

(No Model.)

W. D. SMITH.
DUST COLLECTOR.

No. 430,444.

Patented June 17, 1890.

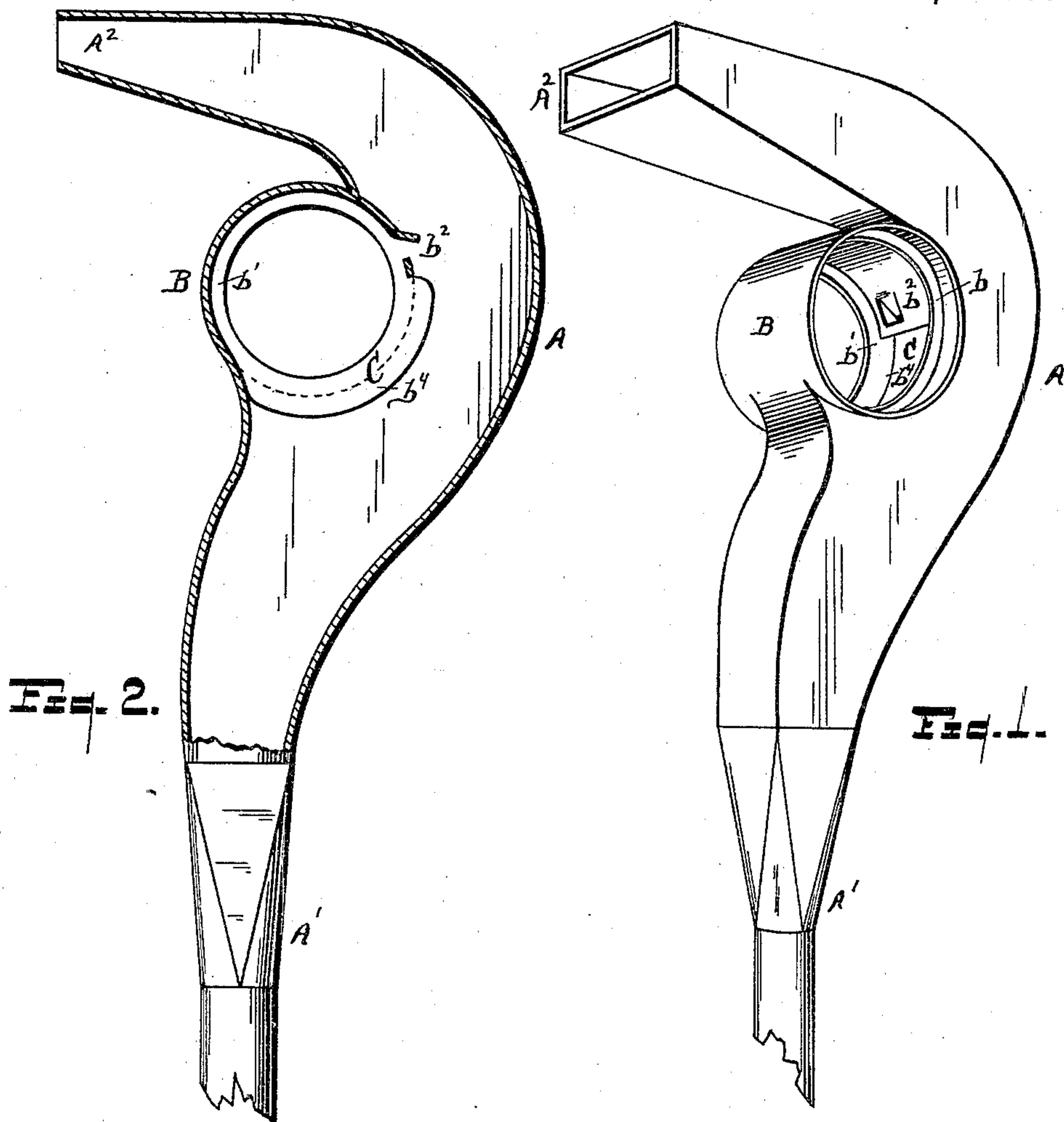
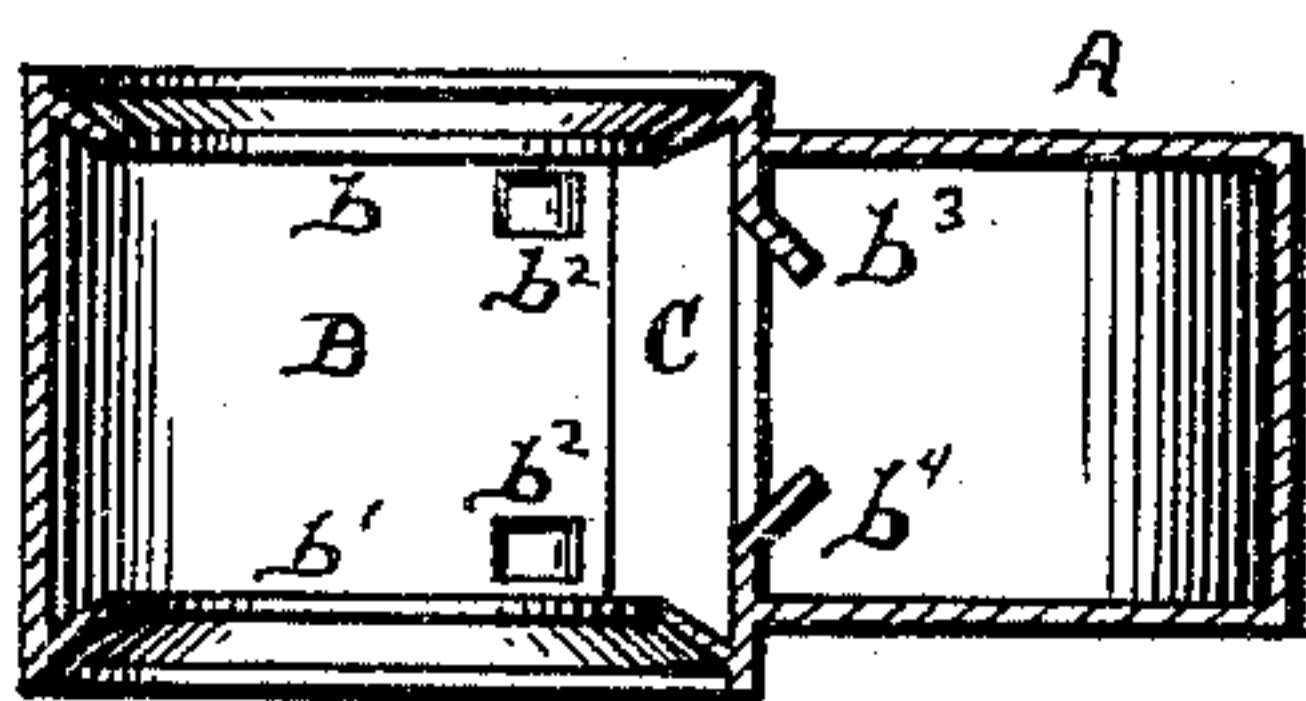


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

WRIGHT D. SMITH, OF DETROIT, MICHIGAN, ASSIGNOR TO THE HUYETT & SMITH MANUFACTURING COMPANY, OF SAME PLACE.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 430,444, dated June 17, 1890.

Application filed February 24, 1890. Serial No. 341,527. (No model.)

To all whom it may concern:

Be it known that I, WRIGHT D. SMITH, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Dust-Collectors; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in shavings and dust separators for separating the shavings, sawdust, and other light substances from the air as it is blown from exhaust fans or blowers in wood-working or other establishments, where fans or blowers are employed in collecting shavings, dust, and other light substances and delivering the same to a proper receptacle.

My invention consists more especially in a peculiarly-shaped elbow-conduit and cylinder united therewith to receive the shavings, dust, &c., from the fans or blowers and separate the air therefrom, as more fully hereinafter specified and claimed, and more particularly illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective embodying my invention. Fig. 2 is a longitudinal section, and Fig. 3 is a cross-section through the conduit and drum. Accordingly I carry out my invention as follows:

A represents the conduit, curved, as shown, intermediate its ends.

B denotes a cylinder located at the inner arc of the conduit and extending across the same, the interior of the cylinder being hollow and opening to the air at its extremities. At the base of the cylinder, as shown at C, the interior of the conduit communicates therewith, affording an exit to the air passed into the conduit. The cylinder thus forms a drum communicating with the external air in the place where the conduit is situated and with the interior of the conduit. This cylinder being located across the inner arc of the conduit, it is evident that the air within the con-

duit will more readily take the shorter turn, and thereby escape through the orifice C in large measure, while the shavings, dust, and other refuse matter, being heavier, are thrown over to the outer and longer circuit and away from the said orifice. The force of the air-blast, as well as the centrifugal force, will obviously occasion this movement of the heavier matter, the momentum of said matter carrying it about the longer periphery of the curved conduit. By this movement said matter is carried down below or away from the outlet-orifice C, and so said matter is carried onward past said orifice through the discharge end A' of the conduit into the receptacle prepared therefor, where it is deposited. The inlet end of the conduit, as shown at A², I prefer to make of rectangular form, the longest measurement of said inlet end running parallel with the length of the cylinder B. This form of construction permits the material entering in thereat to spread out over the entire width of said inlet to the separating portion of the conduit, so that said material will be forced over to the outer periphery of the conduit in a thin sheet or mass, facilitating the separation of the air therefrom on the inner turn or arc of the circle.

The cylinder or drum B is provided with the annular collars *b b'* on the inner periphery thereof, located on an incline toward the center of the drum, so that any fine dust which may escape with the air into the interior of the drum will be forced outward and around the interior of the drum with the motion of the air as it seeks to escape, and being heavier than the air it will be driven outward both centrifugally and laterally and caught at the base of said collars and discharged through a small opening, as at *b²*, in the drum, whence it passes to the receiving-chamber behind flanges *b³ b⁴*, turned down within the conduit from the outer periphery of the drum, as shown.

While I have described my invention as intended for the separation of shavings, dust, &c., I would have it understood that I contemplate its employment for any other purpose also to which it may be found adapted. For certain purposes I have found that the

conduit alone without the drum, having an orifice at its inner bend, whereby the interior of the conduit communicates with the outer atmosphere, may be employed.

5 What I claim is—

1. The herein-described dust-separator, consisting of a conduit having in combination therewith a drum located across the inner bend thereof and communicating therewith, 10 said drum provided with collars b b' and flanges b^3 b^4 , the base of the drum also provided with an opening b^2 , substantially as set forth.

2. The herein-described dust-separator, consisting of a conduit having in combination 15 therewith a drum located across the inner bend thereof and communicating therewith, said drum provided with flanges b^3 b^4 and in its base with an opening b^2 , substantially as set forth. 20

In testimony whereof I sign this specification in the presence of two witnesses.

WRIGHT D. SMITH.

Witnesses:

N. S. WRIGHT,

CHARLES F. SALOW.