

(No Model.)

C. F. SHUMAKER.
MACHINE FOR GRINDING GRAIN.

No. 265,160.

Patented Sept. 26, 1882.

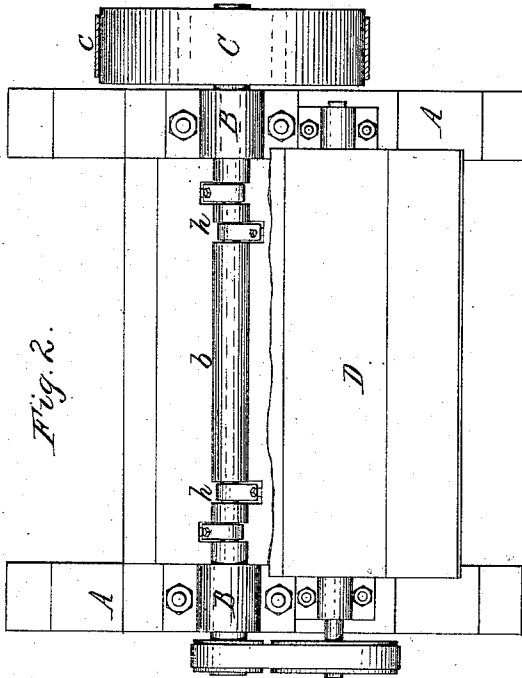


Fig. 2.

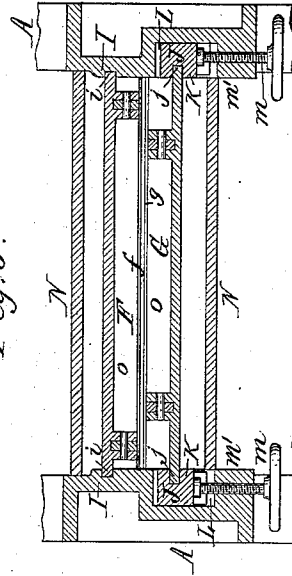


Fig. 3.

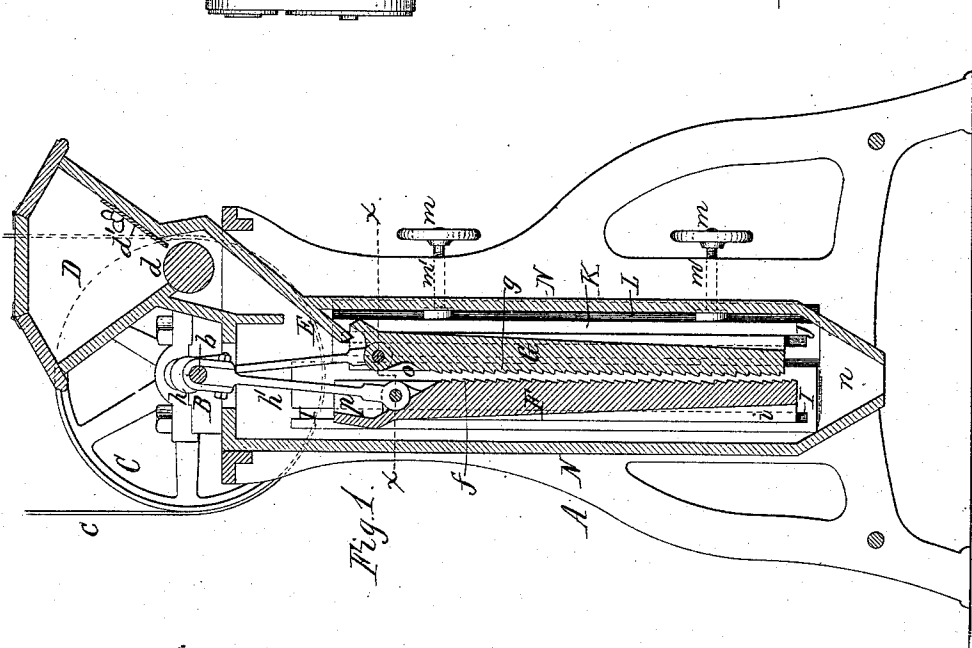


Fig. 1.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR GRINDING GRAIN.

SPECIFICATION forming part of Letters Patent No. 265,160, dated September 26, 1882.

Application filed April 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. SHUMAKER, of Silver Creek, in the county of Chautauqua and State of New York, have invented new and useful Improvements in Machines for Grinding Grain, of which the following is a specification.

The object of this invention is to reduce the grain by comminuting the flour-producing portions without pulverizing the bran; and my invention relates to improvements in that class of reducing-machines which are composed of two reciprocating plates arranged face to face with each other, and having their faces provided with suitable ribs or corrugations which operate upon the grain passing between said plates.

My invention consists of the improvements in the construction of the machine, which will be hereinafter described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a vertical section of my improved machine. Fig. 2 is a top plan view thereof. Fig. 3 is a horizontal section in line *x x*, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A A represent the upright side frames of the machine, and *b* the horizontal driving-shaft, supported in bearings B, secured to the side frames, A. The shaft *b* is provided with a pulley, C, which receives power from an endless belt, *c*, or from any other suitable mechanism, whereby it is rotated.

D represents the feed-hopper, into which the grain to be reduced is delivered by a suitable spout, and which is provided with a feed-roller, *d*, and a feed-slide, *d'*, constructed and operated in any suitable and well-known manner.

E is an inclined board or chute, which receives the material discharged by the feed-roller and delivers the same between the grinding-surfaces.

F and G represent the grinding-plates, provided on their contiguous faces *f* and *g* with transverse ribs or corrugations to effect the reduction for which the machine is designed. These plates are arranged in an upright position, and each receives a reciprocating motion by eccentrics or cranks *h*, formed on or secured to the shaft *b*, and connected with the plates

by rods *h'*. The plate F is provided at both sides with projecting ribs *i*, which slide in stationary vertical guides or grooves I, formed with or secured to the side frames, A. The plate G is provided at both sides with similar projecting ribs, *j*, which slide in vertical guides or grooves J, made adjustable toward and from the plate F, so that the distance between the plates can be regulated by adjusting the ways J of the plate G. The grooves J are formed in upright bars K, which are arranged in recesses L, formed in the side frames, A.

m m are horizontal set-screws working in threaded lugs *m'*, formed on the side frames, A, and connected with their inner ends to the bars K in such manner that by turning the set-screws in one or the other direction the bars K and the plate G, sliding in the grooves J of said bars, are moved toward or from the plate F, as may be desired. The plates F and G are fitted with their sides snugly against the side frames, A, as shown in Fig. 3, to prevent the escape of any material between the edges of the plates and the frames.

N represents a casing which incloses the side plates and which is secured to the side frames, A.

n is the discharge-opening, formed at the lower end of the casing N, for the escape of the ground material.

The upper ends of the plates F G are constructed with inclined portions *o*, descending toward the working-faces *f g* of the plates, to direct the material to be ground between said faces. The plate F is provided at its upper end with an upwardly-projecting flange, *p*, to prevent the material escaping from the inclined board E, and striking the upper edge of the plate F, from passing over said edge. The grain or other material to be ground falls from the feed-hopper in streams of uniform thickness upon the inclined board E, which latter conducts the material between the working-faces *f g* of the plates F G. The material passes downward between the working-faces of the plates F G by gravity and with a rolling movement, and is reduced to the desired degree of fineness during its descent between said working-faces, according to the size of the space between the working-faces and the size of the ribs or corrugations on the same. The

ground material escapes through the discharge-opening *n*, and may be conducted to a bolt or sieve, whereby the coarse offal is separated from the finer or valuable portions in a well-known manner. A number of these machines with gradually-increasing fineness of ribs or corrugations may successively operate upon the material until it has been reduced to the desired degree of fineness, and a separation of the coarse from the fine particles of the reduced material may be effected between every two reductions in a well-known manner.

The space between the working-faces *fg* of the plates may gradually decrease from the top toward the bottom to facilitate the entrance of the material between the plates and its passage through the space between their working-faces.

It is obvious that only one plate may receive a reciprocating motion and the other plate remain stationary, and in that case the adjustable plate should be made stationary; but I prefer to have both plates actuated, as such a

construction produces better results. It is also obvious that the plates may be slightly inclined, provided the passage of the material through the space between the plates is not prevented thereby.

I claim as my invention—

In a machine for reducing grain and other like material, the combination, with two upright plates, *F G*, having their adjacent faces provided with suitable ribs or corrugations, and suitable mechanism whereby a reciprocating motion is imparted to both plates, of grooved guides or ways *I*, in which the plate *F* slides, grooved bars *K*, in which the plate *G* slides, suitable mechanism whereby the bars *K* can be adjusted toward and from the plate *F*, and means whereby the material to be reduced is introduced between the upper ends of the plates *F* and *G*, substantially as set forth.

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Witnesses:

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