Sept. 4, 1945. C. H. ANTRIM 2,384,414

DUST COLLECTOR FOR GRINDING AND OTHER MACHINES

Filed Oct. 26, 1942 2 Sheets-Sheet 1

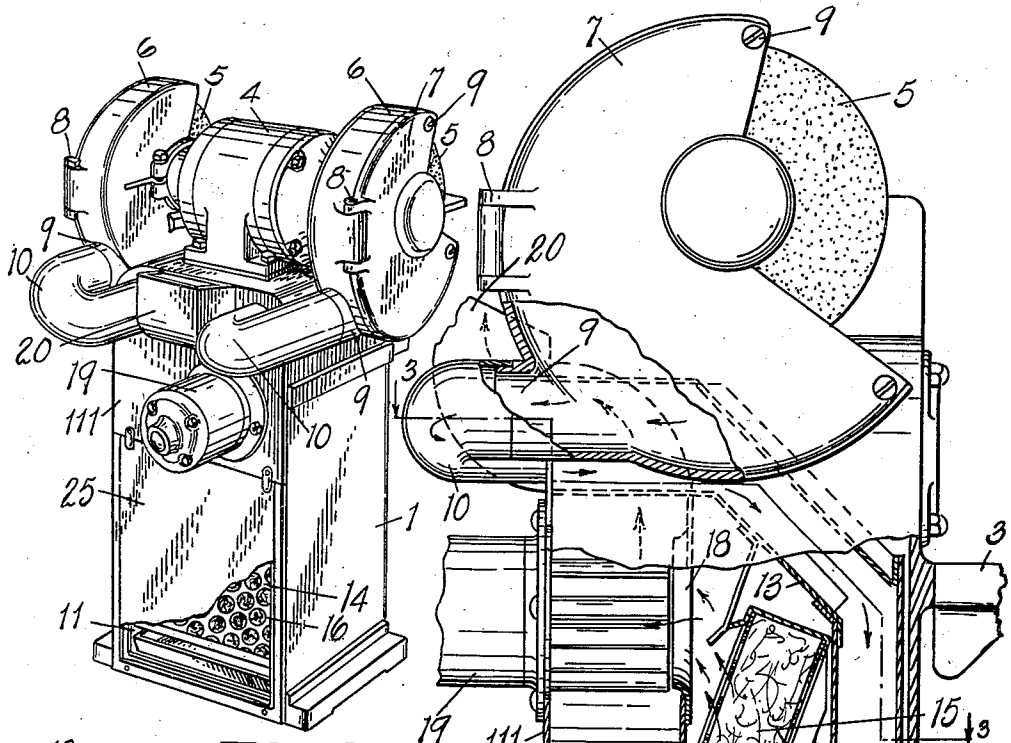


Fig. 1.

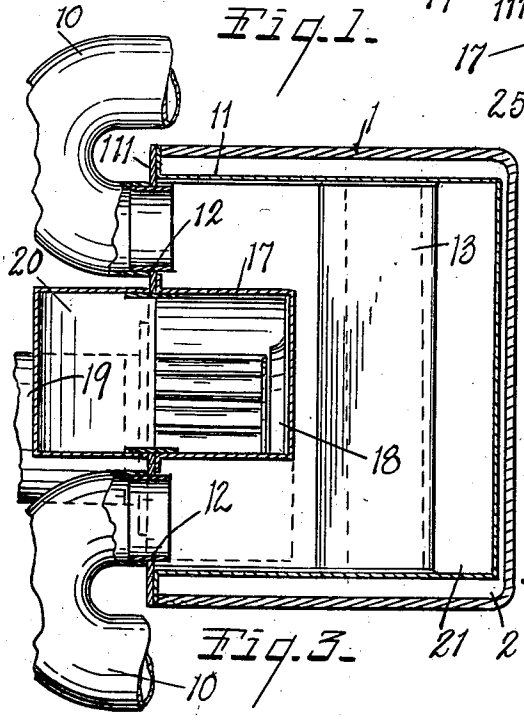


Fig. 3.

Fig. 2.

INVENTOR.
Charles H. Antrim
BY
Earl O. Rhafeel
ATTORNEYS.

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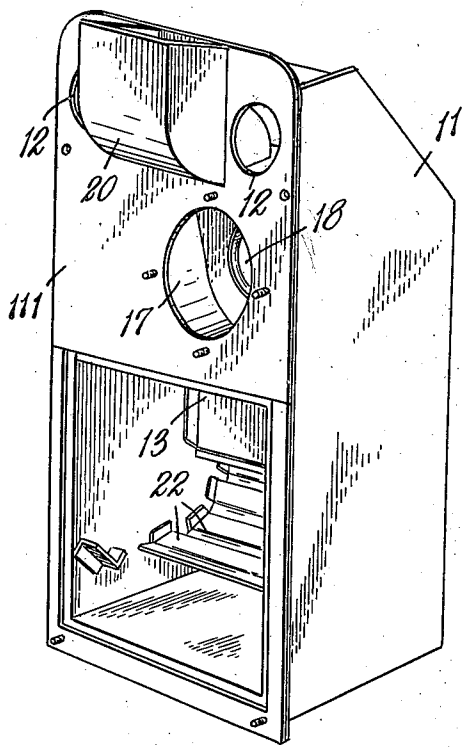


Fig. 4.

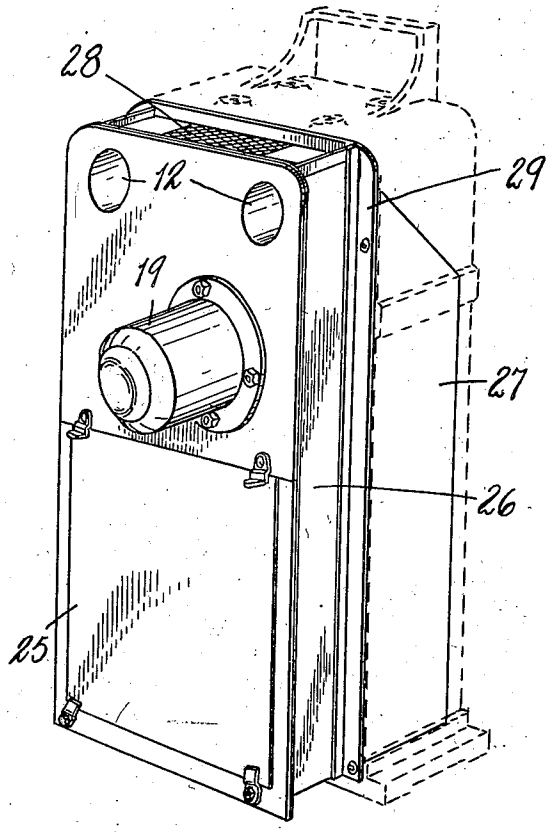


Fig. 5.

INVENTOR.
Charles H. Antrim
BY
Earl Chappell
ATTORNEYS

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DUST COLLECTOR FOR GRINDING AND OTHER MACHINES

Charles H. Antrim, Grand Rapids, Mich., assignor to Hammond Machinery Builders, Inc., Kalamazoo, Mich., a corporation of Michigan

Application October 26, 1942, Serial No. 463,371

9 Claims. (Cl. 183—37)

The main objects of this invention are:

First, to provide a grinding machine which is very compact in structure and convenient in use and at the same time one in which dust or debris from the grinding wheels is effectively collected.

Second, to provide a self-contained structure embodying these advantages which is highly efficient and one in which the dust collecting means does not, in any wise, interfere with the operation of the machine or the operation or positioning of surrouunding machines.

Third, to provide a structure having these advantages which results in a great economy of factory space.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

Preferred embodiments of the invention are illustrated in the accompanying drawings, in which:

Fig. 1 is a rear perspective view of a double wall grinding machine embodying the features of the invention, a portion of the rear closure member or door being partially broken away.

Fig. 2 is an enlarged side elevation partially in vertical section and partially broken away.

Fig. 3 is a fragmentary view partially in section on the broken line 3—3 of Fig. 2.

Fig. 4 is a rear perspective view of the dust collecting chamber unit removed from the pedestal.

Fig. 5 is a rear perspective view of a modified form or embodiment of my invention in which the chamber unit is only partially telescoped within the pedestal proper, this being an adaptation of my invention to a narrow pedestal.

The embodiment of my invention illustrated in Figs. 1 to 4 inclusive comprises a pedestal designated generally by the numeral 1. This pedestal is provided with a chamber 2 housing a filter unit 11 which is preferably an airtight sheet metal unit designed and shaped to be set into the pedestal either completely as shown in the preferred embodiment or partially set therein as shown in Fig. 5. The pedestal itself might be designed to provide the airtight chamber but it is deemed more practical to make the chamber of sheet metal.

The pedestal is provided with a tool or work shelf 3 at the front thereof and has an electric motor 4 mounted thereon. The grinding wheels 5 are mounted at opposite ends of the motor.

Each grinding wheel is provided with a housing 6 open at the front to provide access to the grinding wheels. The outer side plates 7 of these grinding wheel housings are hinged at 8 and held normally closed as by means of the screws 9. The hinging of these side plates is to facilitate the placing or removal of the grinding wheels.

The grinding wheel housings have tangentially disposed outlets 9 connected to the top of the filter chamber by means of U-shaped suction conduits 10, the rear wall 111 of the chamber having openings 12 therein receiving the conduits, the conduits also having telescoping engagement with the discharges 9 of the housings.

Arranged within the filter chamber and in spaced relation to the top and front wall thereof is a conduit or passage wall 13 extending entirely across the chamber—that is, from side to side thereof and providing a suction passage 21 into which the conduits 10 open and delivering downwardly within the chamber well toward the bottom thereof as is clearly shown in Fig. 2, the direction or course of air flow from the grinding wheel housing being indicated by the arrows.

Within the chamber there is arranged a filter designated generally by the numeral 14, this filter being of a suitable type, that illustrated being in the form of a receptacle containing filtering material 15, the receptacle having holes 16 on the sides thereof. This filter is arranged in a rearwardly inclined relation, the conduit or passage wall 13 extending well below the top of the filter.

The blower housing 17 is arranged within the chamber with its inlet 18 well to the top of the filter. In other words, the filter is disposed in a rearwardly inclined relation inn advance of the blower. The motor 19 of the blower is mounted on the rear wall 111 of the chamber. The blower discharge 20 is positioned between the suction conduits 10 and directed upwardly.

Below the discharge of the suction passage 21 there is arranged a plurality of baffle members 22, these being in the preferred embodiment angled as illustrated. The baffles not only are arranged in stepped relation but in successively increasing angular relation relative to the vertical as clearly shown in Fig. 2. These baffles extend across the chamber and serve the purpose of spreaders, breaking up the air current or distributing the air to the filter; also minimizing turbulence as a result of discharge of air under considerable velocity and further serve to cause precipitation of the heavier particles.

Below the baffle members is a collector pan 23 which is preferably provided with oil as indicated at 24, this pan extending below the filter and being removable through the door 25 without

disturbing the filter. However, the filter may also be removed through this door 25.

With this arrangement of parts, I provide a self-contained unit—that is, the dust collecting means are all embodied within the pedestal of the machine, the means being highly effective notwithstanding the fact that the pedestal is desirably of restricted size, one of the advantages of the invention being the economy of space, the primary object being efficient collection of dust notwithstanding the restricted space.

In the embodiment of my invention shown in Fig. 5, the chamber unit 26 is only partially housed within the pedestal 27 which is too shallow to house the filter chamber member. In this case, the discharge from the blower is at 28 in the top of the member 26. The member 26 is otherwise the same as that described. Angle iron strips 29 are provided at the rear of the pedestal to close the joint between the pedestal sides and the filter chamber member 26.

I have illustrated and described my improvements in an embodiment which I have found highly satisfactory. I have not attempted to illustrate or describe certain embodiments or adaptations as it is believed that this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a structure of the class described, the combination of a pedestal having a chamber therein, a pair of dust collecting housings for grinding and other tools mounted on said pedestal in overhanging relation to opposite sides of said chamber, U-shaped suction conduits connecting the rear of said housings with the top of said chamber and opening thereto through the rear wall thereof, a blower comprising a housing mounted in the rear of said chamber and having an upwardly directed discharge disposed on the rear side of the chamber between said U-shaped conduits, a filter arranged in said chamber in a forwardly inclined relation and constituting a partition member in said chamber with its forward upper end in advance of said blower, a conduit wall arranged in said chamber in spaced relation to the top and front walls of the chamber and terminating at its lower end in spaced relation from that side of the inclined filter, which is the lower, and on a level substantially spaced from the upper and lower ends of the filter to provide a suction passage leading from said conduits and delivering downwardly across said chamber at a point substantially spaced from the upper and lower ends of the filter and forward thereof, a plurality of angled louver-like baffle members arranged in spaced downwardly stepped relation from adjacent the lower end of said suction passage, across the discharge thereof to adjacent the lower end of the filter, and a collector pan disposed below said baffle members, said chamber being provided with a door in its rear wall providing access to said pan and said filter.

2. In a structure of the class described, the combination of a pedestal having a chamber therein, a pair of dust collecting housings for grinding and other tools mounted on said pedestal in overhanging relation to opposite sides of said chamber, U-shaped suction conduits connecting in the rear of said housings with the top of said chamber and opening thereto through the rear wall thereof, a blower comprising a housing mounted in the rear of said chamber and having an upwardly directed discharge disposed on the rear side of the chamber between said U-shaped conduits, a filter arranged in said chamber in a forwardly inclined relation and constituting a partition member in said chamber with its upper forward end in advance of said blower, and a conduit wall arranged in said chamber in spaced relation to the top and front walls of the chamber and terminating at its lower end in spaced relation from that side of the inclined filter, which is the lower, and on a level substantially spaced from the upper and lower ends of the filter to provide a suction passage leading from said conduits and delivering downwardly across said chamber at a point substantially spaced from the upper and lower ends of the filter and forward thereof.

3. In a structure of the class described, the combination of a pedestal having a chamber therein, a pair of dust collecting housings for grinding and other tools mounted on said pedestal, conduits connecting said housings with the top of said chamber and opening through the rear wall thereof, a blower mounted within said chamber and having a discharge on the rear side thereof, a filter arranged in said chamber and constituting a partition member therein in advance of said blower, a conduit wall arranged in said chamber in spaced relation to the top and front walls thereof and terminating at its lower end in spaced relation from that side of the inclined filter, which is the lower, and on a level substantially spaced from the upper and lower ends of the filter to provide a suction passage communicating with said conduits and delivering downwardly in advance of the filter, and a plurality of louver-like baffle members arranged in spaced downwardly stepped relation from adjacent the lower end of said suction passage, across the discharge thereof to adjacent the lower end of the filter.

4. In a structure of the class described, the combination of a pedestal having a chamber therein, a dust collecting housing for grinding and other tools mounted on said pedestal and having a suction connection to the top of said chamber, a blower having a blower discharge opening from said chamber, an upwardly extending filter arranged in said chamber and constituting a partition member in said chamber in advance of said blower, a suction passage leading from said suction connection and terminating at its lower end in laterally spaced relation from the filter and at a substantial distance above the level of the lower end of the filter, and a plurality of louver-like baffle members arranged in spaced downwardly stepped relation from adjacent the lower of said suction passage across the discharge thereof to adjacent the lower end of the filter.

5. In a structure of the class described, the combination of a pedestal provided with a chamber, a dust collecting housing for grinding and other tools mounted on said pedestal, an inclined filter arranged in said chamber, a blower for drawing air through said filter and discharging it through an opening from said chamber, a suction passage in communication with said housing and having a lower end terminating forwardly of and in spaced relation from the lower side of the inclined filter to discharge downwardly at the front of said filter and in substantially spaced relation thereto, and baffle members arranged be-

tween the lower end of said suction passage and the lower end portion of said filter to receive the discharge from said suction passage.

6. In a structure of the class described, the combination of a pedestal, a dust collecting housing for grinding and other tools mounted on said pedestal, a casing arranged within said pedestal to provide a separator chamber therefor, a blower mounted on the rear wall of said casing and provided with a motor disposed on the outer side of said rear wall, said casing being provided with a discharge for said blower, a suction passage within said casing communicating with said housing and discharging downwardly, an inclined filter arranged in said casing at the rear of the discharge end of said suction passage and in advance of said blower and having its upper end inclined towards the discharge end of said passage, a plurality of louver-like baffle members arranged between the lower end of said suction passage and the lower end portion of said filter in advance of said filter to receive the discharge from said suction passage, and a collector pan disposed below said baffle members.

7. In a structure of the class described, the combination of a pedestal, a dust collecting housing for grinding and other tools mounted on said pedestal, a casing arranged within said pedestal to provide a separator chamber therefor, said casing having a rear wall provided with a door at the lower portion thereof, a blower disposed within and mounted on the rear wall of said casing and provided with a motor disposed on the outer side of said rear wall, a suction passage within said casing communicating with said housing and discharging downwardly, and an inclined filter removably arranged in said casing at the rear of the discharge end of said suction passage and in advance of said blower and having its upper end inclined towards the discharge end of said suction passage, said casing being provided with a discharge for said blower.

8. In a structure of the class described, the combination of a pedestal having a chamber therein, a dust collecting housing for grinding and other tools mounted on said pedestal, an inclined filter in said chamber, a blower for drawing air through said filter and discharging it from said chamber, a suction passage in communication with said housing and extending downwardly into said chamber and terminating at its lower end in advance of said filter and substantially spaced laterally therefrom and at a substantial distance above the level of the lower end of said filter, the upper end of said filter being inclined towards the lower end of said suction passage, and a plurality of louver-like baffle members arranged in spaced downwardly stepped relation from adjacent the lower end of said suction passage across the discharge thereof to adjacent the lower end of said filter.

9. In a structure of the class described, the combination of a pedestal provided with a chamber, a dust collecting housing for grinding and other tools mounted on said pedestal, an upwardly extending filter arranged in said chamber, a blower for drawing air through said filter and discharging it from said chamber, a suction passage in communication with said housing and extending downwardly into said chamber and terminating at its lower end in advance of said filter and substantially spaced laterally therefrom and at a substantial distance above the level of the lower end of the filter, and a plurality of louver-like baffle members arranged in spaced downwardly stepped relation from adjacent the lower end of said suction passage, across the discharge thereof to adjacent the lower end of the filter.

CHARLES H. ANTRIM.