

J. ELLIS, N. HOFFMAN & J. LEE.
Thrashing-Machines.

No. 140,491.

Patented July 1, 1873.

Fig. 1.

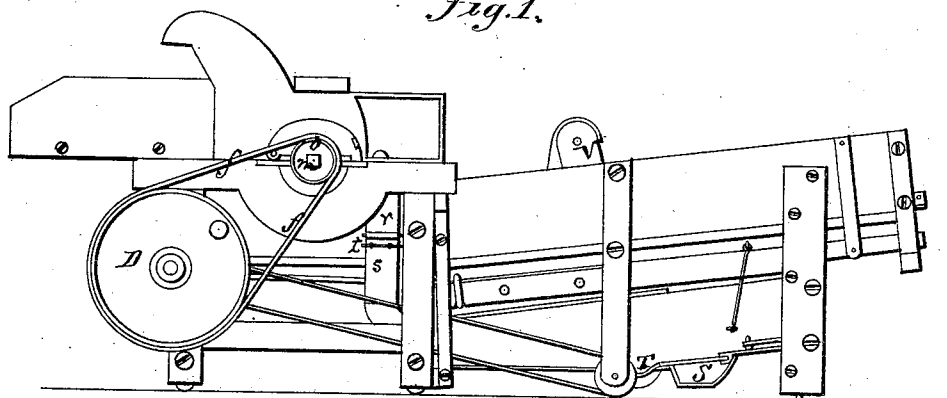


Fig. 2.

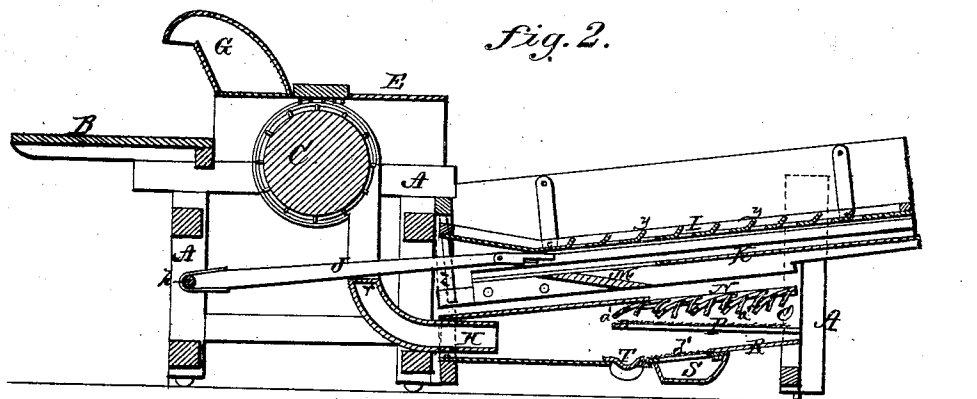
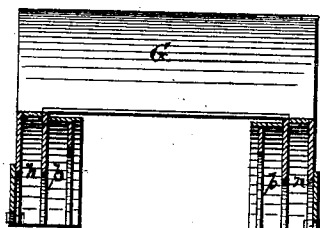


Fig. 3.



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Fig. 4.

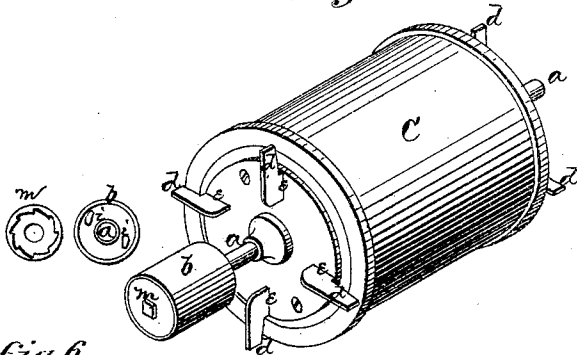


Fig. 6.

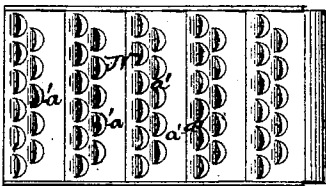


Fig. 7.

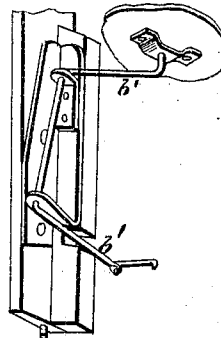


Fig. 5.

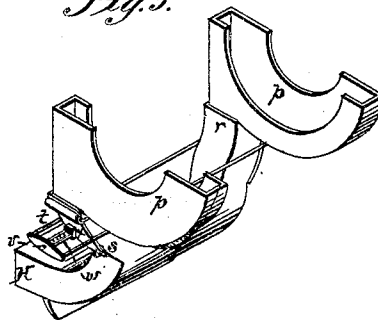
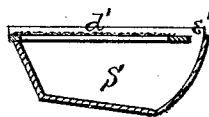


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN ELLIS AND NATHAN HOFFMAN, OF EAST COVENTRY, AND JAMES LEE, OF POTTSTOWN, PENNSYLVANIA.

IMPROVEMENT IN THRASHING-MACHINES.

Specification forming part of Letters Patent No. **140,491**, dated July 1, 1873; application filed May 9, 1873.

To all whom it may concern:

Be it known that we, JOHN ELLIS and NATHAN HOFFMAN, of East Coventry, Chester county, and JAMES LEE, of Pottstown, Montgomery county, and State of Pennsylvania, have invented certain new and useful Improvements in Thrashers and Cleaners; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

The nature of our invention consists in the construction and arrangement of a "thrasher and cleaner," as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation, and Fig. 2 a longitudinal vertical section, of our machine. Figs. 3 to 8 are enlarged views of certain detached parts of the same.

A represents the frame of the machine, at one end of which is the feed-table B. C represents the thrashing-cylinder, constructed in any of the known and usual ways, and securely attached to a shaft, *a*, with which it revolves. Upon each end of the thrashing-cylinder are secured wings or fans *d d*, each of which is cast with an ear, *e*, by which it is fastened to the cylinder in such a manner as to leave a space between the ends of the cylinder and the fans for a part of the casing to fit into. Upon one end of the cylinder-shaft *a* is a loose pulley, *b*, connected by a belt, *f*, with a large wheel, D, upon the shaft *h*, and from which said loose pulley thus receives its motion. The outer end of the loose pulley *b* is recessed, and in this recess are placed two pawls, *i i*, or their equivalents, which work in a ratchet-wheel formed on the inner side of a cap, *m*, screwed on the end of the shaft *a*, and fitting into the recess in the end of the pulley *b*.

The pulley *b* being put in motion, the pawls *i i*, engaging, as described, with the ratchet-cap *m*, rotate the shaft *a*, with the combined

cylinder and fan attached to the same; and, when the machine is stopped, the blast of the fan is continued for some time, by the momentum of the cylinder, after all the other parts are at rest, thereby keeping the sieves clear of chaff and dirt.

E represents the casing over the thrashing-cylinder C, and in which there is a dust-conveyer, G, extending forward over the feed-table B, so as to take in, by suction from the fans *d d*, all the dust arising at this point, and convey it, through side-passages *n n*, into a casing, *p*, on each side. In the casings *p p* the fans *d d* revolve, and, after drawing the dust into said casings, the fans force the same, through flues *r r*, into a main flue, H, in the lower part of the frame. Each of the flues *r* is provided, on the outer side, with a valve, *s*; and the two flues and valves are surrounded by a bail, *t*, as shown. On one of the valves *s* is a rod, *v*, passing through the end of the bail, and on this rod is a spiral spring, *w*, and nut *x*. By adjusting this nut *x* the pressure of the spring *w* is regulated, so as to hold the valves *s s* closed up to a certain pressure from the inside; but any excess of pressure of the blast will open the valves, and allow a portion of the air to escape.

The grain and straw, after being thrashed by the cylinder C, passes onto the shaker, I, operated by a pitman, J, from one of the two cranks on the main shaft *h*. This shaker is made of a plate of sheet metal, perforated with a number of semicircular openings, each having a lip, *y*, turned upward and inclined forward, so as to allow the straw to pass easily over the same, while the grain falls down through the perforations onto a closed bottom, K, underneath. This bottom is supported upon double hangers *z z*, and operated by a pitman, L, from the other of the two cranks on the main shaft *h*.

The object of this bottom K is to move the grain back to the cleaner after it has passed through the shaker I, an inclined conducting-board, M, being fixed opposite the lower end of the bottom K to conduct the grain onto the sieve N in the vibrating shoe O. The sieve N is made in the form of stair-steps or

cataract, and is perforated, each perforation having a lip, *a'*, turned down and toward the blast, so as to receive it through the holes more freely. The main or bottom flue *H* enters the front end of the shoe *O*, so as to conduct the blast to the sieves. Below the cataract or step-sieve *N* is an ordinary sieve, *P*, and, below the same, the bottom *R* of the shoe. The front end of the shoe *O* is pivoted in the center, and the rear end is vibrated by means of a crane, *b'*, one end of which is attached to, and operated by, the the bottom *K*.

The crane *b'*, at the same time as it gives lateral motion to the shoe and sieves, also guides the bottom *K*, so as to avoid friction against the sides. In the bottom *R* of the shoe *O* is a sliding-screen box *S*, provided with screen *d'* and opening *e'* for emptying the same.

The grain is intended to be taken, through a conveyer, *T*, and up through an elevator, *V*, to be emptied in bags or other suitable receptacles.

Having thus fully described our invention,

what we claim as new, and desire to secure by Letters Patent, is—

1. The fan - blades *d d*, with ears *e e* attached to the ends of the thrashing-cylinder, and leaving spaces between said cylinder and the fans, all substantially as and for the purposes herein set forth.

2. The combination, in the dust-conveyer *G*, of the passages *n n*, fan-casings *p p*, side flues *r r*, and main or bottom flue *H*, all substantially as and for the purposes herein set forth.

3. The combination, with the flues *r r* of the dust-conveyer, of the valves *s s*, bail *t*, rod *v*, spring *w*, and nut *x*, substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing as our own, we affix our signatures in presence of two witnesses.

JOHN ELLIS.

NATHAN HOFFMAN.

Witnesses: JAMES LEE.

D. F. REINERT,

JESSE HUNSBERGER.