

GRINDING-MILL.

Patented April 25, 1876.

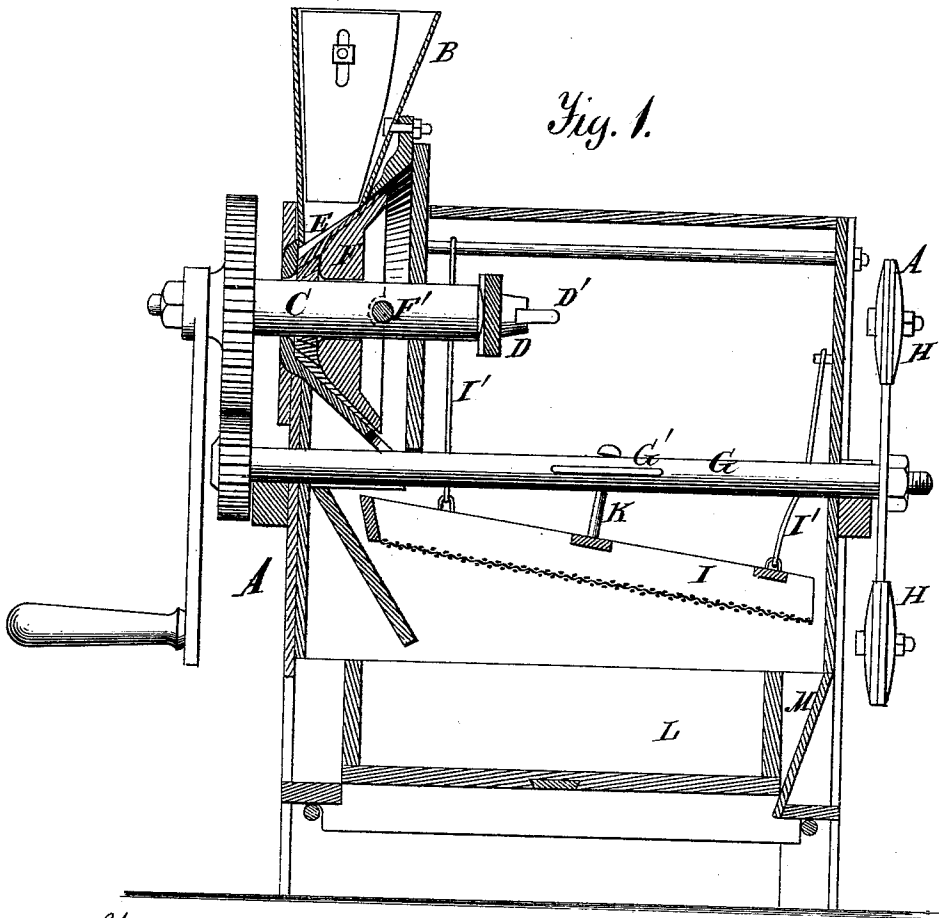


Fig. 3.

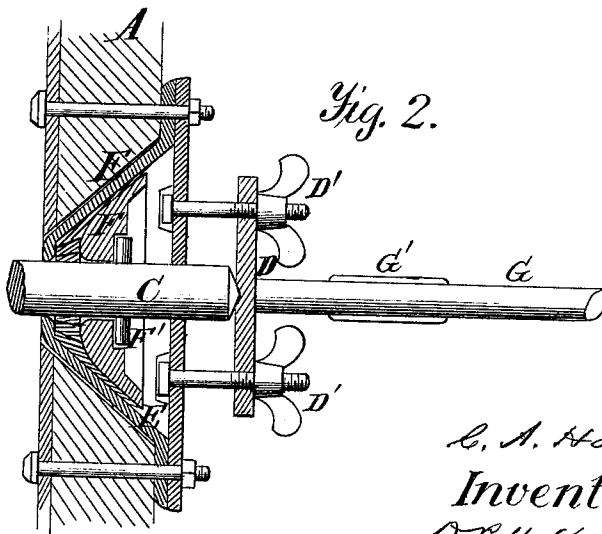
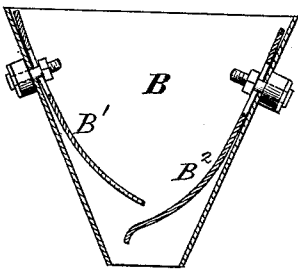


Fig. 2.

Witnesses
A. Ruppert.

Jose Wilman

C. A. Harper
Inventor.
D. P. Holloway & Co
Attys.

UNITED STATES PATENT OFFICE.

CHARLES A. HARPER, OF BURLINGTON, NEW JERSEY.

IMPROVEMENT IN GRINDING-MILLS.

Specification forming part of Letters Patent No. **176,527**, dated April 25, 1876; application filed July 31, 1875.

To all whom it may concern :

Be it known that I, CHARLES A. HARPER, of Burlington, in the county of Burlington and State of New Jersey, have invented a new and useful Improvement on Grinding-Mills, of which the following is a specification :

This invention relates especially to improvements made on my flour-mill patented on the 4th day of March, A. D. 1873, No. 136,508.

In the annexed drawings, making part of this specification, Figure 1 is a vertical longitudinal section. Fig. 2 is a horizontal section. Fig. 3 is a transverse section of the hopper.

The same letters are employed in all the figures in the designation of identical parts.

The mill is inclosed in a tight case, A, having on top of it a hopper, B, from which the grain is fed to the mill. In order to give a more perfect adjustment to the feed two curved plates, B¹ B², are secured to the ends of the hopper by set-nuts and slots, so that they may be independently adjusted.

C is a short axle, having both ends supported in bearings, and its inner end bearing against a plate, D, adjusted and held by them by nut D'. It is driven by a crank or pulley, and has upon its outer end a spur-wheel, communicating motion to the fly-wheel shaft.

The mill consists of the concave bed E, rigidly secured to the casing, and a runner, F, convex on its face to fit the concavity of the bed. The grain is ground when fed from the hopper into the space between the bed and runner. In order to relieve the surfaces from friction the runner F is loosely attached on the shaft, not being keyed to it, but secured by a pin, F', which allows it to oscillate on the shaft, and thus permits small stones or other hard substances to pass through the mill without breaking it. The space between the bed and

runner may be regulated by loosening or tightening the thumb-nuts D'.

The shaft G carries a fly-wheel, H, formed by arms and adjustable weights, and has on one side a projection for giving motion to the shaking screen I, which swings on straps I' I', a pin, K, on the shaker encountering the projection G'. A spring (not shown) brings back the shaker. The fine flour falls from the shaker into a drawer, L, while the offal passes over the end of the screen and falls upon a slide, M, conducting it into a lower drawer or other receptacle.

As the pin F' engages a recess in the back of the runner it will cause the latter to revolve with the shaft; at the same time the shaft, having bearings at both ends, may be moved longitudinally by the adjustable plate D and thumb-nuts D', to regulate the space between the surfaces for high or low grinding.

The adjustable weights H H may be set nearer to or farther from the center, so as to regulate the momentum of the fly-wheel according to the feed and character of grain passing through the mill.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the bed E, of the runner F, swung loosely on a longitudinally-adjustable shaft, having bearings at both ends, and carried by the pin F', engaging a groove in the back of the runner, substantially as set forth.

2. In combination with the mill E F and hopper B, the independently-adjustable curved plates B¹ B², substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

C. A. HARPER.

Witnesses:

LEMUEL C. REEVES,
HOWARD D. LE ROY.