A. B. FARQUHAR.
Grain-Separator.

No. 207,170. Patented Aug. 20, 1878.

FIG. 1.

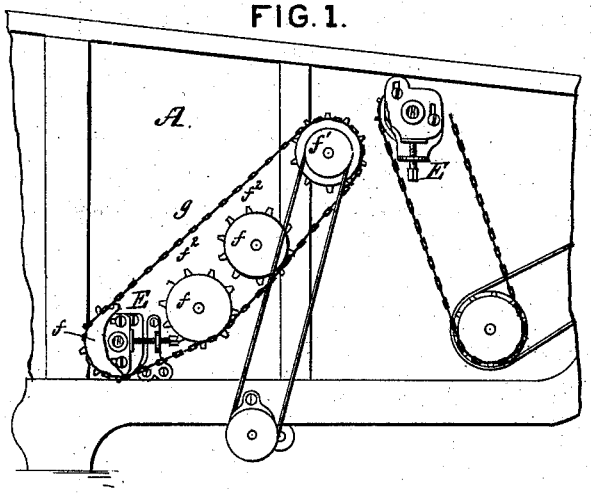


FIG. 2.

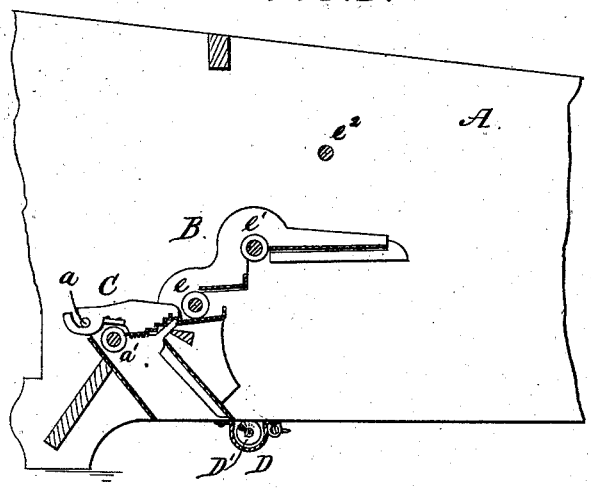


FIG. 4.

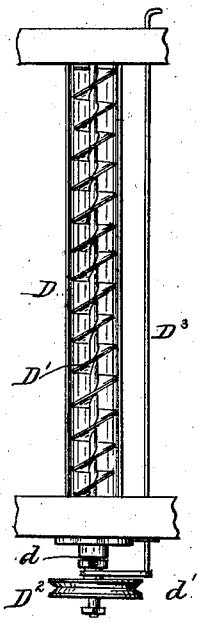


FIG. 5.

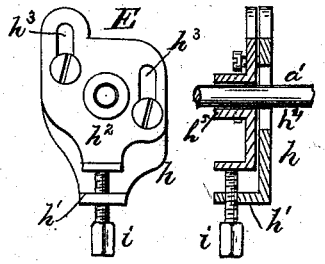
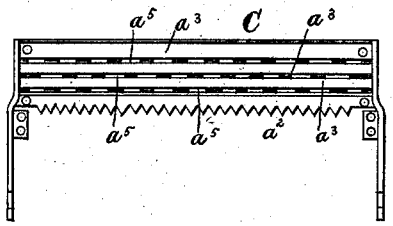
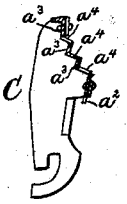


FIG. 3.





WITNESSES
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UNITED STATES PATENT OFFICE.

ARTHUR B. FARQUHAR, OF YORK, PENNSYLVANIA.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **207,170**, dated August 20, 1878; application filed May 6, 1878.

To all whom it may concern:

Be it known that I, ARTHUR B. FARQUHAR, of York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Grain-Separators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention consists in the peculiar construction of the step-formed tailings-shoe, which will be hereinafter fully explained, and pointed out in the claim.

In the drawings, Figure 1 is a side elevation of a part of a grain-separator. Fig. 2 is a longitudinal vertical section of Fig. 1. Fig. 3 is the tailings-shoe in plan and section. Fig. 4 is the discharge-spout; and Fig. 5 shows the adjusting-plates.

A is the separator-frame. B is the shoe, and C is the supplementary shoe arranged at the lower or rear end of the main shoe, and pivoted or hinged to the frame A, with capability of a free vertical swinging movement. The shoe C swings on the pins a, and rests on the ends of the roller a^1, from the square ends of which it receives its necessary vertical jolting movement. It is made in step form, as shown, its lower step, a^2, being serrated or formed with teeth, as shown, to adapt it to the form of the roller a^1 in the well-known manner. The steps a^3 a^3 are slightly inclined downward toward the front or inner part of the separator, so that the grain will more readily fall through to the chute below. The rise or elevation a^4 of each step is perforated with a series of openings, a^5, for the blast. The grain, by its gravity, as it passes over the supplementary shoe, falls onto the inclined steps, and slides back through the perforations a^5 in the elevation a^4.

The lighter material is taken up by the blast coming through the perforations a^5, and is carried out of the rear of the machine. By this tailings-shoe I am enabled to remove every good grain from the chaff.

D is the discharge trough or spout, in which revolves the screw D^1, on the axis of which is the pin d and loose pulley D^2, which is constructed and adapted to engage or be disengaged from the said pin d, thus putting the screw in or out of gear at pleasure.

D^3 is the actuating-rod, having the lever d', the end of which couples with a collar on the pulley D^2. It extends across the machine to the opposite side from the pulley D^2, and is supported in bearings, so that it may be readily moved back and forth, as desired. By it the screw D^1 and pulley D^2 may be thrown into or out of gear at pleasure.

In the process of thrashing, when it is desired to remove the measure or sack from the spout, the motion of the screw is stopped by throwing it out of gear. The grain will bank up over the screw and onto the chute while the measure is being emptied, or one sack is being removed and another attached. The flow of the grain is again started by putting the pulley in gear with the screw. It will be understood that this movement of putting into or out of gear can as readily be done from one side as from the other.

On the ends of the rollers a^1 e e^1, and the end of the crank-shaft e^2, are fixed the pulleys f f^1, which are constructed with the spurs or projections f^2. These pulleys are so arranged that the endless chain g will engage and drive all of them. The chain g engages the spurs f^2 and drives the pulleys by positive action, thus obviating the difficulties so often met with where belts depending on friction alone are employed.

E is the adjusting device, by which the tension of the endless chain g may be regulated. It consists of the slotted plate having a boss, h^1, and screwed fast to the separator-frame, and the journal-plate h^2, provided with the journal-box h^5 and slots h^3, and screwed to the plate h by screws, so that it may be moved to and fro, as desired, for the purpose of increasing or lessening the tension of the driving-frame.

The axis of the roller or crank a^1 has one end journaled in a stationary bearing on one side of the frame A, while its opposite or pulley end passes through the slot in the fixed plate h, and is supported in the journal-box h^5 on, and is moved by, the movable or journal plate h^2 on the opposite side of said frame A.

i is a set-screw, threaded in the boss h^1, and

bears against a suitable projection on the plate h^2. By turning the screw in or out the plate h^2 will be moved, so as to tighten or release the tension of the chain passing over the pulley, the axis of which is journaled in said plate h^2.

There may be employed one or more of these tension-regulators, but I have found it sufficient to use but one, placing the same on the axis of one of the end or outer pulleys of a series.

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

A tailing-shoe made step form, having the steps a^3 inclined downward and toward the front or inner part of the separator, and the rise or elevations a^4, perforated with blast-openings a^5, substantially as and for the purposes set forth.

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

ARTHUR B. FARQUHAR.

Witnesses:
EDW. P. STAIR,
W. H. STAIR.