(No Model.)

I. D. HEEBNER.

THRASHING MACHINE.

No. 345,695. Patented July 20, 1886.

Fig. 1.

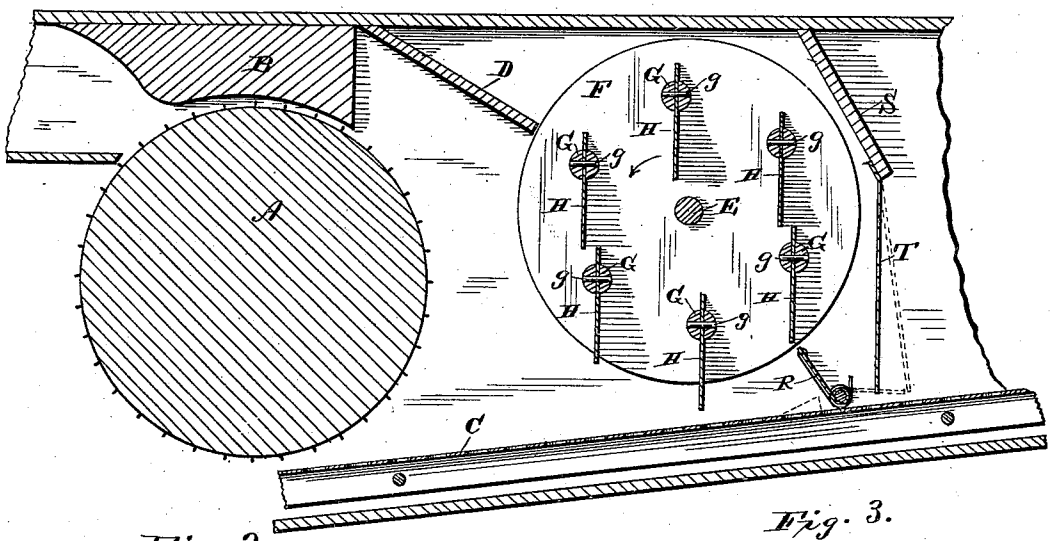


Fig. 2.

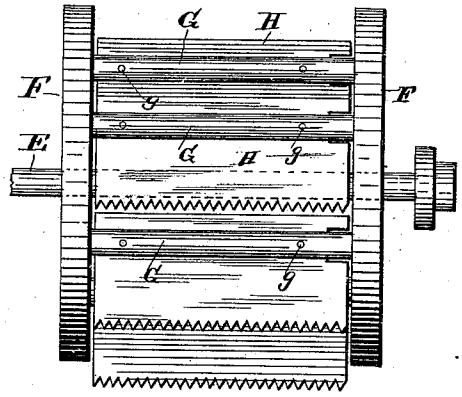


Fig. 3.

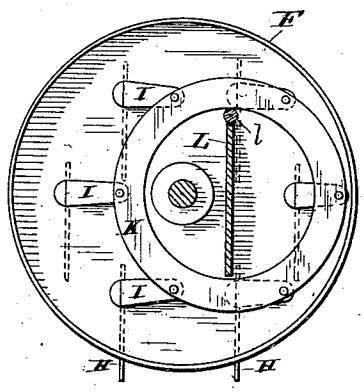


Fig. 4.

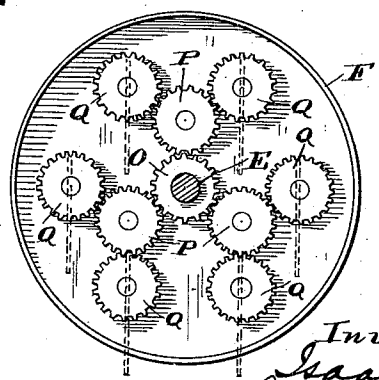
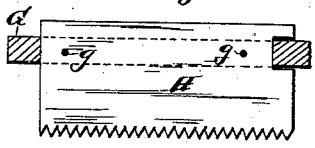


Fig. 5.



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UNITED STATES PATENT OFFICE.

ISAAC D. HEEBNER, OF LANSDALE, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO DAVID S. HEEBNER AND WILLIAM D. HEEBNER, BOTH OF SAME PLACE.

THRASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 345,695, dated July 20, 1886.

Application filed March 13, 1886. Serial No. 195,118. (No model.)

To all whom it may concern:

Be it known that I, ISAAC D. HEEBNER, of Lansdale, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Thrashing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and to the figures and letters of reference marked thereon.

My invention has for its object to so improve thrashing-machines as to cause the straw to be fed with more facility through the machine and prevent it from becoming wound upon the thrashing-cylinder, and at the same time effect a more thorough separation of the grain and chaff from the straw with a separator or straw-carrier of minimum length and without liability of there being any grain thrown out over the ends of said separator or straw-carrier by the action of the thrashing-cylinder.

I will first describe the invention at length, and will then point out the particular features of novelty in the claims at the close of this specification.

In the accompanying drawings, Figure 1 is a longitudinal section of a portion of the thrashing-machine, showing the application of my improvements. Fig. 2 is a front view of the straw-feeder and grain-arrester detached; Fig. 3, an end view of the same; Fig. 4, a view of a modification of the means for maintaining the blades of the straw-feeder and grain-arrester at all times in perpendicular position. Fig. 5 is a detail view showing the manner of attaching the blades to their respective shafts.

Similar letters of reference in the several figures denote the same parts.

The letter A represents the thrashing-cylinder, and B the concave with which it co-operates.

C is the separator or straw-carrier, which may be of any suitable construction, though I prefer it to consist of perforated sheet-iron secured to a frame which is mounted on swinging supports, that enable it to be given a vibratory or shaking motion.

In rear of the thrashing-cylinder is arranged an inclined deflecting-board, D, and in rear of this board is arranged what I term my "straw-feeder and grain-arrester," the office of which is to act upon the straw as it comes from the thrashing-cylinder, part it, so as to permit the thrashed grain to pass through, and feed it positively forward over the separator or straw-carrier, and at the same time operate as an arrester or barrier to flying grain, that might otherwise be projected out over the end of said separator. This straw-feeder and grain-arrester in perhaps the simplest form consists of a shaft, E, mounted in suitable bearings in the sides of the machine and having secured to it disks or heads F F, as shown clearly in Fig. 2. Journaled in these two disks or heads is a series of shafts, G, each of which bears a blade, H, preferably of metal. The connection between the blade and the shaft is preferably secured by slotting the shaft longitudinally and inserting the body of the blade in said slot and securing it by bolts or rivets *g*, passed transversely through it and through the shaft, as shown in Figs. 1 and 2. The connection between the shaft and blade is further strengthened and made more secure by cutting away a portion of one end of the blade and causing it to interlock with the shaft at the point where the slot of the latter terminates, as shown in Fig. 5.

The number of shafts and blades may be varied as desired; but I prefer to employ six of them, as shown.

To one end of each of the shafts G is secured a crank, I, whose wrist is connected to a circular rim, K, which is mounted on a support, L, so as to revolve on an axis eccentric to that of the main supporting-shaft E. This support L consists of a plate of metal or other material of substantially the diameter of the circular rim K, secured to the casing, and preferably provided on its upper side with a small anti-friction wheel, *l*, on which the rim normally rests, and, being kept to one side of the axis of rotation of the shaft and connected to each of the blades, the rim will be revolved with the heads F F, as shown. The effect of this arrangement of parts is to cause the blades H to always maintain a vertical position, whether the shafts E and disks or heads F F are at rest or in rotation. The shaft E is provided with a pulley on the outside of the machine and re-

ceives motion from any suitable rotating part of the thrasher, said pulley being preferably a cone-pulley, in order that different rates of speed may be given accordingly as different kinds of grain thrashed may require.

When the machine is in operation, the shaft E and parts carried thereby are rotated in the direction indicated by the arrow, Fig. 1—that is to say, in a direction contrary to that in which the thrashing-cylinder is rotated—and the blades H descend in succession upon the stream of straw discharged from the thrashing-cylinder, sweep forward toward the outer end of the separator or straw-carrier, and impart to the straw a positive forward feed, at the same time presenting a barrier which arrests any flying grain and prevents it from being thrown over the tail of the straw-carrier. The lower ends of the blades H are preferably made with fingers or teeth, as shown, for the purpose, first, of separating the straw as they descend upon it, and allowing the grain to fall through; secondly, of enabling the said blades to secure a more positive hold upon the straw and withdraw it quickly from the thrashing-cylinder and prevent it from becoming clogged and wound upon the latter, as might otherwise be the case.

I do not desire to confine myself to the particular device shown for keeping the blades H in perpendicular position during their revolutions around the axis of the shaft E, as there are many other ways of accomplishing the same result. For instance, each of the shafts G may, as shown in Fig. 4, be provided on its end with a pinion, O, in mesh with one of a series of idle-pinions, P, that are also in mesh with a stationary pinion, Q. I prefer, however, to employ the construction shown in Figs. 1 and 3.

In rear of the straw-feeding and grain-arresting device is arranged a spring-actuated apron, R, normally pressed toward the thrashing-cylinder by a light spring, but adapted to be pressed backward to the position shown by dotted lines against the spring when the straw is thrown upon it. This will prevent the flying grain from passing through, but will permit the passage of the straw, and it can be used with advantage with a stationary apron. As a further caution against the escape of flying grain, I attach to a rearwardly-inclined board, S, an apron, T, of leather or other flexible material. All these contrivances tend to effect the thorough separation of the grain from the chaff and straw in a rapid and expeditious manner, and render it feasible to employ a separator or straw-carrier of minimum length. Not only do the revolving blades, by their action upon the straw, operate to keep the thrashing-cylinder clear, but they also prevent the straw from being cut or chopped up or otherwise injured.

I claim as my invention—

1. In a thrashing-machine, the combination, with the thrashing-cylinder and the separator, of the combined straw-feeder and grain-arrester, consisting, essentially, of series of rotating blades, and means whereby they are held in substantially-perpendicular position during their rotation, substantially as described.

2. In a thrashing-machine, the combination, with the thrashing-cylinder and the separator or straw-carrier, of a series of blades arranged to descend successively into the straw and then move rearward and upward, and means whereby they are maintained in substantially-vertical position during their movements, substantially as described.

3. In a thrashing-machine, the combination, with the separator or straw-carrier, of the rotating shaft and heads or disks mounted thereon, the series of shafts journaled in said heads and carrying the blades, with mechanism, substantially as described, for maintaining the blades in a substantially-vertical position during the rotation of the heads, substantially as described.

4. In a thrashing-machine, the combination, with the thrashing-cylinder and the separator or straw-carrier, of the series of straw-feeding and grain-arresting blades having the fingers or teeth on their lower edges arranged to descend successively into the straw and then move rearward and upward, and means whereby they are maintained in substantially-vertical position during their movement, as set forth.

5. In a thrashing-machine, the combination, with the separator and the combined straw-feeder and grain-arrester, constructed substantially as described, of the co-operating pivoted spring-pressed apron, substantially as described.

6. In a thrashing-machine, the combination, with the separator and the combined straw-feeder and grain-arrester, constructed substantially as described, of the co-operating pivoted spring-pressed apron and the apron of flexible material, substantially as described.

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Witnesses:
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