(No Model.)

E. BRETNEY.

DUST COLLECTOR.

No. 405,869 Patented June 25, 1889.

Fig. 1.

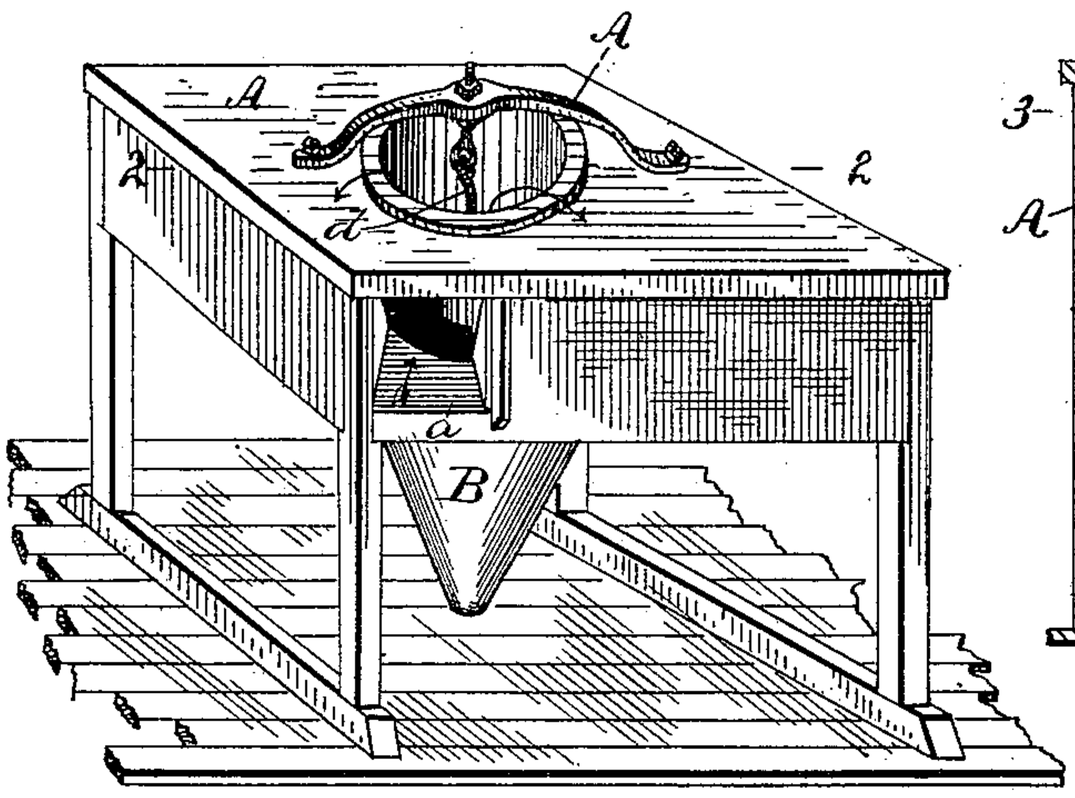


Fig. 2.

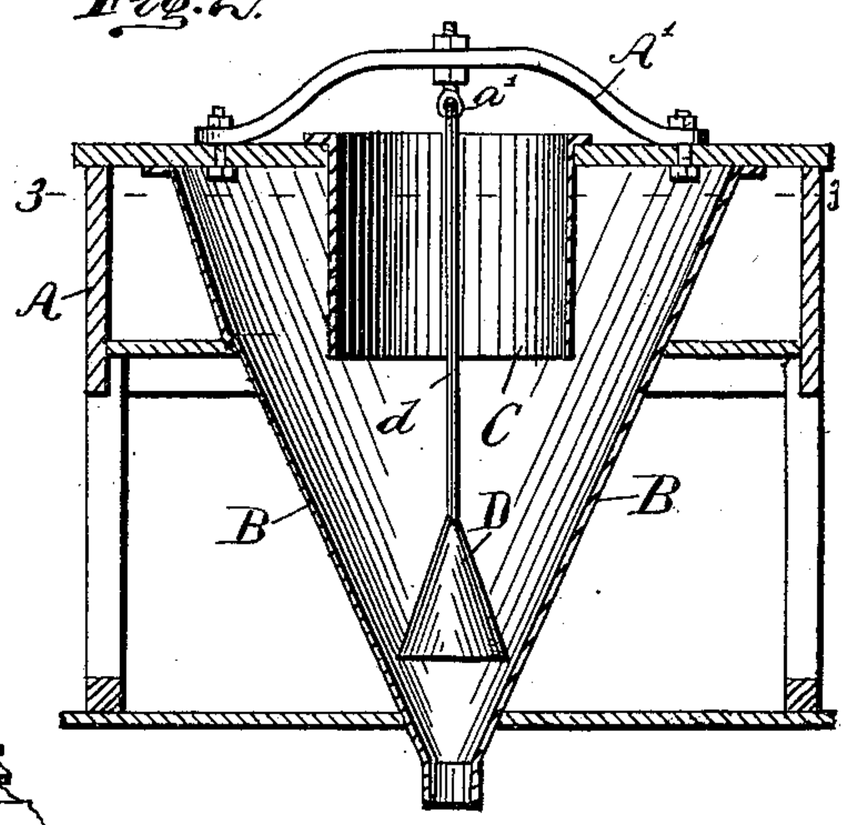


Fig. 3.

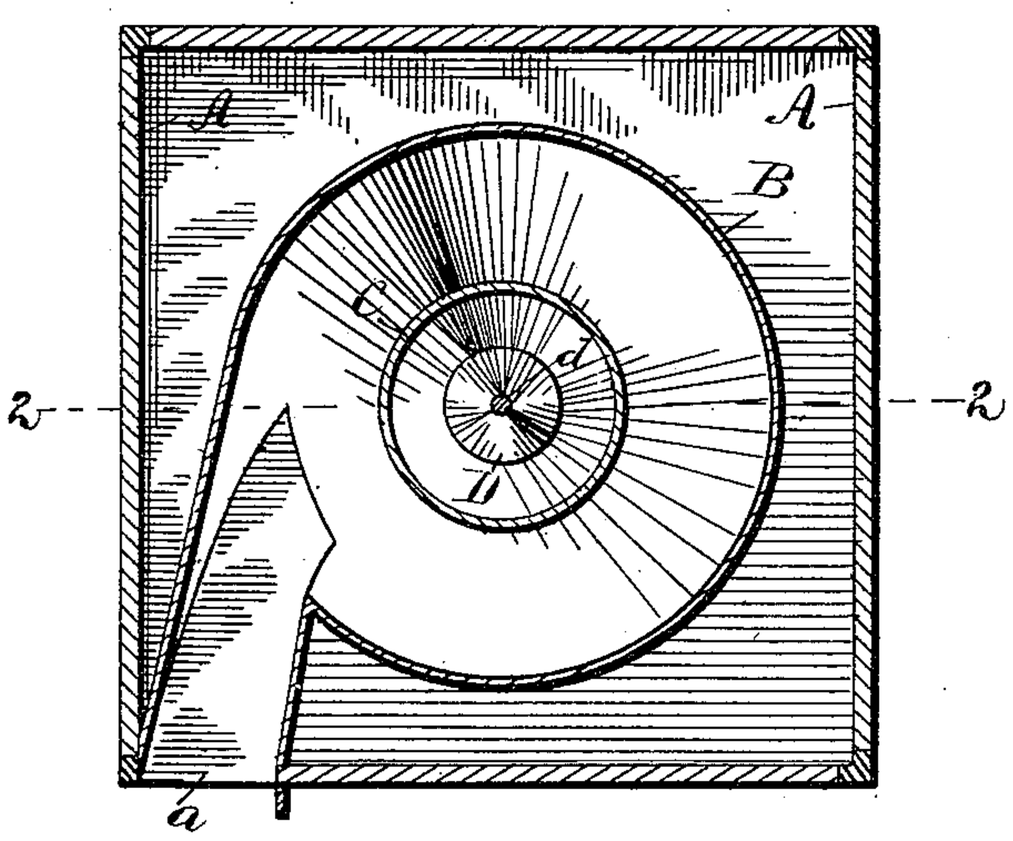
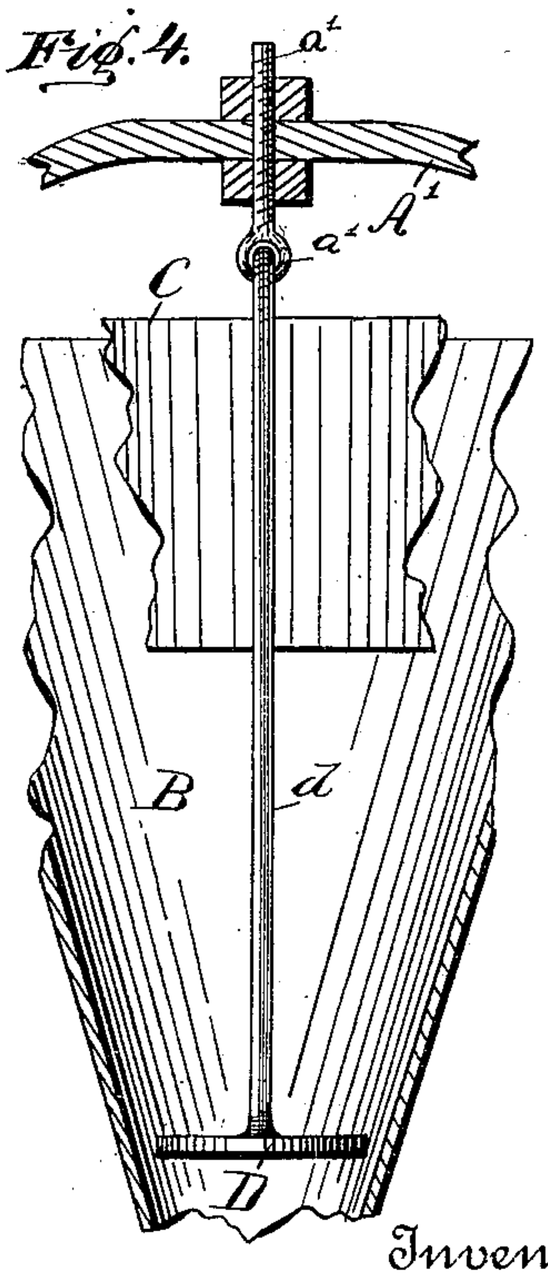


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

EUGENE BRETNEY, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE COCKLE SEPARATOR MANUFACTURING COMPANY, OF MILWAUKEE, WISCONSIN.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 405,869, dated June 25, 1889.

Application filed May 21, 1888. Serial No. 274,493. (No model.)

To all whom it may concern:

Be it known that I, EUGENE BRETNEY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Dust-Collectors, of which the following is a specification.

My said invention relates to that class of devices known as "dust-collectors," by which the dust or dirt from purifiers and other milling machinery is first gathered at a certain point, and then separated from the air and discharged in one direction, while the purified air escapes in another.

My present invention consists in one feature shown in my applications Serial No. 238,851, filed May 20, 1887, and Serial No. 250,428, filed September 22, 1887, but not made a part thereof, it being a deflector suspended and arranged to be adjusted in such a manner that the space between the edge of said deflector and the surrounding casing may be varied to suit the demands of the work to be done, as will be hereinafter more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a perspective view of a dust-collector embodying my said invention; Fig. 2, a central vertical section of the same on the dotted line 2 2 in Fig. 3, the deflector shown being in the form of a cone, as in the application above referred to; Fig. 3, a horizontal sectional view looking downwardly from the dotted line 3 3 in Fig. 2; and Fig. 4, a detail sectional view, on a somewhat enlarged scale, showing another form of deflector, but in other respects similar to a portion of Fig. 2.

In said drawings, the portions marked A represent the frame-work which supports and incloses the dust-collector; B, the casing proper of said collector, provided with the usual inlet-spout and dust and purified-air discharge openings; C, the tubular guard extending down from the top to some distance inside said casing, and D the deflector.

The frame-work A is any suitable frame-work for the purpose, and needs no special description.

The casing B is of a usual form, being in the shape of an inverted cone or funnel. While this shape of casing is old in itself, it is of peculiar advantage with the feature which constitutes the principal subject-matter of this application, it or a casing possessing one of its peculiar characteristics—a contraction in circumference interiorly, where the deflector operates—being essential to the successful operation of this invention.

The tubular guard C is of the usual construction and arrangement, and performs the well-known function of the corresponding part of other machines.

The deflector D is shown in the principal views of the form of a cone, this being considered the preferable form by reason of certain peculiar advantages which it possesses, as fully set forth in the application above referred to, of which it is the principal subject-matter; but, as will be readily understood, the form of the deflector is not essential to this invention, but may be any form found suitable. In Fig. 4 I have shown the deflector in the form of a disk or plate suspended in a horizontal plane as one of the forms to which this invention could be applied and that would readily suggest itself to the mind of a mechanic. Said deflector is suspended centrally within the device from an appropriate support (a bridge-tree A′ is shown) by means of an adjustable rod *d*, the upper end of which is preferably in the form of an eye-bolt *a′*, with which the lower part connects.

The operation of my said invention is as follows: The dust-laden air comes into the device through the inlet-spout *a*, strikes the tubular guard C, which serves to maintain it within the casing to a plane below the inlet-spout, passes around said tubular guard against the casing and acquires a downward spiral motion and passes around and around inside said casing until it strikes the deflector, which changes the course of the inner layers of purified air upwardly toward the opening through the tubular guard, through which it escapes. The dust or dirt, by means of its gravity, is thrown against the inside face of the casing, and carried down by the same means and the tendency of the current passing through the space between the edge of

the deflector and said casing to the chamber beneath and out through the discharge-opening provided for the purpose. In order to secure the best possible results it is important that the space between the deflector and casing should be of such a width as will permit a quantity of air to pass down with the dust, and thus establish a slight but steady downward air-current through this chamber, which will prevent the dust from lodging in the chamber and maintain a perfectly free and steady discharge. By providing the device with an adjustable deflector this object is most perfectly accomplished, as by raising or lowering said deflector the space between it and the casing, which, as before described, is of a contracting circumference at this point, if not for its whole length, as shown, can be varied or adjusted to suit the demands of the work being performed. When the dust is present in large quantities, the space will need to be so that only a small supply of air can pass down with it, as the capacity of the discharge-opening would otherwise be overtaxed and the result would be an interfering air-current that would tend to carry back the dust into the upward current above the deflector, and thus impair the usefulness of the device. On the other hand, should the space be too small to allow sufficient dust and air to pass down to practically fill the discharge-opening, the upward current above the deflector would tend to create a partial vacuum in this chamber, and thus allow a slight current of air from the outside to come in through the discharge-opening and interfere with the discharge of the lighter particles of dust, carrying some of them back and out of the top of the device, and thus seriously impairing the usefulness of the machine. The adjustability of the deflector permits the device to be easily adapted for different grades of work; also, as will be readily understood, it is but a moment's work to change the deflector from the position it occupies when the machine is in use with flouring-mill machinery to that which it should occupy for use with planing-mill machinery.

I am aware that deflectors are not new, but I am not aware that any have heretofore been made adjustable, so that the space between its edge and the surrounding casing could thus be varied, and this I claim as my invention, broadly.

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

1. In a dust-collector, the combination of the casing provided with an inlet, a dust-discharge opening, and an air-outlet, and formed with its interior contracted in size in the direction of said dust-discharge opening, and a deflector adjustable toward and from the discharge-opening, arranged within said casing below said inlet and above said dust-discharge opening, substantially as set forth.

2. The combination, in a dust-collector, of the cone-shaped casing B, the tubular guard C, and the vertically-adjustable deflector D, arranged below the air-inlet of said casing and above its dust-discharge opening, substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 24th day of March, A. D. 1888.

EUGENE BRETNEY. [L. S.]

Witnesses:
C. BRADFORD,
F. W. WOOD.