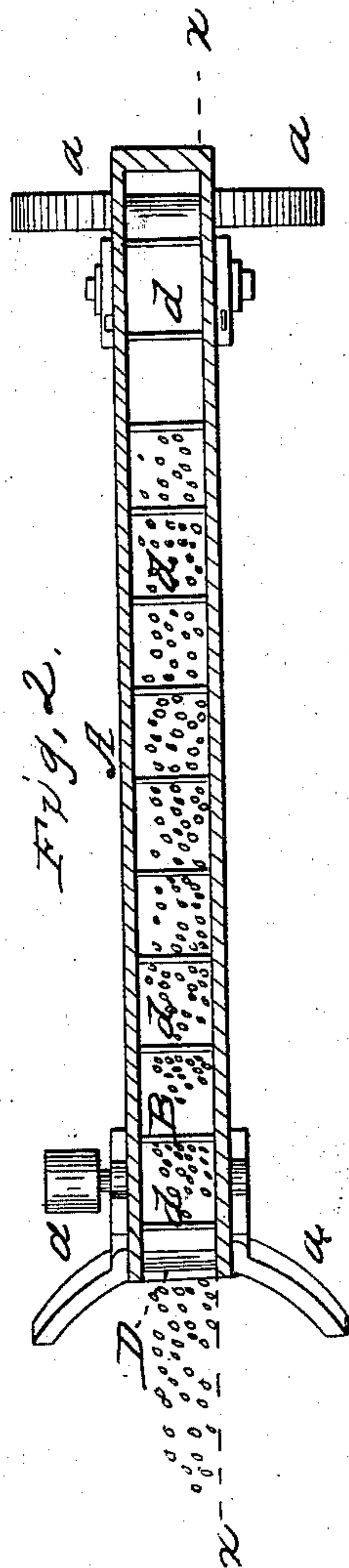
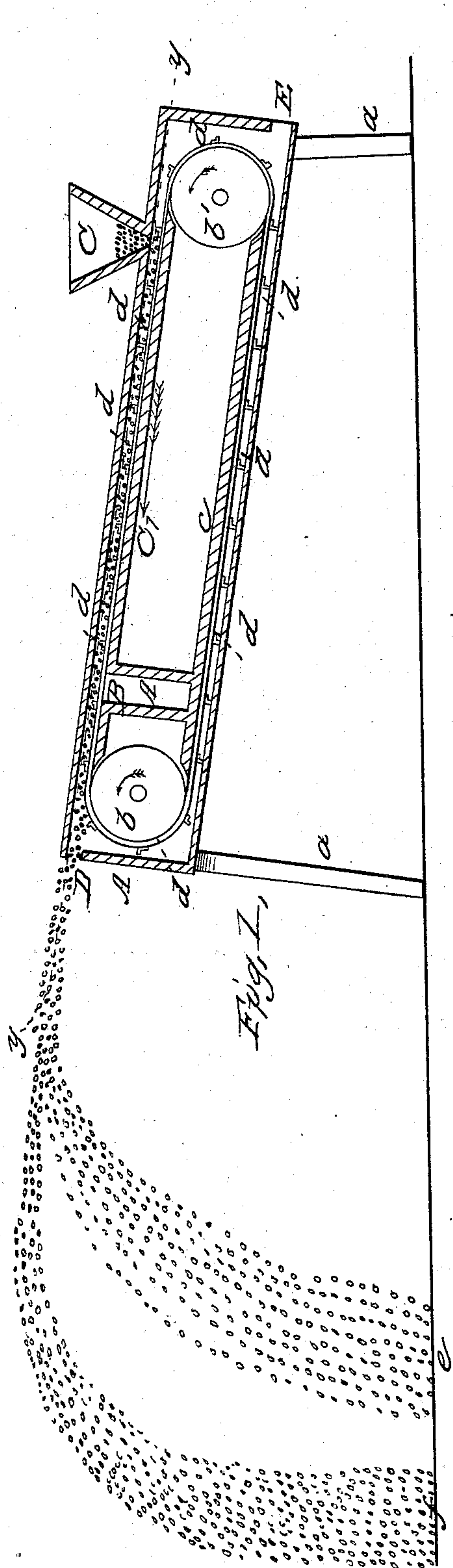


J. L. BOOTH.
Grain Separator.

No. 23,153.

Patented March 8, 1859.



UNITED STATES PATENT OFFICE.

J. L. BOOTH, OF NEW YORK, N. Y.

GRAIN-SEPARATOR.

Specification of Letters Patent No. 23,153, dated March 8, 1859.

To all whom it may concern:

Be it known that I, J. L. BOOTH, of the city, county, and State of New York, have invented a new and Improved Grain-Separating Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side sectional elevation of my invention taken in the line $x x$ Fig. 2. Fig. 2, is a longitudinal section of ditto taken in the line y, y , Fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents an oblong rectangular box which is supported at a suitable height by legs a , or any suitable framing. The box A, has an inclined position its discharge end being elevated. Within the box A, an endless apron or belt B, is placed, said belt passing over pulleys b, b' , one at the front and the other at the back end of the box. Between the two pulleys b, b' , guide plates c, c , are placed, said plates extending the whole length of the space between the pulleys, one at the upper and the other at the lower part of the box. The apron or belt B, may be constructed of leather or other suitable material and to its outer surface at equal distances apart plates d , are attached at right angles to the belt and projecting sufficiently far from it to close the space between the plates c, c , and the top and bottom of the box A, as shown clearly in Fig. 1.

C, is a hopper which is placed on the box A, near its lower or depressed end, and D, is a discharge opening made in the elevated end of the box at its upper part, an opening E, being made in the lower end of the box, as shown clearly in Fig. 1.

The operation is as follows:—The grain to be cleaned is placed in the hopper C, and motion is given the axis of the pulley b' , by any proper means.—The apron B, is moved rapidly in the direction indicated by arrow I, and the grain falls from the hopper C, on the apron or belt B, and by the movement

of the apron the grain, and all foreign substances it may contain, are thrown or impelled forcibly against the air.—The light foreign substances will of course meet with such resistance from the atmosphere as to be quickly arrested and will fall near the discharge end of the box A, as shown at e , while the sound heavy grain will be projected farther and will fall in a separate heap or hill as shown at f , Fig. 1.—There is however an important feature to be observed in the above mode of separation, and that is, the form or shape of the parts to be separated.—In separating wheat from oats for instance, the oats are specifically lighter than the wheat, but owing to the thin oblong shape of the former they will if impelled endwise against the air be projected as far as the wheat. The same may be said of long thin foreign substances, as straw, unbroken grain heads etc. It will be seen therefore that by merely impelling the grain against the air a perfect separation will not be obtained. I obviate this difficulty by impelling the light and long foreign substances laterally against the air. This is done, in the present instance, by the plates d , and the apron B. The apron B, it will be seen travels some distance, to wit, from the hopper C, to the discharge aperture D, and as the plates d , catch the grain and impel it forward, all light and long substances such as oats, straw etc., will, even if they fall on the apron or belt B, longitudinally with it be turned around transversely with it owing to the motion of the belt and impelled laterally from the box, and therefore be arrested suddenly by the air, and made to fall near the discharge end of the box, see Fig. 2, in which the turning of the light long grain by the plates is clearly shown. By thus ejecting the grain and foreign substances from the box A, against the air a perfect separation is effected and the result may be obtained by a very simple mechanism.

In the box A, a spout A', is placed. This spout merely serves to discharge any grain or other substances that might chance to work between the upper part of the belt and the plate c .

I do not claim, broadly, the invention of endless belts for elevating and carrying grain or other materials, but—

I claim and desire to secure by Letters
5 Patent—

As an improved article of manufacture, a grain separator composed of a box A, belt B, plates (*d*) hopper C, pulleys (*b*, *b'*) and

otherwise constructed substantially as herein shown and described, for the purpose 10 specified.

J. L. BOOTH.

Witnesses:

J. W. COOMBS,
WM. TUSCH.