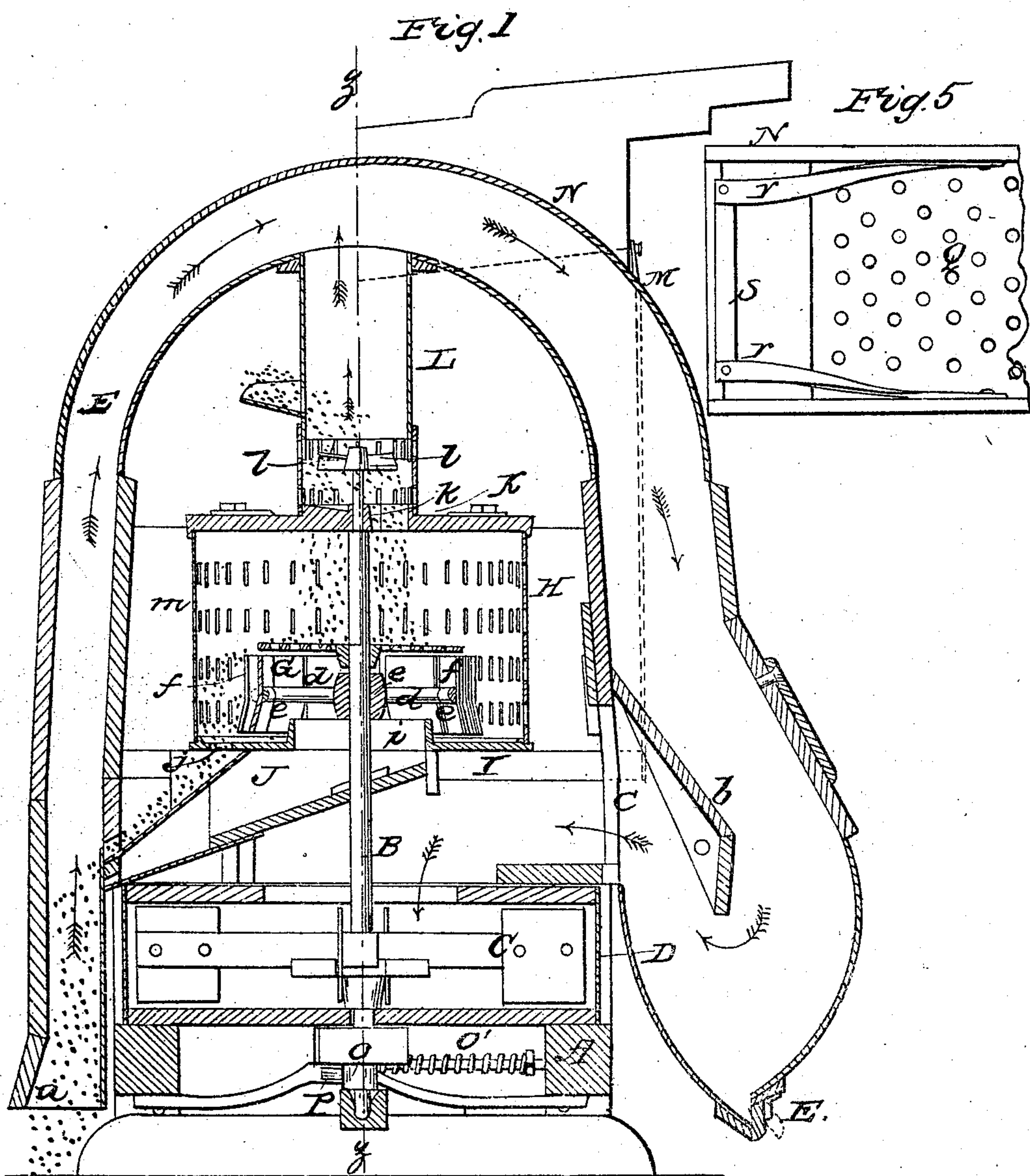


J. W. PATTERSON.  
Grain Cleaner and Separator.

2 Sheets—Sheet 1.

No. 40,942.

Patented Dec. 15, 1863.



Witnesses  
Geo. Coombes  
Geo. Reed

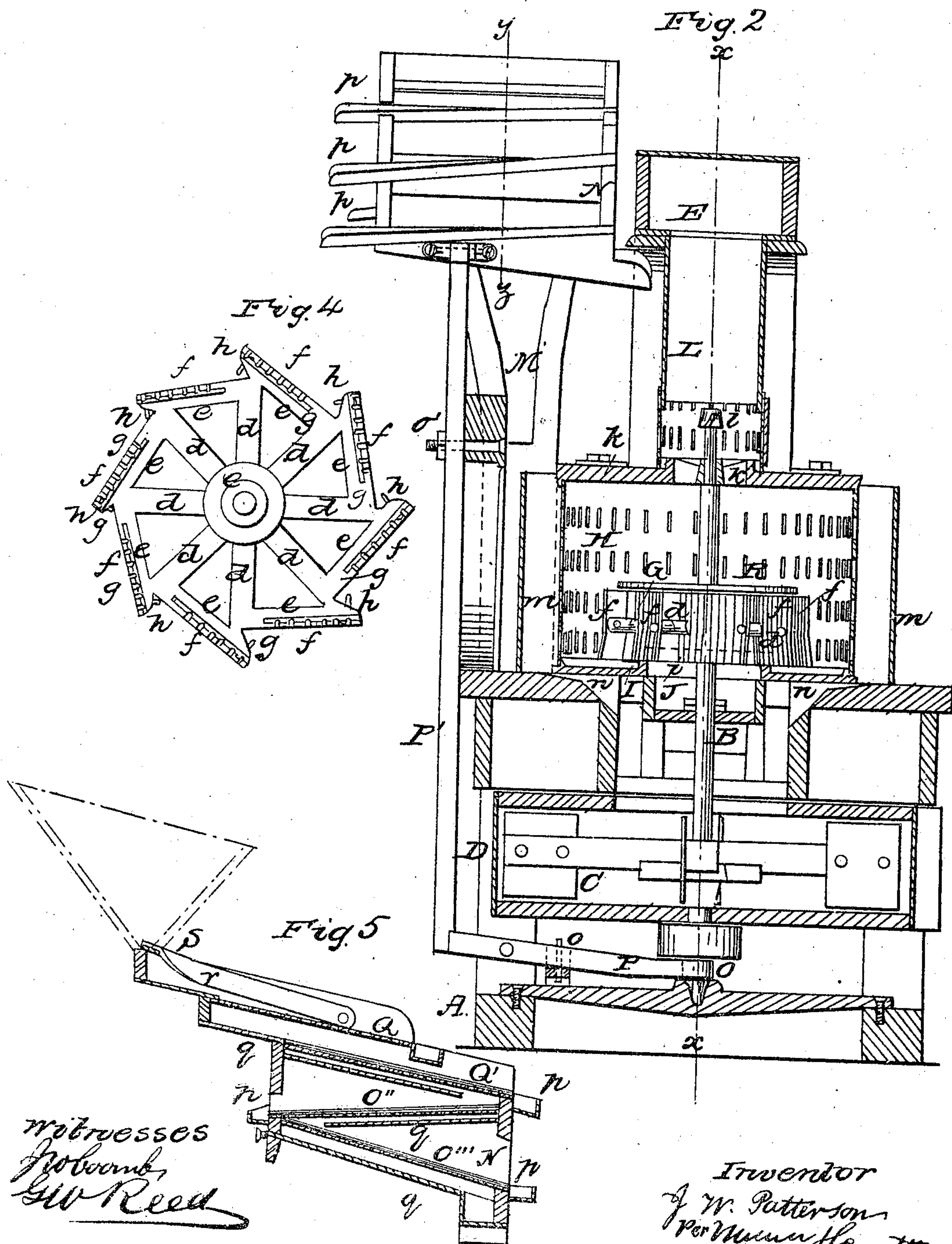
Inventor  
J. W. Patterson  
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Per M. H. C. Atty.



# UNITED STATES PATENT OFFICE.

J. W. PATTERSON, OF MONTICELLO, MINNESOTA.

## IMPROVEMENT IN GRAIN CLEANER AND SEPARATOR.

Specification forming part of Letters Patent No. 40,942, dated December 15, 1863; antedated December 12, 1863.

*To all whom it may concern:*

Be it known that I, J. W. PATTERSON, of Monticello, in the county of Wright and State of Minnesota, have invented a new and Improved Grain Cleaning and 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 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, a vertical section of the same, taken in the line *y y*, Fig. 1; Fig. 3, a section of a portion of the same, taken in the line *z z*, Fig. 2; Fig. 4, a detached plan or top view of the beater pertaining to the same; Fig. 5, a plan or top view of a portion of Fig. 3.

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

The object of this invention is to obtain a machine of simple construction which will effectually separate oats from wheat, and also separate smut and all other impurities from the grain.

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

A represents a framing, which may be constructed in any proper manner to support the working parts of the machine, and B is a vertical shaft, which is placed centrally in the framing A, and has a blast-fan, C, on its lower part, said fan being inclosed within a cylindrical case, D.

E represents a blast spout, the upper part of which is of semicircular form and extending down nearly or about vertically at two opposite sides of the framing A. One end, *a*, of this blast-spout is open, and the opposite end is provided with a flap, F, a short distance above which there is an inclined plate, *b*, behind which there is an opening, *c*, which forms a communication between the fan-case D and the blast-spout E. (See Fig. 1.)

On the shaft B, some distance above the fan C, there is placed a beater, G, which is formed of a series of radial arms, *d*, attached to a hub, *e*, the latter being keyed on the shaft B. The outer parts of the arms *d* are connected by oblique bars *e'*, as shown clearly in Fig. 4, and to these oblique bars *e'* beaters *f*

are attached, said beaters having a corrugated outer surface, and their upper parts being vertical and their lower parts a little inclining outward, as shown clearly in Fig. 4. The corrugations of the beaters *f* are in a vertical position, and the inner ends of the beaters are fitted in slots *g* in the bars *e'*, while the outer ends of the beaters are secured to the bars *e'* by screws or pins *h*. By this arrangement the beaters *f* may be adjusted to a certain extent farther inward or outward on the bars *e'*, as several holes may be made in each beater *f* for the screws or pins *h* to pass through, as will be fully understood by referring to Fig. 4. This beater G is encompassed by a perforated cylinder, H, which rests on a circular base-plate, I, the latter having a circular hole, *i*, at its center and an opening, J, near its edge.

J is an inclined spout which leads from the opening *i*, as shown in Fig. 1.

On the upper end of the perforated cylinder H there is screwed a horizontal plate, K, to which a vertical tube, L, is attached centrally. The lower part of this tube is perforated, and it has a bearing, *k*, fitted in it for the upper part of the shaft B. On the upper end of the shaft B there is fitted two spiral wings or arms, *l l*, the use of which will be presently explained. The perforated cylinder H is inclosed by side plates, *m m*, and the vertical parts of the blast-spout E, and the lower part of this inclosure communicates with the fan-case D by means of passages *n n*, both of which are shown in Fig. 2.

M is an upright spring or elastic support, to which a shoe, N, is attached. This shoe receives its shake motion from a cam, O, on the lower part of the shaft B and levers P P', the latter, P', being connected to the front or lower end of the shoe. (See Fig. 2.) The fulcrum of the levers P P' are designated by *o o'*. A spring, O', acts against the lever P and assists in giving the shake motion. The shoe N contains four screens, Q Q' Q'' Q''', and each screen is provided with a lateral discharge-spout, *p*, at its lower or discharge end, and has also an inclined plate or chute, *q*, below it. The screen Q'' has its discharge end at the back part of the shoe N. The arrangement of the screen is fully shown in Fig. 3. To the upper part of the shoe N there are attached two side



bars, *r r*, the ends of which are connected by a cross-bar, *S*. This cross-bar *S* is designed to be under the lower end of the hopper, and it keeps the discharge end or orifice of the hopper open, effectually preventing all choking and clogging. The shaft *B* may be rotated by any convenient power, and the grain passes from the hopper upon the upper screen, *Q*, in the shoe *N*, and the wheat is discharged from the spout *p* of the lowest screen, *Q'''*, into the vertical tube *L*, the screens in the shoe effectually separating oats from the wheat as well as straw and other foreign substances. The wheat is discharged from the lower spout, *p*, into the tube *L*. The rotating arms *ll* scatter the grain and cause it to be well distributed within the cylinder *H*, the beater *G* by its rotation breaking the smut and scouring the grain, which is discharged through the opening *j* into the spout *E*, where it is subjected to a blast generated by the fan *C*, the direction of which is indicated by the red arrows in Fig. 1. The light impurities are all drawn up by the suction through the spout *E* and into the fan-case *D*, from which they are expelled by the fan. Chaff and substances of value collect in the lower part of the spout below the plate *b*, and are discharged from the spout through the flap *F*. By adjusting the plates

*f* farther in or out on the bars *e'* their action on the grain may be modified to a certain extent. The dust that is expelled through the perforations of the cylinder *H* is drawn down through the passages *n n* into the fan-case *D*, and expelled therefrom with the dust that is received into the fan-case from the spout *E*. Over the beater *G* there is placed a perforated plate, *R*, to prevent the admission of grain within the beater. The passage of the generator by the revolution of the beater *G* is indicated by the red arrows in Fig. 1. The bar *S* vibrates, of course, with the shoe *N*, and, as before stated, effectually prevents the lower end of the hopper becoming choked or clogged.

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

1. The revolving spiral arms *ll*, attached to the shaft *B*, where said arms are used in connection with the beater *G* and perforated cylinder *H*, as and for the purpose specified.
2. The bar *S*, attached to the upper part of the shoe *N*, to prevent the choking or clogging of the hopper, as specified.

J. W. PATTERSON.

Witnesses:

H. KREIS,

H. F. LILLIBRIDGE.