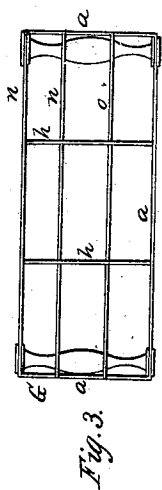
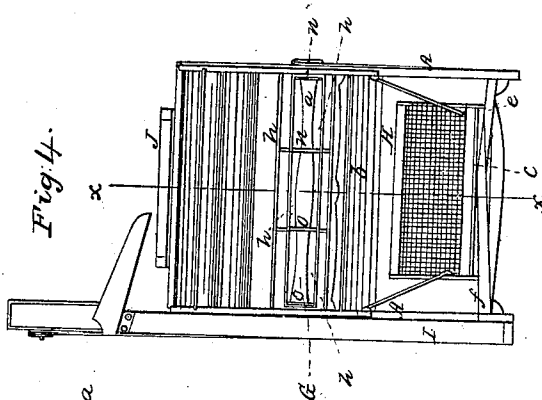
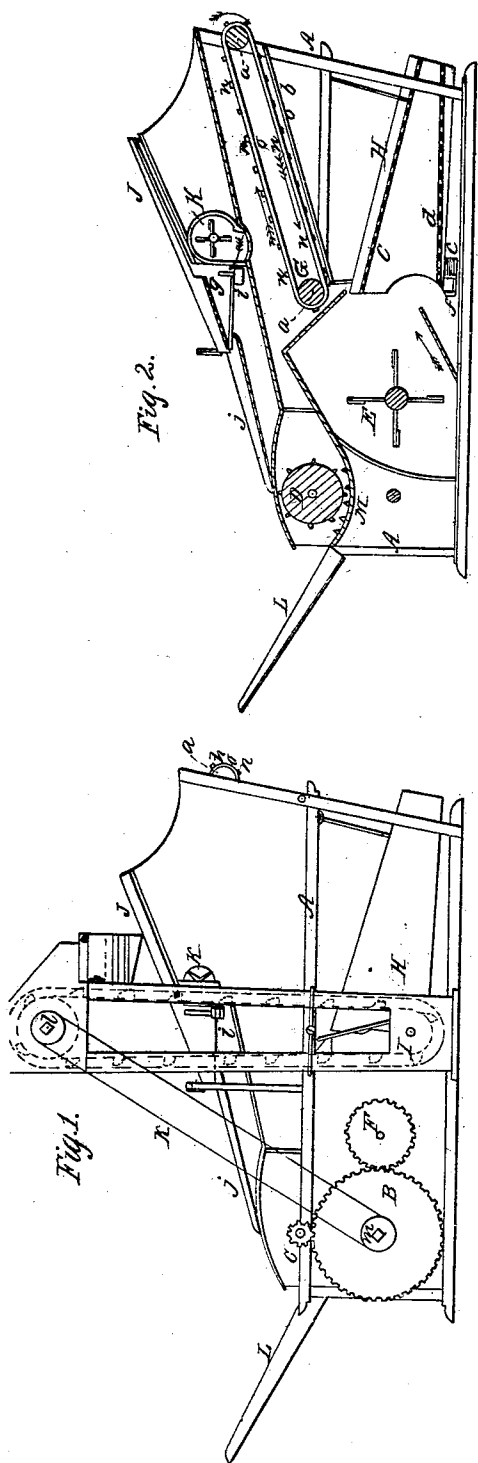


B. HOYLE.  
Straw Carrier.

No. 33,886.

Patented Dec. 10, 1861.



# UNITED STATES PATENT OFFICE.

BENJAMIN HOYLE, OF MARTIN'S FERRY, OHIO.

## IMPROVEMENT IN THRASHING-MACHINES.

Specification forming part of Letters Patent No. 33,886, dated December 10, 1861.

*To all whom it may concern:*

Be it known, that I, BENJAMIN HOYLE, of Martin's Ferry, in the county of Belmont and State of Ohio, have invented a new and useful Improvement in Grain Thrashers and Cleaners; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a longitudinal vertical section of the same, taken at the line *x x*, Fig. 4. Fig. 3 is a plan or top view of the endless apron. Fig. 4 is an end view of the same in elevation.

Similar letters of reference indicate corresponding parts in each of the several figures.

The nature of my invention and improvements in thrashing-machines consists in arranging a shoe-screen and fan over the straw-carrier, to which the thrashed and screened grain is elevated and rescreened, refanned, and delivered from the machine high enough to run into bags, which may be filled by attaching them to the spout of the machine, while the tailings from the screen run onto the thrashing-cylinder and are rethashed.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the frame, which does not materially differ in structure from other frames of machines for the same purpose.

B is a driving-wheel, which meshes into the pinion C, attached to the axis of the thrashing-cylinder D, and communicates motion to it. The driving-wheel also communicates motion to the fan E, the pinion F on the axis of the fan meshing into the driving-wheel. (See Figs. 1 and 2.)

G, Figs. 2, 3, and 4, is an endless apron, which works over the rollers *a a*, and on which the grain and straw are thrown by the thrashing-cylinder D. The straw is carried up and thrown out at the end of the machine by the apron, while the grain falls through it upon an inclined plane *b* underneath and is carried down by the cross-pieces *h* of the apron and falls into the shoe H.

By referring to Fig. 3 it will be seen that the endless apron G is formed of ropes or cords *n n o o*, which pass over rollers, and

the ropes or cords have cross-pieces *h* placed on them. These cross-pieces as the apron operates of course sweep the grain off the inclined plane *b* into the shoe H.

The shoe H has two screens *c d*. The screen *c* is inclined, so as to allow particles which are larger than the grain to pass out at the end of the machine. The grain falls through the screen *c* upon the screen *d* immediately underneath, and which is oppositely inclined to the screen *c*. This screen *d* is sufficiently fine to prevent the grain from passing through it, but allows smaller particles to do so, which fall into the trough *e* (see Figs. 2 and 4) and pass out at the side of the machine. The grain which, as before stated, is not allowed to pass through the screen *d*, falls into the trough *f*, and from thence into the elevator-box I, and by the elevators is carried up and deposited in the shoe J and upon the screen *g*. (See Figs. 1, 2, and 4) The elevators are not seen in Fig. 2, as it is a longitudinal section.

The screen *g* is inclined, (see Fig. 2,) and is sufficiently coarse to allow the grain to pass through it and fall into the trough *i* at the lower part of the shoe J, from whence it passes out at the side of the machine. The grain as it falls into the trough *i* passes through a blast created by the fan K, and is thus thoroughly cleansed, however foul it may have been when placed in the machine, the grain by the above-described arrangement being screened and fanned twice.

*j* is a trough which conducts the tailings from the screen *g* onto the feed-board L, from whence they pass between the thrashing-cylinder D and the toothed concave bed M and are again thrashed.

Thus it will be seen that the grain is not only twice screened and fanned, but a portion (the tailings) is twice thrashed by one and the same machine and at one operation, the thrashing of the tailings generally removing the "white caps" which adhere to them.

It may be well to state that the shoes H J have the usual motion communicated to them by means of shake-rods, which are so familiar to makers of agricultural implements that a description of them would be unnecessary. Motion is communicated to the elevators by a band *k*, (see Fig. 1,) which passes around

the pulleys *l m*, the pulley *m* being on the axis of the driving-wheel B. Motion is communicated to the two fans E K in the usual manner, as also the motion to the endless apron.

I believe I have described and represented my improvements in machines for thrashing and cleaning grain so as to enable any person skilled in the art to make and use them.

I will now state what I desire to secure by Letters Patent:

In combination with a thrashing-machine, the combination and arrangement of the shoe J, screen *g*, and fan K over the straw-carrier to rescreen and refan the grain and deliver the tailings to the thrashing-cylinder, substantially as described.

BENJAMIN HOYLE.

Witnesses:

W. H. ORR,

D. H. SOUDERS.