

Nov. 17, 1931.

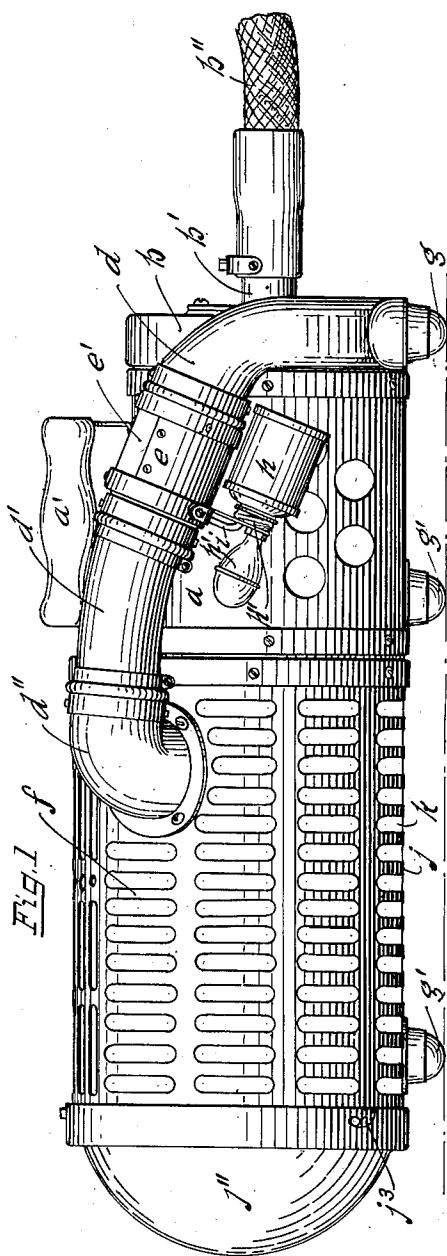
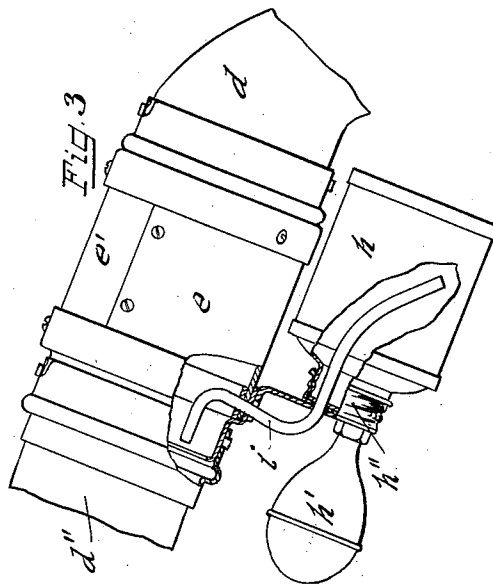
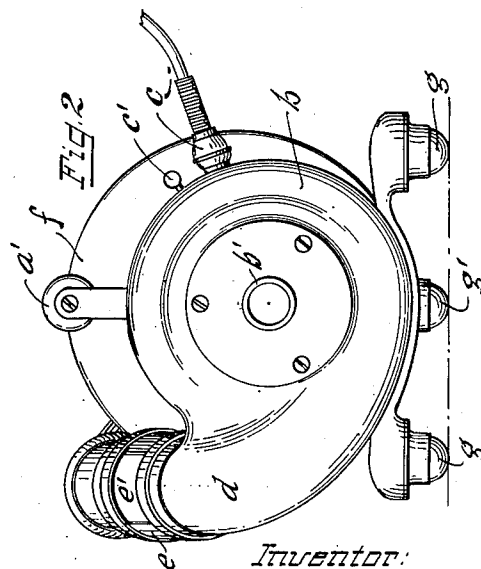
C. B. LAWRENCE ET AL

1,832,565

DUST AND AIR TREATING MECHANISM

Filed Oct. 23, 1928

2 Sheets-Sheet 1



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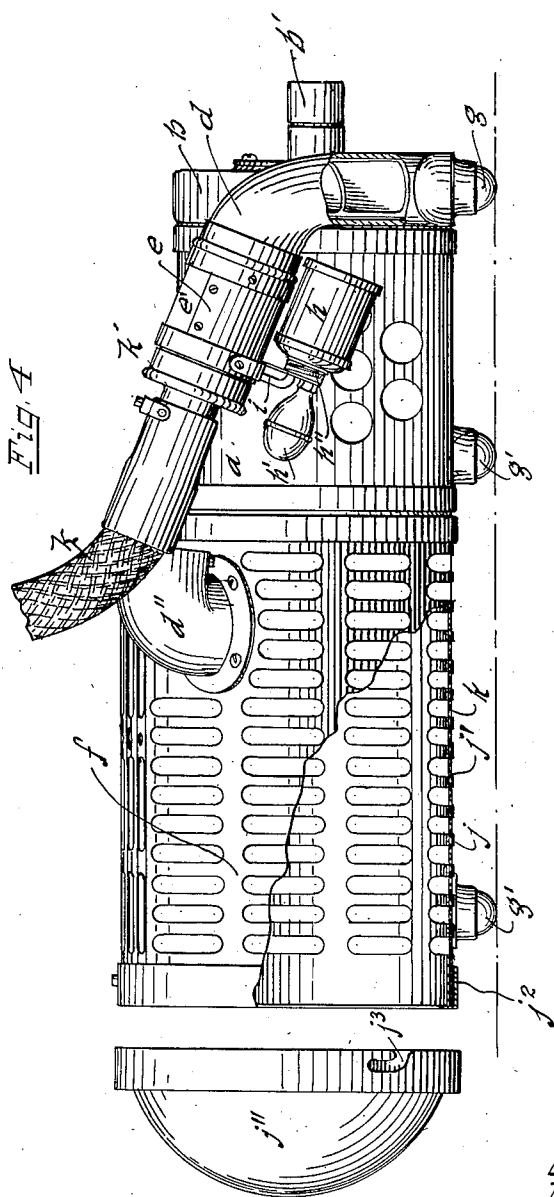
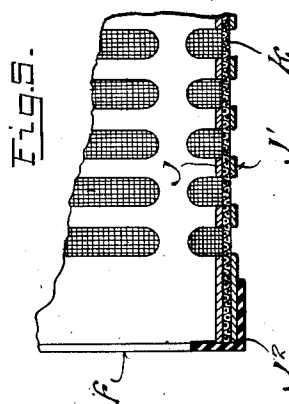
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UNITED STATES PATENT OFFICE

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DUST AND AIR TREATING MECHANISM

Application filed October 23, 1928. Serial No. 314,493.

Our invention relates to improvements in dust and air treating mechanism, and has for its object the provision of means for impregnating air currents and/or dust while conveyed by such air currents with or by suitable reagents, whereby the air may be delivered in purified condition, and/or, the dust carried thereby may be collected and rendered sanitary.

Further objects of our invention are the provision of a sanitary suction cleaning appliance of readily portable and transportable type, and one wherein the dust and germs may be effectively sterilized, as well as one that is convertible for the delivery of an air jet or stream suitably impregnated with reagents, as for displacement of dirt or the destruction of insects, for example.

Another object is the provision of a dust or refuse receptacle for a suction cleaning appliance, of semi-permanent, distended, or basketlike character, and one that readily may be discharged of its contents.

The structural features attaining the foregoing, as well as other minor objects, may best be explained by making reference to the accompanying drawings, wherein:

Figure 1 is a view in elevation of mechanism typical of and embodying our improvements;

Fig. 2 is a front view thereof;

Fig. 3 is an enlarged fragmentary view, partially broken away and in section, illustrating an impregnating attachment;

Fig. 4 is a view of the treating mechanism, partially broken away and in section, illustrating its use with a blower hose.

Fig. 5 is an enlarged sectional view of a portion of the construction shown in Fig. 4.

Throughout the several figures of the drawings we have employed the same character of reference to indicate similar parts.

At the right hand portion of Fig. 1 is shown an electric fan-motor unit; the motor casing *a* having a carrying handle *a'*, while the fan-casing *b* is provided with a tubular extension *b'* whereon the flexible tube *b''* is removably attached. It will be understood that suitable suction cleaning tools accordingly may be operated at the end of a tubular

suction cleaning extension such as the hose *b''*. At the right, Fig. 2, a removable plug connector *c* is shown in position for delivering current to the motor, and a switch *c'* is adapted for cutting the current on and off, as required.

The fan-exhaust *d* extends through the windowed connector *e*, having the transparent closure *e'* and removable flexible duct *d'* and elbow *d''* to the dust receptacle *f*, shown at the left. The mechanism is readily transportable during cleaning operations by reason of its mounting upon two forward rotatable balls *g* and two rearwardly positioned balls *g'* disposed as a T in plan view, to facilitate the traction of the mechanism when moved about a floor to various positions by means of the suction hose *b''*.

Referring particularly to Fig. 3, it will be seen that a soft rubber bulb *h* is positioned upon the screw cap *h''* of the removable receptacle *h*, from which the curved tube *i* extends into the upper portion of the connecting chamber *e*. Thus the liquid contents of receptacle *h*, such as disinfectant, insecticide, or other purifying reagents, may be supplied in small quantities to the air currents flowing from the fan chamber, from time to time, as required, merely by compressing bulb *h*. The action of the attachment may readily be observed through the transparent closure *e'* and the charge of such liquid accordingly may be gauged. Incidentally, the action of the suction cleaning tool likewise may be noted by the amount and character of dust in the air currents. A fresh receptacle of liquid, of the same or of different character may readily be screwed into place, as required.

The structure of the dust receptacle is distinctive, comprising an inner and an outer metallic grid, *j*, *j'*, of cylindrical form fitting closely, one within the other, and between which there is positioned a fabric sleeve *k* of close weave, closed at its inner end, and clamped in contact between the inner surface of the outer grid and the outer surface of the inner grid, while a dome or cap *j''* is attached at the outer end, and provided with a rubber annular seal *j²* and bayonet connections *j³*. This removably closes substantially in air-

tight relation the outer end of the receptacle or basket, although the air currents readily find passage through the fabric sleeve and the registering openings in the grids. The sleeve invariably is distended to afford uniform efficiency for trapping the dust and permitting the air to escape. A charge of dust and refuse readily is removed from the basket by taking off the cap *j''* and inverting the appliance over a dust bin or furnace opening.

In order to disinfect the dust, only a small amount of disinfecting liquid need be supplied to the dust-charged air currents occasionally while the suction cleaning is in progress, and the interior of the basket soon becomes sufficiently charged with the sprayed liquid. On the other hand, a purifying reagent may be supplied to the air currents and distributed about a sick room or smoking den, for example, while the fan is running, and with the suction cleaning means detached from the fan chamber. Numerous other uses are likewise available with our improved mechanism.

Thus, for example, we have shown in Fig. 4 the attachment of a blower hose *k*, by means of the removable coupling *k'* in substitution for the connection to the dust receptacle. Thereby, a stream of treated air may be locally applied in a room or closet, for instance, through any desired length of hose, and any dust, débris, insects, or the like, thereby displaced, will be subjected to the liquid reagent employed. The larvæ of moths or other insects may very readily be destroyed. Since the liquid receptacle is easily accessible, the contents may be renewed at will during the operation of the mechanism, and the periodic charges of the air currents are made visible to the operator at all times.

Having now described the preferred embodiment of our invention, we claim as new, together with such modifications as may be made by those ordinarily skilled in the art, the following:

1. In mechanism of the class described, the combination with a fan-motor unit, a tubular suction cleaning extension, associated therewith, and a refuse receptacle into which the fan discharges, comprising substantially registering cylindrical grid members with an interposed fabric sleeve clamped in contact between the inner surface of the outer grid and the outer surface of the inner grid in distended position, and a removable closure for the outer ends of the cylindrical members said unit and receptacle being united so as to have a common longitudinal axis.

2. A dust receptacle of the class described, comprising an outer and an inner perforated grid, a fabric sleeve disposed therebetween and clamped in contact between the inner surface of the outer grid and the outer surface of the inner grid and distended by the inner

grid; said grids being tubular in shape open at one end and closed at the other, and removable closure means for the open end.

Executed at Cleveland, Ohio, this 19 day of October, A. D., 1928.

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