Oct. 16, 1934. A. W. SLAYBACK 1,977,357

INDUCTING AND DISCHARGING DEVICE FOR FLUIDS

Filed Feb. 9, 1931

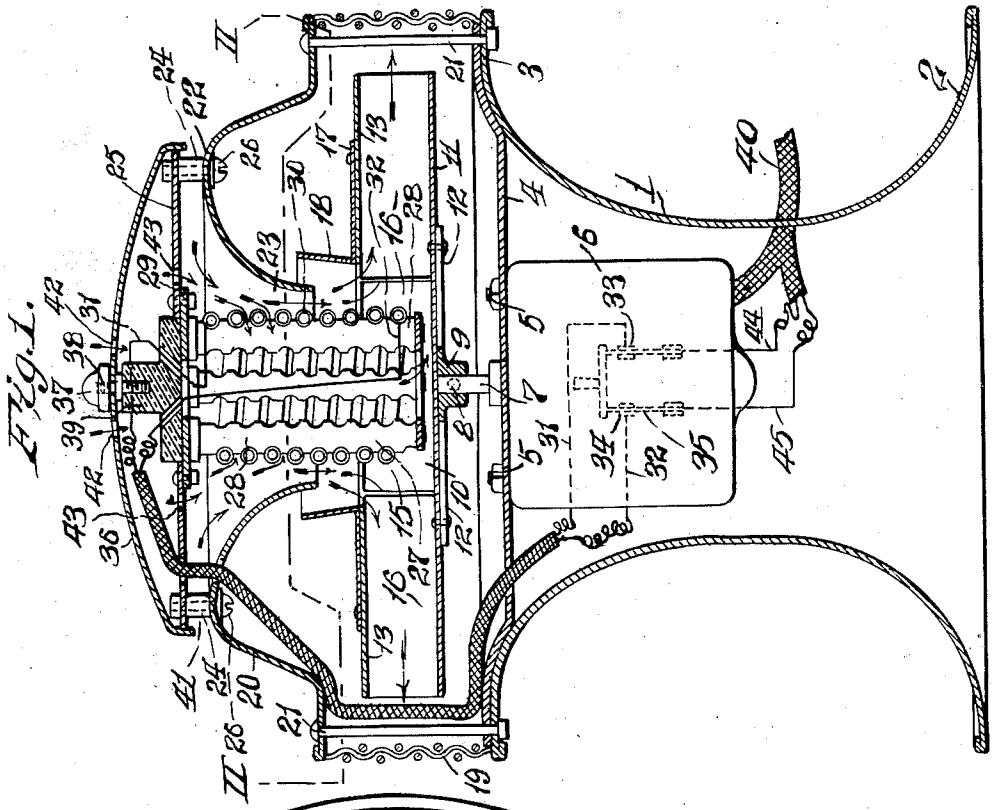


Fig. 1.

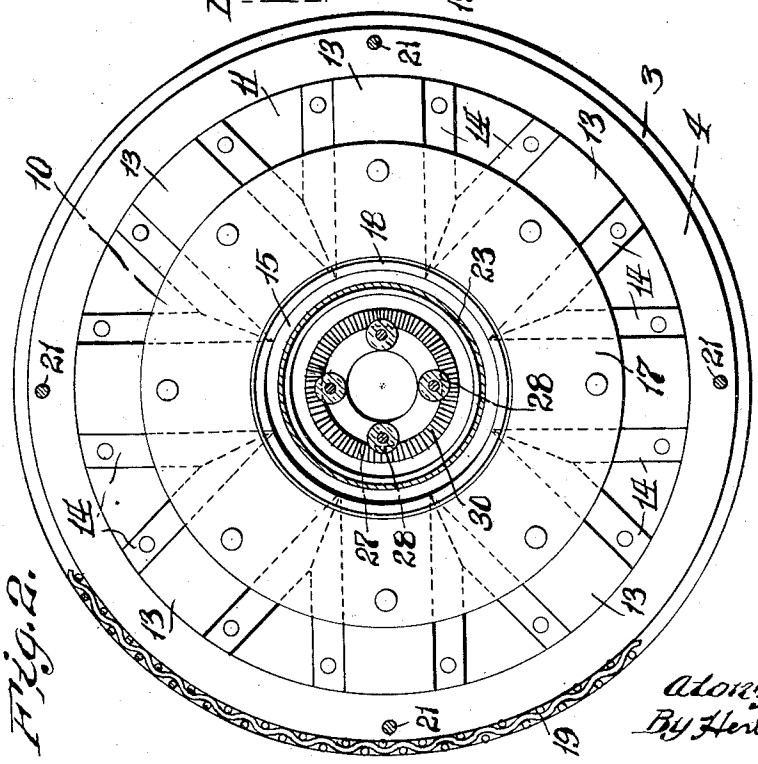


Fig. 2.

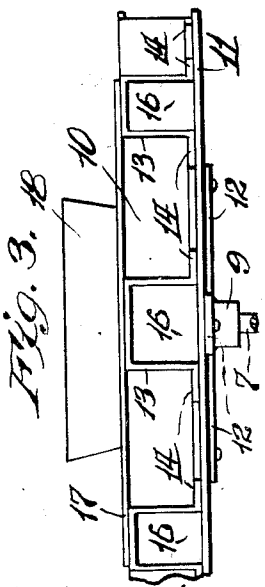


Fig. 3.

Inventor:
Alonzo W. Slayback.
By Herbert G. Fletcher Atty.

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INDUCTING AND DISCHARGING DEVICE FOR FLUIDS

Alonzo W. Slayback, St. Louis, Mo.

Application February 9, 1931, Serial No. 514,496

3 Claims. (Cl. 219—39)

This invention relates to certain new and useful improvements in an inducting and discharging device and is a furthering of the principles contained in my pending application on Inducting and discharging device for fluids and the like filed July 15, 1929, Serial No. 378,300, now Patent No. 1,791,909, this present application however disclosing a different structure.

One of the objects of the invention is to provide an inducting and discharging device having a rotor made of a series of radially disposed open ended tubes which extend to and communicate with a hollow center or hub.

Another object of the invention is to provide an inducting and discharging device to be located in a closure such as a room for tempering and circulating the atmosphere.

A further object of the invention is to provide a closure having air inducting and discharging means therein and a unit disposed in the closure in proximity to the inducting and discharging means for tempering the atmosphere as it is drawn through the closure and discharged therefrom.

Other and further objects will appear in the specification and be specifically pointed out in the appended claims, reference being had to the accompanying drawing, exemplifying the invention, and in which:—

Figure 1 is a vertical section taken through this improved inducting and discharging device.

Figure 2 is a horizontal section taken approximately on the line II—II of Fig. 1.

Figure 3 is a fragmentary side elevation of the rotor used in this improved inducting and discharging device.

Referring by numerals to the accompanying drawing 1 designates a tubular pedestal having a base 2 and a horizontally disposed supporting flange 3, said flange being for the support of a horizontally disposed plate 4 and depended from the plate 4 and secured thereto by studs 5 is a motor 6 having a vertical shaft 7 extending from its upper disposed end.

Secured to the motor shaft 7 by the set screw 8 is the hub 9 of the rotor 10, said rotor being horizontally disposed above the plate 4.

The rotor 10 comprises a circular disc 11 which is concentrically secured on the hub 9 by riveting it on the arms 12 of the hub and disposed on the disc 11 are a series of radially disposed inverted U-shaped members 13. Each of the inverted U-shaped members 13 is provided with a pair of flanges 14 for securing them on the disc 11 in radial disposition from the center of the disc, said members 13 meeting at their inner ends as shown in Fig. 2 thereby providing a hollow center 15 with which all of the members 13 communicate, said members 13 and the disc 11 to which they are secured forming a series of radially disposed passageways 16 extending from the hollow center 15. Secured to and concentrically disposed on the members 13 is a plate 17 having a concentrically disposed opening from which a funnel 18 is upwardly extended, the funnel 18 communicating with the hollow center 15 of the rotor 11.

The plate 4 is slightly less in diameter than the supporting flange 3 of the pedestal 1, and mounted on the flange 3 outwardly of the peripheral edge of the plate 4 is an apertured or peripheral circular guard wall 19 and resting on the top edge of the guard wall 19 is a closure member 20, said closure member and guard wall 19 being firmly held together and to the supporting flange 3 by bolts 21.

The closure member 20 has an annular raised portion 22, the center portion of said raised portion flaring downwardly so as to form a funnel 23, said funnel as its inner or lower end being smaller in diameter than the funnel 18 of the rotor 11 so as to permit the lower end of the funnel 23 to extend into the funnel 18.

Mounted on the annular raised portion 22 of the closure member 20 and held a distance therefrom by the spacer members 24 is a supporting plate 25, said supporting plate being secured to the annular portion 22 by the screws 26. Depended from the supporting plate 25, through the funnel 23 and extending through the hub 18 into the hollow center 15 of the rotor 10, is a heating element 27.

The heating element 27 comprises a series of spaced depending porcelain grooved legs 28 which are depended from an annular collar or washer 29, said collar being secured to the underside of the plate 25. The legs 28 are circularly disposed on the collar 29 and a coiled resistance wiring 30 is wound spirally around the outside of the circular row of legs 28 as shown in Figs. 1 and 2, each end of the resistance coil being in circuit with respective wires 31 and 32 which lead to respective switch terminals 33 and 34 of a switch 35.

A top cover 36 is secured over the plate 25 by the nut 37 being engaged on the screw 38 which is extended from the porcelain block 39, said block 39 being carried by the collar 29 of the heating element 27, the circuit wires 31 and 32 passing through said block.

In the operation of this improved inducting and discharging device, when energizing current is supplied to the motor 6 through the circuit wires in the insulated electrical cord 40, the rotor 10 will be revolved by reason of it being mounted on the motor shaft 7 and the revolving of the rotor will induce air currents into the hub 18 of the rotor from the funnel 23 through the spacing 41 provided beneath the plate 25 and the closure member 20 as shown in Fig. 1. Air currents will also be induced into the hub 23 through the apertures 42 formed in the top cover 36 and through the apertures 43 formed in the plate 25.

While the rotor 10 is being revolved, it is obvious that centrifugal action thereto will discharge the air induced into the hub 18 and the hollow center 15 radially therefrom through the passageways 16 and the air currents will be discharged through the perforated guard wall 19.

During the operating of the rotor 10, in the event that the switch 35 is closed with respect to the circuit wires 31 and 32 and the circuit wires 44 and 45 which lead from the supply wires in the insulated electrical cord 40, the current offered through the circuit wires 31 and 32 will heat the element 27 and as the induced air currents enter the funnels 23 and 18, the entrained air will be tempered by the heating element, the heated air upon entering the hollow center 15 of the rotor 10 being discharged centrifugally therefrom by the action of the rotor through the passageways 16.

It is noted that the spaced circular disposition of the legs 28 of the heat unit 27 will provide for air circulation therebetween thus providing a maximum heating capacity to be given from the heating element as the air will be entrained not only sidewise of the heating element but through it.

If desired a refrigerating unit can be depended from the plate 25 after the removal of the heating element 27, the refrigerating unit of course if necessary being extended from a refrigerating circuit or plant. In the instance of using a refrigerating unit obviously the air entrained passed the refrigerating unit will be tempered or cooled, the rotor 10 therefor discharging and circulating cooled air.

The electrical switch 35 in this instance is placed on the outside of the tubular pedestal 1 and if it is desired to operate the rotor 10 without heating energy being provided from the heat element 27 for permitting the rotor to operate merely as a fan, the switch 35 is thrown to open position.

While one illustrative embodiment of the invention has been described in detail, it is not my intention to limit its scope to that particular embodiment or otherwise than by the terms of the appended claims.

What I claim is:—

1. An inducting and discharging device comprising a housing, a revolvable member located in said housing having a hollow center and a series of radially disposed open ended passageways leading from said hollow center, a driving element for said member, a funnel depended from the top wall of said housing in communication with the hollow center of said member, and a temperature changing element disposed in the hollow center of said member.

2. An inducting and discharging device comprising a housing, a revolvable air displacing member located in said housing having a hollow hub, a driving element for said member, a funnel extended from one of the walls of said housing into the hub of said revolvable member, and a temperature changing element against which air is directed by said funnel.

3. An inducting and discharging device comprising a housing, a revolvable member located in said housing, a driving element for said member, a funnel extended from one of the walls of said housing directed towards said revolvable member, and a temperature changing element in said housing embraced by said funnel.

ALONZO W. SLAYBACK.