July 1, 1941. C. B. SCHNEIBLE 2,247,892

AIRFLOW VENTILATING APPARATUS

Filed June 15, 1939

Fig. 1.

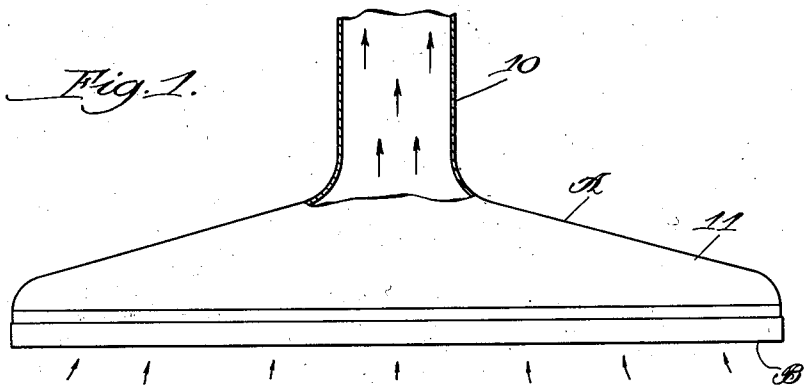


Fig. 2.

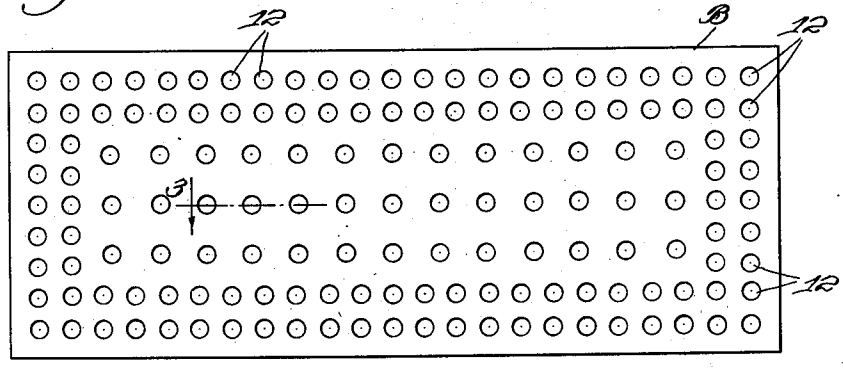
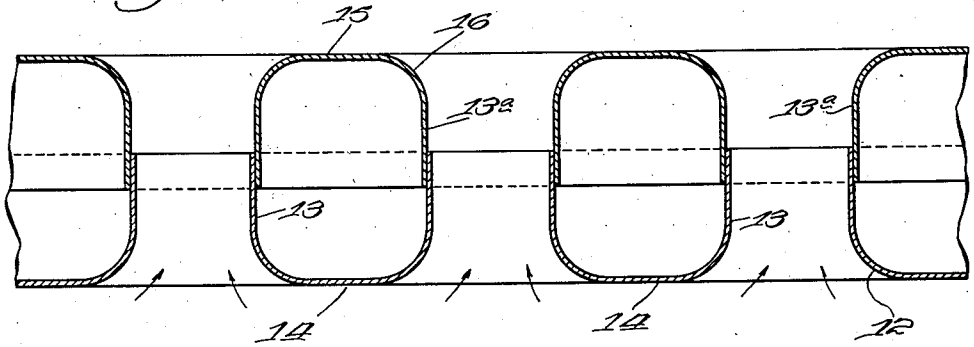


Fig. 3.



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AIRFLOW VENTILATING APPARATUS

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3 Claims. (Cl. 98—115)

This invention relates to an airflow ventilating apparatus. It is useful and has advantages over previous types in manufacturing and processing operations where heat, dust, fume, or gases are created, released, or mixed into the atmosphere around such operations.

An object of the invention is to provide a simple structure which may be installed adjacent to areas where heat, dust, fume, or gases are created, released, or mixed into the atmosphere for the effective removal of such materials. A further object is to provide a nozzle inlet structure which permits the ready flow of air containing the heat or foreign materials into the ventilator and for the forming of a vacuum sealing zone about the area to be controlled. Other objects and advantages will appear as the specification proceeds.

The invention is illustrated, in a preferred embodiment, by the accompanying drawing, in which—

Figure 1 is a broken side view in elevation of a ventilator hood embodying my invention; Fig. 2, a bottom plan view of the closure member for the bottom of the hood; and Fig. 3, a sectional detail view, the section being taken as indicated at line 3 of Fig. 2.

The hood or housing A may be of any suitable shape or form, preferably with low resistance to airflow. In the illustration given, it consists of a central upwardly-extending suction pipe portion 10 leading to a source of suction and of a flared skirt portion 11 forming the hood.

The closure plate B extends across the lower open end of the hood A and provides openings 12 through which dust or particle-laden air may pass into the plenum chamber of the hood.

In the illustration given, the plate B has openings 12 formed therein and preferably formed by drawing tubular portions of the plate inwardly, as shown in Fig. 3. This results in the inwardly-extending tube flanges 13, the same being drawn a substantial distance in the rearward direction. The structure thus far described forms a satisfactory inlet plate member. It will be noted that between the tubes 13 and at the forward end are rounded faces 14 which present very little obstruction to the air and direct it toward the tubes.

In the illustration given, instead of using the single lower plate from which the tubular inlets 13 are drawn, I combine with the lower plate an upper plate, which likewise has tubular nozzles 13a formed and which extend downwardly. The tubular members 13 are slightly larger than the tubular members 13a and receive members 13a in telescoping relation. There is thus provided a smooth inner face 15 and rounded surfaces 16. It will be observed that the two plates, forming the member B, provide airflow passages having flared mouths on each side.

In the illustration shown in Fig. 2, the tube openings 12, provided with their inwardly-extending tube walls 13, are spaced more closely together along the outer margin of the plate B and less closely toward the interior thereof. Thus there is provided greater volume along the outside area so that the tendency for particles to escape is minimized while at the same time the suction openings are reduced in the interior where there is much less possibility of the escape of particles. This arrangement creates a confining suction zone about the area to be controlled.

In the operation of the device, air containing the foreign particles is drawn upwardly through the tubes or nozzles 13 and 13a into the plenum chamber and out through the vacuum pipe 10 to the usual separating column or device (not shown) or to some discharge point. The air meets with very slight obstruction in the plate B, being turned by the rounded edges of the faces 14 into the nozzles or tubes 13 and 13a and thence being drawn without eddies into the chamber. The increased volume along the marginal edges of the plate B prevents the escape of the foreign particles while the general interior of the plate is utilized for drawing air from such area.

While in the foregoing description, I have shown a specific structure for the purpose of illustration, it will be understood that the details therein illustrated may be modified widely without departing from the spirit of my invention.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

I claim:

1. In suction apparatus of the class set forth, a housing having a pipe communicating with a source of vacuum, said housing having an open side, and an inlet plate extending across said open side and being provided with tubular inlets, said inlets being spaced more closely along the marginal edges of said plate than in the central portion thereof.

2. In suction apparatus of the class set forth, a housing having a pipe communicating with a source of vacuum, said housing having an open side, and an inlet plate extending across said open side and being provided with tubular inlets,

said inlets being spaced more closely along the marginal edges of said plate than in the central portion thereof and having the mouth portions thereof outwardly flared.

3. In suction apparatus of the class set forth, a housing having a pipe communicating with a source of vacuum and an open side, an inlet plate member over said open side having inwardly extending tubular inlets, and a second plate member positioned within said housing adjacent said inlet plate member and being provided with tubular inlets extending telescopically around the inlets of said first mentioned plate, said inlets of said first mentioned plate being spaced more closely together along the marginal edges of said plate than in the central portions thereof.

CLAUDE B. SCHNEIBLE.