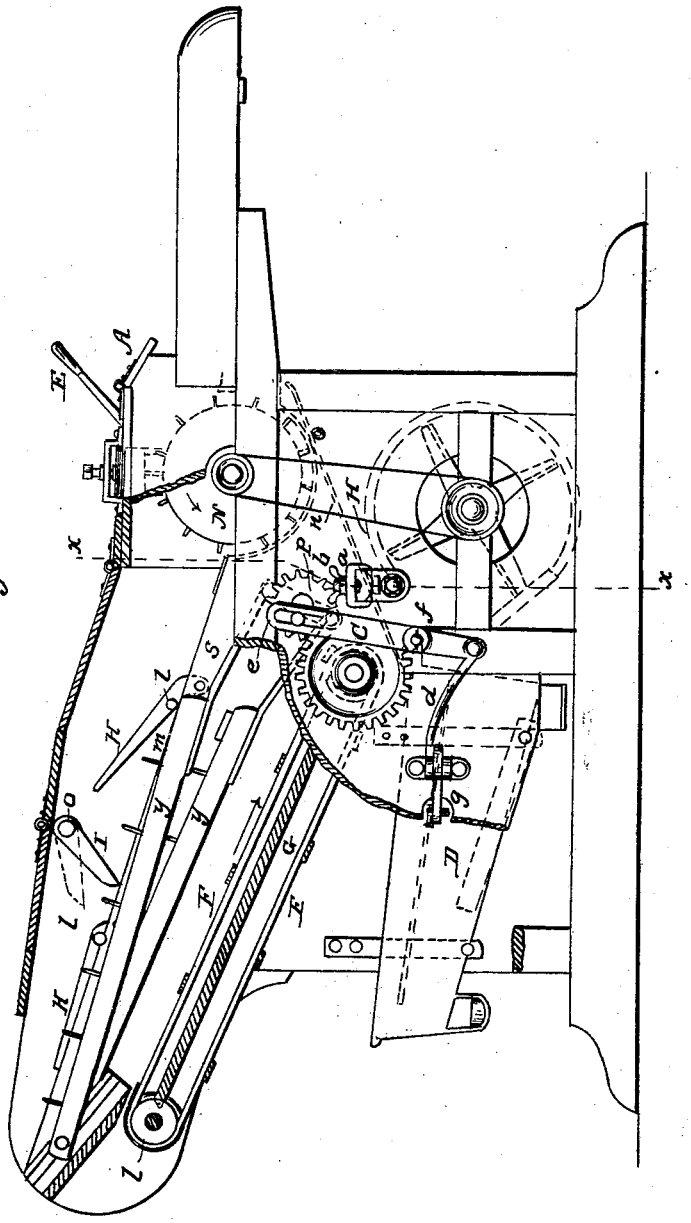
2 Sheets—Sheet 1.

H. GILL.

Grain Thrasher and Separator.

No. 110,131. Patented Dec. 13, 1870.

Fig. 1.



Witnesses:
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Attys.

2 Sheets—Sheet 2.

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Fig. 3.

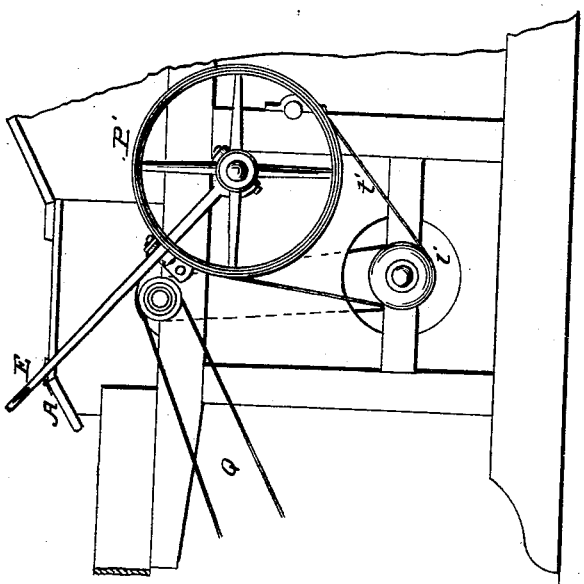
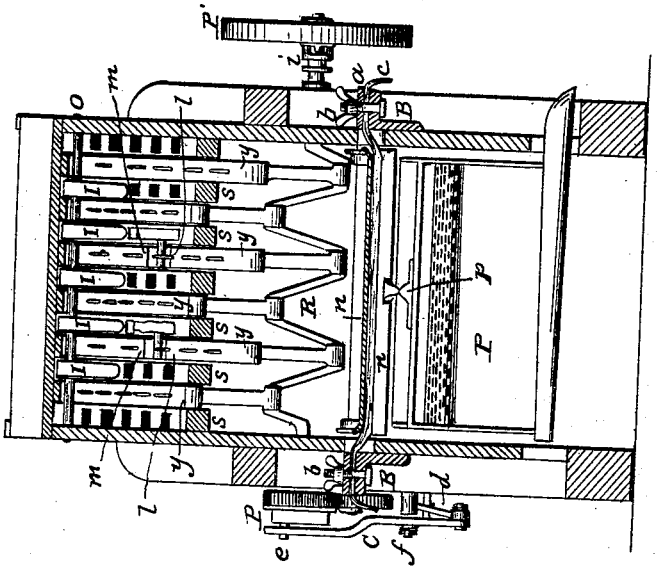


Fig. 2.



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United States Patent Office.

HENRY GILL, OF MANSFIELD, OHIO.

Letters Patent No. 110,131, dated December 13, 1870.

IMPROVEMENT IN GRAIN-THRASHERS AND SEPARATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY GILL, of Mansfield, in the county of Richland and State of Ohio, have invented certain Improvements in Grain-thrashing and Cleaning-Machines, of which the following is a specification, reference being had to the accompanying drawing.

My invention relates to machines for thrashing and cleaning grain; and

The invention consists in certain improvements in the machine heretofore patented to me, as will be hereinafter more fully explained.

Figure 1 is a side elevation, with a portion shown in section;

Figure 2 is a transverse section on the line *x x* of fig. 1; and

Figure 3 is a side view of a portion, at the front end.

The general form and construction of my improved machine are the same as that heretofore patented to Gill & Hummell, and are sufficiently shown by fig. 1.

My first improvement consists in hinging to the front edge of the case, at the opening where the grain is fed to the cylinder N, a leaf or apron, A, it being arranged to hang inclined, as represented in figs. 1 and 3, the object of which is to prevent the shelled grain from being thrown out in the face of the attendant, and, at the same time, to rise when necessary, to admit bunches of tangled straw in feeding the machine. It will be observed that the position of this apron is such that, as soon as the bunch of grain or straw has passed into the throat of the machine, it will fall by its gravity to its original position.

Underneath the cylinder I place a backwardly-inclining chute, *n*, which receives the thrashed grain as it falls from the cylinder, and conveys it to the sieves in the shaker D.

The rear end of this shoe I support on a strap, *c*, which passes transversely across the machine, and has its outer ends secured to brackets, B, fastened upon the outside of the case, as shown in fig. 2.

The strap is held in place at each end by means of a plate, *a*, which is fastened to the bracket by a bolt and thumb-nut, *b*, the strap being clamped between, as represented in fig. 2.

At its rear end this shoe *n* is provided with a tappet, *r*, which is hit by a projection, *p*, on the front end of the shaker D, which imparts to the shoe a shaking movement vertically, thus assisting to feed the grain to the sieves with regularity. By adjusting the strap *c* so as to raise or lower the rear end of the shoe *n*, it will be shaken more or less; and thus grain that is damp is prevented from clogging on the shoe.

The shaft R is provided with a series of cranks, to which is attached a series of vibrating bars, *y*, as in the former patent, these latter playing between a series of stationary bars, *s*, as shown in figs. 1 and 2.

In the stationary bars I pivot a series of bent arms or agitators, H, each of which has projecting from its side a pin, *l*, and on the top of the vibrating bar *y* I locate a block or projection, *m*, in such a position that, as the bars *y* are raised, the projections *m* will strike the pins *l*, and thus give to the arms H a quick upward movement, thus shaking up the straw as it passes over them, and thereby effectually shake out the thrashed grain.

There are two series of these arms H, located as shown in fig. 1; and between them I suspend, from a rod, *o*, placed transversely across the case, near its top, a series of swinging arms, I, which serves to detain the straw, temporarily, while it is thoroughly shaken up by the first series of arms H, the arms or detainers I being raised by the pressure of the straw against them as it is forced forward by the vibrating bars *y*, as represented in dotted lines in fig. 1.

Upon the outer end of the crank-shaft R I secure a wheel, P, as shown in figs. 1 and 2, and from the outer side of this wheel there projects a pin, *e*, which, being located eccentrically, operates as a crank or wrist-pin.

This pin *e* plays in a slot in the end of a lever, C, pivoted to the side of the case upon a stud, *f*, the lower end of the lever being connected, by a rod, *d*, to an elbow-lever, *g*, which latter is in turn connected by a link to the shaker D, in the usual manner. This arrangement of devices imparts to the shaker and its sieves a sudden vibrating movement, and thereby thoroughly shakes the grain on the sieves, and screens it most effectually.

Under the straw-carrier or bars *y* I locate an inclined bottom or chute-board, G, as shown in fig. 1, this bottom inclining from the rear toward the front, and thus receiving the grain and chaff that is shaken out of the straw above, and delivering it upon the rear end of the shoe *m*.

At each end of this inclined bottom G I place a transverse shaft, *t*, and around them and the incline G I stretch a couple of endless bands, F, one at each side, having a series of small bars or slats secured to them transversely, as represented in fig. 1, thus forming a carrier which, when set in motion in the direction indicated by the arrows, carries or sweeps along on the incline, at regular speed, all the grain, chaff, heads, &c., that may fall upon it. By this means the grain and chaff are delivered, in a steady and regular flow, to the action of the fan and sieves, and are prevented from accumulating in heaps on the incline and falling therefrom in bunches, as they would otherwise be apt to do.

The cylinder is driven by a belt, Q, from any suit-

able power, as represented in fig. 3; and from a pulley on the opposite end of the cylinder-shaft a belt extends to the fan-shaft l', on the opposite side of the case, as represented in dotted lines; and from a pulley on the opposite end of the fan-shaft another belt, t', extends to the loose pulley P' on the crank-shaft R.

On the shaft is placed a sliding clutch, i, as shown in fig. 2, and on the side of the case I pivot a lever, E, as shown in fig. 3, for operating the clutch, the end of the lever being in convenient reach of the person who feeds the machine, so that he can disengage the pulley P' whenever desired. When this pulley is disengaged the motion of all the parts except the cylinder and fan ceases, and, consequently, no chaff or other material is then fed to the sieves or falls into the grain-box uncleaned, as would otherwise be the case in stopping and starting the machine after it was once in operation. By these several improvements the machine is made to operate in a much better manner, and, therefore, producing better results.

Having thus described my invention,

What I claim is—

1. The inclined shoe m, having its rear end supported by the adjustable strap c, substantially as set forth.

2. The bent arms H, provided with the pin l, said arms being pivoted to the stationary bars s, and operated by the vibrating bars y, as herein described.

3. The arrangement of the slotted lever C, with its operating wheel P and elbow-lever g, and connecting-rod d, for operating the shoe D, as set forth.

4. The combination in a thrasher of the inclined chute G, with its endless carrier F and the adjustable chute n, when arranged as described, whereby the grain from the cylinder and that from the shaker shall all be delivered from the chute n to the shoe D, as set forth.

5. The combination of the hinged detainer arms I, stationary bars s, and vibrating carrier bars y, all constructed and arranged to operate substantially as described.

6. The crank-shaft R, having the loose pulley P' and clutch i mounted thereon, with the lever E, arranged as described, whereby the shaker and shoe D are thrown out of connection with the driving-power while the cylinder and fan are permitted to continue their motion, as set forth.

HENRY GILL.

Witnesses:

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