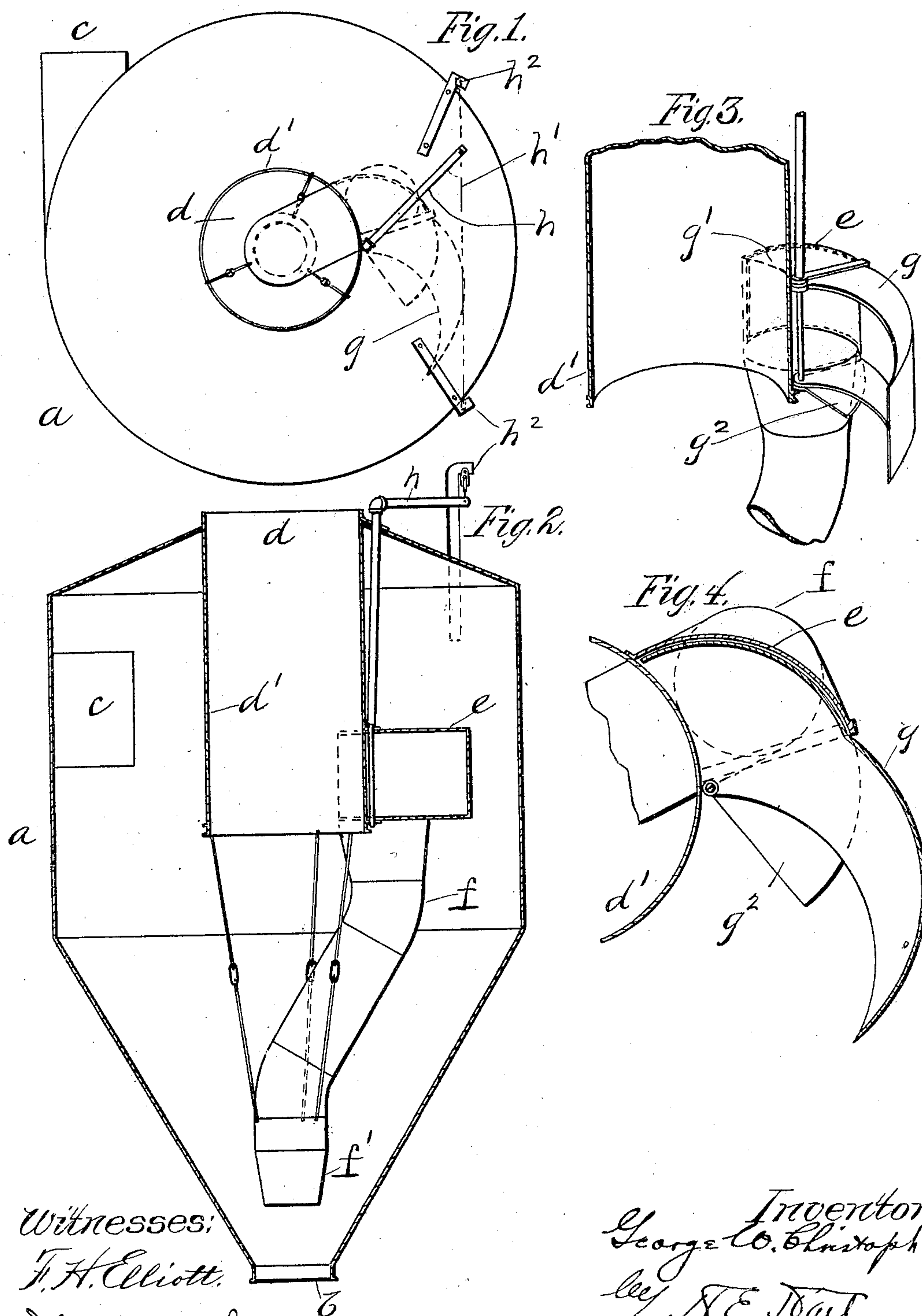


No. 836,922.

PATENTED NOV. 27, 1906.

G. W. CHRISTOPH.
SEPARATOR.

APPLICATION FILED OCT. 25, 1905.



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SEPARATOR.

No. 836,922.

Specification of Letters Patent.

Patented Nov. 27, 1906.

Application filed October 25, 1905. Serial No. 284,330.

To all whom it may concern:

Be it known that I, GEORGE W. CHRISTOPH, a citizen of the United States of America, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Separators, of which the following is a specification.

The invention relates to that class of devices for separating material from air by centrifugal force, its object being to produce a device of the character described having features of novelty and advantage.

In the drawings, Figure 1 is a plan view of a separator embodying my invention with the top or cover removed. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a detail perspective view. Fig. 4 is a sectional view in plan of the parts shown in Fig. 3.

The improvements which form the subject-matter of this application are adapted for use in connection with a separator of the centrifugal type in which the air carrying the material is introduced under pressure into the separator-chamber tangentially to its inner walls, causing it to whirl about the separator-chamber, throwing the heavier material against the walls of the chamber and allowing it to drop to the outlet, as will be hereinafter more fully described, the purified air passing upwardly and out of the chamber.

In the drawings, *a* denotes the separator-body, preferably cylindrical and shaped to conical form at its lower end to provide a contracted opening *b* for the discharge of the separated material.

c is the inlet, arranged tangentially with respect to the main body, and *d* is the outlet for the pure air. The material is collected from various machines and places by an air-current and carried into the separator-chamber, where it whirls about, the material being thrown out to the walls of the chamber and dropping to and out of the discharge-opening *b*, the purified air passing up out of the outlet *d*. This escape of the air through the outlet *d* creates a vacuum and interferes with the proper discharge of the material through the discharge-opening *d*. My invention is directed to providing means for breaking this vacuum and to insure the proper discharge of the separated material and its de-

livery to any desired point. The air-outlet *d* is formed of a pipe *d'* of suitable size, which extends down into the separator-body. To this outlet-pipe is secured a hood *e*, which at its lower side is connected with a pipe *f*, ending in a nozzle *f'*, suitably supported just above the outlet-opening *b*, through which the separated material is discharged. Pivotally supported adjacent to said hood is the deflector *g*, which is closed in on the top, bottom, and rear sides and open on the side toward which the air is directed as it enters the chamber. It is readily seen that when the parts are in the position shown in Figs. 1, 3, and 4 this deflector will collect a certain amount of air as it whirls around the chamber and carry it into the hood *e*, where it escapes downwardly through the pipe *f* and the nozzle *f'* and out through the outlet-opening *b*, thus breaking any vacuum which may be caused by the escape of the air through *d* and insuring the proper delivery of the material. This deflector can be turned on its pivot so that its front edge will lie close around the pipe *d'*, as indicated in dotted lines in Fig. 1, in which case no air would be collected. The deflector and hood have telescoping parts, as the top extension *g'* over the deflector and the lower flange *g''* on the hood, so that wherever the deflector may be adjusted between its closed and open positions the air will be directed into the hood *e* and pipe *f*.

The amount of air necessary to insure the passage of the separated material out of the opening *b* varies with the character of the material which is being separated. In the cases of extremely fine and damp material a considerable quantity of air is necessary, while when the material is heavier a less volume of air, and sometimes none at all, is required. By the construction of my device the volume of this downwardly-directed air-blast can be regulated with great nicety. Provision is made for adjusting the position of the deflector from the exterior by providing the lever *h*, which is connected with the cord *h'*, passing over pulleys *h''* *h'''*.

I claim as my invention—

1. A centrifugal separator for separating material from air comprising the main separator-chamber into which the air-carrying

material is introduced under pressure, a tangentially-arranged inlet, an upwardly-directed air-outlet, a downwardly-directed material-outlet, an adjustably-mounted air-deflector arranged in the interior of said main separator-chamber, a downwardly-directed air-discharge nozzle arranged immediately above said material-discharge opening, and connections between said deflector and said nozzle.

2. A centrifugal separator for separating material from air comprising a main separating-chamber, a tangentially-arranged inlet, an upwardly-directed air-outlet, a downwardly-directed material-outlet, a downwardly-directed air-pipe having a discharge-orifice immediately above said material-outlet, a hood covering the top of said pipe, and

an air-deflector mounted in operative relation to said hood.

3. A centrifugal separator for separating material from air comprising a main separating-chamber, a tangentially-arranged inlet, an upwardly-directed air-outlet, a downwardly-directed material-outlet, a downwardly-directed air-pipe having a discharge-orifice immediately above said material-outlet, a hood covering the top of said pipe, and an adjustably-mounted air-deflector arranged in operative relation to said hood.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. CHRISTOPH.

Witnesses:

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