(No model.)

W. COOK.

DUST COLLECTOR.

No. 311,295. Patented Jan. 27, 1885.

Fig. 1.

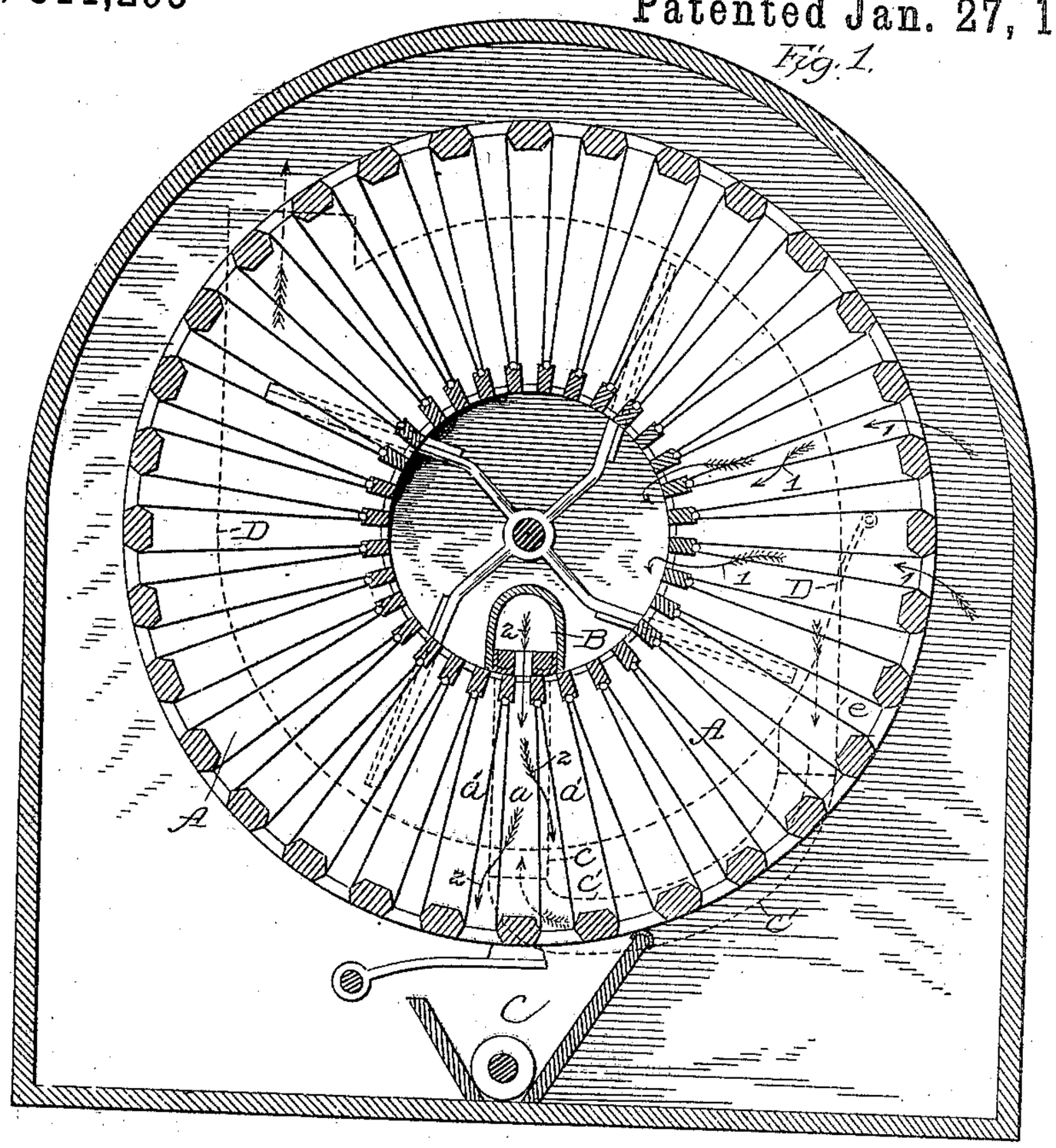
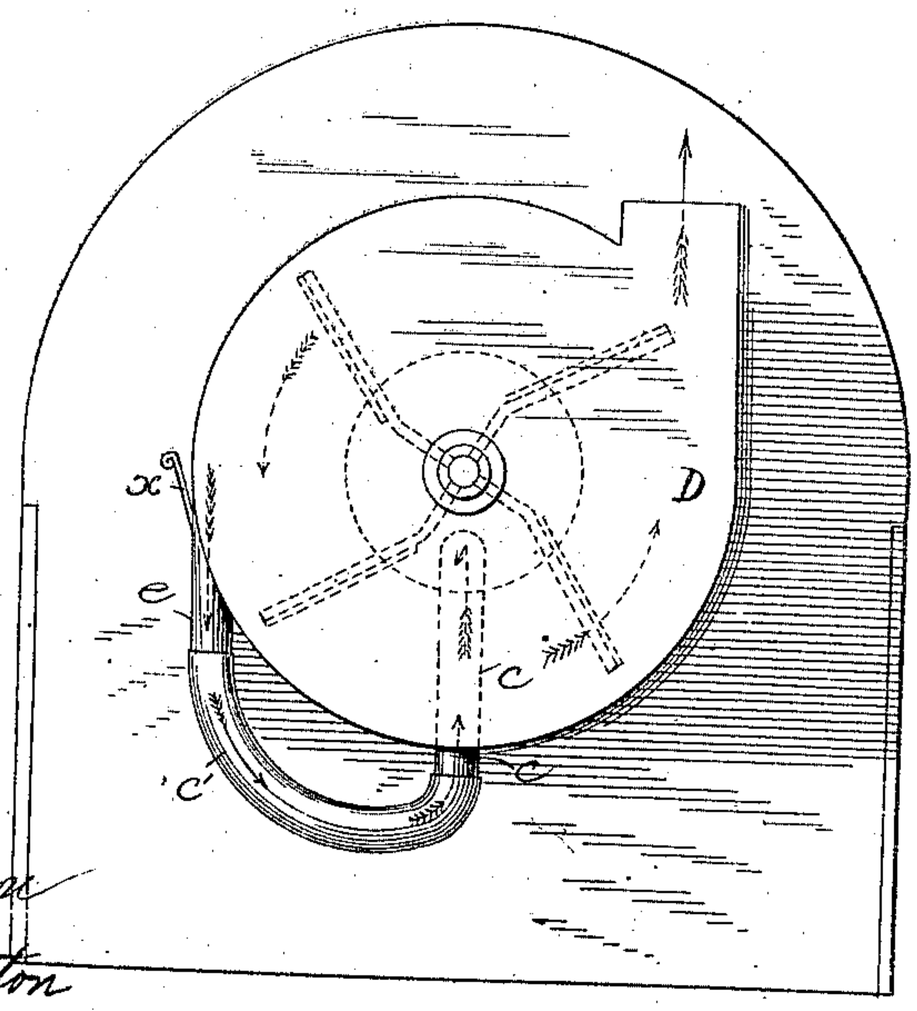


Fig. 2.



Attest:
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Attys

UNITED STATES PATENT OFFICE.

WILLIAM COOK, OF COLUMBUS, INDIANA, ASSIGNOR OF ONE-HALF TO FREDERICK DONNER, OF SAME PLACE.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 311,295, dated January 27, 1885.

Application filed November 22, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM COOK, of Columbus, in the county of Bartholomew and State of Indiana, have invented a new and useful Improvement in Dust-Collectors; and I do hereby declare that the following is a full, clear, and exact description of the invention.

My invention relates to dust-collectors, and is an improvement in dust-collectors substantially such as that shown in Letters Patent granted to Faustin Prinz on the 20th day of February, 1883, Nos. 272,473 and 272,474. In the machine described in said Letters Patent the dust-collector consists of radially-arranged sections forming a drum or "balloon," the radial walls of which are of cloth adapted to permit the passage of air, which by its passage is strained or freed from its dust. The center of the balloon is open, and the purified air is discharged therefrom. The balloon revolves with a step-by-step motion, each step being equal to the inner peripheral width of the section. Thus the sections are brought in succession under a chamber or tube extending longitudinally of the balloon in the center, and having a slotted bottom and an air-tight top, with suitable packing, so that as a section is arrested under the chamber it is isolated from the other sections of the balloon, and is in communication with the slotted chamber. This chamber, being in communication with the atmosphere, admits external air to the section thus isolated from the other parts of the balloon. The outside air is therefore drawn through the tube and reversely through the isolated section, and thence back through the sections not isolated to the open center of the balloon, and thence to the suction-fan. By this construction a reverse current is induced through the isolated section, which current is designed to dislodge the dust adhering to the cloth, and to aid the jar of the blow, in causing it to drop to the receptacle below and leave the cloth clean; but the current thus induced from the atmosphere through the isolated sections, and thence through the non-isolated sections, is necessarily feeble by reason of its narrow and crooked and extended way, and by reason, also, of its enforced passage through an amount of cloth double that through which the main current passes. It is simply an induced and circuitous current, and is applied but a short time as compared with the main current. Its effect is therefore feeble. The impurities in the dust-laden air are often of a fibrous or hairy nature, and become so firmly attached to and matted in the cloth that neither the jarring nor the induced reverse current can remove them. The machine above referred to is therefore imperfect in its action, for the reason that the cloth is not effectually cleaned.

This imperfection it is the object of my invention to remove; and to this end my invention consists in devices for forcing a positive reverse current through the slotted air-chamber and the cloth of the section or sections of the balloon isolated therewith, while the main current is continued through the other sections in the ordinary manner. I obtain this positive reverse current by leading a pipe from the case of the inducing-fan to the slotted air-chamber over the isolated section or sections, although I may lead the pipe (but not so conveniently) from a separate fan.

In the accompanying drawings, Figure 1 shows a cross-section of balloon with air-chambers. Fig. 2 shows a side elevation of the same.

In these drawings, in Fig. 1, I have shown an isolated section, *a*, of the balloon A in communication with the slotted chamber or tube B, and over the trough C. The slotted chamber B and the balloon are the same as in the aforesaid patents, and the chamber is connected to a pipe, *c*, and by a pipe, *c'*, to a pipe, *c*, which taps the fan-case D, located on the side and at the center of the balloon-case. All the sections of the balloon, excepting *a* and those contiguous (*a' a'*) on each side, are subject to the induced current from outside to center, as the arrows 1 show. The sections *a a' a'* are thus for a brief time subjected to a direct blast from the fan more powerful than that applied to any other section, and the blast being in reverse direction, as shown by arrows 2, tends strongly to dislodge the dust adhering to the cloth walls, and with the jar causes it to leave the cloth and to fall to the conveyer-trough.

I do not limit myself to the precise construction of the pipe and slotted chamber, nor to the point of tapping. The pipe may be led (though not so conveniently) to a separate fan, which, if the induced main current be used, may be of less power, as the two currents (the direct through the slotted chamber and the induced main current) would act together.

As above described, a current of clean air is forced through the isolated portion of the cloth in order to free it of adhering dust particles. If a separate fan be used with induced main current, it may be made as powerful as may be found necessary, and thus the cloth may be kept clean and uniform and perfect work be insured in the dust-collector.

It will be understood that when the fans attached to the dust-collector are used as above described one or both fans may be used, and air may be forced in at both ends of the slotted or back draft chamber or tube.

To regulate the draft or to shut off one fan, if desired, I place a valve, *x*, in the pipe *e*.

I claim as my invention—

The combination of a suitable casing, a dust-collecting balloon provided with a slotted tube or chamber, a fan connecting with the balloon-center and exhausting therefrom, and a fan connected to the said slotted tube or chamber isolating the sections, and adapted to force air through said isolated sections, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM COOK.

Witnesses:

OSCAR J. SINCEBAUGH,

URIAH M. STEENBARGER.