

No. 824,666.

PATENTED JUNE 26, 1906.

S. S. LOFBERG.
FANNING MILL.

APPLICATION FILED JULY 10, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

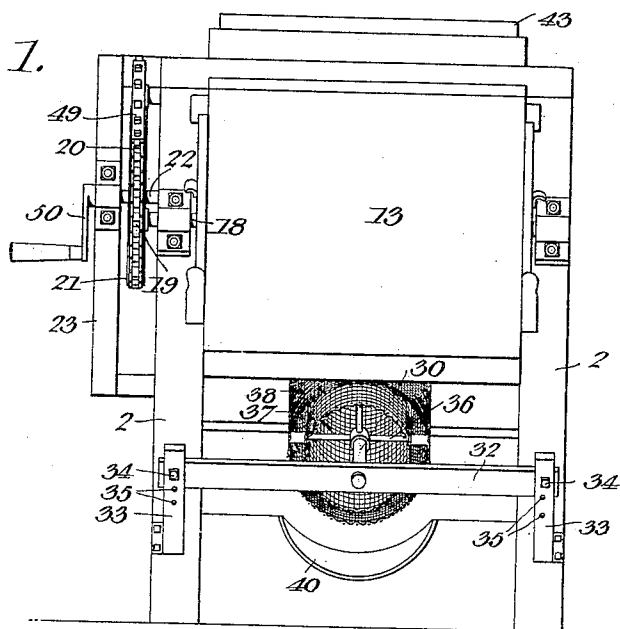
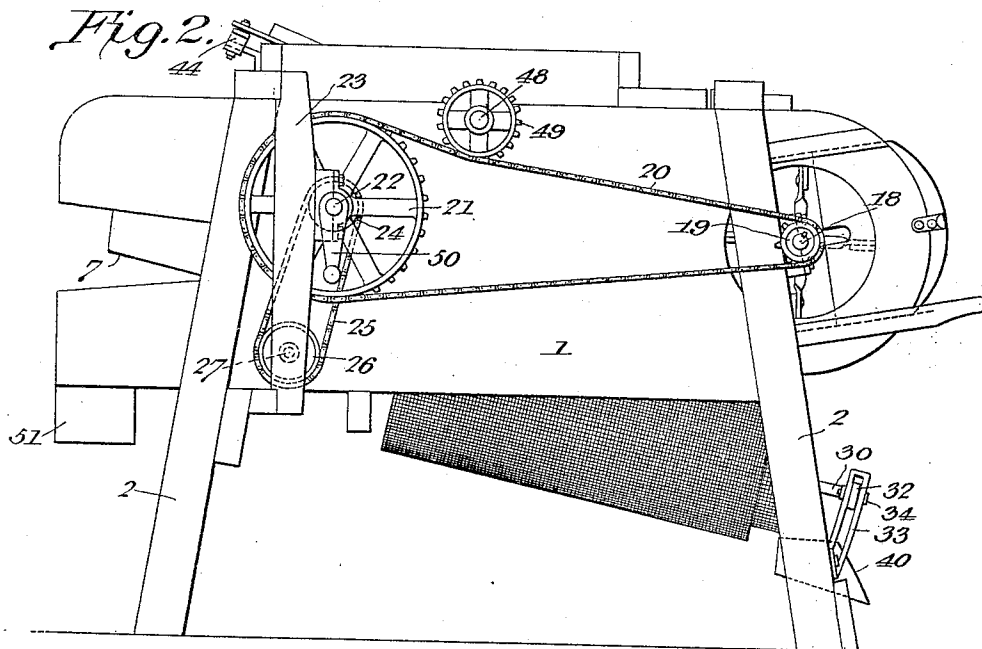


Fig. 2.



Witnesses:

E. J. Stewart
R. M. Elliott

Swan S. Lofberg,
Inventor,

by *C. A. Snow & Co.,*
Attorneys.

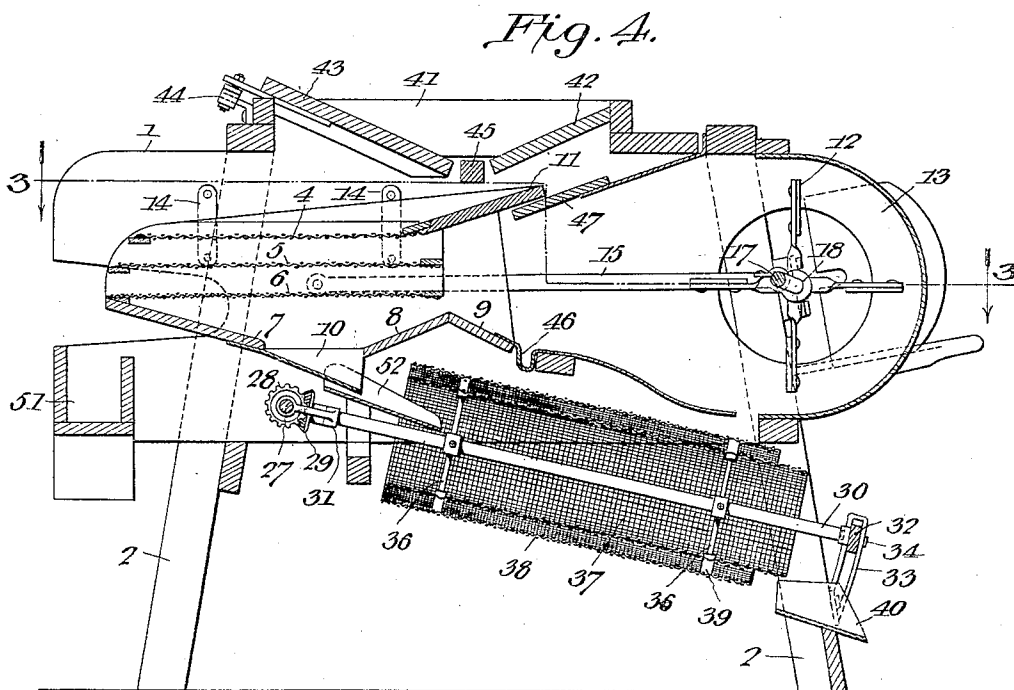
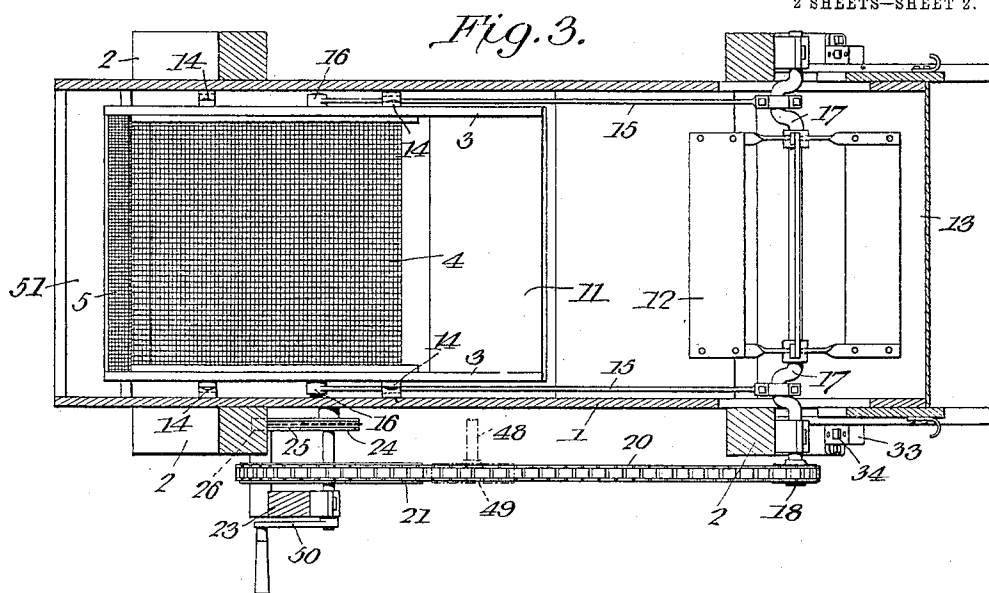
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Attorneys.

UNITED STATES PATENT OFFICE.

SWAN S. LOFBERG, OF ARGYLE, MINNESOTA.

FANNING-MILL.

No. 824,666.

Specification of Letters Patent.

Patented June 26, 1906.

Application filed July 10, 1905. Serial No. 269,025.

To all whom it may concern:

Be it known that I, SWAN S. LOFBERG, a citizen of the United States, residing at Argyle, in the county of Marshall and State of Minnesota, have invented a new and useful Fanning-Mill, of which the following is a specification.

This invention relates to fanning-mills.

The object of the invention is to provide a mill which will in a novel manner effect the rapid and certain separation from grain of chaff, dirt, foul seeds, and the like and which shall be simple of construction, efficient and durable in use, and not liable to become deranged from long-continued use.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a fanning-mill, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, Figure 1 is a view in end elevation, taken from the discharge end of the machine. Fig. 2 is a view in side elevation. Fig. 3 is a view in horizontal section, taken on the line 3 3, Fig. 4, and looking in the direction of the arrow thereon. Fig. 4 is a vertical longitudinal section.

Referring to the drawings, 1 designates the trunk of the machine, which is supported by four uprights or legs 2, as usual. Within the trunk is arranged a shaking-sieve comprising side pieces 3, between which are secured in any suitable manner a plurality of screens 4, 5, and 6, of which the screen 4 is the coarsest, and the other two are of progressively finer mesh. The bottom of the sieve comprises an inclined member 7 and a hipped member consisting of sections 8 and 9, the section 8, as shown in Fig. 4, being spaced some distance from the member 7, and the two members being connected by a spout 10, preferably of metal. The object of the member 7 is to direct the flow of grain from the discharge end of the screens to the spout 10, while the object of the member 8 is to direct the grain from the feed end of the screens to the spout 10. Secured between the sides at their upper portions is an inclined plate 11, which is disposed at an angle opposite to that of the section 9, and forms in conjunction therewith a constricted throat, through which air furnished by a fan 12 passes through

the trunk and between the screens and effects initial separation of the chaff from the grain. The fan 12 is arranged in a fan-casing 13 of the usual or any preferred construction and operates in a manner common to such machines.

The shaking-sieve is supported by two pairs of hangers 14, which are pivotally connected, respectively, to the sides of the sieve and of the trunk, and vibratory motion is imparted to the sieve by a pair of pitman-rods 15, one end of each of which is secured at 16 to the side of the sieve and the other end of each of which engages one of a pair of cranks 17 upon the fan-shaft 18, and by this arrangement it will be seen that a horizontal reciprocatory movement may readily be imparted to the sieve and thus cause the grain retained upon the screens to be violently agitated. The shaft 18 carries a sprocket-wheel 19, around which passes a sprocket-chain 20 to and around a sprocket-wheel 21, mounted upon a shaft 22, journaled in suitable bearings, located, respectively, in the side of the trunk and upon a standard 23, arranged parallel with one or more of the trunks, as clearly shown in Fig. 1. The shaft 22 carries a sprocket-wheel 24, more clearly shown in Fig. 3, around which passes a sprocket-chain 25 to and around a sprocket-wheel 26, carried by a shaft 27, supported in suitable bearings. The shaft 27 carries a bevel-gear 28, which meshes with a similar gear 29, carried by one end of a shaft 30, journaled in a yoke-bearing 31, loosely mounted upon the shaft 27, the other end of the shaft being journaled in a cross-bar 32, which works in curved guides 33, secured to the rear pair of uprights or legs, as shown in Fig. 1. The cross-bar is held at any adjusted position relatively to the guides by bolts 34, which are adapted to be shifted into alined pairs of orifices 35, as shown in Fig. 1.

Secured to the shaft 30 are two spiders 36, to which are secured a reticulated or foraminous cylinder 37, that is nested within a similar cylinder 38, held separated from the first cylinder by spaces 39, through which pass the fastening devices that hold the first-named cylinder combined with the spiders. As will be seen by reference to Fig. 4, the inner cylinder is of coarser mesh and is of greater length than the outer cylinder and discharges into a spout 40, carried by two of the legs at the rear of the machine. This double cylinder is the final separator, where all dirt, chaff, or

foul seeds that still remain in the grain are separated and carried off by the spout 40, the finer grains that escape through the mesh of the cylinder 37 passing to the cylinder 38, where it is caught in any preferred manner. By having the cylinder vertically adjustable at one end, so as to vary its inclination, the speed of the feed can be readily controlled, thus to effect certain separation of all foreign matter from the seed.

Arranged in the upper portion of the trunk is a hopper consisting of two rigid sides 41, a rigid end 42, and an adjustable end 43, the latter being moved to and from the end 42 by a lever 44, the object of which is to control the feed of the seed to the sieve. Disposed between the opposing terminals of the ends 42 and 43 is a feeder 45, which is herein shown as square in cross-section, although it may be of any other contour, and operates to force the seed from the hopper down upon the plate 11, whence it passes onto the screen 4.

In order to permit proper vibration of the sieve and also to insure passage through the trunk of the air supplied by the fan, the sieve is connected with the fan-casing at its lower side by a flexible member 46, which may be of canvas, leather, or the like, there being secured to the upper side of the fan-casing a downwardly and rearwardly inclined plate 47, which projects beneath the plate 11, and thus prevents escape of air around the plate and up through the hopper.

The feeder 45 is carried by a shaft 48, upon which is mounted a sprocket-wheel 49, that meshes with the sprocket-chain 20 and receives motion therefrom. As herein shown, the shaft 22 is driven by a crank 50; but it is to be understood that it may be driven by machine-power, if preferred.

In the operation of the machine grain is supplied to the hopper and passes down the plate 11 and onto the screens that are vibrated by the mechanism described, and the initial separation of sticks, stones, or any other coarse material takes place upon the screen 4, this material passing over and being discharged into a trough 51, arranged at the dis-

charge end of the machine. The seed that pass through the screen 4 drop to the screen 5, where the second separation is effected, and thence to the screen 6. During these operations the air from the fan is constantly passing between the screens and operates to blow out any chaff and other like matter present. The seed that escape through the screen 6 fall onto the member 7, thence to the spout 10, and from the latter to a chute 52, that projects into the inner cylinder 37, as shown in Fig. 4. Should there be any foreign matter still remaining in the seed, it will be caught and retained by the cylinder 37 and discharged down the spout 40, while the cleansed seed or grain pass to the cylinder 38, whence it escapes and is caught in any preferred manner. By making the inner cylinder longer it will be seen that there will be no possibility of the coarser grains or impurities present mixing with the finer grain, and this is essential in machines of this character in order to secure thorough cleansing of the grain. Should it be found that the discharge of the grain is too rapid from the cylinders, this may be overcome by elevating their discharge ends in the manner described, or to secure a faster feed the said ends are lowered.

Having thus described the invention, what is claimed is—

In a machine of the class described, a shaking-shoe having an inclined plate and a hipped member one section of which coöperates with the inclined plate to form a constricted throat, in combination with a fan-casing, a downwardly and rearwardly inclined plate secured to the upper portion thereof and extending beneath the inclined plate of the shoe, and a flexible member connecting the hipped member of the shoe with the lower portion of the fan-casing.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SWAN S. LOFBERG.

Witnesses:

C. G. MOLINE,
NILS MALM.