J. S. UPTON.

GRAIN-SEPARATOR.

No. 188,210. Patented March 6, 1877.

Fig. 1.

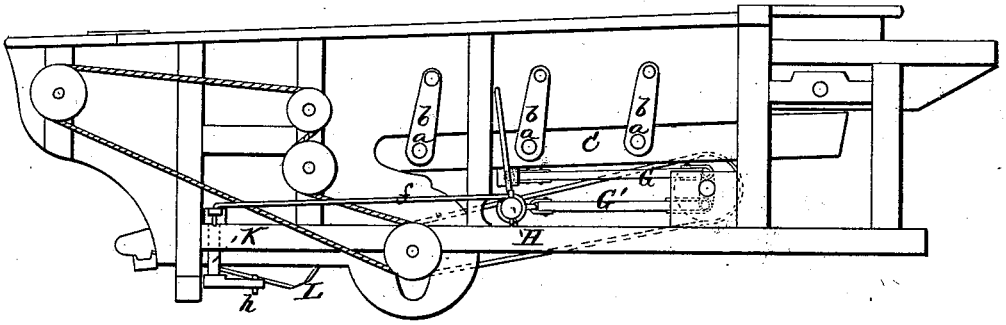


Fig. 2.

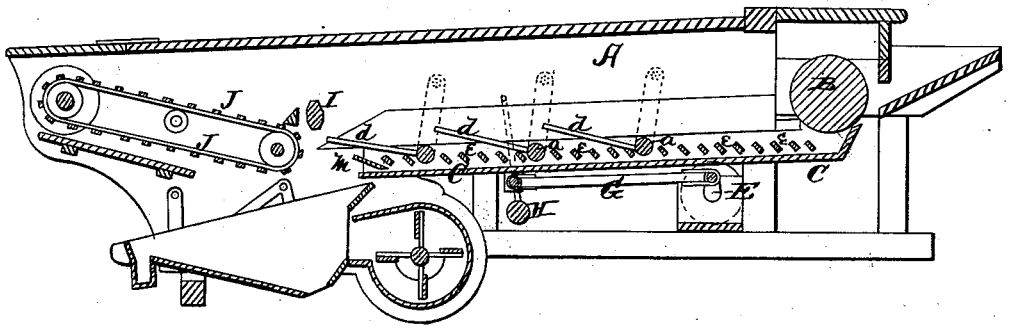
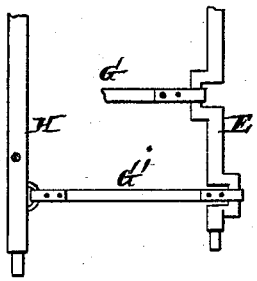


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

JAMES S. UPTON, OF BATTLE CREEK, MICHIGAN.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **188,210**, dated March 6, 1877; application filed September 9, 1876.

To all whom it may concern:

Be it known that I, JAMES S. UPTON, of Battle Creek, in the county of Calhoun, and in the State of Michigan, have invented certain new and useful Improvements in Thrashing-Machines for Thrashing, Separating, and Cleaning Grain; and 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, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a thrashing-machine, as will be hereinafter more fully set forth.

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

Figure 1 is a side elevation of my thrashing-machine. Fig. 2 is a longitudinal section of the same. Fig. 3 is a detached view of a part thereof.

A represents the frame-work of my thrashing-machine, and B is the usual thrashing-cylinder. C represents the boot, suspended by means of a series of shafts, *a a*, passing through the sides thereof, and having their ends secured in hangers *b b*, pivoted to the sides of the frame A. Each shaft *a* is provided with a series of rake teeth or fingers, *d d*, which, as the boot moves longitudinally back and forth, rise and fall. The boot C is provided with slat-work *e* between the shafts *a*, and the bottom of this boot forms the grain-board. The boot C is driven by a pitman, G, from the double-crank shaft E, placed on the sill of the machine, and this shaft is to be driven by means of a pulley from the cylinder. From the same shaft E motion is, by means of a pitman, G′, communicated to a pendulum, H, of equal weight as the boot C, so that the boot will be equally balanced while in motion. The boot, with the lifting-fingers *d d*, takes the straw and grain from the cylinder and carries it to the picker I, which revolves and carries the straw to the revolving rake J. The perdulum H is, by a rod, *f*, connected with a double-crank shaft, K, the other crank on which is, by a rod, *h*, connected with the shoe L, whereby said shoe obtains its vibratory motion, the boot being thus counterbalanced by the pendulum and shoe.

At the upper end of the boot C is an inclined board, *m*, fastened stationary to the sides of the frame, which board prevents the straw from passing from the boot into the mill, and is indispensable for the perfect working of the boot.

The peculiar motion or movement of the pendulum is such that it completely overcomes the dead-point commonly met with in that class of machines called vibrators, it being thrown by the pendulum past the pivotal point that supports it by means of the pitman. It, by its own weight, seeks to fall back to a point perpendicular to the point where it is suspended to the machine, thereby producing a swinging or vibrating motion, which motion overcomes the dead-point on the double crank which drives the pitman.

Weights or levers may be arranged to be operated from the same shaft.

I am fully aware that an open riddle and picker have been used in combination with an endless revolving grain elevator or carrier; hence I disclaim such as my invention. But I am not aware that a suspended swinging boot having lifting-fingers has ever before been known or used in combination with an open riddle and picker, as seen in my invention. By such latter combination I agitate the straw much more thoroughly, and carry it forward more evenly over the picker and open rake or riddle, thereby preventing the grain from being carried into the straw-stack, as is almost invariably the case.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a double crank shaft E, with pitman G G′, the boot C, connected to one pitman, and the pendulum H, connected to the other pitman, the boot and pendulum working in opposite directions for counterbalancing the former, as herein set forth.

2. The combination of the swinging boot C, with lifting-fingers *d*, swinging pendulum H,

and double-crank shaft E, with pitman G G′, all constructed substantially as and for the purposes herein set forth.

3. The combination of the suspended swinging boot C, having lifting-fingers *d d*, the picker I, the open revolving rake J, and the swinging pendulum H, all substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of August, 1876.

JAMES S. UPTON.

Witnesses:
EDWARD HALSTED,
JOSEPH F. GARCIA.