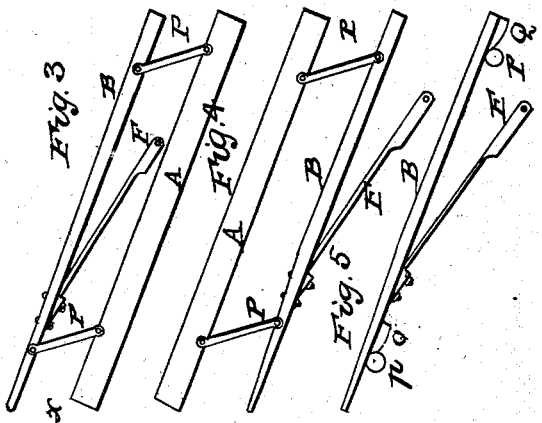
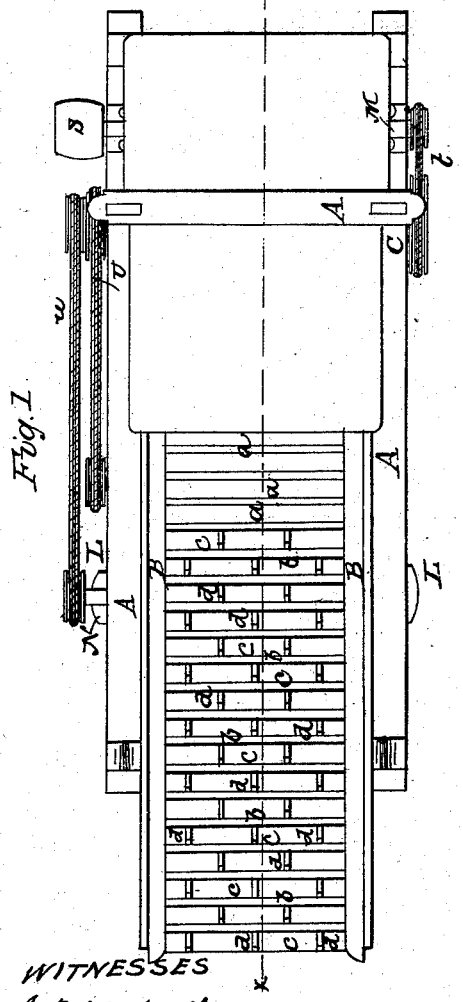
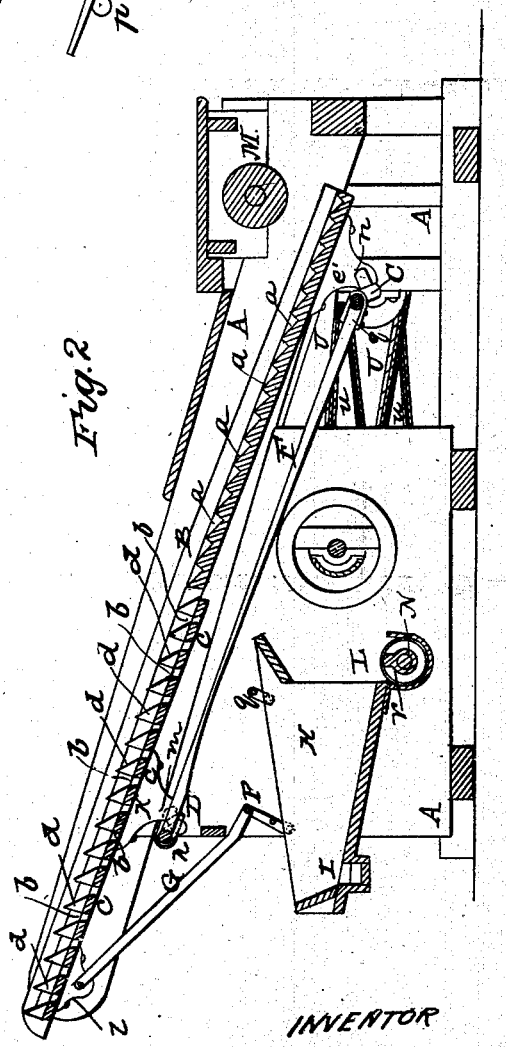
J. H. HAMAKER.

Grain Separator.

No. 47,417. Patented April 25, 1865.







WITNESSES

J. B. Woodruff

F. A. Lobbett

INVENTOR

John H. Hamaker

By his Atty

J. A. Brown

UNITED STATES PATENT OFFICE.

JOHN H. HAMAKER, OF FREASE'S STORE, OHIO.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 47,417, dated April 25, 1865.

To all whom it may concern:

Be it known that I, JOHN H. HAMAKER, of Frease's Store, in the county of Stark and State of Ohio, have invented a new and Improved Grain-Separator for Thrashing Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a plan of the separator; Fig. 2, a longitudinal vertical section thereof in a plane indicated by the line *x x*, Fig. 1; Figs. 3, 4, and 5, diagrams indicating modifications of the method of producing the motion of the carrier.

Like letters designate corresponding parts in all of the figures.

The carrier B, on which the straw and grain are received from the thrasher, is situated in a suitable frame, A, so that it inclines upward from the thrasher, substantially as shown in Fig. 2. About one-half of its length at the lower end has a close bottom with transverse, serrate grooves *a a* in its upper surface, forwardly and upwardly abrupt, but gradually sloping downward, as shown, so that when a vibratory motion is given to the carrier both the straw and grain are gradually moved upward by giving them a throw in that direction, and not downward, at each vibration, this momentum carrying them along, while the carrier quickly make its return vibratory stroke. The upper half of the carrier has transverse slats *c c*, with spaces *b b* between them wide enough to allow the grain to fall through, and there are teeth or projections *d d* attached to the upper sides of the slats in irregular position, their form in profile also being abrupt on the upper or forward edge or face, and gradually inclined on the lower or back edge or face. The effect is to carry the straw forward and upward with even more celerity and certainty than the transverse ridges of the lower half of the carrier, inasmuch as their irregular positions prevent the straw from accumulating in particular places by filling the spaces between the projections, and thereby allowing what lies on top to slide back.

In Fig. 2 is shown the method which I prefer for giving the vibratory motion to the carrier. Wrist brackets or bearings *i i k k*, on its under side receive crank *n m* respectively on shafts C D, Fig. 2, so that when one, C, of the crank-shafts is revolved a compound or up-and-down as well as a forward and backward vibratory motion is communicated to the carrier. The upper crank-shaft, D, is turned automatically by the motion of the carrier itself acting as a connecting-rod between it and the shaft C; but as the carrier is liable not to carry the cranks *m m* over their dead-points, I obviate the whole difficulty by the employment of a regular connecting-rod, E, which also receives cranks *g h* respectively on the shafts C and D, situated at right angles to the other cranks, *i i* and *k k*, of the carrier itself on the same shafts. Thus the motion is made sure, free, and easy.

In Figs. 3, 4, and 5 are indicated possible modifications of the method above described. Thus, in Fig. 3, instead of the double cranks and auxiliary connecting-rod, the carrier B is mounted and pivoted on swinging parallel arms P P, which are themselves pivoted to some part of the frame A, and a simple elastic connecting-rod, F, (which may be made of wood,) is bolted fast at one end to the under side of the carrier, while the other end receives the crank of the driving-shaft.

Fig. 6 represents a similar arrangement to that shown in Fig. 3, except that the swinging arms P P are suspended from the frame A, instead of being supported by it. The only difference between the two movements is, that in the former case the carrier is highest when the swinging arms are vertical, and in the latter case it is lowest when they are vertical. The effect is nearly the same on the carrier in either case.

In Fig. 4, instead of the swinging arms, there are cams Q Q on the under side of the carrier, which pass over supporting-rollers P P as the carrier moves forward, thereby giving the vibratory upward and downward motion.

The grain falls through the upper slat portion of the carrier on a shoe, H, to which a vibratory motion is given directly from the carrier B, by means of a connecting-rod, G, the shoe being suspended by swinging arms *p q*, all substantially as shown in Fig. 2. The grain falling upon the shoe is chaffed there in the usual manner and conveyed away by spouts I L.

The motions of all the revolving shafts are received from the driving-shaft M through

bands *t u v* and their pulley in the ordinary manner.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The construction of the carrier with the close and open portions, together with the transverse grooves *a a* and projections *d d*, substantially as and for the purposes herein specified.

2. Conveying the straw and grain forward and upward on a single carrier by giving the said carrier a rapid vibratory motion through the means of the double sets of cranks and auxiliary connecting-rod, substantially as and for the purpose herein set forth.

3. Communicating the vibratory motion to the shoe directly from the vibrating-carrier by means of the connecting-rod G, or its equivalent, as herein described.

J. H. HAMAKER.

Witnesses:
ANSON PEASE,
D. B. WYANDT.