

A. B. DAVIS.

Straw and Grain Separator.

No. 37,154.

Patented Dec. 16, 1862.

Fig: 1.

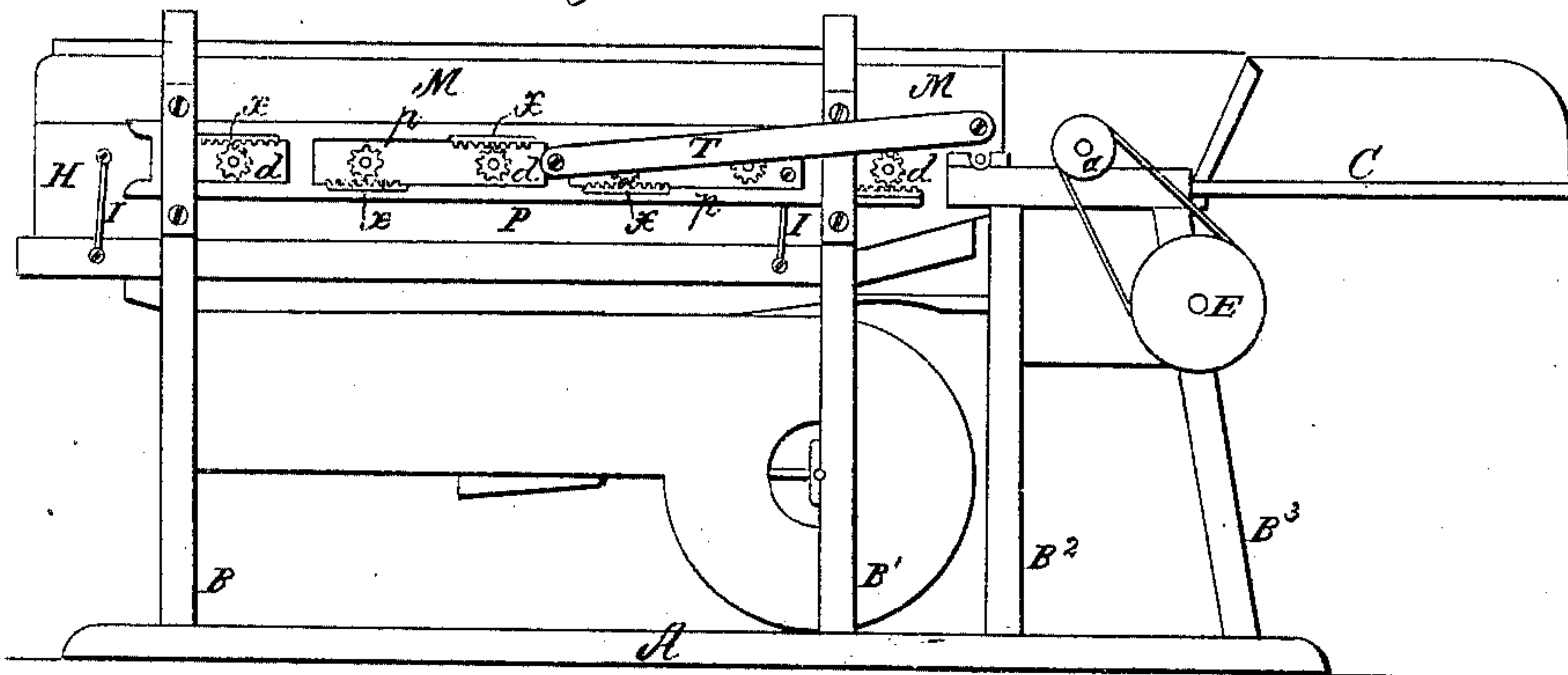


Fig: 2.

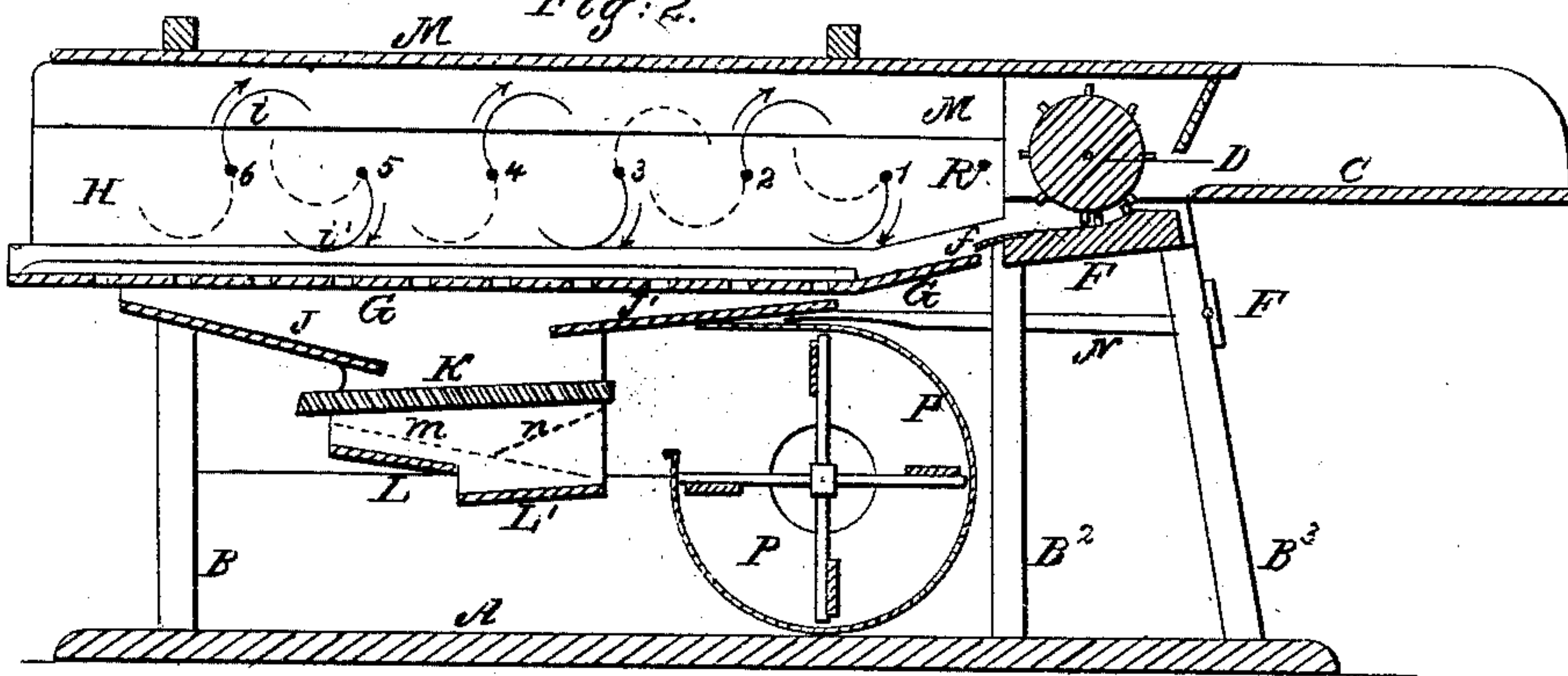
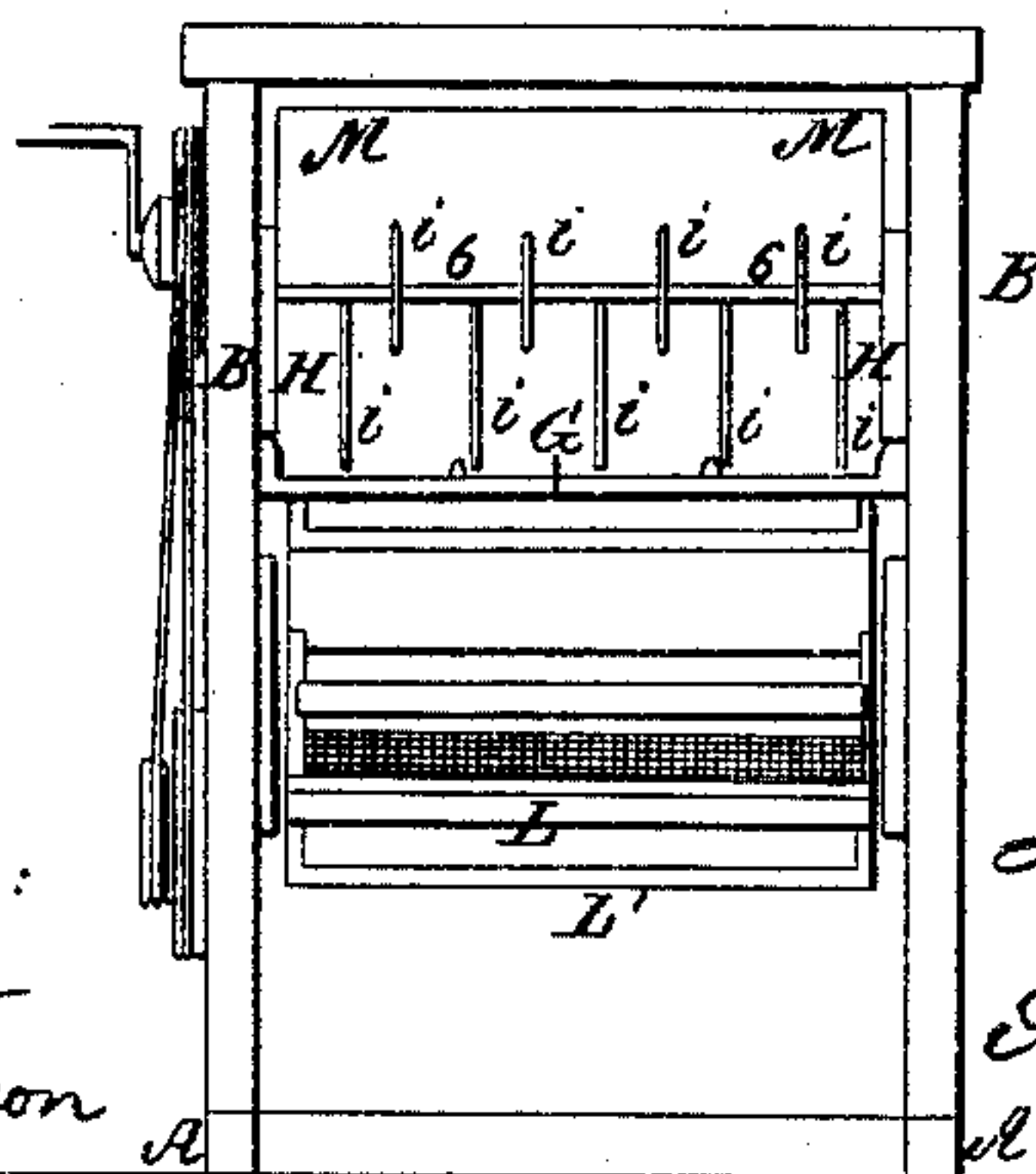


Fig: 3.



Witnesses:
Charles Foster
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Inventor:
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Atty for A. B. Davis

UNITED STATES PATENT OFFICE.

AUGUSTUS B. DAVIS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN STRAW AND GRAIN SEPARATORS.

Specification forming part of Letters Patent No. 37,154, dated December 16, 1862.

To all whom it may concern.

Be it known that I, AUGUSTUS B. DAVIS, of Philadelphia, Pennsylvania, have invented a new and Improved Straw and Grain Separator for Thrashing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists, first, in separating the straw from the grain in thrashing-machines by means of a series of rocking rakes arranged in respect to and operating in unison with each other, substantially as described hereinafter; secondly, in imparting the desired motion to the said rocking rakes by means of reversed racks arranged on a reciprocating frame in respect to pinions on the shafts of the said rakes, substantially as set forth hereinafter.

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

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a side view showing the exterior of a thrashing-machine with my improved straw and grain separator; Fig. 2, a longitudinal section, and Fig. 3 an end view looking toward the rear of the machine.

Similar letters refer to similar parts throughout the several views.

The frame-work of the machine consists of two longitudinal beams, A A, to each of which are secured the vertical posts B B' and B², and a diagonal post, B³, the opposite sides of the frame being secured to each other by suitable transverse pieces.

At the front end of the machine, and to the frame, is secured the platform c, on which the grain is deposited, and from which it is fed to the spiked cylinder D. The spindle of the latter turns in suitable boxes secured to the frame, one end of the spindle being furnished with a pulley, to which, and consequently to the cylinder, the necessary rotary motion is imparted from a pulley on the driving-shaft E by means of a belt, or any suitable system of gearing may be used for the purpose.

Below the spiked cylinder D, and to the frame, is secured a spiked concave, F, and to the rear edge of this concave is secured a plate, f, which overhangs the inclined rear

end of the shaker-frame G. This frame consists of a perforated platform with side flanges hung by links I to boards H H, which are secured to the inside of the vertical posts B, B', and B², and which form a permanent portion of the frame.

Above the perforated platform is a detachable cover, M, which rests on the upper edges of the boards H H, and below the platform and forming part of the shaker-frame are the two inclined shoots, J and J', the riddle K, the sieves *m* and *n*, and the shoots L and L'. Motion is communicated from a crank on the driving-shaft E to the shaker-frame through the medium of a connecting-rod, N.

P is the blower, which is too similar both in construction and operation to those of other thrashing-machines to need a minute description.

A series of shafts, 1, 2, 3, 4, 5, and 6, are situated above the perforated platform of the shaker-frame, each shaft having its bearings in the opposite boards H H of the frame, and being furnished at one end, which projects beyond the frame, with a pinion, *d*. These shafts, with their curved teeth *i*, I term "rocking rakes."

A horizontal frame, P, composed of the upper and lower bars, *p* and *p'*, connected together, is arranged to slide in guides formed on the vertical posts B and B', a reciprocating motion being imparted to this frame from a crank on the shaft R through the medium of a connecting-rod, T, the shaft being driven (in the present instance) by a belt from a pulley on the driving-shaft.

The pinions *d* of the spindles 2, 4, and 6 gear into racks *x*, secured to the under side of the upper bar, *p*, of the reciprocating frame, and the pinions of the spindles 1, 3, and 5 gear into similar racks secured to the upper side of the lower bar, *p'*, of the same frame as the rack-frame reciprocates. Therefore, the curved teeth *i* of the shafts 1, 3, and 5 will vibrate in one direction simultaneously with the vibration of the arms of the spindles 2, 4, and 6 in the opposite direction.

Let us suppose the machine to be in operation and the curved teeth of the rocking rakes to be in the position in respect to each other shown in Fig. 2, the teeth being in the act of vibrating in the direction pointed out by their respective arrows.

A mass of the stalks of grain with the husks of the kernels disintegrated by the combined action of the spiked cylinder D and the spiked concave F, has passed over the plate *f* onto the front end of the perforated platform, and has been seized and raised above the said platform by the curved teeth *i* of the first shaft, 1, prior to the latter reacting the position illustrated in Fig. 2.

The limit of the movement of the teeth of the rocking shaft 1 in the direction of the arrow is shown by dotted lines, dotted lines also illustrating the limit of the downward movement of teeth *i* of the adjacent rock-shaft 2.

The mass of stalks previously seized by the teeth of the shaft 1 must therefore be elevated with these teeth, and would descend when the latter begin to recede and vibrate in a direction contrary to that pointed out by the arrow but for the teeth of the shaft 2, which in their movement to the position shown by dotted lines catch the descending stalks, move them toward the rear of the machine, and bring them within the range of the vibrating-teeth of the shaft 3, when the latter are in the position shown by dotted lines.

In other words, the mass of stalks is seized in the first instance by the teeth of the first rocking rake, tossed up by the latter, caught by the teeth of the second rocking rake, tossed up by these teeth, moved to a point within the range of the teeth of the third rocking rake, and so on, until the stalks, after this most thorough agitation, are discharged at the rear of the machine, leaving behind them the kernels and chaff which pass through the perfo-

rations of the platform of the shaker frame onto the inclined shoots J and J', thence onto the riddle K, where the chaff, by the action of the blower, is discharged at the rear of the machine, the grain finally falling onto the sieves, and thence into any suitable receptacle, as in other thrashing-machines.

The racks are so secured to the reciprocating frame as to be readily detached and as readily readjusted.

On removing one of the racks and partially turning the shaft of one of the rocking rakes, and again applying the rack to the frame, the sweep of the teeth of the rake will be altered so that all the rakes can be readily arranged to raise or toss the stalks to a height which may be found in practice to have the most satisfactory result.

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

1. Separating the straw from the grain in thrashing-machines by means of a series of rocking rakes arranged in respect to and operating in unison with each other, substantially as set forth.

2. Imparting the desired motion to the said rocking rakes by means of reversed racks arranged on a reciprocating frame in relation to pinions on the shafts of the said rakes, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

A. B. DAVIS.

Witnesses:

HENRY HOWSER,
JOHN WHITE.