

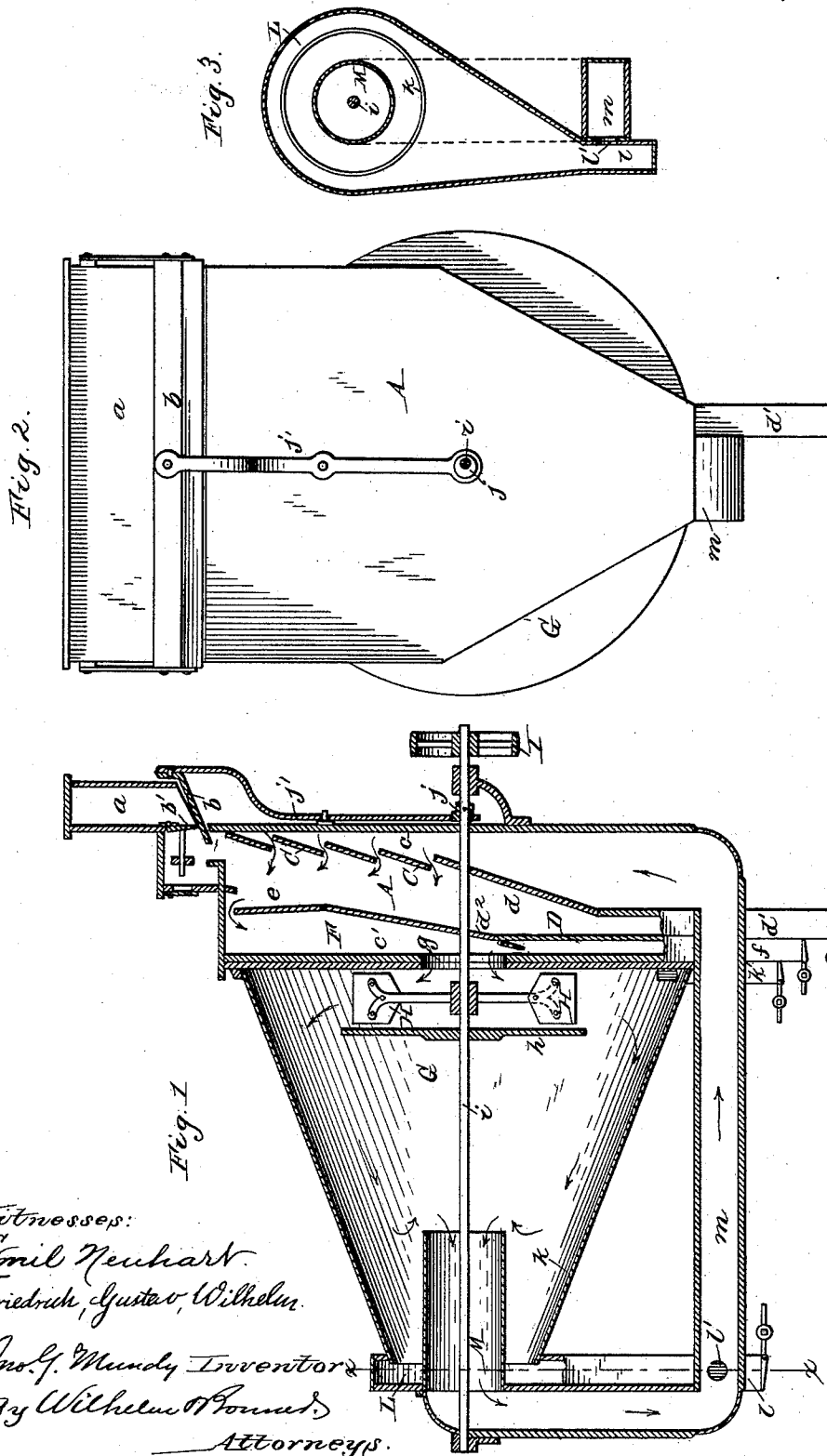
(No Model.)

2 Sheets—Sheet 1.

J. G. MUNDY.
SEPARATING MACHINE.

No. 465,582.

Patented Dec. 22, 1891.



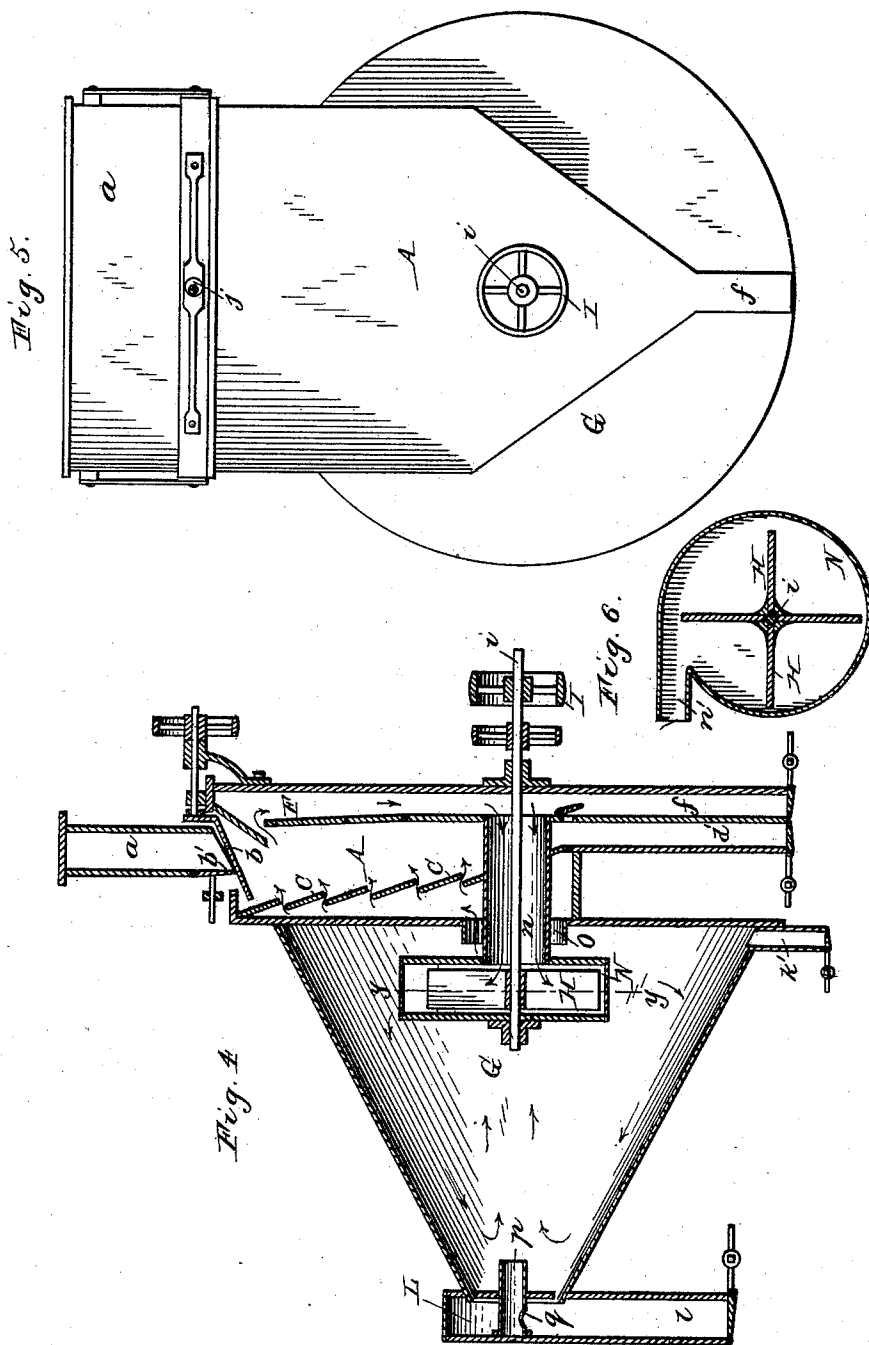
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Witnesses:
Emil Neuhart
Friedrich, Gustav, Wilhelm.

J. G. Mundy Inventor.
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Attorneys.

UNITED STATES PATENT OFFICE.

JOHN G. MUNDY, OF JACKSON, MICHIGAN.

SEPARATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 465,582, dated December 22, 1891.

Application filed May 15, 1891. Serial No. 392,927. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. MUNDY, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented new and useful Improvements in Separating-Machines, of which the following is a specification.

This invention relates to that class of separating-machines which combine an aspirating-chamber, in which the material is purified by air-currents, with a dust-collector, in which the dust is separated from the air by the whirling motion of the dust and air, and a return-passage by which the air which has been freed from dust is returned to the aspirating-chamber.

The object of this invention is to produce a simple and efficient separating-machine of this character which is particularly desirable for purifying or treating middlings and other products in the manufacture of flour, but which may be used for other purposes.

In the accompanying drawings, consisting of two sheets, Figure 1 is a longitudinal sectional elevation of my improved separating-machine. Fig. 2 is a front elevation thereof. Fig. 3 is a cross-section in line *x x*, Fig. 1. Fig. 4 is a longitudinal sectional elevation showing a modified construction of the machine. Fig. 5 is a front elevation thereof. Fig. 6 is a cross-section in line *y y*, Fig. 4.

Like letters of reference refer to like parts in the several figures.

A represents the aspirating-chamber, forming the front portion of the machine and provided at its top with a feed-spout *a*, through which the material to be separated is introduced into the machine.

b represents a shaking feed-board arranged underneath the feed-spout, and *b'* an automatic feed-gate whereby the material is discharged in a thin stream.

C represents overlapping inclined shelves or cant-boards arranged within the aspirating-chamber near the front wall *c* thereof and underneath the feed-board, so that the material flows successively over these boards and drops finally upon the front wall *d* of a hopper D, which is provided with a trapped discharge-spout *d'*. The cant-boards are separated by air-passages and the strength of the air-currents is regulated by a valve *e*, which

is hinged to the upper end of the rear wall *d''* of the hopper D. This rear wall is arranged at a suitable distance in front of the rear wall *c'* of the aspirating-chamber, so as to form a cut-off hopper F between these two walls, which hopper is provided with a trapped discharge-spout *f*.

G represents the dust-collecting chamber, which is arranged in rear of the aspirating-chamber and which communicates therewith by an opening *g*, arranged centrally with reference to the dust-collecting chamber in the rear wall of the aspirating-chamber.

H represents fan-blades arranged within the dust-collecting chamber in rear of the opening *g*, so as to draw the air through the aspirating-chamber and drive it into the dust-collecting chamber with a whirling motion.

h represents a shield or disk arranged in rear of the fan-blades and extending outwardly beyond the fan-blades, so as to operate as a casing for the same, which compels the air to pass between the fan-blades before it can escape into the dust-collecting chamber.

i represents the shaft to which the fan-blades are secured, and which extends through the front wall of the aspirating-chamber.

I represents the driving-pulley secured to the front end of the fan-shaft, and *j* an eccentric secured to the shaft behind the pulley and driving the shaking feed-board by means of a lever *j'*. The fan-shaft passes through the shield *h*, and the latter is either secured to the shaft to rotate therewith or is stationary, as may be preferred.

k represents the imperforate peripheral wall of the dust-collecting chamber, which is circular in cross-section and tapers rearwardly, so that the fan is arranged in the large portion of the dust-collecting chamber.

k' represents the trapped discharge-spout for the heavy dust, communicating with the large end of the dust-collecting chamber.

L is a hood which surrounds the open small end of the dust-collecting chamber, and *l* the trapped discharge-spout which discharges the dust therefrom.

M is the discharge-tube for the air, arranged axially in the small end of the dust-collecting chamber, and *m* is a return-spout connecting this tube with the lower portion of the aspirating-chamber. The return-spout may com-

municate with the discharge spout *l* by an opening *l'*, through which any excess of air-pressure in the discharge-spout is delivered into the return-spout *m*.

5 When the machine is used for purifying middlings, the operation is as follows: The middlings falling from the shaking feed-board in a thin stream pass successively over the cant-boards in the aspirating-chamber and are
10 subjected to the action of the air-currents in passing from one cant-board to the other. These air-currents remove the light material, fluff, dust, &c., while the heavy middlings drop through the air-currents and are discharged
15 through the spout *d'*. The air-current, charged with the light material, passes over the top of the valve *e* and descends into the cut-off hopper *F*, in which the sharp or granular material is deposited, while the dust-laden air-current passes through the opening *g* to the
20 fan. The separated sharp material, consisting of light middlings, is discharged from the cut-off hopper through the spout *f*. The dust-laden air-current is set in a whirling motion
25 in the dust-collecting chamber by the fan, whereby the dust is separated from the air, the heavy dust being discharged through the spout *k'* at the large end of the dust-collecting chamber and the light dust through the
30 spout *l* at the small end. The air escapes from the small end of the dust-collecting chamber and is returned by the spout *m* to the bottom of the aspirating-chamber, so that no air is discharged from the machine, but a
35 continuous circulation is maintained within the same. The middlings which are fed to the machine need not be closely graded as to size, because the machine will separate the different grades, the heaviest going to the
40 spout *d'* of the aspirating-chamber, the next lightest grade to the spout *f* of the cut-off hopper, the next lightest to the spout *k'* at the large end of the dust-collecting chamber, and only the finest and lightest dust to the
45 spout *l* at the small end of the dust-collecting chamber.

In the modified construction represented in

Figs. 4, 5, and 6 the cant-boards *C* are arranged near the rear wall of the aspirating-chamber, the cut-off hopper *F* is arranged in
50 the front wall of the aspirating-chamber, and the dust-laden air-current passes from the cut-off hopper to the eye of the fan-case *N* by a tube *n*, which extends through the rear portion
55 of the aspirating-chamber and surrounds the fan-shaft. The fan-case is provided with a tangential blast-spout *n'* and is rigidly secured to the machine. The return air-current is taken from the dust-collecting chamber to the aspirating-chamber by an opening
60 *O*, which is arranged in the rear wall of the aspirating-chamber around the tube *n*, and which may be provided with a short tube projecting into the dust-collecting chamber. The small end of the dust-collecting chamber
65 may be provided with a central air-tube *p*, which communicates with the discharge-spout *l* by an opening *q*, through which any excess of air-pressure in the discharge-spout is delivered into the central portion of the dust-
70 collecting chamber.

I claim as my invention—

The combination, with the aspirating-chamber provided with a feeder at its top and a discharge for the heavy material at its bot-
75 tom, of a tapering dust-collecting chamber arranged in rear of the aspirating-chamber, a suction-passage leading from the aspirating chamber into the dust-collecting chamber, a fan arranged within the dust-collecting
80 chamber and having its eye connected with said suction-passage and its air-discharge arranged to cause the air to whirl in the dust-collecting chamber; and a return-passage connecting the air-outlet of the dust-collecting
85 chamber with the air-inlet of the aspirating-chamber, substantially as set forth.

Witness my hand this 11th day of May, 1891.

JOHN G. MUNDY.

Witnesses:

ORVILLE M. MORSE,
SAM H. CAMP.