(No Model.)

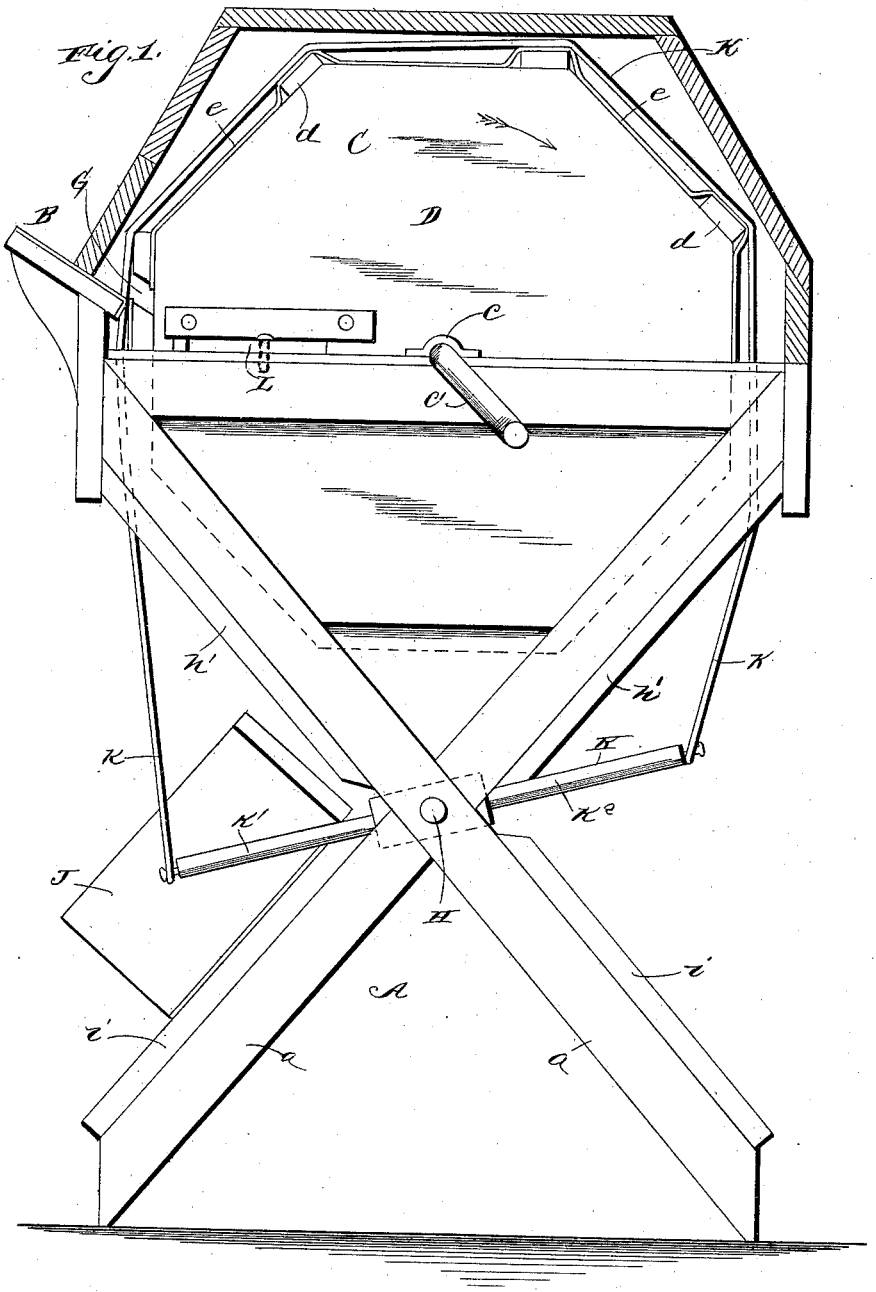
2 Sheets—Sheet 1.

G. B. BAILEY.

GRAIN SEPARATOR.

No. 383,166. Patented May 22, 1888.

Fig. 1.



Witnesses.

E. S. Taylor.

E. G. Siggers.

Inventor,

G. B. Bailey.

By his Attorneys,

C. A. Crawford

(No Model.) 2 Sheets—Sheet 2.

G. B. BAILEY.

GRAIN SEPARATOR.

No. 383,166. Patented May 22, 1888.

Fig. 3.

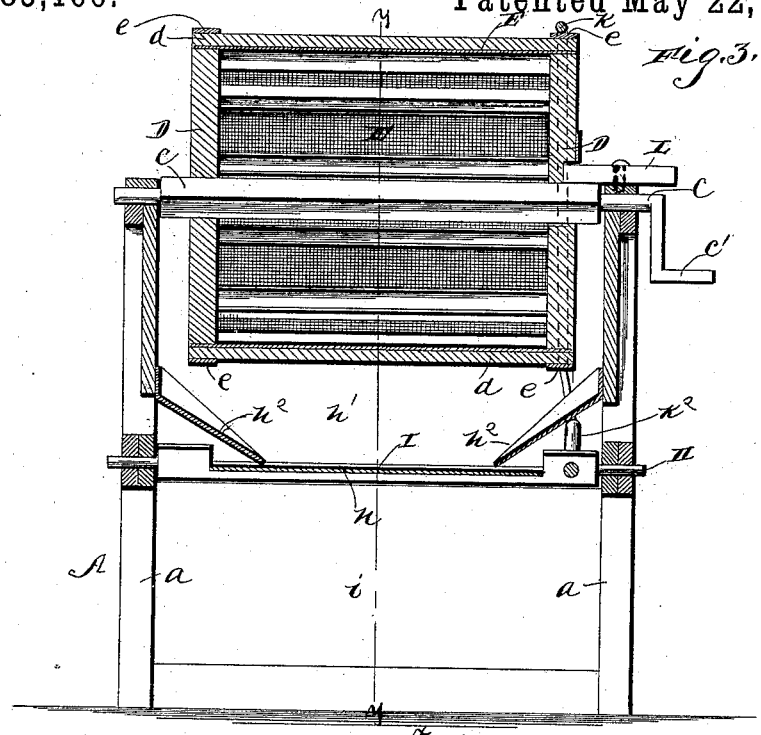
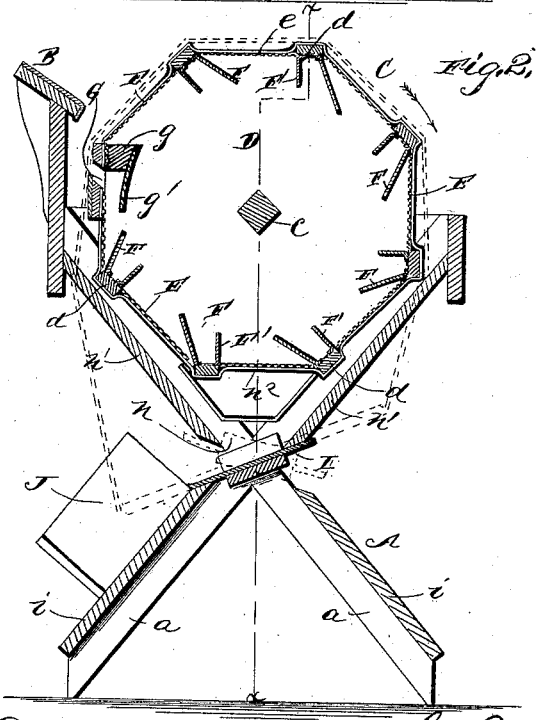


Fig. 2.



Witnesses.
C. L. Taylor.
E. G. Siggers.

Inventor,
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By his Attorneys,
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UNITED STATES PATENT OFFICE.

GURDON B. BAILEY, OF COUNCIL BLUFFS, IOWA, ASSIGNOR OF TWO THIRDS TO WILLIAM O'DONOGHUE, OF ST. JOSEPH, MISSOURI.

GRAIN-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 383,166, dated May 22, 1888.

Application filed April 27, 1887. Serial No. 236,334. (No model.)

To all whom it may concern:

Be it known that I, GURDON B. BAILEY, a citizen of the United States, residing at Council Bluffs, in the county of Pottawattamie and State of Iowa, have invented a new and useful Improvement in Grain-Separators, of which the following is a specification.

The invention relates to grain-separators, being an improvement on a patent granted to me on the 2d day of December, 1862, and numbered 37,031; and its object is to remove the impurities from wheat and other grain by means of a rotary screen.

The invention consists in the construction and novel combination of parts hereinafter described, pointed out in the appended claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents an end view of the machine with the cover in section, the cord actuating the double-armed lever and running over the end of the screen-frame having its parts that pass within the frame shown in dotted lines. Fig. 2 represents a transverse vertical section on the line *y y* of Fig. 3. Fig. 3 represents a longitudinal vertical section on the line *x x* of Fig. 2.

Referring to the drawings, A designates the frame of the machine, consisting of the crossed end beams, *a a*, the lower arms of which form legs, and the side and end boards connecting the same. On the front or receiving side of the machine the longitudinal chute B is secured for the purpose of introducing the grain into the sieve.

C is the sieve, having its shaft *c* journaled in bearings secured centrally upon the end boards of the main frame, and having one journal thereof extended and bent into a crank-handle, *c'*, by which to turn the sieve. The sieve-frame is composed of the end plates, D, having central squared openings fitting upon the square shaft *c*, and the longitudinal strips, *d*, secured to the edges of the said plates at corresponding points. The end plates are preferably made octagonal. The sieve or screen wire E is secured between the edges of the end plates, D, and the ends of the strips *d*, and metallic strips *e e* are received upon said edges and over said ends to keep all the parts compact and united.

F F' are grain-elevating plates secured longitudinally within the sieve, the ends thereof being fitted into kerfs formed in the end plates, D, at suitable and corresponding points, the outer edges of the latter being made to abut closely against the inner surface of the sieve, where it is overlaid by the strips *d*. The elevating-plates F' are mounted at right angles to the screening surface, and the plates F, which are longer than the plates F', are mounted at an acute angle to the said plates F'. By this means buckets are formed which elevate the grain, and through the medium of the extended plates F the grain is carried farther in the revolution of the sieve and spread through the same.

G is a narrow longitudinal opening for the introduction of grain, extending the whole length of the sieve, and *g* is a bar secured to the inner side of the sieve-frame and flush with one edge of said opening.

g' is a curved directing-plate, which is secured at an outward inclination to one end of the inner surface of the bar *g*, extends longitudinally from one end plate of the sieve to the other, and forms with the inner surface of the sieve a space with which the opening G communicates, and through which the grain passes to the interior thereof. The said space becomes narrower as it extends downward from the opening G.

H is a longitudinal shaft, with its ends journaled in bearings formed at the intersections of the legs *a a* and immediately below a longitudinal escape-opening, *h*, formed between the lower ends of the downwardly-converging side boards, *h'*, of the main frame and plates h^2, inclining inwardly and downwardly from the lower edges of the end boards of the main frame.

I is a grain-board secured upon the shaft H, which extends centrally along its lower surface.

i i are chute-boards extending longitudinally from leg to leg of the main frame and on opposite sides of the same.

J J are downwardly-converging plates or

side boards, which are secured to the chute-board *i* on the grain-delivery side of the machine. These side boards form with the chute-board *i* a chute or trough, by which the cleaned grain is directed into a suitable receptacle. Similar boards may be provided on the other side of the machine, if so desired; but in general the refuse matter is allowed to fall to the floor and afterward swept away.

K is a lever extending through the shaft H on one side of the grain-board I, and having the respective ends of a band or strap, *k*, secured to the ends of its equal and opposite arms $k' k^2$, respectively. The said band runs over the metallic strip *e* at the corresponding end of the sieve, so that the rotation of the same actuates the lever K, and consequently the grain-board I.

L is a detent-bar pivoted on the edge of one of the end pieces of the main frame and arranged to have its joint enter a recess in the corresponding end plate of the sieve when the opening G corresponds with the chute-board B, so as to retain the sieve in position while receiving grain.

When the sieve is rotated in the direction indicated by the arrow, or in the direction opposite to that in which the plate *g'* extends, no grain can escape therefrom, as the said plate receives the grain on its fixed end and delivers it from its free end within the sieve; but when the sieve is rotated in the opposite direction the grain flows between said free end and the sieve and out of the opening G.

When the sieve is rotating in the direction indicated by the arrow in Fig. 2, the grain is being cleaned, and the refuse and impurities will fall through the sieve and be directed through the opening *h* upon the grain-board I, which is now inclined down on the side opposite the grain-delivery side by means of the shaft H, lever K, and band *k*, so that all the impurities will descend upon the chute-board *i* on that side. The grain having been thoroughly cleaned, the rotation of the sieve is reversed, and the inclination of the grain-board I is also reversed. The grain is now delivered out of the opening G upon said board; thence it descends in the trough formed by chute-board *i* and plates J J to a suitable receptacle below. The grain-elevating plates F F' raise the grain while being cleaned and allow it to fall through the interior of the sieve; but as the plates F are longer and at an acute angle to the plates F', the former carry the grain farther than the latter, so that it is spread through the sieve, and consequently the particles of refuse are more quickly and thoroughly sifted out.

The means of cleaning the grain of refuse and then by reversing the rotation of the sieve of delivering the grain therefrom I do not claim, broadly, as it is fully shown and claimed in my patent heretofore referred to.

The sieve-frame may have a cover resting on its edge and inclosing the upper part of the sieve and a door near the chute B; but in practice these are omitted.

Having described my invention, I claim—

1. The combination, with the supporting-frame and the rotary sieve mounted in said frame, of the shaft H, mounted in the said frame below the sieve, the double-armed lever K, mounted on the said shaft, and the cord or band secured to the opposite ends of the arms of said lever to reverse the rotary sieve, substantially as specified.

2. The combination, with the main frame, the rotary sieve journaled therein and provided with the longitudinal opening for the passage of the grain, and the shield-plate in the rear of the said opening, of the elevating-plates F and F', forming troughs extending the entire length of the inner surface of the sieve and adapted to elevate the grain therein, the plates F' being arranged at right angles to the screening-surface of the sieve, and the plates F extended and arranged at an acute angle to the plates F', substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GURDON B. BAILEY.

Witnesses:
MYRTLE STALNAKER,
E. G. SIGGERS.