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ATMOSPHERE PURIFYING DEVICE

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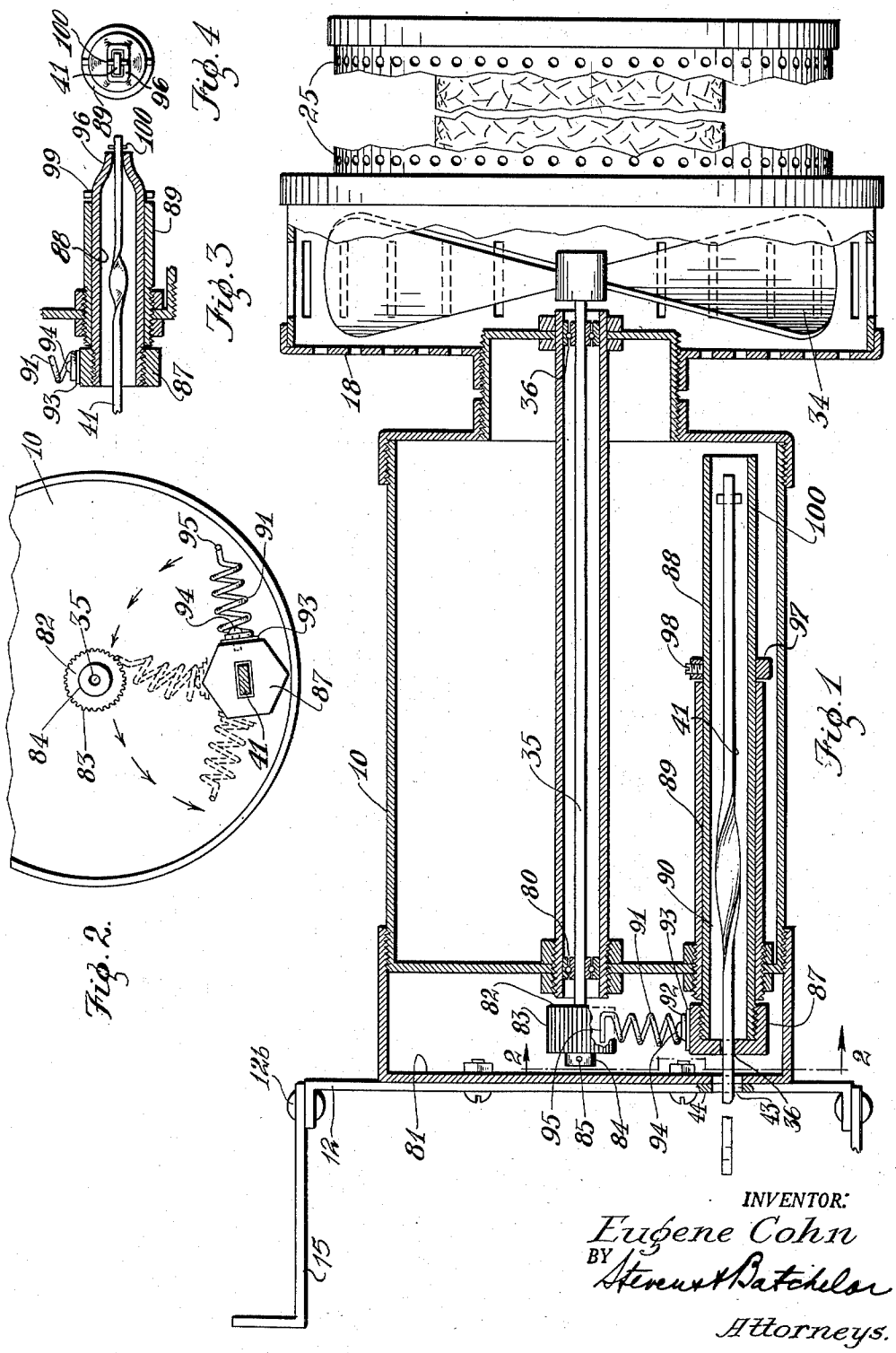

Fig. 1

Fig. 2

Fig. 3

Fig. 4

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ATMOSPHERE PURIFYING DEVICE

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5 Claims. (Cl. 21—77)

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My invention relates to appliances for purifying the atmosphere in wash rooms, dressing rooms and like places, and more particularly to the device patented by me on April 25, 1944, under No. 2,347,591, and the present improvement has for its main object to accelerate the action of the unit which produces the air currents involved in the atmosphere purifying process and so procure a greater diffusion of the purifying medium.

A further object is to provide an actuating unit for the rotary fan in the patented device which imparts a fast spinning motion to the same in contrast with the relatively slow motion and few revolutions formerly obtained.

Another object is to provide an actuating unit which is of far simpler construction than the patented one, representing a substantial saving of labor and materials in the production of the appliance.

With the above objects in view and any others which may suggest themselves from the description to follow, a better understanding of the invention may be had by reference to the accompanying drawing, in which—

Fig. 1 is a view similar to Fig. 2 in the patent referred to in vertical section and partly broken away;

Fig. 2 is a section on the line 2—2 of Fig. 1, indicating the actuating unit in different positions;

Fig. 3 is a section similar to Fig. 1 of a modified bearing for the actuating unit; and

Fig. 4 is a right-hand end view of Fig. 3.

Referring specifically to the drawing, it may be said that the general form of the device is the same as that in the patent, reference numerals for corresponding parts being repeated. However, the fan shaft 35 is now extended from its frontal ball bearing 36 in a rearward direction to receive additional support in a ball bearing 89 carried by the rear end wall of the body. Also, a supplemental chamber 81 back of the housing 10 serves in the manner of the former screw cap 11 to support the housing 10 from the bracket 15.

In the novel embodiment the rear end of the fan shaft 35 receives a wheel 82 of solid steel construction, the wheel having a milled periphery, as indicated at 83. The wheel may be driven fast on the shaft or made with a hub 84 to receive a pin 85 driven into or through the shaft. The wheel is thus an integral part of the fan shaft.

The drive of the fan shaft in the improved

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device is not co-axial, as in the patented one, but along a course parallel to the shaft 35. Thus, the rod 41 which leads from the door connection 49 in the patent now enters the housing at a lower point than before, first passing through holes 43 and 44 in the bracket 15 and chamber 81, respectively. In the chamber the rod passes through an oblong slot 86 in a cap nut 87 screwed on the rear end of a tube 88. The latter is freely rotatable in a tubular bearing 89 carried by the rear wall of the housing 10; and the tube 88 also forms a guide for the rod 41.

The rod 41 is of flat stock, as before, but only has a partial twist 90 for the purpose of the present improvement, such twist cooperating with the slotted cap nut 87 to impart a partial turn to the same on the longitudinal travel of the rod. Thus, Fig. 1 shows that the twist 90 is on the inside of the tube 88, and it follows that when the rod is drawn outwardly, it will impart the rotary movement mentioned to the cap nut.

The cap nut is preferably of hexagonal form, as shown, although it may be of any other form which will allow it to present a flat surface in one direction. Such surface forms the basis for the projection of a coil spring 91 in a radial direction, the bottom coil 92 of the spring being deposited on a washer 93 and secured to the cap nut through the washer by means of a screw 94.

The spring 91 is shown in side elevation in Fig. 1, although its normal position is not upright but almost horizontal as indicated at the right and left in Fig. 2. The vertical position of the spring makes it clear that the topmost coil of the same is fashioned into a cross-bar 95 which is parallel to the milling 83 of the wheel 82. Thus, when the cap nut 87 is turned counterclockwise from the position in Fig. 2, it carries the spring 91 from the full-line position in the direction of the arrows in the same figure first to a point where the cross bar 95 of the spring intercepts the milled periphery of the wheel 82. The motion of the cap nut forces the spring to flex back as indicated by dotted lines in the center of Fig. 2, so that the cross bar takes a grip on the wheel and imposes a turning influence on the same as the spring passes under the wheel and eventually reaches the dotted line position in the left-hand portion of Fig. 2. When this action is rapid, the impulse imparted by the spring to the wheel 82 is forceful and causes the wheel to spin a number of revolutions. Since the wheel is solid and the fan 34 at the opposite end of the shaft 35 also has a certain amount of

weight, the momentum of the wheel and the fan operates to extend the rotation of the fan, so that the latter spins a considerable number of revolutions. It is understood that the action just explained also occurs on the return motion of the cap nut 87 as induced by the reverse travel of the rod 41.

Figs. 3 and 4 show a modification wherein the tube 88 serves as the cap nut 87 insofar as its driven function is concerned. Thus, instead of having a cap nut with a slot for the rod 41, the front end of the tube 88 is simply flattened as indicated at 96 to create the oblong passage for the rod 41. In the first case, the ring 97 secured by a set-screw 98 is provided to check the tube 88 from rearward deviation, but opposed pins 99 may be provided in the modification of Figs. 3 and 4 to serve the same purpose. The rod 41 has a stop pin 100 at its front end for the same purpose.

It will be evident from the above description that I have provided a simplification of the previous device by locating the actuating unit for the fan outside of its axial zone. Besides, the said unit not only imparts rotation to the fan, but does so with a flipping action equally effective in either direction to impose a rapid spinning motion to the wheel 82 which runs the fan faster and several revolutions longer than in the previous case. Clearly, this action of the fan will have a more forceful engagement with the surface of effect on the purifying agent to project and diffuse a larger quantity of vapor therefrom, materially increasing the efficiency of the appliance. Finally, it will be evident that the parts involved in the improved appliance are of simple design and do not involve more than ordinary skill to produce, so that the appliance may be inexpensively manufactured.

While I have described the improved appliance along specific lines, various minor changes or refinements may be made therein without departing from its principle, and I desire to consider such changes and refinements as coming within the scope and spirit of the appended claims.

I claim:

1. The combination with a carrier for a substance from which a volatile agent may be drawn by the passage of air currents, and a support for the carrier journaling the spindle of a rotary fan designed to create such current; of means to impart a sudden rotary impulse to said spindle comprising a wheel mounted on the latter and having a roughened periphery, a flat rod parallel to the spindle and longitudinally slidable in the support, the rod having a twisted portion, a member journaled in the support and having a narrow central receptacle through which the rod is slidable and which induces the member to take a partial turn when said twisted portion passes through the receptacle, and a radial projection from said member designed to engage said wheel with wiping pressure when the member takes said turn, the departure of the projection from the wheel inducing said impulse.

2. The structure of claim 1, said projection being yieldable.

3. The structure of claim 1, said projection being a coil spring.

4. The structure of claim 1, the periphery of said wheel being milled, and said projection having a terminal cross-bar adapted to seat in a milling groove on engagement with the wheel.

5. The structure of claim 1, the periphery of said wheel being milled, and said projection being a coil spring terminating with a cross-bar parallel to the milling on said periphery, and adapted to seat in a milling groove on engagement with the wheel.

EUGENE COHN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,180,967	Strabel	Nov. 21, 1939
2,347,591	Cohn	Apr. 25, 1944