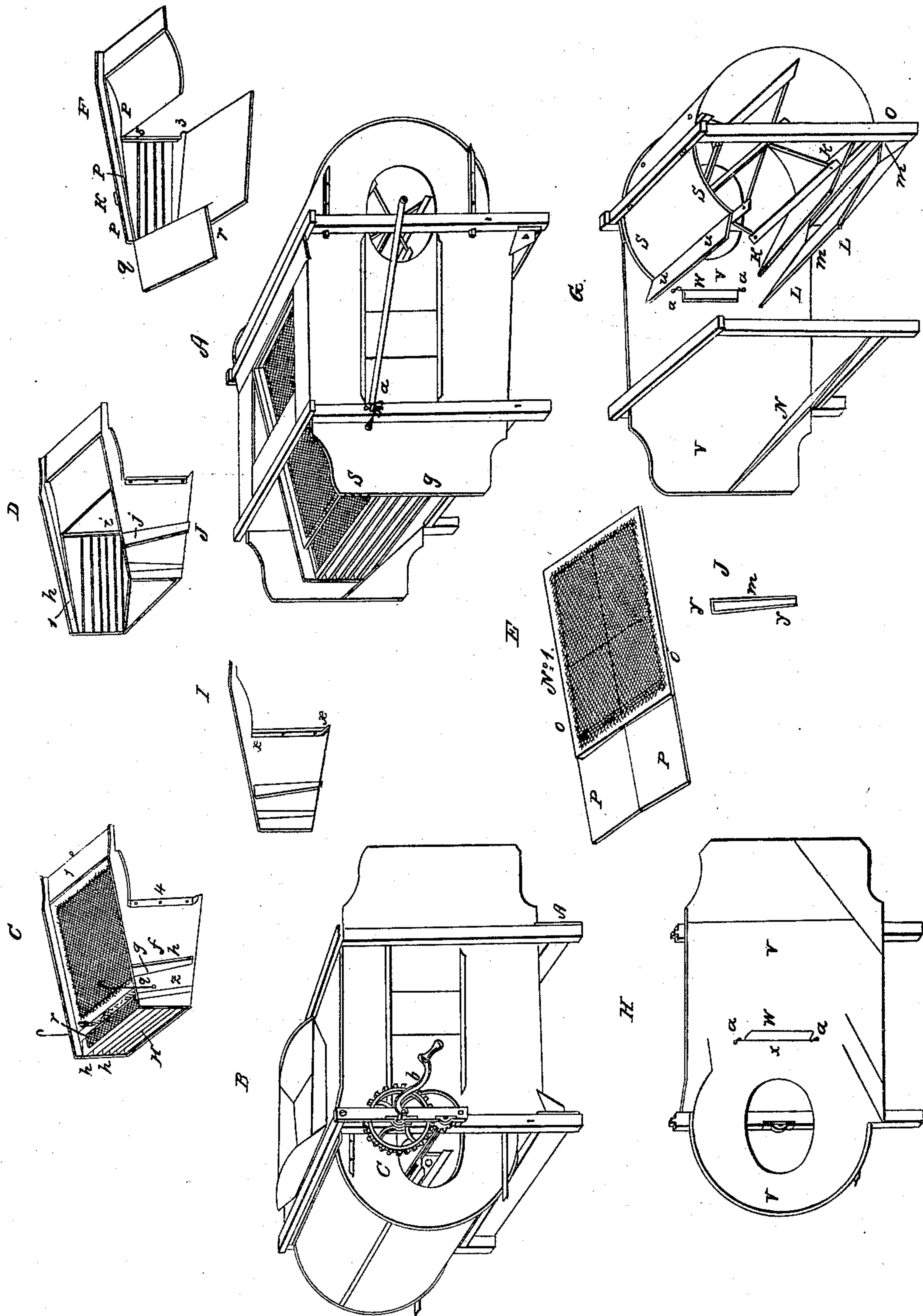


T. J. DOYLE.
Grain Winnower.

No. 8,884.

Patented April 20, 1852.



UNITED STATES PATENT OFFICE.

THOS. I. DOYLE, OF WINCHESTER, VIRGINIA.

WINNOWER.

Specification of Letters Patent No. 8,884, dated April 20, 1852.

To all whom it may concern:

Be it known that I, THOMAS I. DOYLE, of the town of Winchester, county of Frederick, and State of Virginia, have invented
5 and made new and useful Improvements on Machines for Winnowing and Cleaning Grain of All Kinds; and I hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the
10 annexed drawings, making a part of this specification, in which—

Diagram A is a perspective view of machine, showing the right side thereof, with
15 reciprocating or shaking rod *a, a*. Diagram B is perspective view of machine, showing left hand side, crank-handle, *b*, master wheel, *c*, and pinion wheel, *d*, and fan wheel, *e*. Diagram C shows perspective
20 view of shoe or shaker, *f*, detached, with riddles and sieves *g, g, h, h*. Diagram D is a longitudinal section of shoe or shaker, showing side vents or openings *i, i*, for the escape of cockle, screenings and offal, the
25 same passing down on the outsides of the shoe, through the side spouts or outlets *j, j*, the cockle being delivered from the sides of the shoe or shaker, and deposited under the grain board *k, k*, onto the screen board *L L*,
30 in Diagram G. The cockle, screenings, &c., passing off the screen board into the drawer or screen box, *m, m*, which is under the front part of case or fan frame, no such spouts,
35 troughs, or conveyers, ever having been used or applied to a winnowing machine, for the purpose herein specified, as is believed. Diagram E shows screen No. 1 or cockle
40 sieve, which may be either single or double; that is, with a sieve of different size, wire, and coarseness, with double sloping bottom *p, p, p* between the sieves. This bottom may
45 be made of tin or other metal, of wood or other material, and the bottom may slide in a groove, or may be fixed fast. *o, o*, show slots or openings in the diaphragm frame of
screen No. 1, or cockle riddle; these slots or openings, *o, o*, are for the escape of the
50 cockle, and screenings, out from the screer or cockle riddle No. 1. Diagram F shows longitudinal section of shoe or shaker, with compound or diverging grooves *p, p, p*, into
which works or is adjusted top screen or
55 which screen or riddle, No. 1, may be used an adjustable or sliding smut board *q r*, if required, or separate, if necessary, which

sliding smut board *q, r*, is used with riddle or screen No. 1, for the more perfect or thorough screening of the grain. This adjustable or sliding cheat or smut board can
60 be pushed inward or drawn outward so as to regulate the cleaning of the grain also. Diagram G shows the concave or wind catcher or inner lining of any material suitable, *s, s*, bearing up against the drum or
65 cylinder, or front cap-piece *t, t*, which concave is a continuation of top part of drum, which passes under the apron part of shoe or shaker, and connects with the wind board
70 *u, u*. This concave (*s, s*) is used to prevent the loss, or escape of the wind or air current, upward against the bottom of the shoe or shaker, and from being expended, and,
75 instead, conducted by the concave into the interior of the shoe or shaker, and thereby increasing the volume of the current of air within the riddles and sieves. Diagram H
shows the inner side of side board of case, *v, v*. Upon, and attached to the side at *x*,
80 are flaps, or wind catchers, *w, w*, which may be fastened permanently to the sides of case, board *v, v*, or they may work free, and hinged, or working in eyes or staples, so as
85 to give, with the oscillating of the shoe or shaker. These flaps or wind catchers are used to prevent the loss and escape of the air or current of wind, which would otherwise pass off between the sides of the case
90 and shoe or shaker. These flaps are leveled on their edges. Diagram I shows the front end of shoe or shaker, with the end edges beveled at *X, X*, inwardly, toward the riddles and sieves, thereby causing the freer
95 passage of the air current, into the shoe, onto the riddles and sieves or screens. Diagram J shows the wedge like formed, dove-tail cleat, *y, y*, which fits into the dove-tail groove *z, z*, on side of shoe or shaker
100 Diagram C. By the use of these cleats, let into the sides of shoe or shaker, said shoe or shaker is prevented from warping, springing, winding, and splitting. These cleats are driven, or forced in, after the manner of keying.

To enable others to make, construct, and
105 use my improvement, I will proceed to describe the same, the nature of which construction, consists in using within the usual, or ordinary kind of fan case, or frame, a peculiarly adapted sieve or screen marked
110 No. 1. which I designate as the top screen, or cockle sieve, or riddle, constructed of the

usual sizes of wire, or webbing stretched or strained over a frame, which frame is of oblong shape, having a bottom, either movable in a slide, or fixed permanently and made of tin, or other metal, wood, or other materials, and is sloping, or is slightly an inclined plane, longitudinally from either side of center. Near the end of this frame, on either side thereof, are oblong openings or slots, of any required size. These openings I designate as the cockle vents, or outlets for screenings, &c. Opposite to these openings are apertures or slots through the shoe or shaker, immediately in the grooves into which the top screen fits. These apertures or slots open into spouts or lateral troughs, attached to the outer sides of shoe or shaker, sloping forward, or backward, or may be perpendicular. Through these spouts or troughs, pass the cockle or screenings from off the top screen, and are deposited, down the outside of the shoe or shaker, onto the screen or cheat board and pass off, or fall into the screen box, underneath the fan drum or case. This screen may be made double, having a sieve on each side of frame, and of different coarseness or fineness, and the sieves may be reversed or changed if necessary. This screen sliding into grooves in the shoe or shaker, is kept in place by sliding latch, catch, pin, bolt, button, or any suitable contrivance. This screen slides in its place and lies immediately below the hopper or feeder, and between the apron of shoe, and the hopper. This screen No. 1, though longer than the other riddles, does not go forward in a line with the ends of the riddle or sieves, but within four or six inches (more or less if required) of the end of shoe or shaker, and extending backward under the hopper, close, or flush up to the shoe or shaker, brace-bar whiffletree or stay rail, so that none of the grain can fall down from hopper immediately on to the shoe or shaker apron, but falling on the screen No. 1 the grain is cleaned of cockle and other refuse matter. The advantage of this arrangement, is: that the cockle, screenings, &c., are separated principally from the grain immediately after falling from the hopper, and thereby prevented from passing off in greater quantity with the grain, onto the lower riddles and screens. Together, and in combination with this top screen No. 1. is used a smut or cheat-board arranged so as to be adjustable or sliding. The object and use of this smut-board *q. r.* shown in Diagram C, is for the purpose of receiving the grain, after it passes off over the meshes of the top screen No. 1. as shown in Diagram C. The grain falls then on the cheat board, which projects at a proper distance beyond the end of screen No. 1. The further object of this smut or cheat board is, that the smut, cheat

and other impurities, lighter than the grain may be thrown on to the tailing board N, shown in Diagram G. while the grain passing off the smut or cheat-board falls through the wheat riddle *s.* shown at Diagram A, thence onto the lower screen *g.* Thence the grain passes onto the grain board *k. k.* and is delivered in front of the fan at *o*, Diagram G, while the cockle passing through the lower screen *g* is delivered into the cockle or screening box *m.* shown in Diagram G.

Another feature or improvement of my machine, is the concave or wind economizer, connecting with the wind board under shoe or shaker, and fitting up close or flush to drum cap, or stay bar. This concave or wind economizer, is immediately below the shoe or shaker apron, and is used, to prevent the escape and loss of air upward, against the shoe or shaker, and thereby causing a greater volume or current of air to pass among the screens and riddles.

Another feature or improvement, is the beveling of the front or butt end edges of the shoe or shaker, the beveling running inward, toward the riddles and screens. In addition thereto, and in combination therewith are side cleats, or air conductors, or flaps, attached to, or working loose on hinges or joints, or spindles, on the inner sides of case of fan frame. These air conductors have their inner edges beveled, fitting to, corresponding beveled cleats, attached to sides of shoe or shaker, and are used for preventing the escape of air past and between the sides of case and shoe or shaker, and, instead, conducting the current or draft of air into the riddles and screens.

What I claim as my invention and improvements, and desire to secure by Letters Patent of the United States, is herewith set forth in detail:

1. I claim in combination with the sides, openings, discharge outlets, or passages *o, o*, Diagram E. the invention use, and application of the sliding, diaphragm with double sloping bottom, *p, p, p*, in Diagram E. This diaphragm bottom, as shown, and used, has a double slope, or is a double inclined plane, outward, inclining from each side of its elevated longitudinal center.

2. I claim the use, application, and arrangement of an adjustable, or sliding cheat or smut-board *q. r.* as shown in Diagrams C. and F. and the same also in combination with the top screen No. 1. with side apertures or outlets *o. o.* as shown in Diagram E. for the purpose as hereinbefore fully specified.

THOMAS I. DOYLE. [L. s.]

Witnesses:

JOHN S. GALLAHER, Jr.,
SAML. GRUBB.