A. A. BALAT.

GRAIN SEPARATOR.

No. 189,680. Patented April 17, 1877.

FIG. 2.

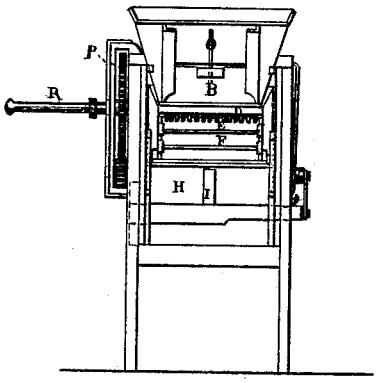


FIG. 1.

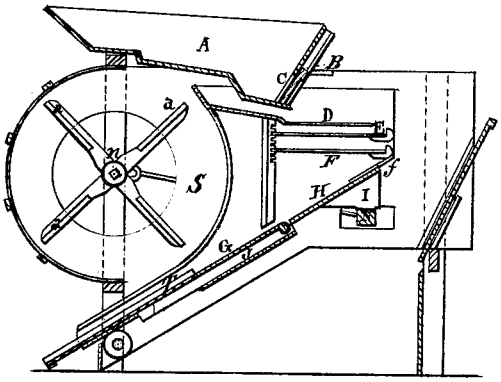


FIG. 5.

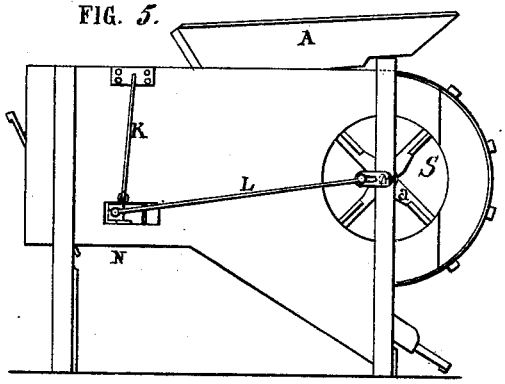


FIG. 4.

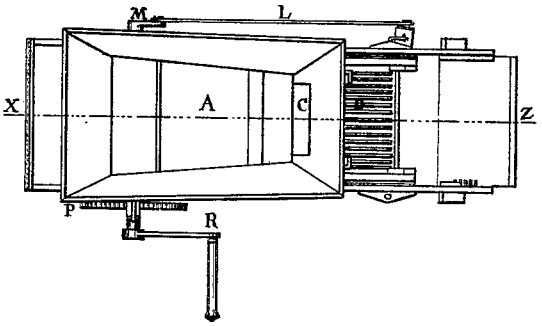


FIG. 3.

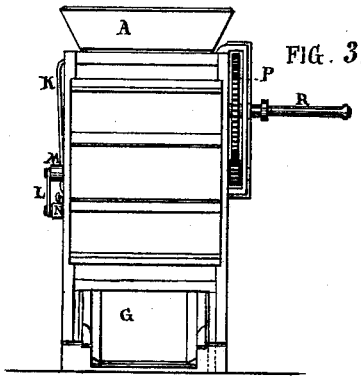
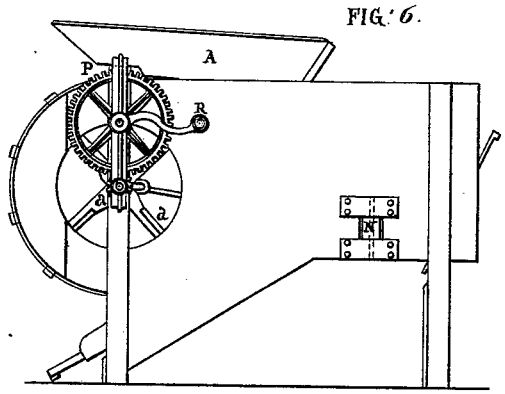


FIG. 6.



Witnesses.
Henri Guillaume
W. A. Dangerfield

Inventor.
Antoine A. Balat
Henry Orth
Atty.

UNITED STATES PATENT OFFICE.

ANTOINE ALEXANDRE BALAT, OF COUVIN, BELGIUM.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **189,680**, dated April 17, 1877; application filed October 23, 1876.

To all whom it may concern:

Be it known that I, ANTOINE ALEXANDRE BALAT, of Couvin, in the Province of Namur and Kingdom of Belgium, have invented new and useful Improvements in Grain-Separators, of which the following is a specification:

My invention relates to the manner of pivoting and suspending the vibrating lever on either side of the machine, one end of which being free to vibrate to and fro, and is connected by a slotted crank-plate and connecting-rod to suitable gearing, whereby a reciprocating motion longitudinally of the machine is imparted to said shoe, as more fully described hereinafter.

In the accompanying drawings, Figure 1 is a longitudinal section, Fig. 2 an end view, Fig. 3 a front view, Fig. 4 a plan, and Figs. 5 and 6 right and left side vertical elevations, of my improved grain-separator.

A is the hopper, provided with a slide or door, through which the grain is fed to the screens. This door or slide B forms an opening, C, extending the whole width of the hopper, and is held in any desired position by means of the spring *o* formed of a galvanized-iron wire, or other suitable material. By this means the feeding of the grain may be reguated at will, and the grain may be fed to the screens in an even sheet extending the whole width of the screens.

The shoe is provided with a rack, and has affixed thereto a grating, D, to which the grain is first fed and separated from the straw, which is at once carried off by the blast, overcoming thereby a great deal of labor as the grain is freed from it when it reaches the screens or separators. The shoe is further provided with a series of screens, E F, having their meshes graduated, two of which are used at a time, and are changed according to the nature of the grain to be cleaned or separated. These screens rest in the notches of the rack, and may, by these means, be inclined more or less, as required. The lighter the grain the greater should be their inclination. By preference, I set these screens in frames of sheet iron or zinc, having a raised shoulder in front to prevent the mixing of the good or heavy and the light or bad grain. To further regulate the cleaning and separating, the shoe is provided beneath the screens with a slide, held in the desired position by means of a spring like the slide B.

A movable bottom, H, is connected to the shoe in such a manner as to reciprocate with it longitudinally of the machine, its front end resting upon friction-rollers having their bearings in the side of the machine, and to this bottom H a chute or apron, G, is affixed, with capability of being raised or lowered at will, to control the passage of the heavy good grain and the light or bad grain. The movable bottom also carries a screen, T, or divider, by means of which the grain is finally sifted or separated. Screens of varying meshes are employed, according to the nature of the grain to be separated.

The movable bottom H and the shoe are supported by a bracket or wedge, I, resting on the vibrating lever N, to which it is secured by an iron pin.

Beneath the apron or chute G a movable apron, J, is affixed, to retain the light grain and prevent it from being carried out with the dust by the blast.

The vibrating lever N is pivoted to one side of the machine by means of an iron pin having its bearings in two plates affixed to the outside of the frame, as shown by Fig. 5. To the other end of this vibrating lever N the connecting-rod L is affixed, which in turn is connected with a slotted crank-lever or plate, M, affixed to the fan-shaft. By means of this slotted plate M the speed of the working parts—that is to say, the rocking or vibrating action—may be increased or diminished, according to the nature of the grain to be separated, by lengthening or shortening the stroke of the connecting-rod L.

The vibrating lever N is supported on one side of the machine—that is to say, it is suspended from a lever or rod, K, in such a manner as to give free motion to the vibrating lever N, obviating all friction in the sides of the machine.

Motion is imparted to the machine by means of a crank-lever, R, affixed to the shaft of a large cog-wheel, P, having its bearings in the side of the frame, and gearing with a small cog-wheel or pinion carried by the fan-shaft. A belt-pulley may be substituted for the crank-

handle R, and the separator may be driven in connection with a thrashing-machine, or any other power.

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

In a grain-separator, the combination, with the vibrating lever N, having one end pivoted to one side of the frame and the other end suspended from a rod, for the purposes specified, and the connecting-rod L, and slotted arm M, of the wedge or bracket I affixed to the shoe containing the grating and screens, and pivoted on the vibrating lever by means of a bolt or pin, to impart to said shoe a reciprocating motion longitudinally of the machine, substantially as specified.

ANT. ALEXANDRE BALAT.

Witnesses:
PHILIPPE MOHR,
JEAN BAPTISTE GIRARD.