# C. B. HUTCHINGS.

## Grain Winnower.

No. 30,679. Patented Nov. 20, 1860.

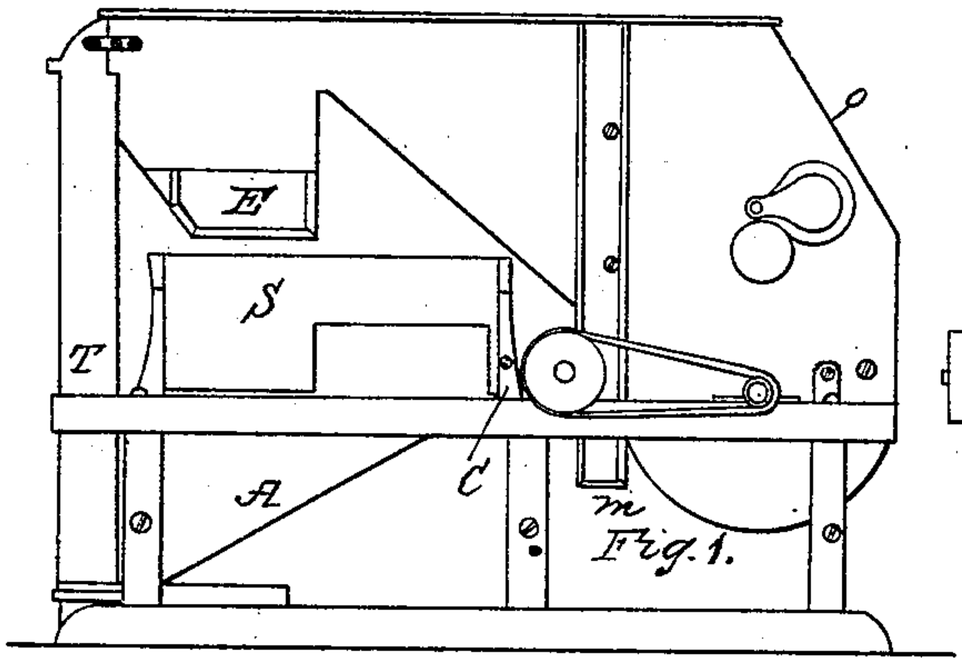



Fig. 1.

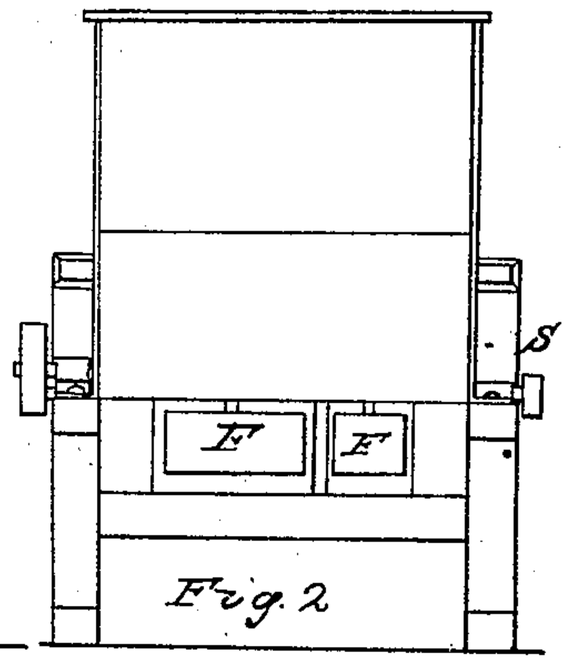



Fig. 2

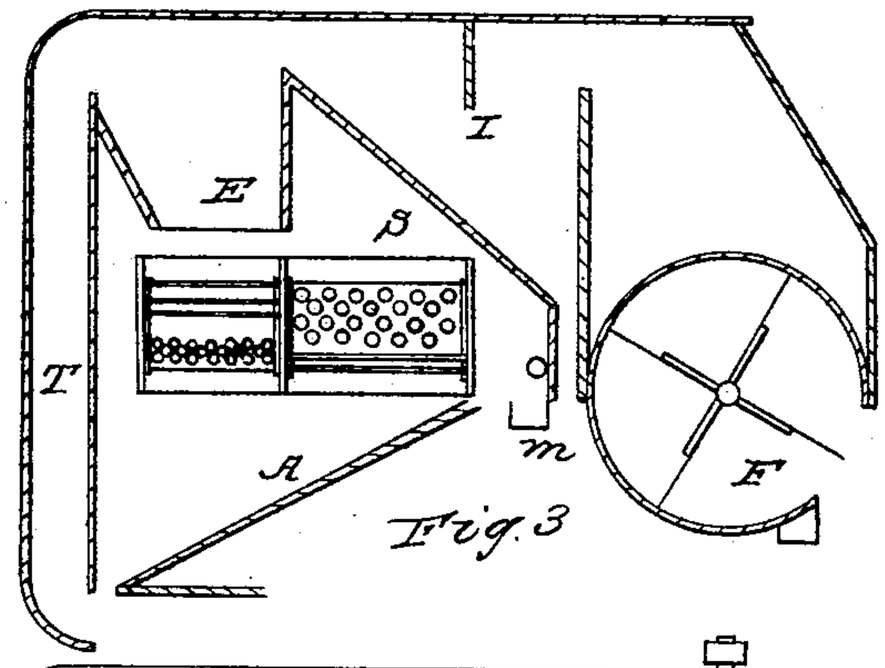



Fig. 3

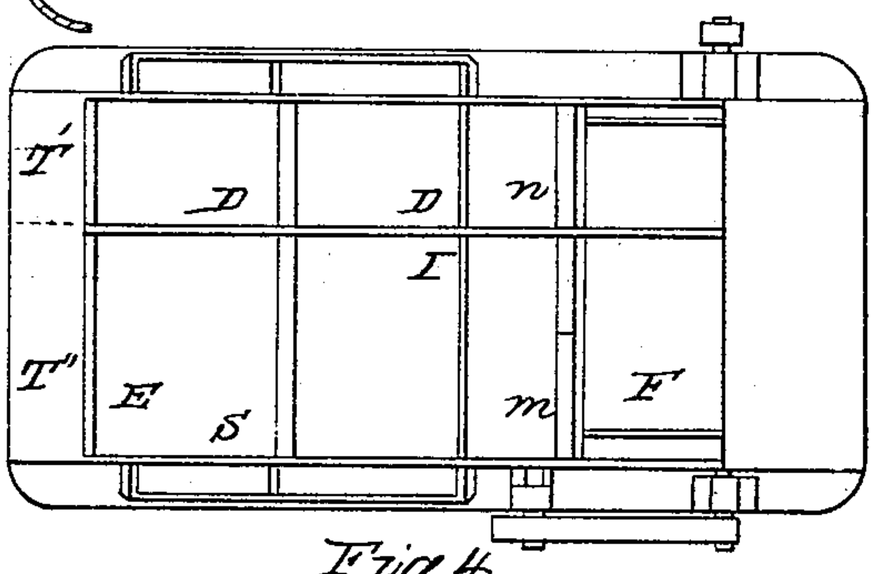



Fig. 4

Fig. 6

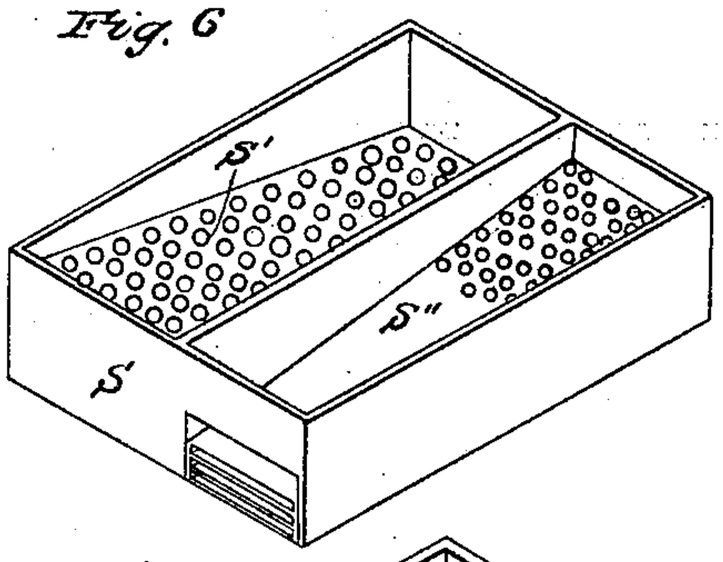
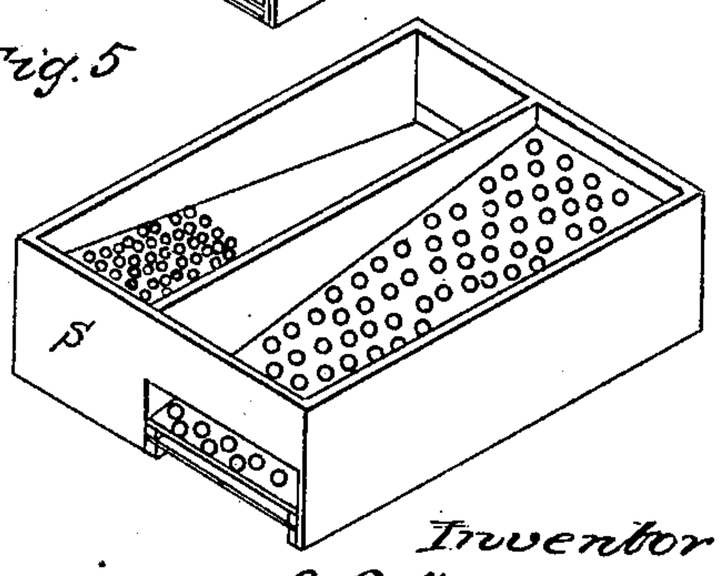



Fig. 5




Witnesses
John Shin.
John R Bradford.

Inventor
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# UNITED STATES PATENT OFFICE.

CHARLES B. HUTCHINGS, OF ROCHESTER, NEW YORK.

## GRAIN-SEPARATOR.

Specification forming part of Letters Patent No. 30,679, dated November 20, 1860; Reissued June 23, 1863, No. 1,802.

*To all whom it may concern:*

Be it known that I, CHAS. B. HUTCHINGS, of the city of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machines for Separating and Cleaning Grain; and I do hereby declare the following to be a full and accurate description of the same, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, same letters referring to like parts in all the figures.

Of said drawings Figure 1 is a side elevation of my machine. Fig. 2 is an elevation of the right hand end of Fig. 1. Fig. 3 is an elevation similar to Fig. 1 but with the side covering removed. Fig. 4 is a plan of the machine the top cover being removed. Fig. 5 is an isometrical perspective of the screen S. Figs. 1, and 3—and Fig. 6 is an isometrical perspective of said screen taken from the side opposite to that shown in Fig. 5.

The nature of this invention consists in an improved arrangement and combination of parts whereby wheat may be cleaned and separated from oats, small grain, &c., with greater ease and efficiency than has been heretofore accomplished. This arrangement and combination of parts will be best understood from a detailed account of the various processes which the wheat undergoes in the operations of cleaning and separating, which account I will therefore proceed to give. The grain being delivered on to the sieve (S) (on the side opposite to that shown in Fig. 1) to which a reciprocating motion is communicated by the action of the crank (C), it is partially freed thereby from coarse dirt which rolls down and off the sieve while the grain and finer impurities fall through and pass over the apron (A) and across a powerful blast drawn by the fan (F) up the tube (T), Fig. 4. By causing the grain to fall across this blast it is more effectually cleansed of all impurities than if it fell through it while no danger of choking the blast is incurred as there would be by the latter method. We may here note that the whole machine is divided by the diaphragm D, D, Fig. 4, into two sections in each of which blasts differing in intensity may be used. The wheat which falls through the first or coarser screen is guided by a plate beneath the sieve to that division of the tube T which lies to the left hand in Fig. 2—that is the tube T″, Fig. 4. Impurities such as light wheat, oats, &c., are drawn up and the heavier portion thereof deposited in the spout (E) while the dust, chaff, screenings, &c., pass on. At (I) in Figs. 4 and 3 is a plate or stop which checks the progress of this matter and while the very light portion thereof (such as dust and chaff) passes on and out of the fan, the screenings descend through the passage (*m*) seen in Figs. 1, 3 and 4 which corresponds to the spout (*m*) in Fig. 1.

From the spout (E), Figs. 1 and 4, the light wheat, oats, &c., fall on to the left hand section of the sieve S (as seen in Fig. 1). This sieve is constructed as seen in Figs. 3, 5 and 4 and consists of three sieves placed one above the other and pierced so that the light wheat will be delivered so as to fall across the blast which ascends the tube (T″) while the oats &c roll off and pass out of the machine. The blast which ascends the tube T′ is sufficiently strong to remove all dust, chaff, screenings, &c., but is not strong enough to carry over the small wheat, which consequently falls down and may either be mixed with the heavy wheat or kept separate as desired. The dust, chaff, screenings, &c., pass up the tube and are either blown out of the machine or descend through the spout (*n*) Fig. 4 according to their specific gravity.

The principle which is involved in this mode of separation depends upon the relative size and density of the large and small kernels of wheat and grains of oats &c. For while the latter (oats) are nearly as large as the large kernels of wheat they are quite as light as the smallest kernels; and thus the most efficient plan is first to separate the large and heavy kernels of wheat from the oats and light wheat by means of a powerful blast and then to separate the small wheat from oats, &c., by means of a screen. That this may be done effectually and easily I have found that the arrangement of parts previously described affords facilities which cannot be dispensed with, while by carrying the blast up and over the screen the machine is not only made very compact but the various parts of the material acted upon in its different stages are most readily deposited just where they are wanted.

I am aware that blasts varying in intensity and also screens of different sizes have been used in the same machine; and also that fans have acted both by blast and suction, and these therefore I do not claim; but

What I claim as new and desire to secure by Letters Patent is—

The arrangement of the tubes T′ T″ and sieves *s* with the spouts E, *n*, *m*, chamber I and fan F all constructed and operating substantially as and for the purpose set forth.

C. B. HUTCHINGS.

Witnesses:
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