(No Model.) 2 Sheets—Sheet 1.

J. J. SEEMAN.

GRINDING MILL.

No. 525,473. Patented Sept. 4, 1894.

Fig. 1.

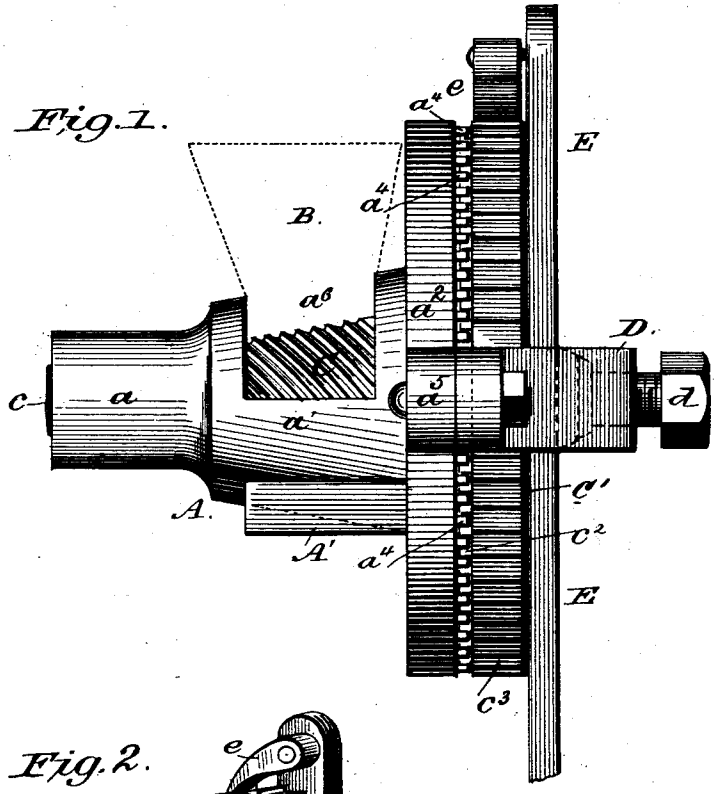


Fig. 2.

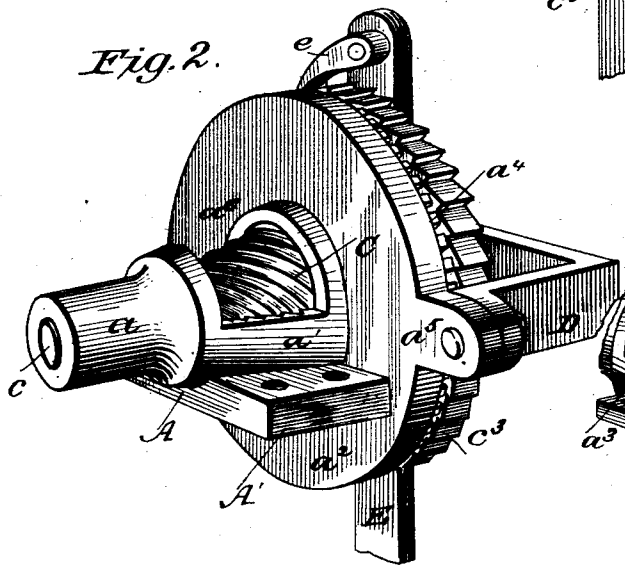
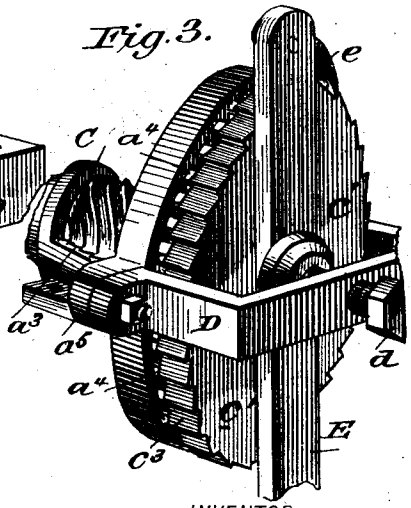


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

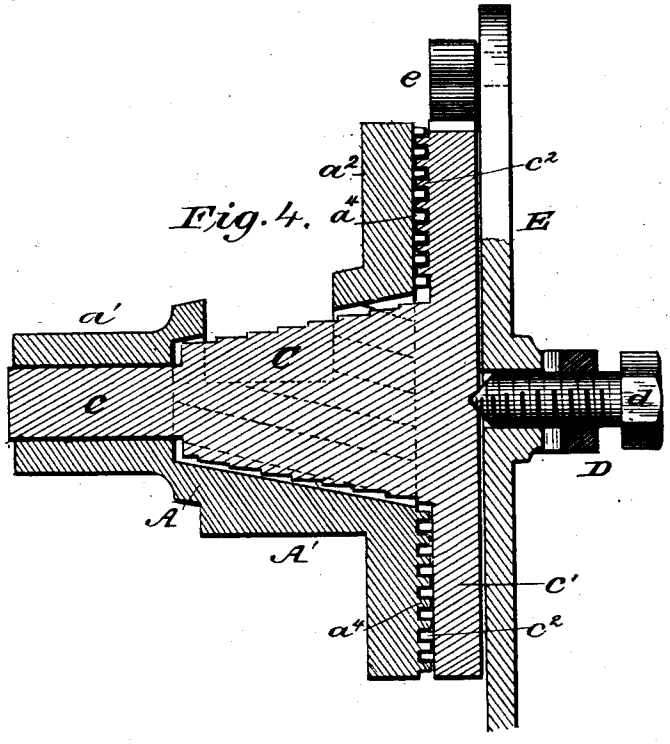
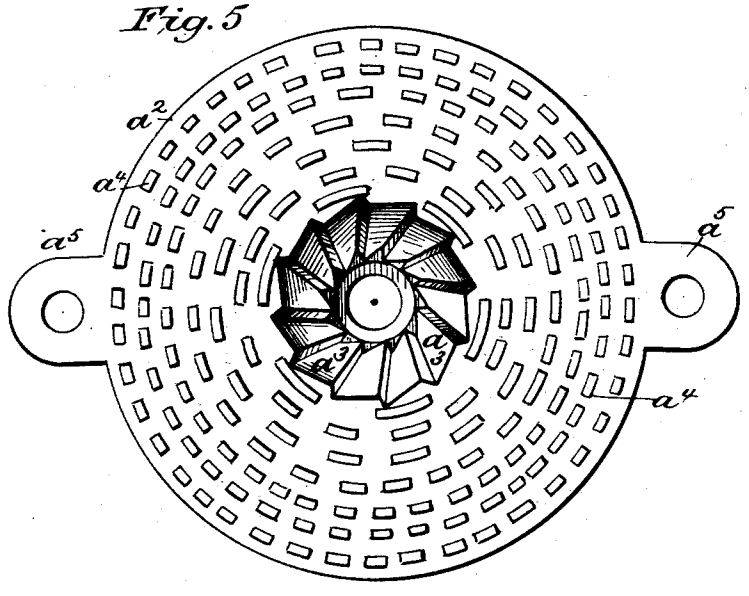


Fig. 5



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UNITED STATES PATENT OFFICE.

JOHN J. SEEMAN, OF GARDEN GROVE, CALIFORNIA.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 525,473, dated September 4, 1894.

Application filed November 25, 1893. Serial No. 491,980. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. SEEMAN, a citizen of the United States, residing at Garden Grove, in the county of Orange and State of California, have invented a new and useful Grinding-Mill, of which the following is a specification.

My invention relates to machines for grinding and crushing corn and other grain, and its object is, primarily, to furnish a construction by which with the least expenditure of power a maximum of work may be performed.

A further object of my invention is to provide a construction which will combine efficiency of operation with simplicity of construction, whereby the liability of the parts getting out of order is reduced to a minimum.

A still further object of my invention is to provide means for imparting the necessary motion to the grinding surfaces, which will also possess the combined advantages of simplicity and economy.

To these ends, my invention consists of the improved combination, construction, and arrangement of parts, substantially as hereinafter more fully disclosed and pointed out specifically in the claims.

In the drawings—Figure 1 is a side elevation of the inclosing casing, the grinding cone, and the operating lever all in position for operation. Fig. 2 is a perspective view of the same. Fig. 3 is a detail perspective of the end of the grinding cone, the operating lever, and the cross-bar or strap for connecting the cone to the casing. Fig. 4 is a central vertical section of the complete device shown in Fig. 1. Fig. 5 is a detail end view of the casing, showing the interior of the same.

Corresponding parts in all the figures are denoted by the same letters of reference.

Referring to the drawings, A denotes the horizontally-arranged inclosing casing, having the block, A′, formed integral therewith, by means of which the casing may be attached to any suitable support by bolts passing through bolt holes in said block. This casing is shaped substantially as shown in Figs. 2 and 3, having the horizontal portion, a, the flaring or cone-shaped part, a', and the vertical grinding plate, a^2, all cast integral. In its interior construction the flaring part a' is provided with a series of spirally-arranged grinding teeth, a^3, and upon the face of the plate a^2 are the teeth, a^4, diminishing in size as they approach the outer edge. Upon opposite sides of the plate a^2 are the ears or lugs, a^5, for a purpose to be hereinafter described. The flaring part a' of the casing A is apertured at its top side, at a^6, to receive the feed chute or hopper, B, which is of any suitable construction and may be attached in any suitable manner.

C denotes the grinding cone, of a shape to correspond with and fit into the part a' of the casing A, as shown in Fig. 3. A bearing shaft, c, is formed upon the smaller end of the cone C, integral therewith, and adapted to enter and revolve in the part a of the casing A. A plate, c', formed on the other end of the cone C, abuts against the plate a^2 and is provided on its abutting face with grinding teeth, c^2, similar in size and arrangement to those on said plate a^2.

A cross-bar or strap, D, is bolted at its ends to the lugs or ears a^5 on the plate a^2, and is centrally apertured to receive the set screw, d, which operates as a bearing for the cone C and its plate c' at that end for the device, and also provides a means of varying the adjustment of the said cone and plate with relation to the cone-shaped part a' and the plate a^2, whereby the degree of fineness to which the corn is to be reduced may be regulated as desired.

Passing up between the strap D and the plate c' is the operating lever, E, turning on the set screw d as a pivot, and carrying at its upper end the pawl, e, which engages with the ratchet teeth, c^3, on the periphery of the plate c', whereby an intermittent rotary movement may be imparted to the said plate and its attached cone C, through the reciprocation of the lower end of the said lever E. This reciprocation may be imparted to the said lever by hand or foot power in any desired manner, or, if preferred, steam or any other power may be employed.

The operation of the device is as follows: The corn or other grain is fed into the feed chute or hopper B, and passes thence between the teeth on the interior of the inclosing casing A and those on the cone C, the latter being intermittently rotated by means of the le-

ver E; thence it passes between the stationary grinding plate a^2 and the rotating grinding plate c', subjected to the grinding action of the teeth on the abutting faces of the same, and finally falls when thoroughly ground, into any suitable receptacle located beneath the said grinding plates.

As before stated, by means of the set-screw d the distance between the stationary and movable grinding surfaces may be varied, and a fine or coarse grinding of the grain obtained, as desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a grinding mill, the combination of a stationary cone-shaped inclosing case having an internal spirally-toothed grinding surface and an integral grinding plate, a rotary cone having a corresponding grinding surface and an attached grinding peripherally-toothed plate opposed to the grinding plate of the case, a centering and adjusting screw or axis engaging the grinding plate of the rotary cone, a bearing or support for said screw or axis connected to the grinding plate of said case, and a lever or bar fulcrumed on said axis or screw and carrying at its upper end a gravity pawl engaging the peripherally-toothed surface carried by the grinding plate of the rotary cone, substantially as set forth.

2. In a grinding mill, the combination of a stationary cone-shaped inclosing case having an internal grinding surface and a tubular bearing at one end and an integral grinding plate at its opposite enlarged end and in its upper surface an opening to permit of the application thereto of the usual hopper, a rotary cone having a peripheral grinding surface and provided at one end with an axis resting in said tubular bearing and at its opposite end with an integral grinding plate opposed to the grinding plate of said case and having a peripherally-toothed surface, a bail-like support or bearing connected to the grinding plate of the case, a centering screw or axis resting in said support or bearing and engaging the grinding plate of the rotary cone, and a hand-actuated lever fulcrumed on said centering screw or axis and carrying a pawl engaging the peripherally-toothed surface of the grinding plate carried by said cone, substantially as set forth.

3. In a grinding mill, the combination of a stationary cone-shaped inclosing case having an internal spirally-toothed grinding surface and an attached grinding plate, a rotary cone also having a spirally-toothed grinding surface coincident with the corresponding internal grinding surface of said case, and a grinding plate opposed to the aforesaid grinding plate and having a ratchet-periphery, a centering and adjusting screw or axis engaging said rotary cone, a bearing for said screw or axis, a lever pivoted upon said screw or axis, and a pawl carried by said lever and engaging said ratchet-periphery, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN J. SEEMAN.

Witnesses:
J. H. ADAMS,
LYMAN CHAPIN.