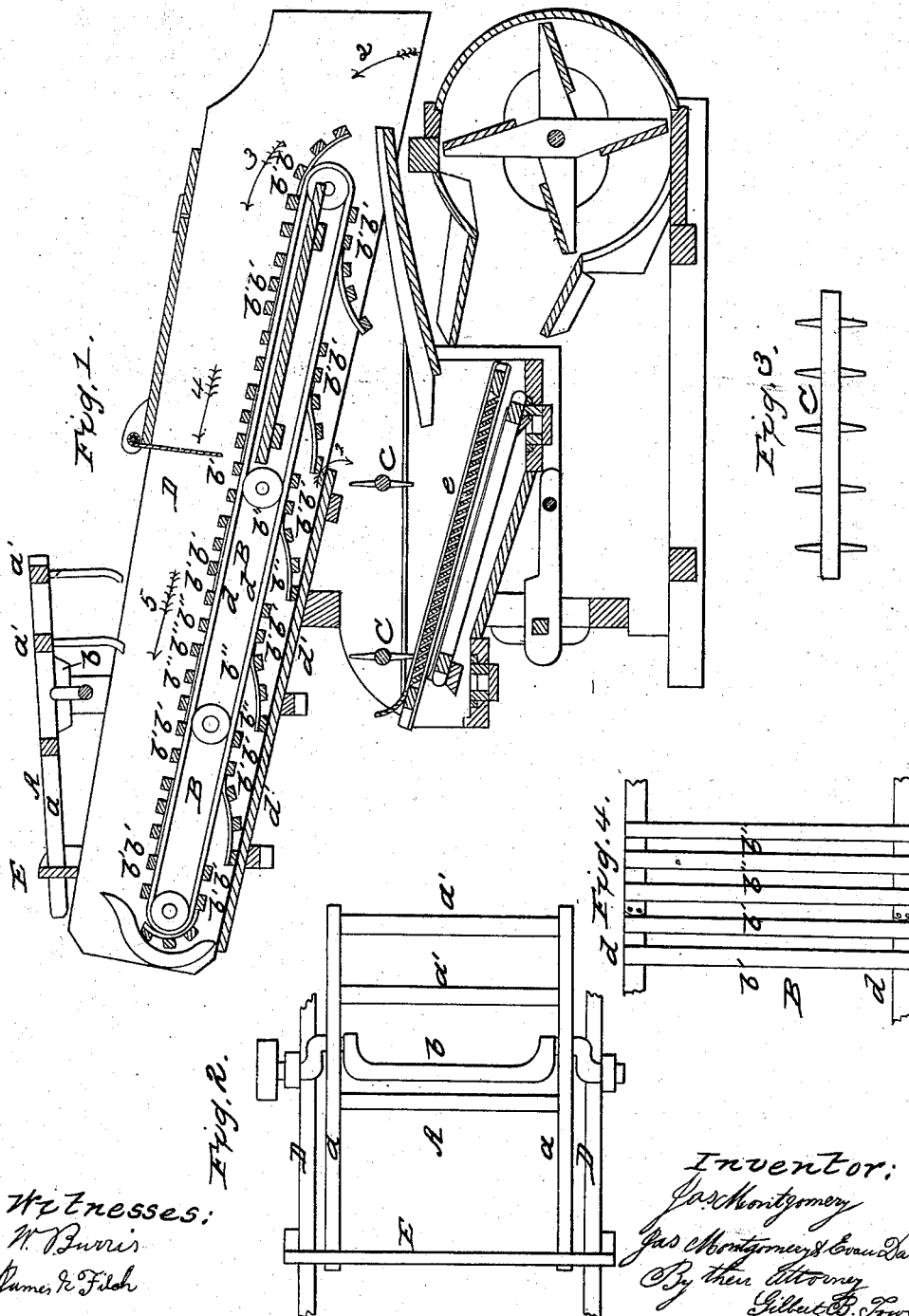


MONTGOMERY, MONTGOMERY & DAVIS.

Grain Separator.

No. 47,772.

Patented May 16, 1865.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH MONTGOMERY, JAMES MONTGOMERY, AND EVAN DAVIS, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 47,772, dated May 16, 1865.

To all whom it may concern:

Be it known that we, JOSEPH MONTGOMERY, JAMES MONTGOMERY, and EVAN DAVIS, of the city and county of Baltimore, and State of Maryland, have invented a new and useful Improvement in Grain-Cleaners; and we do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section of an ordinary grain-cleaner, showing our improved rake A, endless straw-carrier B, and rake-shafts C; Fig. 2, a top view of the rake-frame A detached from the machine, to show more clearly the manner and the means by which it is constructed, arranged, and operated; Fig. 4, a top view of a section or part of the endless straw-carrier B; Fig. 3, a front view of rake-shaft, showing the manner in which the teeth are arranged on the shaft.

Like letters in all figures of the drawings indicate corresponding parts.

The nature of our improvement consists in the construction of a longitudinal rake-frame, operating on a double crank-shaft, the ends of the side bars constituting it operating in slots in a transverse bar, the effect of which is, when the straw is carried off from the thrasher by the endless carrier, and, reaching a point where the rake-teeth catches it, is thoroughly shaken and agitated, so that whatever grain that is mixed loosely with it, and instead of being carried off entirely from the machine, is separated and thence made to reach the fan, to be cleaned by dropping bars or slats in the carrier. In reference to this, we are aware of the carrier being so constructed that every one or two bars are made rigid, while the intervening ones are made to drop by their gravity onto the bottom of the straw-box and thus catch the grain deposited thereon from the straw above and carrying it to the edge of same and then dropped onto the fan-screen below. Our improvement in this respect is in the simple arrangement of one or two bars on small pieces of belt and their attachment to the main belts by either screws, rivets, or straps.

In relation to the rake-shafts herein mentioned, our improvement relates to the placing of two or more shafts across the frame-work,

between the straw-box and the shoe of the fan, at a proper distance from the screen, with a suitable number of teeth arranged and inserted into them for the purpose of agitating and shaking the chaff or other matter in such a manner as to separate the grain therefrom and allow it to pass freely through the screen. It sometimes happens that the chaff will accumulate too rapidly on the screen and thus choke up the interstices of it, which, in that event, the grain is liable to be blown off with the chaff. The object of these shafts, therefore, is to prevent it.

In describing our invention we have thought it unnecessary to refer to those parts of the machine which are old and in well-known use, except only so far as they have a bearing upon the parts which we consider new and which embrace the improvements herein enumerated.

This machine is simply a grain cleaner or separator, and is so constructed and arranged that the thrashing-machine may be attached at any time when desired.

To enable any one skilled in the art to make and use our improvements, we will proceed to describe their construction and operation. We have two longitudinal bars, *a a*, joined at or near each of one of their ends to two transverse bars, *a' a'*. (Seen in Figs. 1 and 2.) The two bars are placed at a proper distance apart, with rake-teeth arranged and inserted underneath each of them. (See Fig. 1.) Back of these two bars is another transverse bar, for bracing and holding the longitudinal bars. This completes and constitutes the rake-frame.

To give the proper motion and effect to the rake-teeth in agitating and shaking the straw as it comes from the thrasher, so that the grain may be loosened and separated from it before passing entirely from the carrier, a double crank-shaft, *b*, is attached to the longitudinal bars of the frame, about midway between the inner rake-tooth bar and the outer brace-bar. (See Figs. 1 and 2.) The shaft is supported by vertical bars screwed onto the outside of the straw-box D, in which the carrier operates.

In Fig. 1 the position of the rake-frame is shown as elevated by the shaft. Motion is communicated to this shaft from the shaft operating the carrier, by means of a suitable belt and the proper-sized wheels, on which the belt is arranged.

To hold and keep the frame steady in its operation, the ends of the longitudinal bars constituting the same are inserted in slots of a sufficient size in a transverse flat bar, E, to allow of a free reciprocating motion to them therethrough. This bar is secured to vertical bars screwed onto the outside of the straw-box, and is immediately over the top sides of the same. (See Figs. 1 and 2.)

In relation to the endless straw carrier B, as herein mentioned, every two bars, *b' b'*, are made fast to the main belts *d d* and arranged at a proper distance apart, and every three bars, *b'' b'' b''*, or one or two (whichever desired) intervening are secured to small pieces of belt, one end of each, which are secured to the main belts by either screws, rivets, or pieces of strap, so that when the top part of carrier is carried underneath, the other ends of each being left free, the bars to which they are attached will drop by their gravity onto the bottom of the box *d'* just enough to catch the grain as fast as it is deposited thereon from the agitation of the straw above by the rake-frame, and carry it to the edge, where it drops onto the fan-screen *e*, below, as indicated by arrow 1 in Fig. 1.

In relation to the rake-shafts C, as herein referred to, two or more if necessary, are placed across the frame-work immediately above the shoe of the fan, with a suitable num-

ber of teeth properly arranged and inserted into them, (see Figs. 1 and 4,) so that whatever straw, chaff, or other matter passing onto the screen from the thrasher or from above is thoroughly agitated and shaken by the teeth at every revolution the shafts make, thus loosening the grain from it and enabling it to pass freely through the interstices of the screen. Motion is communicated to these shafts in the ordinary manner.

The direction of the straw after it leaves the thrasher is indicated by arrows 2, 3, 4, and 5. The straw when arriving at arrow 5 is caught by the teeth of the rake-frame at every revolution the crank-shaft makes, and is agitated as herein described, the grain passing through the openings between the bars of the carrier to the bottom of the box, and thence onto the screen, where it undergoes the proper cleaning.

Having thus described our improvements fully, what we claim therein as new, and desire to secure by Letters Patent, is—

The revolving rake-shafts C, in combination with the fan screen *e*, substantially in the manner and for the purpose herein set forth.

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