L. DUVALL.

Improvement in Separators for Ores, Grain, &c.

No. 125,797. Patented April 16, 1872.

Fig. 1.

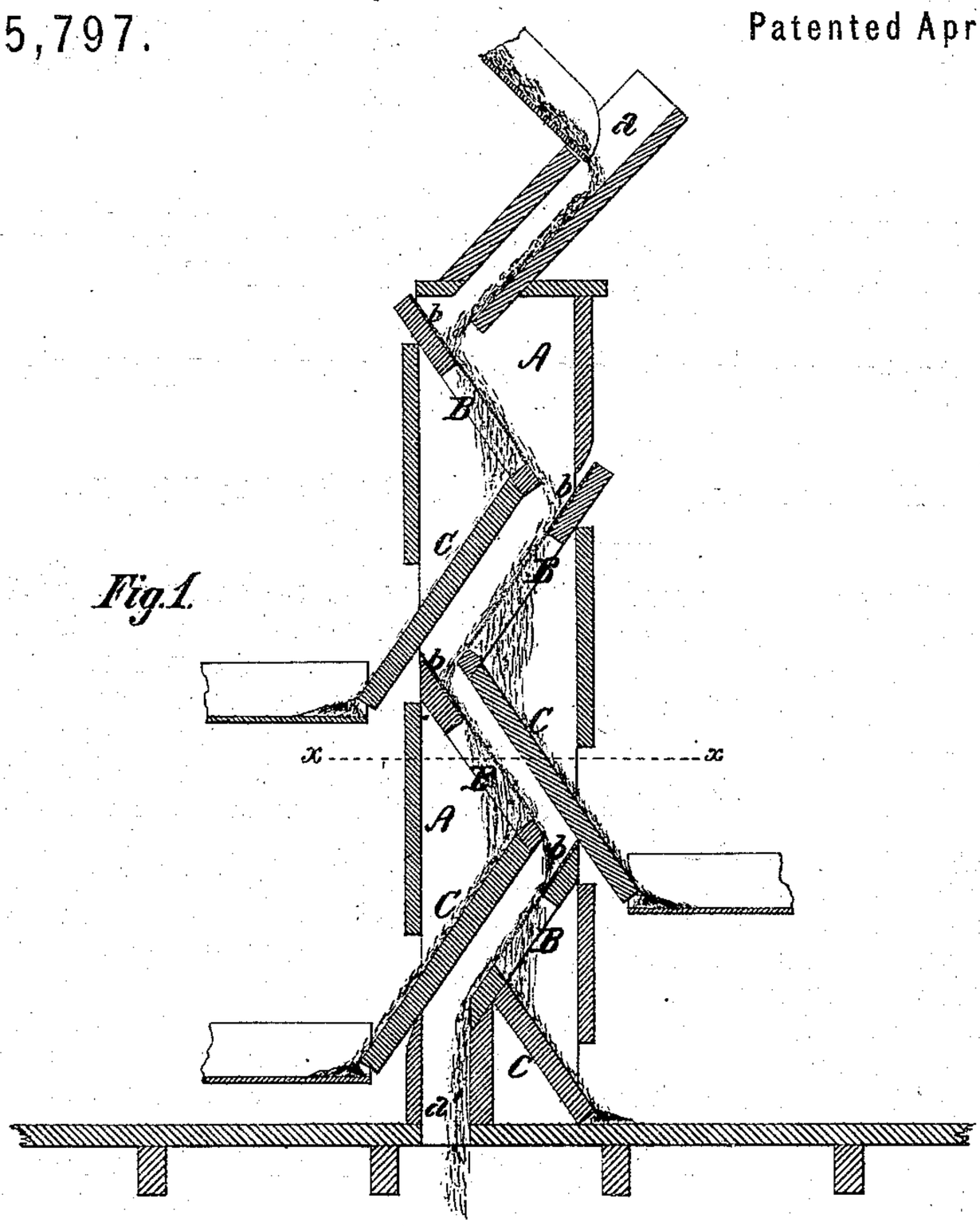


Fig. 2.

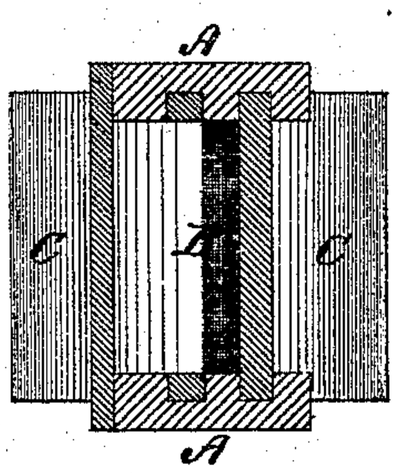
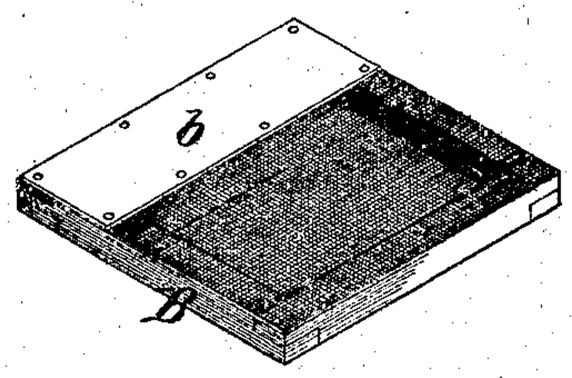


Fig. 3.



Witnesses.

J. Snowden Bell.

Wm. B. Dayton

Inventor.

Leon. Duvall.

125,797

UNITED STATES PATENT OFFICE.

LEON DUVALL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND GEORGE W. LORD, OF SAME PLACE.

IMPROVEMENT IN SEPARATORS FOR ORES, GRAIN, &c.

Specification forming part of Letters Patent No. 125,797, dated April 16, 1872.

Specification of certain Improvements made in Separators for use in separating ground or otherwise-pulverized substances, invented by LEON DUVALL, of the city and county of Philadelphia, in the State of Pennsylvania.

The first part of my invention relates to the construction of a series of removable sieves or screens in rectangular form, with, say, one-third of the area of each, extending from its top edge downward, covered with a solid plate of metal, while the other two-thirds are meshed, as shown; and so mounting and arranging these sieves in relation to each other in an upright shaft or tower that when the material or substance to be sifted or separated is admitted into the top of the tower through a hopper it will first fall upon a solid inclined plane, and thence, by its weight and momentum, be deflected against the solid plate on the upper edge of the first sieve on the opposite of the shaft, when the heavy and coarse parts will be again deflected against the top plate of another sieve on the opposite side again of the tower, while the finer parts will run through the meshes of the sieve and become permanently separated therefrom; and if each successive sieve be made of larger meshes, from the first to the last, the separated stuff will be divided into as many different grades, as to bulk of particles, as there may be sieves in the series; and by this construction and arangement another important object is attained—namely, the coarser parts, which are comparatively heavy, and would otherwise prove quickly destructive to the wires or other material of the sieves, expend their force and friction upon the solid plates of the sieve, while the finer parts are not deflected, but pass through the meshes. The second part of my invention relates to the arrangement of a series of inclined planes or chutes under each sieve in such a manner that as the finer parts pass through each sieve they are conducted through openings to the outside of the shaft or tower, so that each sieve will have its own port of delivery; and, therefore, if each successive sieve be larger in mesh than the preceding one there will be as many grades delivered as there are sieves, and there may be as many of these as may be found expedient.

In the accompanying drawing, Figure 1 represents a vertical cross-section of a separator embracing my improvements; Fig. 2, a plan view of a horizontal section thereof; and Fig. 3, a perspective view of one of the sieves, showing its form and proportions.

In Fig. 1, *b* is the solid plate, and B the meshes of the sieve. C, the inclined planes or chutes to conduct the finer parts through and without the walls of the tower. In Fig. 2 it will appear how the parts are framed together. In Fig. 1 is shown how the material falls from the hopper and how the finer parts flow out through the several ports of delivery, while the large and heavy parts are deflected from one of the plates *b* to another until they finally pass out at the exit *a'* at the bottom of the tower.

It will be seen that my sieves dip with an angle of about thirty-five degrees to the horizon; but this angle may be varied according to the depths of the frames of the sieves, the diameter of the tower, and like conditions, having regard always to the protection of the sieves, as well as to the efficiency of action.

What I claim as my invention is—

1. The series of inclined planes or chutes C, in combination with the side openings shown in the tower A, and the sieves B *b*, constructed and arranged substantially in the manner and for the purpose described and set forth.

2. The combination of the sieves composed of the parts B and *b* and the tower A, all constructed and arranged substantially as shown and described.

LEON DUVALL.

Witnesses:

WM. B. DAYTON.

R. G. WESTMORE.