

H. B. James.

Smut Mill.

No. 11,195.

Patented Jun 27, 1854.

Fig 2

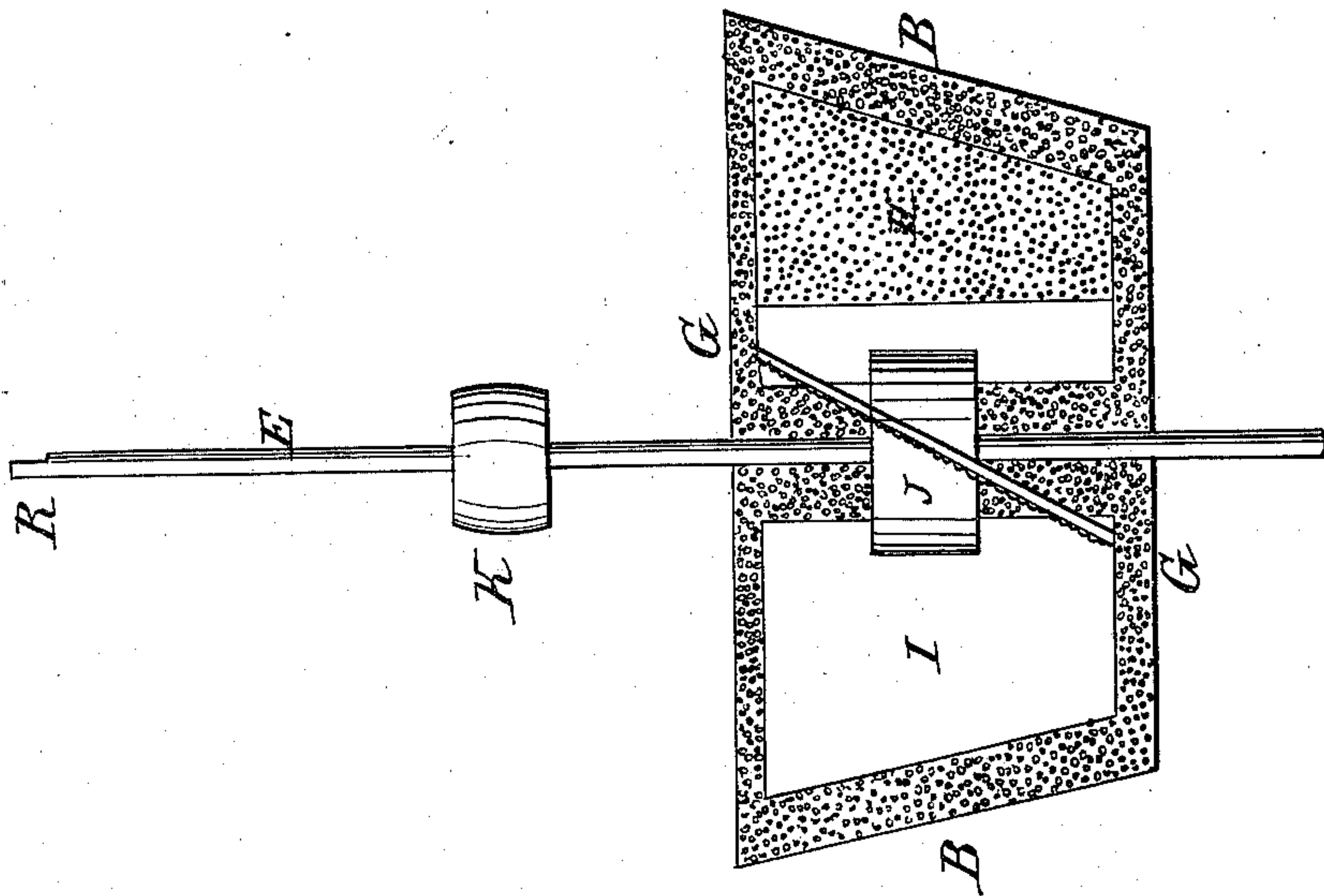
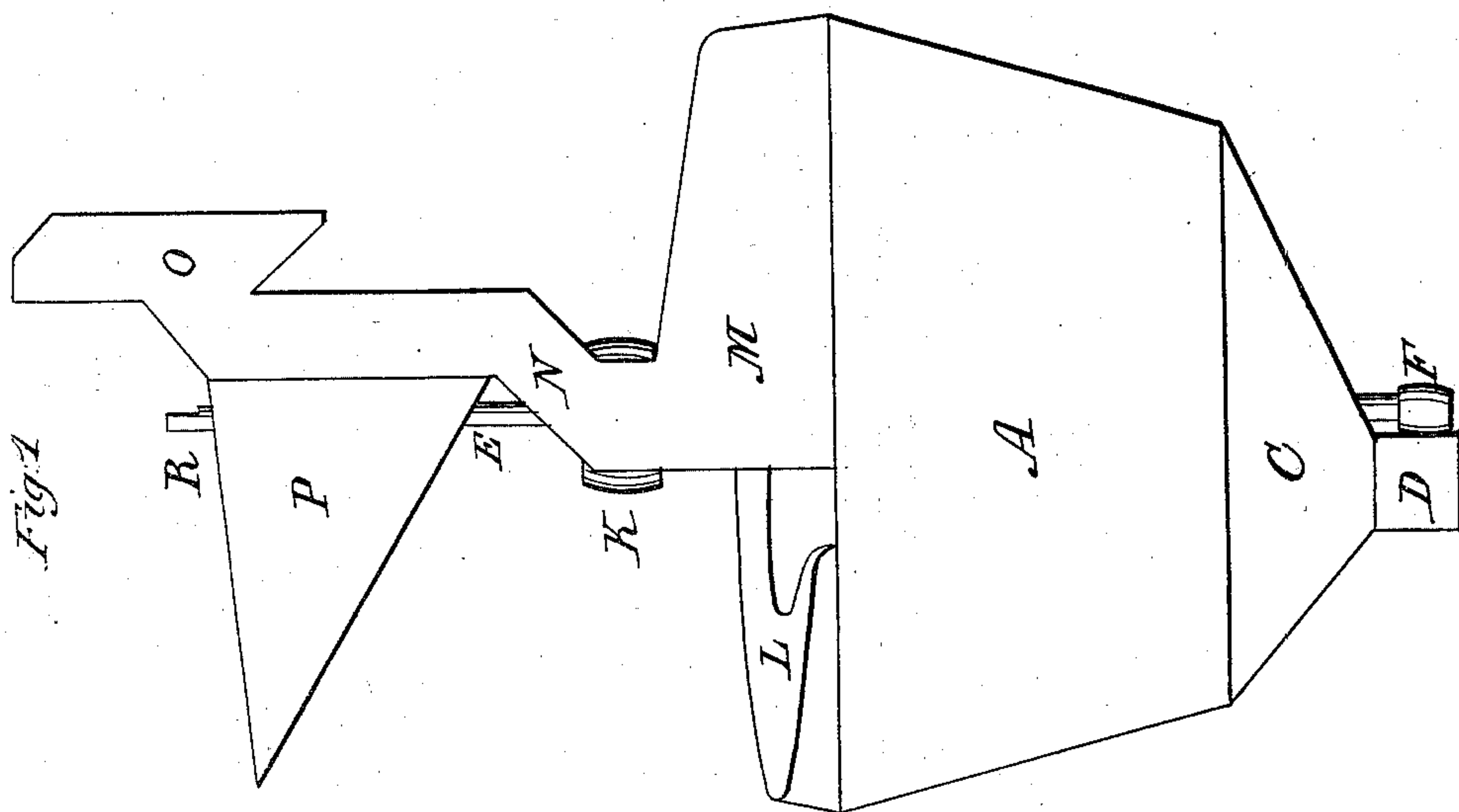


Fig 1



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY B. JAMES, OF TRENTON, NEW JERSEY.

SMUT-MACHINE.

Specification of Letters Patent No. 11,195, dated June 27, 1854.

To all whom it may concern:

Be it known that I, HENRY B. JAMES, of the city of Trenton, in the county of Mercer and State of New Jersey, have invented
5 a new and useful Machine for Scouring and Cleaning Grain, called a "Grain-Scouring Separator," for Farmers and Millers; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference
10 being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is an external view of the machine in its proper vertical position, Fig. 2
15 is a view of the shaft, fan, and a section of the roughened lining.

The case A (which contains the fan and the lining B, B) is airtight and inclosed beneath by an irregular funnel-shaped concave C, having an air passage and discharge
20 flue D, near the center. The fan shaft E projects through the center of the concave and is supported by a step F, outside of the flue. The upper end is supported in a similar manner. The lining (B B, showing
25 the inner surface) is sheet metal roughened by indenting and piercing the entire surface from the outside. As the grain may wear the inner surface it will continue to
30 be rough, if no part is left entirely plain, and is consequently of a self-sharpening nature. The fan which consists of a single set of wings, inclined in the position of
35 G G, have their upper surfaces H, roughened; they may have pieces added, roughened similar to the lining, or other projections of iron on their surface.

I shows the back of a wing, J the hub by which the wings are secured; they are
40 caused to revolve by the pulley K, with the roughened surfaces acting on the grain within the case, by scouring and winnowing at the same time. The top of the case is inclosed and provided with an air passage
45 of a spiral form running upward L, M, on the out edge of the head and case, open beneath to receive the air from the front of the fan wings. The highest end M, is surmounted by a flue with curves or offsets
50 N, O, forming a spiral and zigzag air-passage over the scouring fan and air-tight case. The grain is admitted in as wide a sheet as possible above the curve N and drops gently from the inclined hopper P, it
55 crosses the blast within the flue, and rebounds from the ledge below formed by the

curve N and is thus checked, and scattered, in its descent, the full discharge of air from the large end of the spiral passage, and the fan, is forced up on the side of the flue
60 where the grain enters, thus separating and carrying upward the substances of a lighter nature than the grain and the smut ball, &c., which are carried against the side of the flue O, the heavier falling out through
65 an aperture below, and the lighter is carried out the end of the flue above in any desirable direction, by the air. As the grain passes through the discharge flue D it is again winnowed by the air rushing in to supply
70 the fan.

Suitable screens may be suspended over the hopper P, in the usual mode, or by springs of unequal stiffness, heavy ones being near the shaft; and which may be
75 shaken without much jarring or friction by means of the eccentric R on the upper end of the vertical shaft of the fan, having a connection with the screens, or a shoe containing them, by a collar, slot, or bearing.
80 A screen may also be placed under the flue D. This differs from a former machine patented by me May 17th, 1844, in the various particulars already described, one set of inclined wings is new in the combination
85 and is more generally useful, being more compact and portable and will do the work with less power.

A hand machine may be constructed with a case of cast or sheet iron 8 or 9 inches deep,
90 18 inches in diameter above and 14 below, the concave C three inches deep, the flue D 3 inches, with capacity 2 by 5 inches, the flue N, O; the same capacity, the width of the spiral L, 5 inches, the height at M 4
95 inches, the flue and the spiral uniting the widest way, the angle N, about half way between a vertical and a horizontal position, the fan wings about half that distance from a vertical position, and may be in either di-
100 rection, the height from the curve N, to O, about 8 inches, the pulley 3 inches, weight of 3 or 4 ounce pieces added to each wing will have a tendency to keep up the motion while acting on the grain. No very sharp
105 edges should be on them. They should curve backward at their extremities, and a space between them, and the case or lining should be about an inch and a fourth.

A suitable frame may be constructed for
110 supporting the machine and the screens in a portable form; for a hand machine a 9

inch belt wheel on a vertical shaft is necessary, with a 3 inch bevel pinion on the shaft and a 12 inch driving wheel on a horizontal shaft, with a crank, a belt passing around
5 the belt wheel and pulley, with the flue standing within it, between the wheel and pulley. Eight hundred revolutions per minute are required for wheat and six hundred for buckwheat. The eccentric may be
10 made by turning down the end of the shaft about one inch in length, with the shaft one fourth of an inch out of center.

Having thus described my buckwheat and

smut machine and grain separator, I do not claim, separately the parts herein specified, 15 but

What I do claim is.

The combination of the hopper P, trunk N, spiral passage L, and separator O, effected by means of a common air-tight cas- 20 ing in the manner, and for the purposes set forth.

HENRY B. JAMES.

Witnesses:

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A. C. YARD.