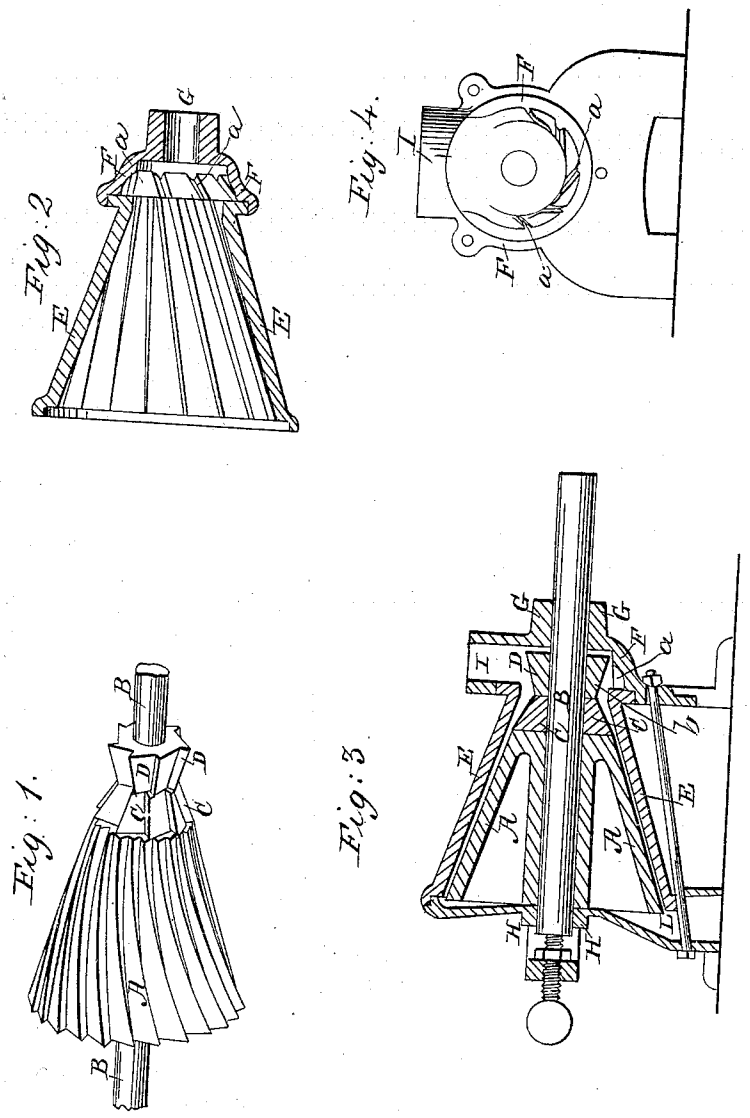
A. W. SWEET.

Grinding Mill.

No. 27,246. Patented Feb. 21, 1860.



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UNITED STATES PATENT OFFICE.

AARON W. SWEET, OF CINCINNATI, OHIO.

CONICAL GRINDING-MILL.

Specification of Letters Patent No. 27,246, dated February 21, 1860.

To all whom it may concern:

Be it known that I, AARON W. SWEET, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Conical Grinding-Mills; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, in which—

Figure 1, represents a perspective view of the cone or grinder of said mill. Fig. 2, represents a longitudinal section through the concave or barrel of the same. Fig. 3, represents a longitudinal vertical section through the mill. Fig. 4, represents a detached view hereafter to be described.

My invention relates to the construction of the cone and concave of a conical grinding mill, by which the grain is automatically fed to the mill, with such regularity as to dispense with the use of an adjustable hopper, or such other devices by which a regular and gradual feed of the grain is effected in the conical mills as used heretofore.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, represents the grinding cone, which is secured to the shaft B, and which is provided at its circumference with spiral ribs of the usual construction, which constitute its grinding surface.

C, is a conical toothed wheel which is secured to the shaft B, and against the small end of the cone A, in the position represented in the drawings; it is intended to crack the grain and deliver the same to the grooves of the cone A. D, is another conical wheel, which is also secured to the shaft B, and against the wheel C, in such a position as that their smaller ends shall be in contact with each other. This wheel is intended solely as a feed wheel to feed the grain gradually and continuously to the wheel C, and to the grinding cone A.

E, represents the barrel or concave of the mill within which the cone A, revolves; it is formed on its inside with a grinding surface against which the cone A, and wheel C, operate.

F, represents the concave within which the conical feed wheel D, operates, and which is formed on its inside with spiral flanges *a*, which in conjunction with the teeth of the feed wheel D, crowd the grain between the crushing wheel C, and the barrel E. The concave F, is represented in a front view at Fig. 4, showing the spiral ribs *a*. The shaft B, has its bearings within the hubs G, and H, and the entire mill when mounted is represented in a longitudinal section in Fig. 3.

The operation of the mill is as follows: The grain is fed in at the hopper I, and drops down on the wheel D, the shaft B being turned by means of a crank gearing or pulley secured to it, the grain is crowded by the feed wheel D, on to the crushing wheel C, which cracks the same; it is then ground finely by the action of the grinding cone on the barrel E. It is evident that no more grain can be fed to the crushing wheel C, than the feed wheel D contains in the cells between its teeth, and that the supply from this feed wheel to the cracking surfaces must be regular and continuous, and that therefore the mill will never be choked nor run empty, as long as the grain is fed into the mouth I; and that this is done without the application of any devices outside of the mill to regulate the feed or feeding device independent of the bur or cone itself. The grain when ground finely is discharged at L, in the usual manner.

The grinding nut or bur is composed of three frustums of cones, peculiarly arranged with regard to each other, so that one feeds in, the second cracks, and the third completes the grinding of the material. This not or bur works in a concave which has its interior surfaces formed the counterpart in reverse, of the bur, so that the feeding, cracking, and grinding processes may be going on at the same time at different positions on the bur and concave, as shown.

Having thus fully described the nature and object of my invention, I would state that I am aware that conical mills with cracking and grinding grooves are common and well known and that a feeding device has been arranged on the inside of the concave. These I do not claim but

What I do claim is—

In combination with the conical cracking and grinding surfaces on the bur and concave the feeding cone, and its concave constructed and arranged substantially as herein described.

AARON W. SWEET.

Witnesses:

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