

No. 678,III.

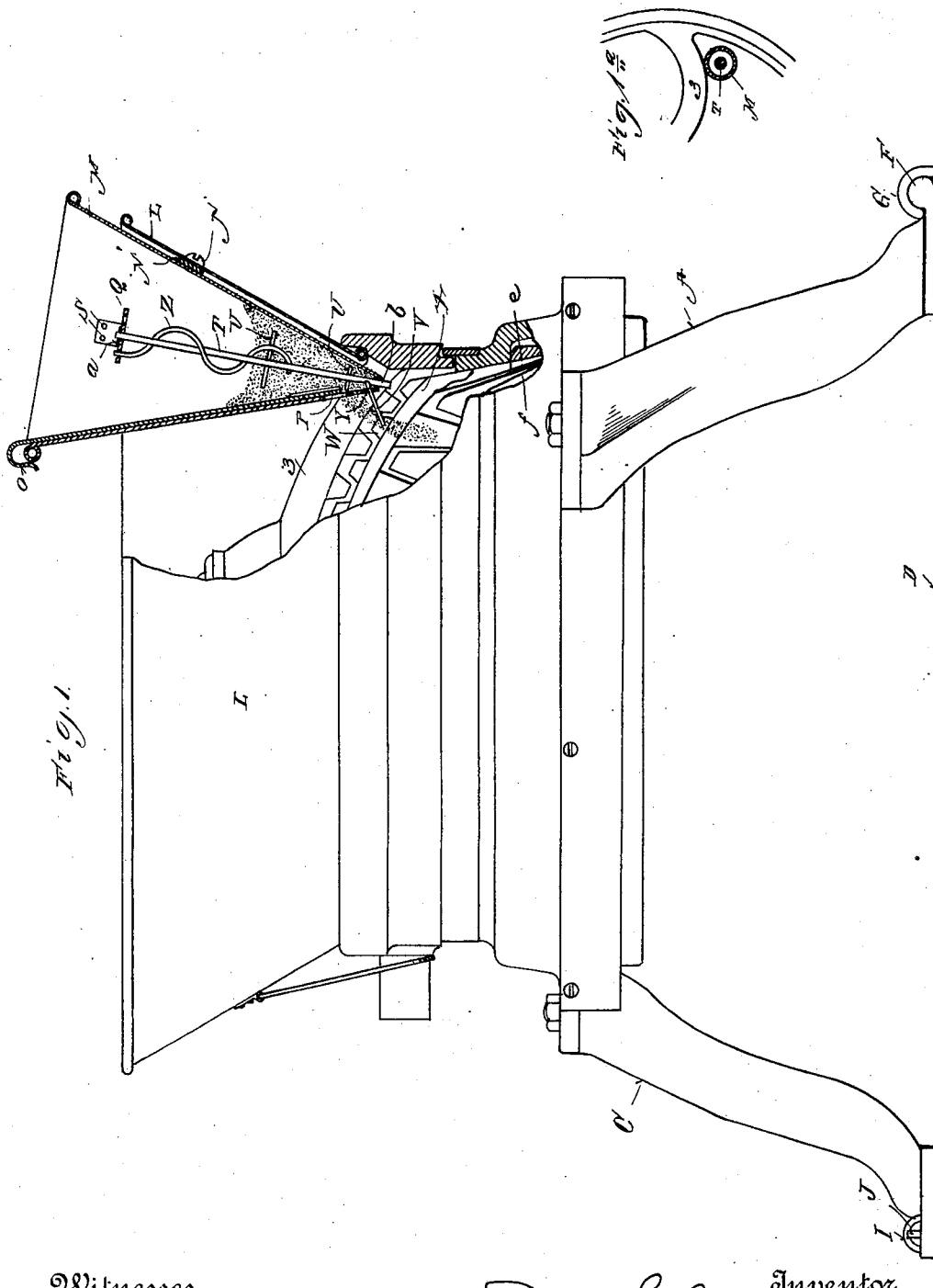
D. L. ADELSPERGER.
GRINDING MILL.

(Application filed Feb. 12, 1900.)

Patented July 9, 1901.

(No Model.)

3 Sheets—Sheet 1.



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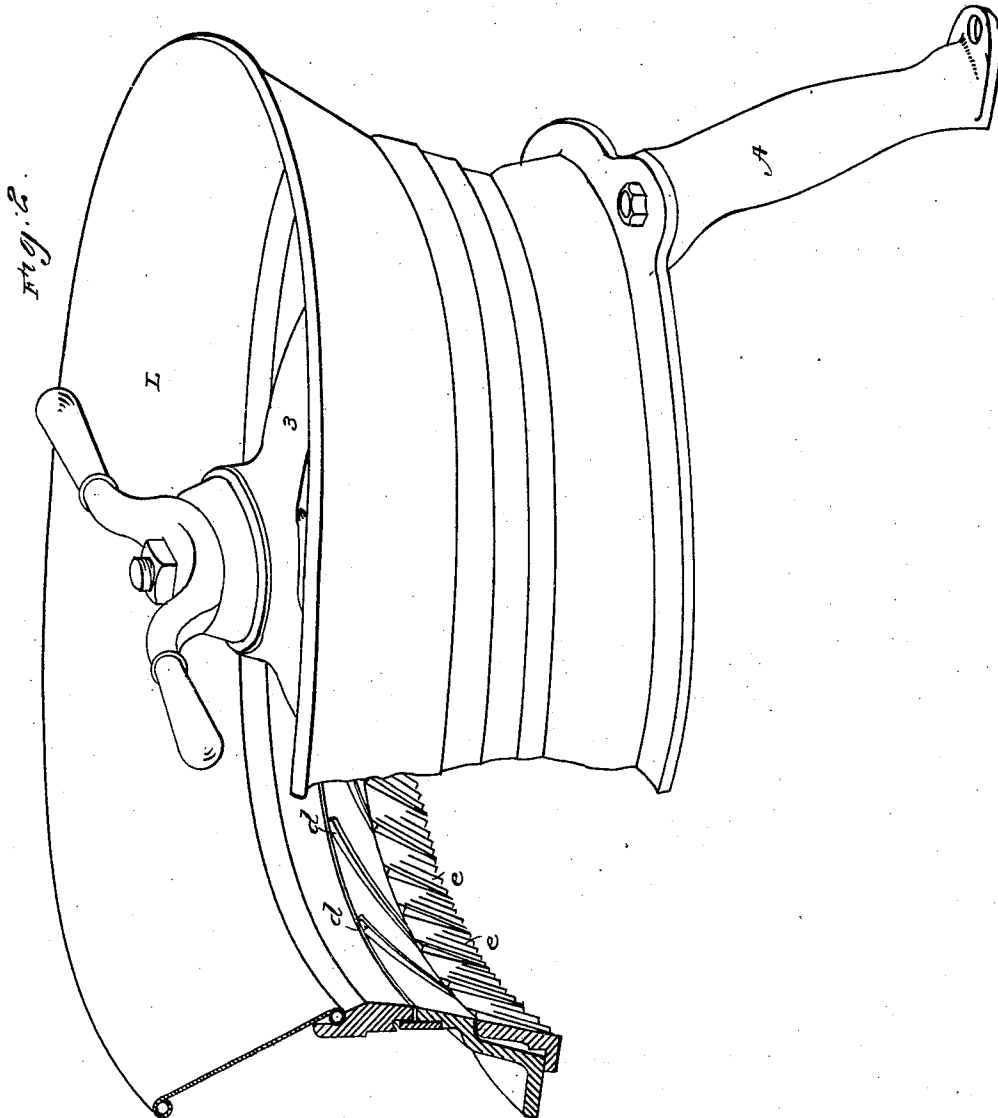
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3 Sheets—Sheet 2.



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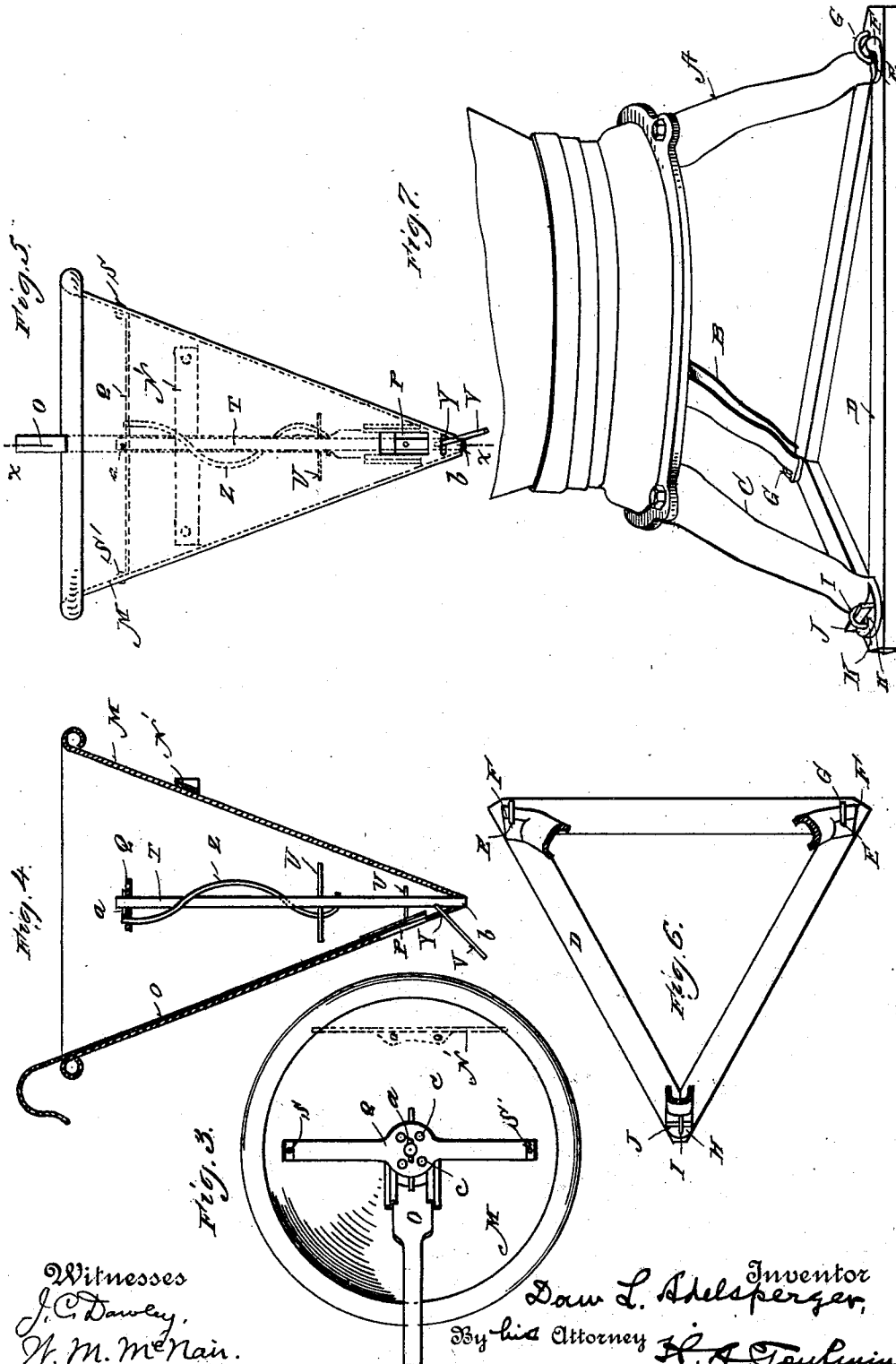
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3 Sheets—Sheet 3.



UNITED STATES PATENT OFFICE.

DOW L. ADELSPERGER, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE FOOS
MANUFACTURING COMPANY, OF SAME PLACE.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 678,111, dated July 9, 1901.

Application filed February 12, 1900. Serial No. 4,850. (No model.)

To all whom it may concern:

Be it known that I, DOW L. ADELSPERGER, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in grinding-mills.

The general objects of my invention have reference, first, to an improved device for thoroughly mixing oats and other light grains with ear-corn, whereby the ground product will have greater uniformity, so that instead of permitting the light grains to quickly pass through the interstices between the ears of corn and be ground first the corn and grain are ground together; second, to provide an improved arrangement for hinging the grinding-mill to a base, whereby the mill may be turned on its side, so that the grinding-plates may be quickly and easily removed or replaced, and, third, to provide an improved arrangement of feeding-teeth or crowders on the stationary part of the mill immediately beneath the hopper, which will act to crowd the grain, &c., into the grinding-plates much more rapidly.

This invention also relates to details of construction and arrangement hereinafter appearing, and particularly pointed out in the claims.

In the accompanying drawings, on which like reference characters indicate corresponding parts, Figure 1 is a front elevation, partly in section, and showing my improvements applied thereto; Fig. 1^a, a detail plan view showing the relative position of the auxiliary hopper with respect to the arm 3 and primary hopper; Fig. 2, a partial perspective view with a portion broken away and in section to illustrate the crowders; Fig. 3, a plan view of my grain-feeder attachment; Fig. 4, a sectional view on the line *xx* of Fig. 5; Fig. 5, a detail view of the hopper, showing the interior parts in dotted lines; Fig. 6, a detail enlarged view showing the base and the manner of attaching the supporting-legs thereto, such legs

being in section; and Fig. 7, a detail perspective view of the lower portion of the grinding-mill, the upper portion being broken away.

Heretofore in grinding-mills of this character ear-corn has been thrown into the hopper, together with lighter grains, depending on mixing it properly by the action of the mill itself; but this has proved very unsatisfactory, as at times all of the product, such as ear-corn, would pass through the mill, while at other times all of the grain, such as oats, would pass through the mill. Consequently the ground product would be irregular in quality—that is, some would be almost pure corn while other portions of it would be almost pure oats. With the invention about to be described all this is overcome, as I am enabled to run through the mill any proportion of oats to other grains being ground which I may wish by simply regulating the amount of outlet-opening from what I will term my “auxiliary hopper.”

The letters A, B, and C represent suitable legs or supports mounted upon a triangular or other shaped base. It will be observed that each of the legs A and B is provided with a hole E and a rounded flange F. A staple G fits over the rounded flange F, and one leg of such staple passes through the hole E. This staple is driven into the base D. Two of these staples are in line with each other, so as to constitute hinges, while the rounded flanges prevent vibration between the base and legs, although readily permitting the legs to hinge. The leg C has a slotted opening H, through which is adapted to project a staple I. A wedge J is driven through the staple between it and the leg, thereby holding the leg firmly down upon and binding it to the base. When it is desired to change the grinding-plates, such as is usual in this class of machinery, the wedge J is removed and the frame of the mill is turned over on its side. This saves removing bolts or lag-screws from the base in order to get at the under side of the mill proper.

I will now refer to my improved arrangement for feeding lighter grains, such as oats, into the heavier grain, which will not pack

together closely, such as ear-corn, whereby the oats will be properly mixed, so that a uniform product may be obtained.

Referring to Fig. 1, it will be seen that on the interior of the main hopper L is mounted an auxiliary hopper M, such latter hopper being secured to the main or primary hopper by means of one or more screws N, which screw into a stiffening-strip N'. If desired, such auxiliary hopper may occupy any other suitable position within the hopper. A slide O extends into the auxiliary hopper M and is adapted to open or close, more or less, a hole P near the lower end of the hopper, such hole acting as an exit for the light grains. Thus by means of said slide the amount of grain passing through the hole P may be regulated. It will be observed that within the hopper is mounted a bearing Q, formed of a sheet of strip metal, which extends from one side of the hopper to the other and is secured in place by means of rivets, such as shown at S, or in any other suitable manner. An agitator-rod T passes through this bearing and is provided with a cotter-pin *a* at its upper end, while its lower end projects through a hole *b* in the lower end of the auxiliary hopper. Spindles U, carried by the agitator-rod, act to more thoroughly agitate the grain in a manner presently to appear. From near the lower end of the agitator-rod projects a pin V, which normally stands in the path of teeth W, mounted on stationary arms X, forming a portion of the stationary frame structure. In this class of machines the hopper L is adapted to be rotated. Consequently the auxiliary hopper M is carried around at every revolution. As the stud or pin V comes in contact with a tooth W its motion is arrested, thereby causing the agitator-shaft T to partially rotate, it being understood that the opening Y, through which the pin V projects, is a slotted opening, as clearly indicated in Fig. 4. This will cause the spindles U to stir the grain in the auxiliary hopper. As the agitator-rod T is partially rotated the pin V will slide by the tooth with which it engages. The instant it passes such tooth the agitator-shaft will be partially rotated in the opposite direction by means of a spring Z until the pin V moves to the limit of the slot Y, such spring engaging at one end with the spindle and after coiling about the spindle somewhat is fastened at its other end to the bearing Q. In the present construction there are a series of holes *c*, through which the upper end of the spring may extend. These holes are for the purpose of adjusting the tension of the spring Z. If it is desired to apply a greater tension, the spring is coiled tighter about the agitator-shaft and its upper end is placed in another of the holes *c*, farther around the shaft. This is a very simple and effective means of adjusting the tension. By this arrangement a continuous stream of grain is fed into the main hopper

from the auxiliary hopper. From Figs. 1 and 1^a it will be seen that the lower end of the auxiliary hopper is mounted immediately back of one of the breaker-arms 3. This is of special importance, as it prevents the auxiliary hopper from being disturbed by ears of corn, which in the process of breaking up would be more than likely to injure and displace the auxiliary hopper but for its location. The breaker-arm is so connected with the revolving frame at its outer end that the angle immediately back of the breaker-arm adjacent to the hopper side is an acute angle, thereby additionally acting to protect the auxiliary hopper.

Another feature of my invention has reference to a peculiar arrangement of teeth upon the stationary part of the machine immediately beneath the hopper and directly above the grinding-plates. From Fig. 2 it will be seen that the teeth *d* slant downward and forward and that they also taper downward from their upper ends, as shown in the drawings. As the grain is agitated and carried around by the rotatable hopper L and the breaker-arms 3 and X it comes in contact with the inclined teeth *d*, which act to impart to such grain, particularly to ear-corn, a downward and forward movement into the grinding-plates *e* and *f*, respectively, the latter of which is a rotatable grinding-plate. Consequently a larger amount of grain may be passed through the machine in a given time than would otherwise be the case. This acts to keep the grinding-plates operating at their full capacity and at the same time distributes the grain to be ground all around the grinding-plates, so that the entire surface of the grinding-plates is doing its share of the grinding.

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

1. In a grinding-mill, the combination, with a fixed base, of a rotatable primary hopper adapted to receive grain therein, an auxiliary hopper mounted within said primary hopper and secured thereto so as to rotate therewith, and an agitating device mounted in said auxiliary hopper and engaging with the fixed portion of the mill so as to be actuated thereby, substantially as described.

2. In a grinding-mill, the combination with a primary hopper adapted to be operated, of an auxiliary hopper mounted therein and secured thereto, said auxiliary hopper having a feed-opening and a slotted opening therein, an agitator-shaft mounted in said hopper, a spring connected at one end with said agitator-rod and extending through said slotted opening, a fixed device carried by the mill in the path of said pin, whereby the agitator-shaft is partially rotated in one direction and in the opposite direction by said spring, all substantially as shown and described.

3. In a grinding-mill, the combination with

a primary hopper adapted to be rotated, of an auxiliary hopper mounted within said primary hopper and secured thereto, said auxiliary hopper having a slotted opening and a grain-discharge opening therein, a slide for closing more or less of said grain-discharge opening, a bearing mounted within said auxiliary hopper, an agitator-shaft mounted in said bearing, agitator-spindles carried by said shaft, a spring connected with said shaft at one end and to one of said bearings at its other end and adjustable in said bearing, a pin projecting from said agitator-shaft through said slotted opening and adapted to come in contact with a fixed part of the machine, a breaker-arm carried by said primary hopper in such a manner as to form an acute angle between the rear portion of said breaker-arm and the walls of said primary hopper, such auxiliary hopper extending within said angle, all substantially as shown and described.

4. In a grinding-mill, the combination with a base, of a pair of supporting-legs hinged thereto in line with each other, and one or more legs secured thereto by means of staples

and wedges, all substantially as shown and described.

5. In a grinding-mill, the combination with a suitable base, of supporting-legs adapted to rest on the corners of said base, two of said legs having a hole therein and a curved flange extending therefrom, a pair of staples adapted to fit over the respective flanges and having one leg extending through said holes, said staples being driven into said base and said flanges filling the staple so as to hold the mill firmly upon its base, yet permitting such mill to be turned over on its side, another staple projecting through the third leg from the base, and a wedge for passing through said staple on top of the foot of said leg, whereby the leg is rigidly secured to the base, all substantially as shown and described.

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

DOW L. ADELSPERGER.

Witnesses:

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