June 22, 1926. 1,589,831

G. P. BARTHOLOMEW

DUST COLLECTING APPARATUS

Filed March 5, 1923

Fig. 1.

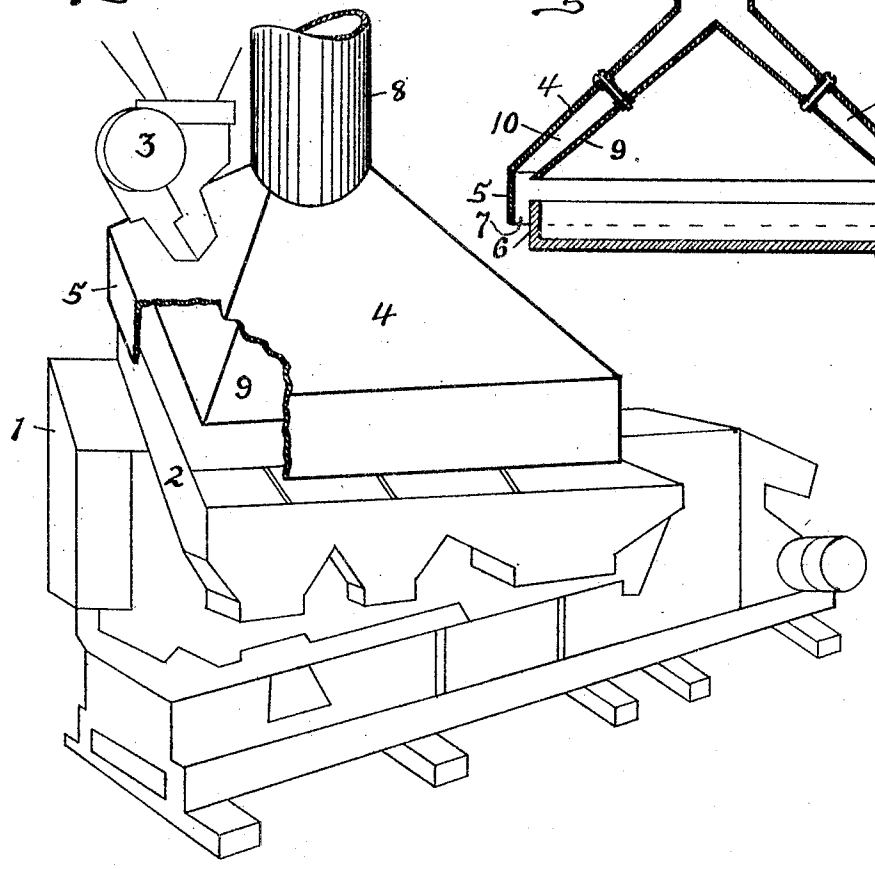


Fig. 2.

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DUST-COLLECTING APPARATUS.

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This invention relates to improvements in dust collecting apparatus applicable to machinery of that character in which dust, gases, fumes, etc., generally escape as a result of the operation of the machinery, in such volume as to hamper the attendants in conducting the operations, which in some cases endanger their health. Amongst such machinery are screens and other apparatus for sizing coal, ore, etc., in a dry state; rolls, crushers, grinders and mixers for treating such materials in a dry state; and feeders, bins, hoppers, chutes, etc. for the handling of such dry materials.

The object of the invention is to provide an efficient and economically operated appliance to effect the withdrawal of volant products that result from the operation of machinery, and convey the products to a remote point of disposal. A further object of the invention is to provide means of creating a continuous draft of air confined to points immediately adjacent those parts of machinery where dust, fumes, etc. ordinarily escape and direct the air together with the product collected thereby to a point remote from the source of the product.

These objects are accomplished by the construction illustrated in the accompanying drawings, in which:—

Fig. 1 is a perspective view of a construction embodying the invention applied to a machine, a portion thereof being broken away; and

Fig. 2 is a vertical section of the appliance including part of a machine to which it is applied.

The characters appearing in the description refer to parts shown in the drawings and designated thereon by corresponding characters.

The machine 1 illustrated in the drawing, as an example, is commonly known as a dry jig used for the separation of refuse from more or less finely disintegrated coal, ore, etc. Such a machine has a box 2 in which the material to be treated is received from a feeder 3 and ordinarily from which very fine particles of material being treated rise and escape into the air because of the movement of the material from the feeder into the box and the agitation of the material in the box by the operation of the machine. The invention comprises a bonnet 4 which is suspended over the box 2 and is provided with a pendant rim 5 along its marginal edges that telescopes the sides 6 of the box 2, there being a narrow space 7 between the rim and the adjacent exterior walls of the box for the passage of air therebetween into the bonnet.

At the top of the bonnet is connected an exhaust pipe 8 which is intended for connection with suitable apparatus (not shown) such as an ordinary exhaust fan for creating vacuum within the bonnet. Suspended within the bonnet is a baffle 9 the outer marginal edges of which terminate near the rim of the bonnet, there being a space 10 between the adjacent walls of the baffle and bonnet that gradually widens from their lower marginal edges toward the exhaust pipe. Also, the lower marginal edges of the baffle extend in a plane above the edges 6 of the box, there being a narrow space 11 between the baffle and the sides of the box affording restricted communication between the interior of the box and the air passageway 7.

In the operation of the invention, the air draft entering the bonnet at the upper marginal edges of the box is maintained constantly by the action of the exhaust fan, during the operation of the machine. The dust, gases, etc. that may arise from the box are confined by the baffle over the box until they escape through the passageway 11 into the air-draft which carries them through the bonnet and exhaust pipe to the point of disposal leaving the atmosphere clear.

By thus constructing and applying the invention the material in the box, as it is being operated upon by the machine, is left free from the influence of the air draft which might tend to disturb the material and thereby interfere with the treatment performed by the machine, and only the dust and similar substances are removed as they accumulate beneath the baffle.

An especial feature of the invention is that the exhaust bonnet has communication through a restricted passageway with the outside atmosphere and with the box only through a separate passageway that is coincident with the former passageway, and that the zone between the baffle and the box in which the dust and gases accumulate is undisturbed by the air draft during the exhausting operation. Thus, while the air

draft is continuous from the outside atmosphere into the bonnet, the outward movement of the dust and fumes from said zone into the draft is dependent more or less upon their progress of accumulation.

What I claim is:

1. In combination with machinery of the class described including a dust forming member, a baffle positioned over said member in close proximity thereto, there being a passageway between the outer marginal edges of the baffle and member; a bonnet extending over the baffle; a pendant rim along the outer marginal edges of the bonnet telescoping said member, there being a passageway affording communication between the exterior atmosphere and the bonnet between the rim and said member; and an air exhaust connection with said bonnet.

2. In combination with machinery of the class described including a dust forming member, a dust confining cover for said member, there being a narrowly restricted passageway between the cover and said member; a bonnet telescoping the cover and said member in spaced relation thereto, there being a passageway affording communication between the exterior atmosphere and the bonnet with which the former passageway also has communication; and an air exhaust connection with said bonnet.

In testimony whereof I affix my signature

GEORGE POMEROY BARTHOLOMEW.