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N. BRAUN

OUTLET HOOD

Filed May 14, 1927

FIG. I

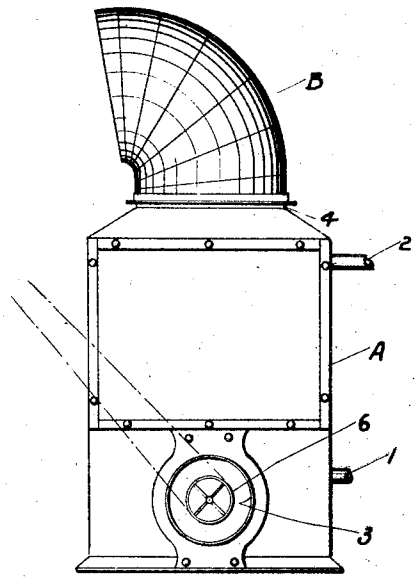
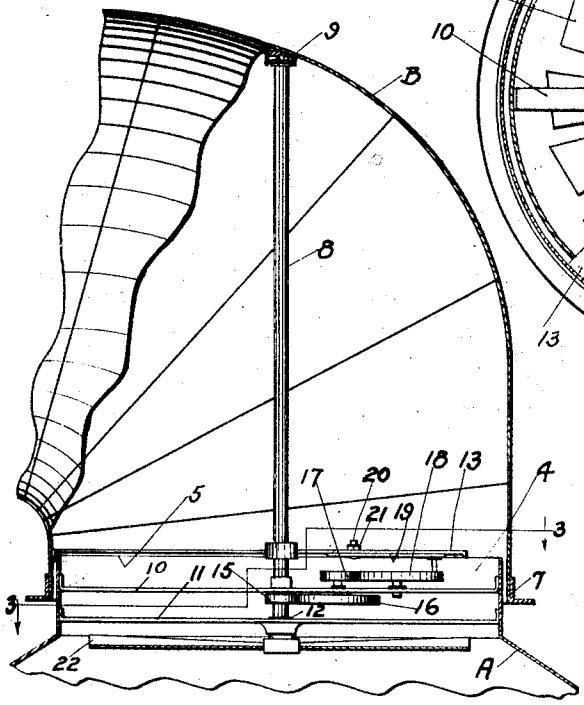


FIG. II



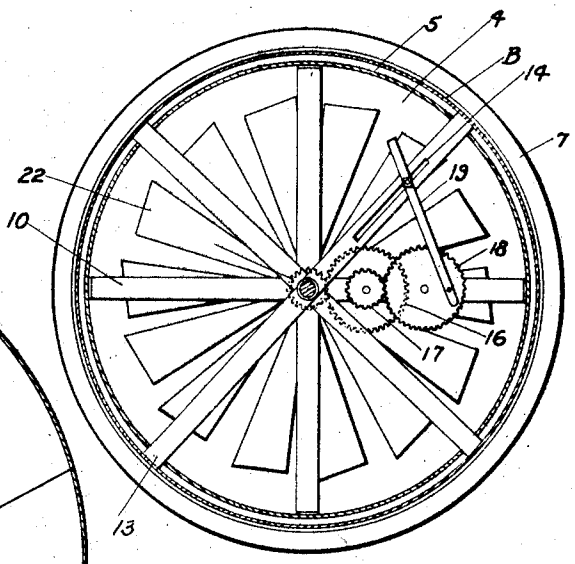


FIG. III

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UNITED STATES PATENT OFFICE.

NICHOLAS BRAUN, OF ST. LOUIS, MISSOURI.

OUTLET HOOD.

Application filed May 14, 1927. Serial No. 191,488.

My invention relates to improvements in outlet hoods, and more particularly to hoods or elbows adapted to be connected to the discharge end of heaters, blowers, ventilators, etc., so as to direct the gases discharged therefrom in any desired direction.

Another object of my invention is to so construct an elbow or hood of the kind described, which shall oscillate relatively to the heater or other device to which the hood is connected, thus throwing the gases more uniformly over a large area, and resulting in more even heating, ventilating or the like.

Another object of my invention is to provide an oscillating hood of the kind described, which shall be operated directly by the gases themselves passing through the same, and in which the arc of oscillation may be adjusted.

Other objects of my invention are the construction of a device of the kind described, which shall be strong and sturdy in construction, simple, convenient, economical, and reliable and efficient for use wherever found applicable.

Many other objects and advantages of the construction herein shown and described, will be obvious to those skilled in the art to which this invention appertains, from the disclosures herein given.

To this end, my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and uses mentioned, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts throughout the views,

Figure I is a side elevation of my invention as applied to a heater;

Figure II is a vertical cross-section, taken substantially through the upper part of the heater; and

Figure III is a horizontal cross-section, taken substantially along the line 3—3 of Figure II.

In the drawings, wherein I have illustrated the preferred embodiment of my invention, A indicates any suitable source of heat generating unit, ventilator, dehydrator or the like, and in the construction shown, the part A is shown as a heater, especially adaptable for industrial or factory heating, the same having a steam inlet 1 and an outlet 2.

Adjacent the lower end of the heater A is an air intake 3, the same preferably having a fan arranged therein so as to force the air from the room into and through said intake and up over the steam coils and outwardly of the heater through the open top end or discharge end 4 thereof, this discharge end being preferably reduced in area, as shown, and provided with a neck portion 5. For rotating the fan in the heater, a pulley 6 is fixed on the fan shaft, and may be driven by any suitable means, as by a belt or the like, shown in dotted lines in Figure I.

In order to direct the heated gases passing through the discharge end of the heater into a substantially horizontal direction and into the room at the proper height, an elbow or hood B, is generally provided, this hood being positioned over the outlet end of the heater, and in a fixed position relatively thereto. The gases discharged through the outlet end of the elbow, or if the device is used to draw gases thereinto from the room, act in a more or less limited area, and accordingly I have provided a device to overcome this defect, and to increase the useful working range of the device by making the hood oscillate through a predetermined arc.

In this construction, the hood B is preferably reinforced about the lower or horizontal intake end thereof, by an angle iron 7, the intake end of the hood or elbow being slightly larger in diameter than the outer surface of the outlet end of the heater neck 5, as shown, so as to cause no friction therebetween. A vertical shaft or spindle 8, is arranged within the hood, said hood being supported on the upper end of the shaft through an anti-friction bearing ball 9, so that the shaft may rotate freely and independently of the hood B. A pair of spiders or cross-ties 10 and 11, respectively, are arranged across the opening 4, the shaft 8 being journalled through said ties, there being one or more washers or thrust bearings 12 carried by the shaft and supporting the shaft at its lower end, as shown. A third spider or cross-tie 13 is fixed at its ends to the lower end of the elbow, the shaft 8 passing freely therethrough, one of the arms of the spider 13 having an elongated slot 14 therethrough, for a purpose to be more clearly hereinafter described.

A pinion 15 is carried by the spindle 8, the pinion meshing with a gear 16 carried by a stub shaft journalled in the spider 10, as shown, said stub shaft also carrying a pinion 17 adapted to mesh with a gear 18 journalled in the spider, thereby forming a reduction gearing between the speed of the shaft

and that of the last gear 18 of the train. A link 19 has one end pivoted adjacent the rim of the gear 18, the other end of said link being pivotally connected to a bolt 20 that is slidable in the elongated slot 14 of the arm of the spider 13. A nut 21, or other suitable securing means may be used for adjustably maintaining the bolt 20 at any desired position along the length of the slot, to thereby control the arc of oscillation of the hood. As the bolt is moved toward the left, inwardly along the slot, the arc of oscillation of the hood is decreased or shortened, while an adjustment in the opposite direction will lengthen the arc through which the hood will travel.

In order that this oscillation of the hood will be automatic in its action, I have provided the following drive means for the spindle. A fan 22 is carried at the lower end of the shaft, and as the gases pass the fan they cause it to rotate, the speed of rotation being of course, dependent upon the force of the gases passing the same. This rotation of the fan rotates the shaft 8, this rotation being transmitted in turn, through the reduction gearing, into an oscillation of the hood.

From the foregoing, it is obvious that I have invented a device particularly adaptable for the purpose, and in which the gases expelled through the hood will be thrown outwardly into the room at the desired height along a path whose arc is controlled or adjusted as desired. This oscillation of the hood results in a more uniform and even distribution of the gases into the room and renders the heater much more effective than where the hood is fixed or stationary. The operation of the hood is practically the same where the gases are expelled outwardly through the hood or where the gases are drawn inwardly through the hood, thus enabling the device to be applied to all sorts of uses, such as heating, ventilating, drying, dehydrating, removal of steam, condensed moisture, gases, fumes, unpleasant odors and similar things.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact construction, arrangement and combination of parts herein shown and described, or uses mentioned, except as limited by the claims.

What I claim as new and desire to secure by Letters Patent is:

1. An outlet hood adapted to be mounted at the outlet of the heated gases from a heater, and means for automatically oscillating said hood relatively of the heater and comprising a spindle rotatably supporting said hood, a fan at the lower end of said spindle and operable by the gases discharged through said outlet, and drive means intermediate said fan and hood for oscillating the latter during rotation of the fan.

2. A hood adapted to be positioned at the discharge end of a heater and to be oscillated relative to said heater, and means for oscillating said hood comprising a spindle rotatably carried by said heater and rotatably supporting said hood, means between said spindle and hood for transmitting rotary movement of said spindle to oscillating movement of said hood, means for adjusting the arc of oscillation of said hood, and a fan carried by said spindle in the path of flow of the gases through the heater for driving said spindle.

3. In combination, a heater, an outlet hood mounted thereabove at the outlet of said heater, a spindle extending upwardly from the top of said heater, and a single ball supporting said hood and arranged intermediate the upper end of the spindle and said hood, and means for automatically turning said hood and comprising a fan at the lower end of said spindle and operable by the gases flowing through the heater and hood, and drive means intermediate said fan and hood for transmitting rotation of said fan into turning movement of said hood.

NICHOLAS BRAUN.