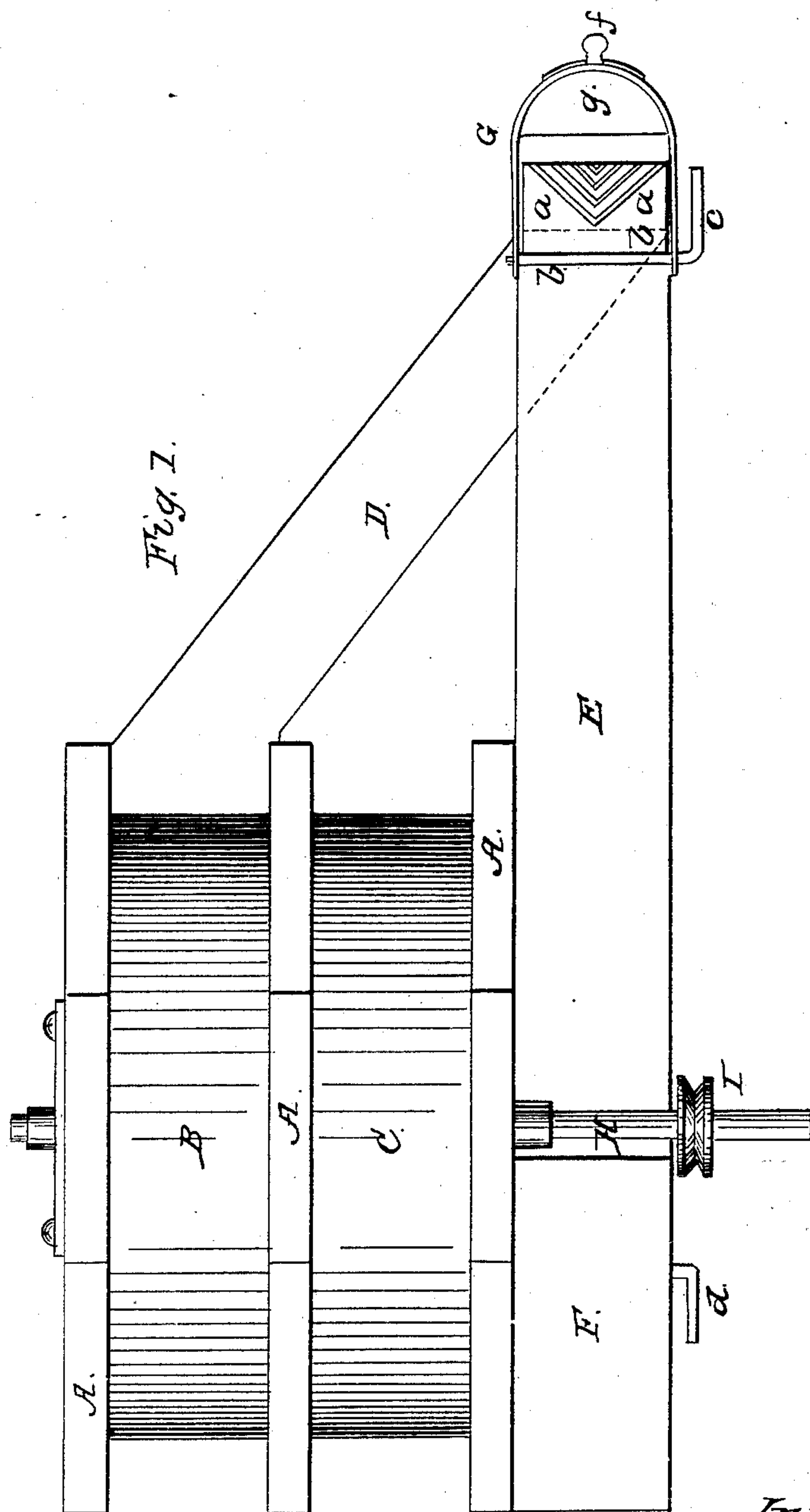


J. OUTRAM.
Grain Separator.

No. 30,540.

Patented Oct. 30, 1860.



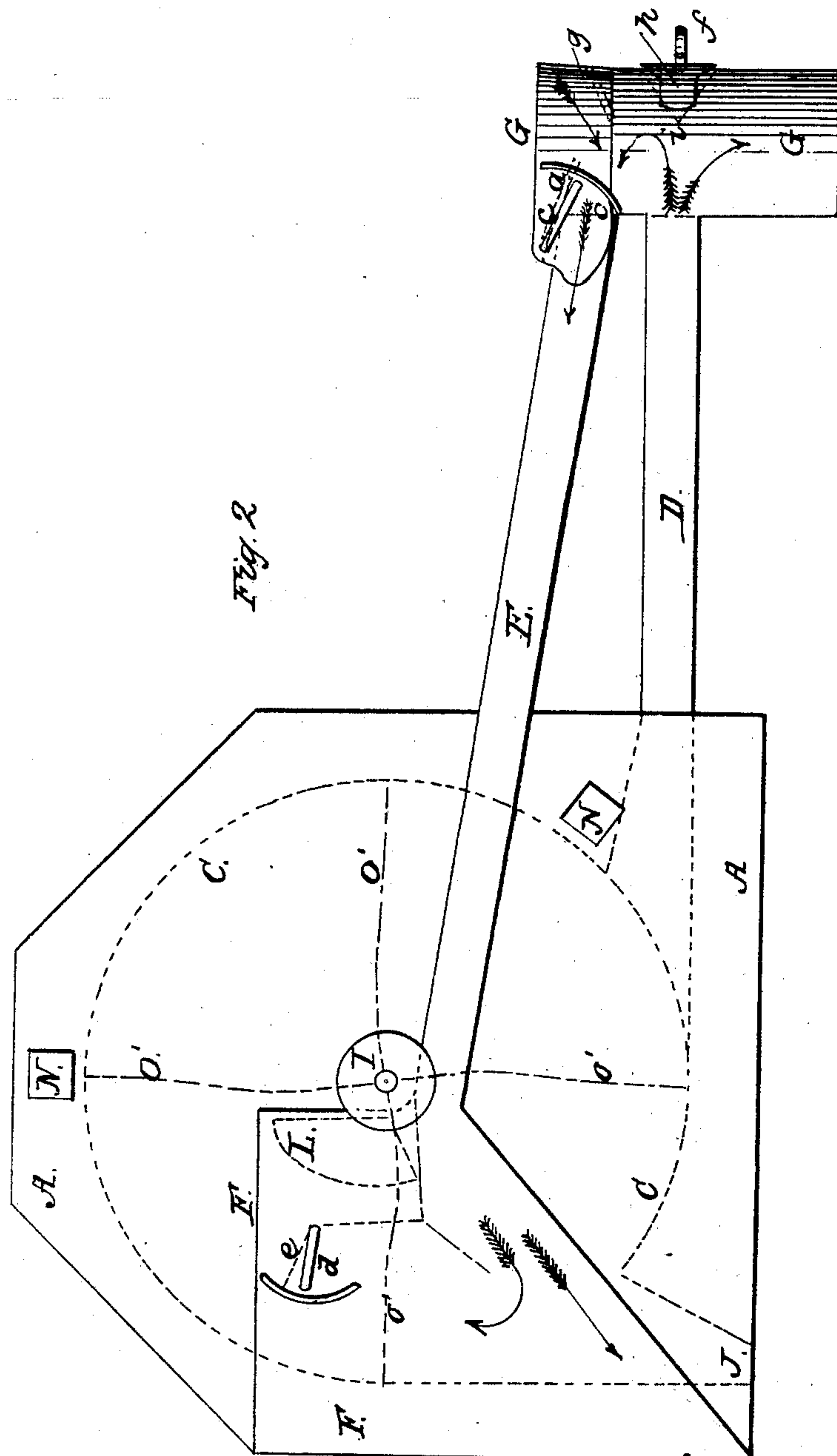
Witnesses.
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J. A. Howard

Inventor.
John Outram
By his Attorney
Chas. T. Stanbury

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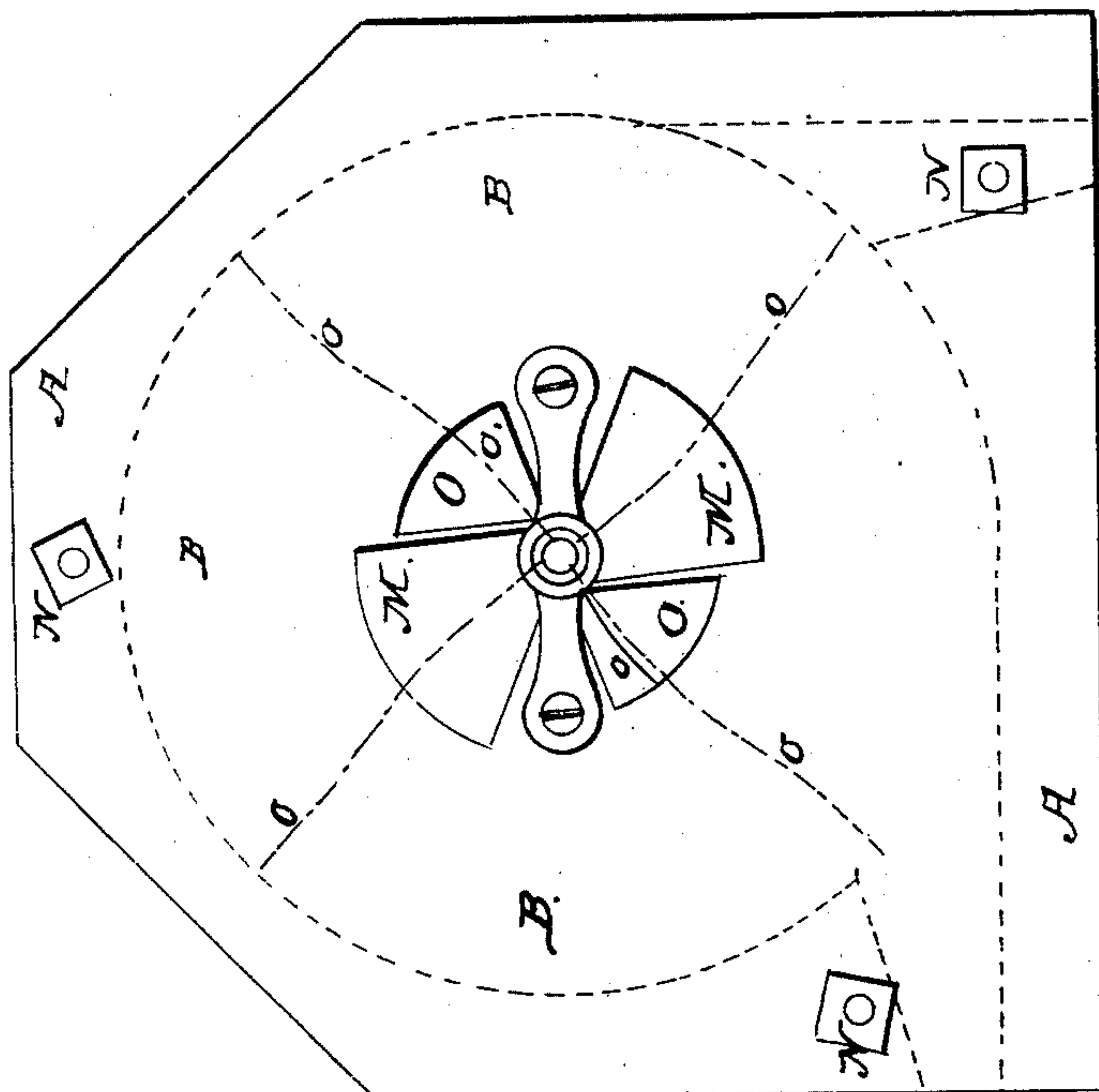
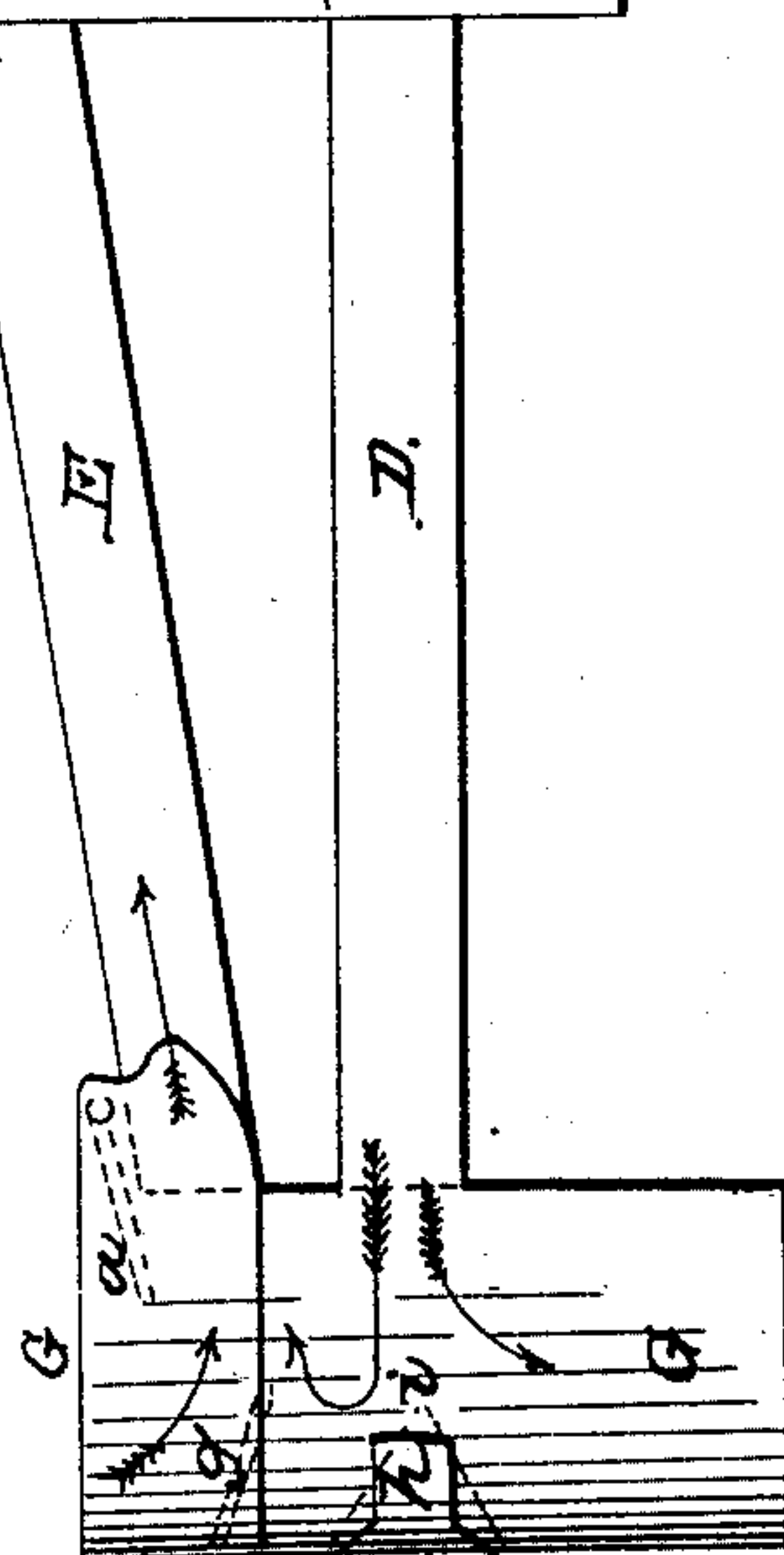


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN OUTRAM, OF ELMIRA, NEW YORK.

MACHINE FOR CLEANING GRAIN.

Specification of Letters Patent No. 30,540, dated October 30, 1860.

To all whom it may concern:

Be it known that I, JOHN OUTRAM, of Elmira, Chemung county, State of New York, have invented a new and useful
5 Mechanism for Cleaning Grain; and I do hereby declare the following to be a correct description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

10 The same letters refer to like parts wherever they occur.

Figure 1, is a top view of my machine for cleaning grain. Fig. 2, is an elevation of one side, and, Fig. 3, is an elevation of the
15 other side.

The nature of my invention consists in the form, construction, and operation of the machine hereinafter described.

A, shows the frame or side plates, B, the
20 blast cylinder, containing fan or vanes *o, o, o*; C, the suction cylinder, containing fan, or vanes *o', o', o'*; D, the blast pipe; E, suction pipe; F, separating chambers; G, grain feeding pipe; H, shaft on which is
25 fixed the fan vanes; I, grooved pulley on shaft H; J, opening through which the lighter portion of refuse is carried off; K, door and opening through which the heavier portion falls to ground; L, opening from
30 separating chamber F, into fan chamber C, and through which the lighter part of the refuse is drawn by suction; M, door of opening O, in side of cylinder B, to supply air for blast; N, nuts and bolts holding the ma-
35 chine together; *a*, ridged or corrugated apron; *b*, rod forming hinge of said apron; *c*, arm or handle by which to change inclination of apron *a*; *d*, arm or handle by which to regulate valve door *e*, leading from sep-
40 arating chamber F, through opening L, into fan chamber or cylinder C; *f*, button or handle to move the angular deflector *i*; *h*, spring attached to *f*; *g*, stationary deflec-
45 tor; *o*, and *o'*, the vanes of the fans.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

Construction.—The fan cylinders B, and
50 C, are held, and securely fastened to side plates A, by bolts and nuts N. On the outer side of cylinder B, is an opening O, to admit air. From this cylinder a blast pipe D, extends to the pipe G, and from cylinder C, an opening J, to the ground. In the
55 side of C and communicating with the separating chamber F, is an opening L, and

from pipe G, to separating chamber F, is a communication by suction pipe E. There is an opening with door K, from F to the ground. In the chamber F, are partitions
60 shown by dotted lines and a valve door *e* to regulate the quantity of air to be admitted.

In pipe G, the apron *a*, is made to turn on its hinge *b*, its surface being corrugated with radial gutters or ridges. *g*, can be
65 made either stationary or movable, but inclined as shown.

i, is a deflector having two converging planes, made at a convenient angle, and is made movable in a vertical direction.
70

f is a button by which *i* is moved and *h*, a spring guide made fast to the shoulder of *f*, and bearing with its elasticity against the outside rounded part of G.

The door M, is made to open and close
75 the openings shown at O, by a revolving movement. Pulley I is made fast to fan shaft H, and grooved to receive a cord or belt from which to receive its motion.

Operation.—The machine or device is
80 placed securely on the top of one side of the curb of the millstones, the pipe G being arranged above, with its lower end in, the eye of the stone. The dandel standing as usual on the bail and in the center of said
85 pipe G with the usual provision for shaking the shoe. The fans are turned by communication from any proper part of the machinery of the mill, by a cord passing around the grooved pulley I, thus causing a blast of air
90 along and through the pipe D. A part or the whole of this blast may be diverted into the eye of the stone by the movable deflector *i* or a part or the whole may be sent upward over the deflector *i* and under the stationary
95 deflector *g*, into and through the suction pipe E and into the separating chamber F thence through the opening L into the cylinder of the suction fan C and out at the pipe opening J. The grain to be cleaned
100 and ground, falls from the shoe into pipe G, and upon the inclined corrugated apron *a*, these corrugations acting to spread the falling grain, as it were into a thin sheet, passing thence in its fall, across and through
105 the suction current of air, which is made stronger or weaker to suit the grain, and the condition of the grain to be cleaned; it now strikes against the deflector *g*, and passes across and through the blast current of air
110 from pipe D, and thence into and between the stones.

It is obvious that the grain in its passage from the shoe to the stones, through this machine, has a double chance of being cleaned of its dirt and impurities, by the
5 operation of the two currents of suction and blast respectively, above and below the deflector G. By means of the under plane of the deflector *i*, the stones are fed with such a blast of cool air, as the miller may
10 desire, and this acts to prevent the heating of the stones.

The refuse taken from the grain by the action of the different blasts, is carried through pipe E, to the separating chamber
15 F, the heavier portion thereof, falling out through the opening K, at the bottom of this chamber. The dust and lighter particles are drawn up, passing by the regulating valve door *e*, through opening L into fan chamber
20 C and out at the discharge pipe J.

The valve door *e* is set to any desired angle by means of handle *d*, and regulates the draft of fan C. A similar regulation is made for draft of fan B, by opening or

closing more or less the openings O, by re- 25
volving door M.

The double deflector *i* is adjustable at will, by sliding it up or down by the button *f*.

The apron *a* may be deflected at will and set to any desired angle, by the arm or han- 30
dle *c*.

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

1. The arrangement of blast and suction 35
fans on a horizontal shaft, in connection with separating chamber F, and pipes E, D, and G as herein described and shown.

2. The movable double acting deflector *i*, in the pipe G, constructed and operating in 40
the manner herein described and shown, for the purpose of dividing and directing the currents of air upward and downward.

JOHN OUTRAM.

In presence of—

NEWTON P. FASSETT,
RICHARD LONG.