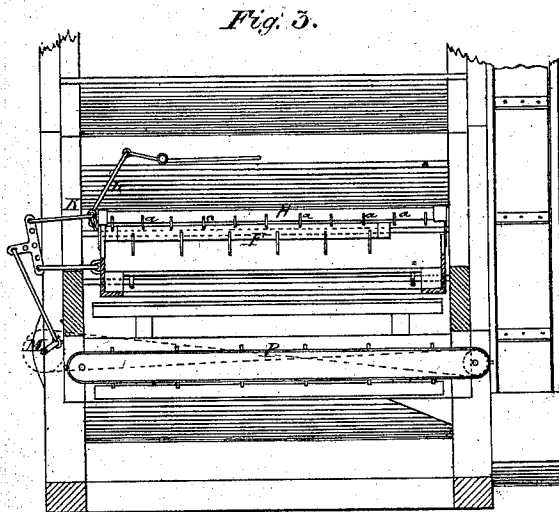
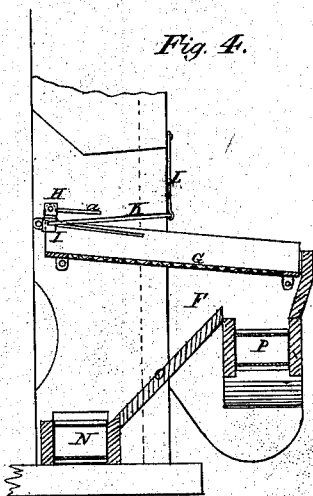
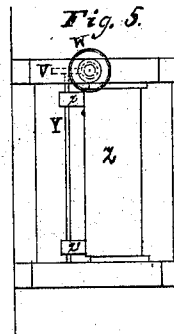
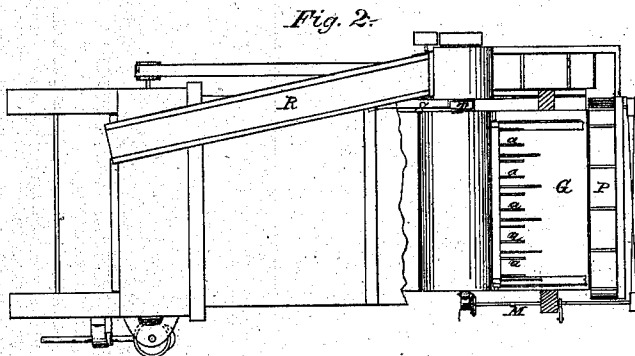
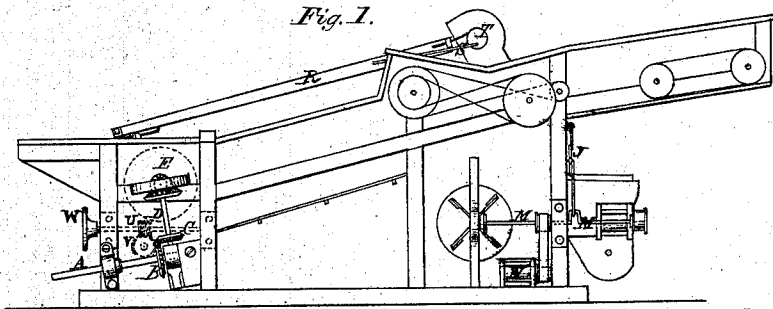


J. CULHAM.  
 Thrashing Machine.

No. 112,424.

Patented Mar. 7, 1871.



Witnesses:  
 J. W. Hamilton Johnson  
 W. J. Oyster

Inventor:  
 John Culham  
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 Atty

# United States Patent Office.

JOHN CULHAM, OF GRAND RAPIDS, MICHIGAN.

Letters Patent No. 112,424, dated March 7, 1871; antedated February 25, 1871.

## IMPROVEMENT IN GRAIN-THRASHING AND SEPARATING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that I, JOHN CULHAM, of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Thrashing-Machines and Grain-Separators; and I do hereby declare the following to be a full and correct description of the same, sufficient to enable others skilled in the art to which my invention appertains to fully understand and construct the same, reference being had to the accompanying drawing which makes part of this specification, and in which—

Figure 1 is a side elevation of my improved grain-separator.

Figure 2 is a plan or top view of the same, partially in section.

Figure 3 is an end view of the same, certain parts being removed.

Figure 4 is a sectional view of the shoe and its parts.

Figure 5 shows the arrangement of the device for raising and lowering the cylinder-concave.

Like letters of reference indicate like parts in the several figures.

The nature of my invention consists—

First, in the arrangement of the rod carrying the gear-wheel, through which motion is transmitted to the thrasher, at an angle, so as to meet the rod from the horse-power in a straight line, thus obviating the necessity of a universal-joint connection between these two rods.

Second, in the combination and arrangement, with the sieve in the shoe, of endless belts and a partition to carry off the grain at one end and the tailings at the other end of the shoe.

Third, in the arrangement of the sieve and chaff-agitators.

Fourth, in the combination and arrangement of the endless belt in the rear of the shoe, the elevator, and vibrating-chute, by which the tailings may be carried forward again to the thrasher to be passed a second time through the machine.

Fifth, in the arrangement of a rod, provided with eccentrics, cog-wheel, endless screw, and hand-wheel, used for the purpose of raising and lowering the cylinder-concave.

A in the drawing represents the rod which connects with the rod from the horse-power. This rod is placed at such an angle as to meet the other rod (which communicates motion) in a straight line. It carries at its inner end a beveled cog-wheel, B, gearing with a similar wheel, C, on a shaft, D, through which motion is imparted to the thrasher E, shown in dotted lines in fig. 1.

The machine when in use, standing on wheels, is higher than the horse-power, and the rod running

from the horse-power would not meet with the rod A in a straight line if the latter were not so arranged and inclined as described and shown.

F represents the shoe of my machine, containing the sieve G, which is supported, at its front and rear ends, by lugs, through which rods pass into the frame in such a manner as to allow the sieve a lateral reciprocating motion.

In lugs formed at the front end of the sides of the sieve-frame the agitator-bar H has its bearings, being provided with arms extending rearwardly over the sieve.

The bar H is rigid in the sieve-frame, and only moves laterally with the latter, sliding on a rod extending from side to side of the machine.

A little in the rear of the sieve-frame is another agitator-bar, I, situated just below the bar H, and moving independently of it.

Pivoted to the rear of the frame of the machine, in a suitable position, is a three-armed lever, J.

The arm of lever J, extending downwardly, connects, by means of a short lever, with the side of the sieve, while its upwardly-extending arm connects, by a longer lever, with a rearwardly-extending arm, K, on agitator-bar I, which arm K is supported from above by a suitable spring, L, allowing a sufficient lateral movement of the bar I.

The outwardly-extending arm of the lever J connects, by a lever, with a crank on shaft M, which receives its motion from the fan-shaft.

It will be easily understood that, when the outwardly-extending arm of the lever J is moved up and down by the crank, the sieve, with its bar H, will move in one, and the agitator-bar I in the opposite direction, by this means continually agitating the chaff so as to insure a thorough separation of the grain.

An endless belt, N, situated under the sieve and near the fan, carries off the grain as it falls from the sieve, and slides down the partition O, while the tailings pass over the sieve onto the endless belt P, which carries them to the elevator Q, from which they pass into the vibrating-chute R.

This chute is supported at its upper end by rods, and receives its vibrating motion from a crank-arm, S, on pulley T, and it delivers, by reason of said motion, any tailings passing over it to the hopper. In this manner the tailings may be cleansed a second time if it is deemed desirable.

In fig. 5—

Y is a shaft or rod, passing under the cylinder-concave S, and provided with the eccentrics  $x$  and  $x'$ , so arranged as to raise or lower the concave by revolving or turning the rod.

One end of this rod passes through the frame of the machine, and is provided with the cog-wheel V.

U is an endless screw, provided with the hand-wheel W.

The thread of the endless screw engages with the cogs in the cog-wheel V, and, by operating the hand-wheel W, the rod Y is revolved, and the concave S raised and lowered at pleasure.

Having thus described my invention,

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

1. The combination, with the sieve G, of the agitating-bars H and I, moving in opposite directions, substantially as herein described.

2. In combination with the sieve G, of the endless

belts N and P and the partition O, substantially as herein described.

3. The combination and arrangement of the endless belt P, elevator Q, and vibrating-chute R, substantially as and for the purposes set forth.

4. The arrangement of the hand-wheel W, endless screw U, and cog-wheel V, in combination with the rod Y and eccentrics x x, when used for the purposes herein described.

JOHN CULHAM.

Witnesses:

JOHN BGLE,

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