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T. E. FORSTER
AIR AND DUST SEPARATOR
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1,982,733

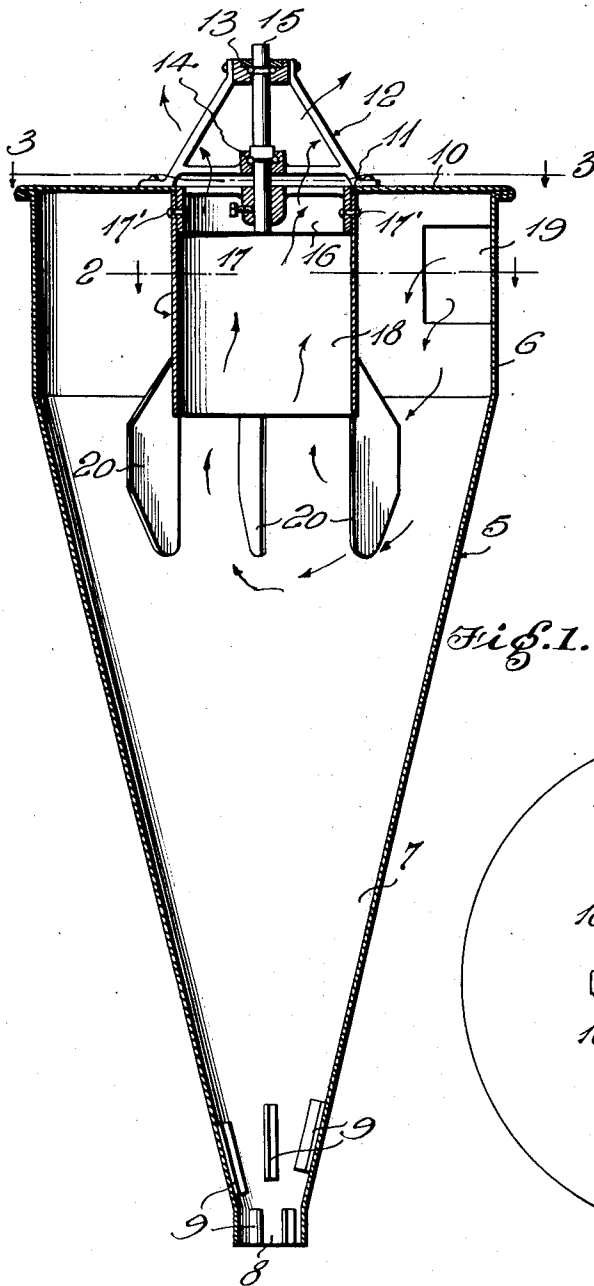
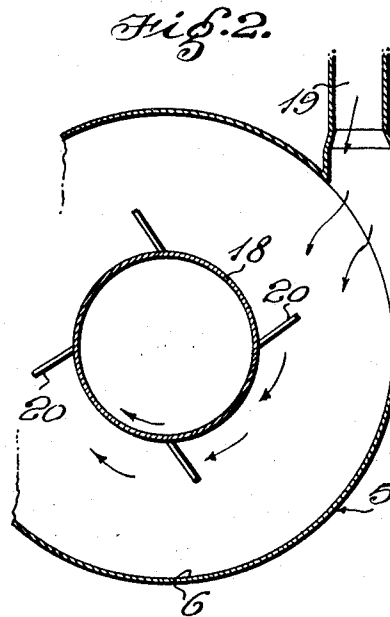


Fig. 1.

Fig. 2.

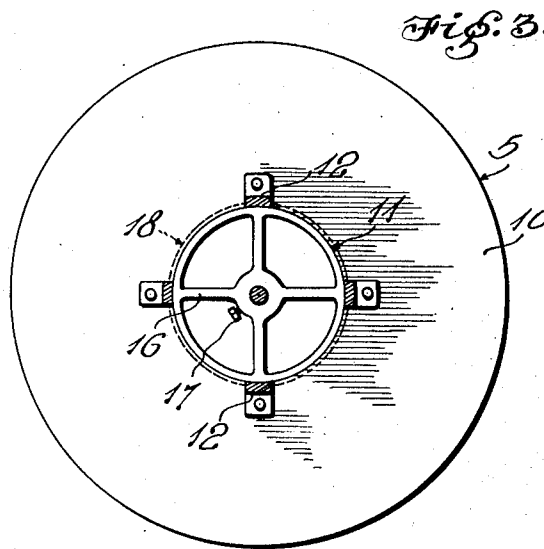


Fig. 3.

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AIR AND DUST SEPARATOR

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5 Claims. (Cl. 183—87)

The invention aims to provide a new and improved apparatus for effectively removing dust from a flowing air stream, and with this end in view, the invention resides in the novel subject matter hereinafter described and claimed, description being accomplished by reference to the accompanying drawing.

Fig. 1 is a vertical sectional view of a separator constructed in accordance with the invention.

10 Figs. 2 and 3 are horizontal sectional views on lines 2—2 and 3—3 of Fig. 1, respectively.

A preferred construction has been shown and will be specifically described, with the understanding however, that within the scope of the invention as claimed, variations may be made.

15 The numeral 5 denotes a vertically elongated casing having a cylindrical upper portion 6 and a frusto-conical lower portion 7, the latter being provided with a dust outlet 8 and with a plurality of dust-quieting ribs 9 within and above said outlet. The cylindrical portion 6 is provided with a closed upper end 10 having a central opening 11 of circular outline. Extending upwardly over this opening 11 and secured to 25 the end 10, is a frame 12 carrying upper and lower bearings 13 and 14 which are co-axial with said opening 11, said bearings being preferably of the ball or roller type. A vertical shaft 15 is rotatably mounted in these bearings and projects downwardly to a slight extent into the casing 5, and a spider 16 is secured by a set screw or the like 17 upon the lower end of said shaft. This spider is secured by rivets 17' or in any other suitable way, to a vertical air discharge sleeve 18 which is open at both its upper and lower ends, said upper end being in communication with the opening 11. The sleeve 18 projects downwardly to a point considerably below a tangential air and dust inlet 19 in the 40 cylindrical portion 6 of the casing 5, and said sleeve is provided with a plurality of driving vanes 20 which project from its periphery and also project downwardly from its lower end. These vanes are preferably somewhat pitched, as seen 45 in Fig. 2.

Dust-laden air is blown into the casing 5 through the inlet 19 and the air current whirls around the side wall of said casing. In so doing, it strikes the vanes 20 and rapidly rotates these 50 vanes and the sleeve 18, the vanes tending to keep the dust toward the casing side wall, while the air escapes through the sleeve 18 and opening 11 in substantially a dust-free condition. The dust continues to whirl around the side 55 wall of the casing 5 and gradually gravitates to

the lower end thereof, where it is quieted by the ribs or the like 9, and discharges either continuously or periodically, through the outlet 8.

Not only is the invention rather simple and inexpensive, but it constitutes an efficient and 60 reliable separator for various purposes requiring that a stream of air be freed from dust.

Attention is again invited to the possibility of making variations within the scope of the invention as claimed.

I claim:—

1. An air and dust separator comprising a vertically elongated casing having a dust outlet in its lower end and a substantially tangential dust and air inlet near its upper end, a vertical air discharge sleeve in the upper end portion of said casing, means rotatably mounting said sleeve on a vertical axis, and vanes for driving said sleeve, said vanes being carried by said sleeve, projecting from the periphery thereof, and constituting the sole impediment to air travel between said inlet and the lower end of said sleeve.

2. An air and dust separator comprising a vertically elongated casing having a dust outlet in its lower end and a substantially tangential dust and air inlet near its upper end, a vertical air discharge sleeve in the upper end portion of said casing and extending downwardly below said inlet, means rotatably mounting said sleeve on a vertical axis, and vanes for driving said sleeve, said vanes being carried by said sleeve, projecting from the periphery thereof, and constituting the sole impediment to air travel between said inlet and the lower end of said sleeve.

3. An air and dust separator comprising a casing having a substantially tangential dust and air inlet near its upper end, a vertical air discharge sleeve in the upper end portion of said casing, means rotatably mounting said sleeve on a vertical axis, and vanes for driving said sleeve, said vanes being carried by said sleeve and projecting beyond the periphery thereof, said vanes also projecting downwardly from the lower end of said sleeve.

4. An air and dust separator comprising a casing having a substantially tangential dust and air inlet near its upper end, a vertical air discharge sleeve in the upper end portion of said casing and extending downwardly below said inlet, means rotatably mounting said sleeve on a vertical axis, and vanes for driving said sleeve, said vanes being carried by said sleeve and projecting beyond the periphery thereof, said vanes also projecting downwardly from the lower end of said sleeve.

5. An air and dust separator comprising a cas- 110

ing of cylindrical formation at its upper portion and having a substantially tangential dust and air inlet in said cylindrical formation, said casing being formed with a central opening in its upper
5 end, a frame secured to said upper end and having vertical bearing means co-axial with said opening, a vertical shaft rotatably mounted in said bearing

means, an air discharge sleeve within the upper portion of said casing and registering with said opening, a spider carrying said sleeve and secured to said shaft, and vanes for driving said shaft, spider and sleeve, said vanes being carried by said sleeve and projecting from the periphery thereof. 80

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