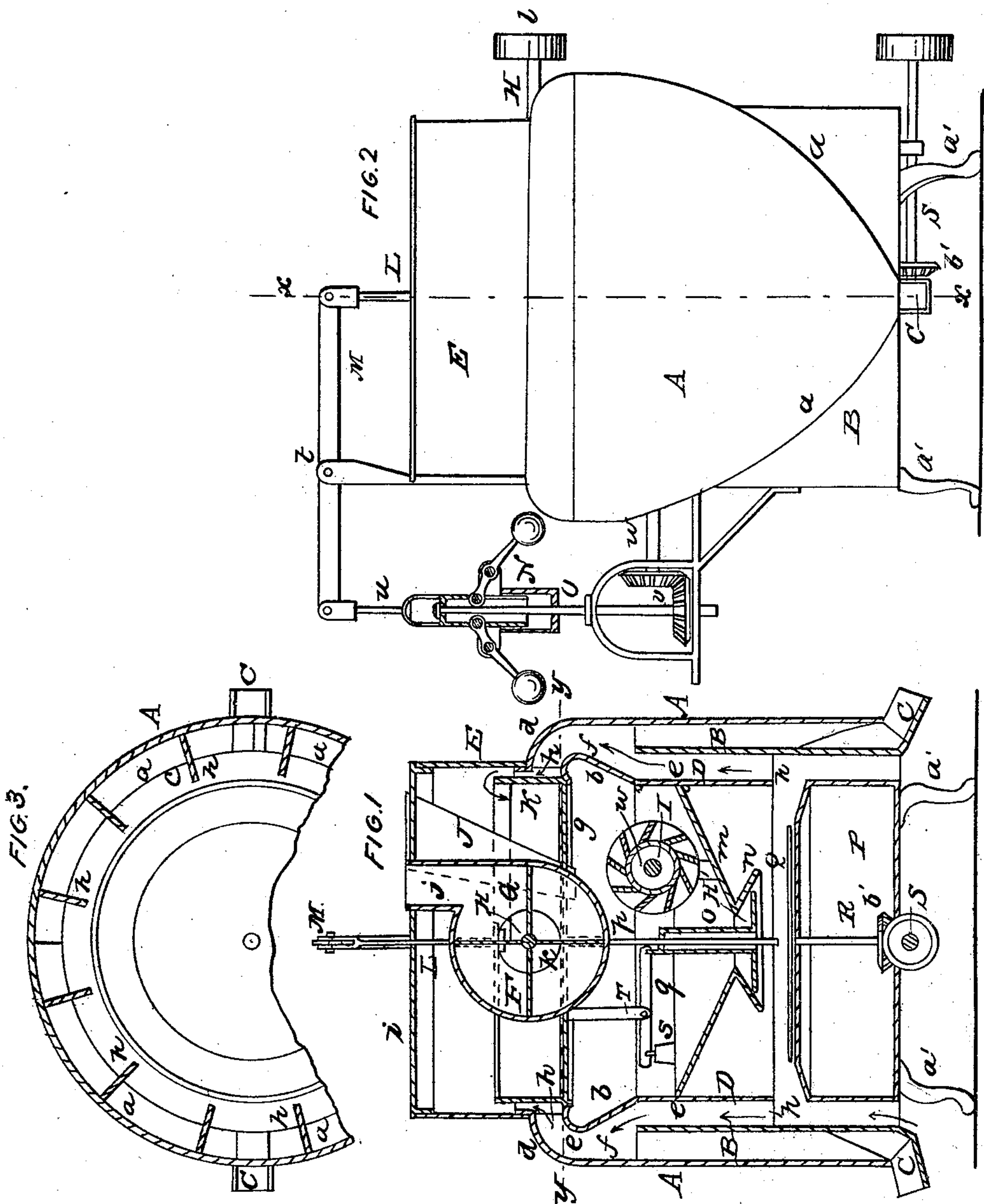


F. H. C. MEY.
Grain Separator.

No. 44,011.

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WITNESSES
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F. H. C. MEY, OF BUFFALO, NEW YORK.

GRAIN-SEPARATOR.

Specification forming part of Letters Patent No. 44,011, dated August 30, 1864.

To all whom it may concern:

Be it known that I, F. H. C. MEY, of Buffalo, in the county of Erie and State of New York, have invented a new and Improved Grain-Separator; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, an elevation of the same; Fig. 3, a horizontal section of the same, taken in the line *y y*, Fig. 1.

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

This invention consists in the employment or use of a wheel arranged in such relation with a hopper or grain-spout that the grain as it enters the separator will fall upon the wheel and rotate it, the latter giving motion to a governor, which is connected with a valve that controls the blast, all being arranged in such a manner that the strength of the blast which separates the light impurities from the grain will be made commensurate with the amount of grain passing through the machine, and the grain be perfectly cleansed, whether a greater or less quantity is made to pass through the machine in a given time.

The invention further consists in a novel arrangement of a suction-blast chamber and a grain receiving chamber, in connection with rotary fans, a rotary grain-discharging plate, and a self-adjusting valve, all being arranged in such a manner as to insure a perfect operation of the blast upon the grain and a thorough separation from each other of the light grain, sound grain, and light impurities.

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

A represents the external case of my invention, and B the inner case. These cases may be of cylindrical form, the inner one, B, being placed concentrically within the outer one, and the latter having a bottom formed of two inclined surfaces, *a a*, at opposite sides of B, said inclined surfaces forming grain-discharging spouts C C at opposite points of the machine. The inner case, B, does not extend upward as high as the external case, A, as will be seen by referring to Fig. 1, and within the

case B there is another case, D, the upper part, *b*, of which is of bell or flaring form, and is curved inward at its top, as shown at *c* in Figs. 1 and 2. The upper part of the external case, A, is also curved inward, as shown at *d*, and the space *e* between the case D and B communicates with the space *f* between D and A above B, as shown in Fig. 1.

On the upper part of the external case, A, there is fitted a cylinder, E, and the upper end of the case D is provided with a cover, *g*, and the spaces *e f* have vertical division-plates *h* fitted in them, which extend from the lower end of the cylinder E to the bottom of cylinder D, and divide the spaces *e f* into a series of vertical compartments. (See more particularly Fig. 1.) The cylinder E is also provided with a cover or top plate, *i*, and within the cylinder E there are placed one or more fan-boxes, F, which have spouts *j* extending up through the top plate, *i*, of the cylinder E. These fan-boxes have circular openings *k* at their sides, and the fans G are of the ordinary rotary kind, placed on a shaft, H, which projects through the side of the cylinder E, and has a driving-pulley, *l*, on its outer end. (See Fig. 2.)

Within the case D there is fitted an inverted conical partition-plate, *m*, having a circular opening at the center provided with a conical or flaring flange, *n*. (See Fig. 1.) Within this flange there is a circular plate or valve, H', which is attached to the lower end of a tubular slide, *o*, the latter being fitted loosely on a vertical shaft, *p*. The slide *o* is attached to one end of a lever, *q*, which has its fulcrum at *r*, and a weight or counterpoise, *s*, at its opposite end. (See Fig. 1.) There is also placed within the case D, above the partition-plate *m*, a wheel, I, which is constructed with buckets like an overshot water-wheel. This wheel I is just below a hopper, J, through which the grain is admitted into the machine.

K is an annular valve, which encompasses the fan-boxes F, and is connected by a rod, L, with one end of a lever, M, the latter being above the cylinder E, and having its fulcrum at *t*. The opposite end of the lever M is connected by a rod, *u*, with a governor, N, which may be of the ordinary kind, commonly termed a "ball-governor." The shaft O of this governor is connected by bevel-gears *v* with the shaft *w* of the wheel I. (See Fig. 2.)

The device is supported at a suitable height by feet a' , attached to the lower end of the case B, and underneath the case D there is a cylindrical box, P, on the upper part of which there is a circular horizontal plate, Q, the latter being attached to a vertical shaft, R, connected at its lower end by bevel-gears b' to a driving-shaft, S. (See Figs. 1 and 2.) The circular plate Q is just below the valve H' of the partition-plate m , as shown in Fig. 1.

The operation is as follows: The circular plate Q and fan or fans G are rotated by power applied to the shafts S H, and the grain to be cleaned is introduced into the machine through the spout j , and it falls from said spout upon the wheel I, and gives a rotary motion to the same. The shaft w of the wheel I, communicating a rotary motion to the governor-shaft O and the governor N, through the medium of the lever M, raises and lowers the valve K, which controls the suction-blast generated by the fan or fans G, said blast passing up through the compartments formed by the plates h between the cases D B and D A and into the cylinder E, and thence into the fan-boxes F through the openings k at their sides, as indicated by the red arrows in Fig. 1.

When the valve K is fully down or rests on the cover g of the case D, the draft is comparatively light or is checked, as it must necessarily pass up between the narrow space between the valve and cylinder E and over the top of the valve, and thence into the fan-boxes; but when the valve K is raised, as it will be under a rapid revolution of the governor N, the draft will pass directly under the valve and into the fan-boxes, and its strength be materially increased.

The regulating of the valve K, it will be seen, is done by the grain itself in passing into the machine and rotating the wheel I. When the feed of grain to the machine is large, the wheel I will be rapidly rotated and the valve K more or less raised, the reverse being the case when the feed of grain to the machine is small. The grain falls from the wheel I upon the valve H' , and passes out between the edge of said valve and the flange n , the valve H' being opened in a greater or less degree, according to the quantity of grain falling upon it. The valve H' , in consequence of being counterpoised, as described, is rendered self-adjustable, so that the opening

between its edge and the flange n will be enlarged or diminished, according to the quantity of grain passing through said opening. By this means the grain is discharged in a uniform manner all around the flange n , and falls from thence, in a scattered or equally-distributed state, upon the rotary plate Q, from which it is thrown by the revolutions of said plate into the annular draft-passage below the partition-plates h , where the light impurities are separated from it by the suction-blast, the sound grain falling from the machine from between the case B and box P, and the light impurities—such as dust &c.—and light grain are drawn upward, the light grain being deflected into the space between the cases A and B, in consequence of coming in contact with the flaring upper part, b , of the case D, the light grain being discharged from the spouts C C, while the dust is drawn up into the case E, either over or underneath the valve K, and into the fan-boxes F, from which it is expelled through the spouts j .

Thus it will be seen that the device is made by automatic means to operate perfectly, whether a greater or less quantity of grain is passing through it.

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

1. The wheel I, constructed and adapted to be rotated by the weights of the descending grain and arranged in relation to the feed-spout j as shown, in combination with the governor N and valve K, all arranged to operate substantially in the manner as and for the purpose herein set forth.

2. The self-adjusting or counterpoised valve H' , in combination with the governor-wheel I and with the rotary discharging-plate Q, arranged in relation to the draft-passage of the device and operating substantially as and for the purpose specified.

3. The arrangement of the three cases A B D, substantially as shown, to form the light grain-discharging receptacle and draft-passage, when said cases are used in combination with the fans G, wheel I, and valve K, to operate conjointly, as set forth.

F. H. C. MEY.

Witnesses:

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