurities lodged in the crease; second, separating the impurities from

the broken grain; and, third, flattening the fragments of grain into flakes to depress the projecting bran fibers and edges preparatory 15 to further reduction, substantially as and for the purposes set forth.

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

JONATHAN MILLS.

Witnesses:

M. E. DAYTON,
JESSE COX, Jr.