

Sept. 3, 1935.

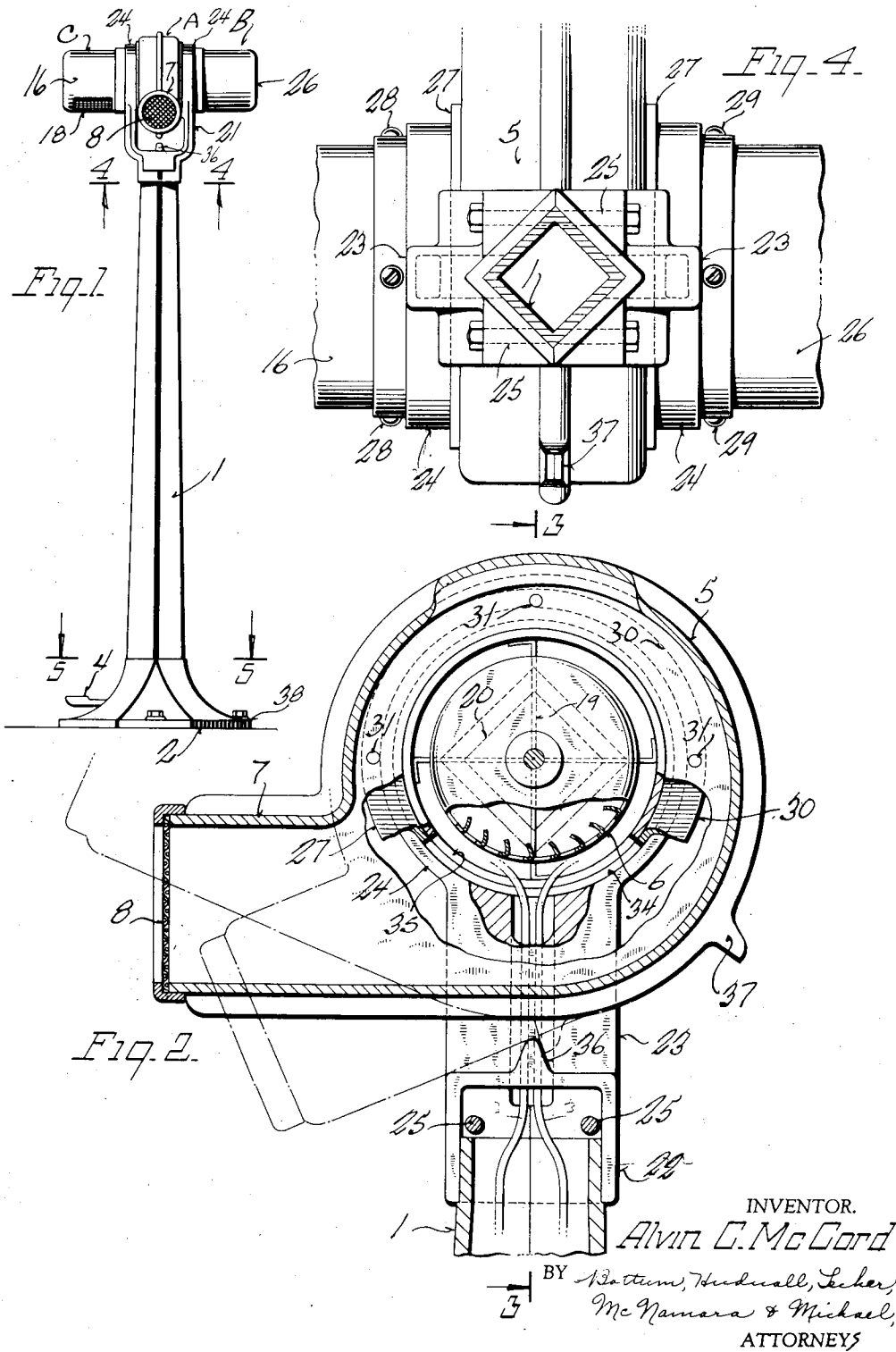
A. C. McCORD

2,013,572

DRIER

Filed Feb. 14, 1934

2 Sheets-Sheet 1



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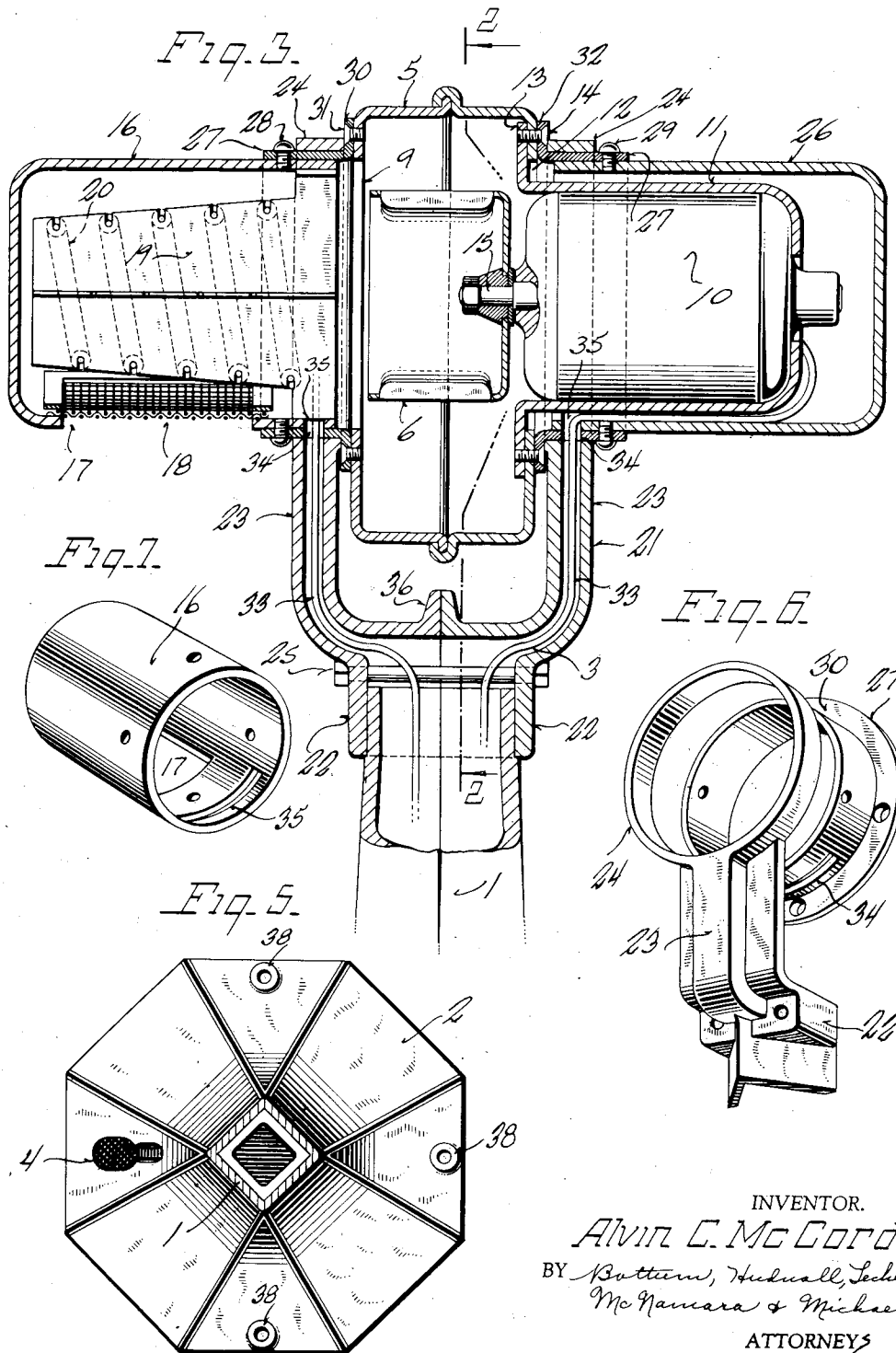
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UNITED STATES PATENT OFFICE

2,013,572

DRIER

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Application February 14, 1934, Serial No. 711,093

18 Claims. (Cl. 219—39)

This invention relates to electrically operated drying apparatus for delivering blasts of heated air for face, hand and other drying purposes, such as hair, articles of apparel, etc.

Devices of this character as heretofore placed on the market, both as regards the wall and the pedestal type, are relatively large and bulky, especially in those portions containing the operative parts of the drier, such as the motor, blower and electrical heating elements. This is due to the particular design employed, which design requires the use of a relatively large outer casing to house and protect the operative parts of the drier. The nature of the support for the operative elements also requires a large bulky outer casing, all of which contribute to the expense of making these devices. This naturally controls the price at which these devices are retailed, which price is sufficiently high to confine the use of these devices to office buildings, hotels, theaters and other public places having large and frequent attendances.

The general purpose and object of my invention is to provide a drier apparatus of such a simple and inexpensive character that the use of the drier may be extended to wash rooms and other places of more infrequent use. In other words, the main object of the invention is to provide a device of such simple design that it may be made cheaper and sold at such a low figure that its use is made possible in wash rooms of garages, gasoline stations, small stores and restaurants, and other places where the higher price machines, because of their expense, have not been used.

In carrying out the objects of my invention, I provide outer casings for the individual blower, motor and heating units of the drier device, and connect these casings one to the other, whereby these casings provide the only outer casing required for the drier unit, thus eliminating the large outer casing heretofore required as a housing and a cover for the drier device. Moreover, I mount the drier device directly on its main support, either pedestal or bracket, by the use of trunnion-like bearing means engaging the outer casing as provided by the casings of the blower, motor and heating units intermediate the ends thereof, whereby the air discharge nozzle of the blower unit may be adjusted as required by the user on turning the blower unit in its rotative support. For balance and symmetrical appearance, I have the bearing means engage the drier device at or on opposite sides of the blower unit, the other units extending laterally outward from the blower unit on opposite sides thereof. The

arrangement described is practical, simple and inexpensive in design and construction, making a neat and compact device which by reason of its low selling price may have more or less universal use.

Specifically, the bearing means referred to, as disclosed in the accompanying specification and drawings, is in the form of a yoke-shaped member having laterally spaced bearing apertures at one end for the drier unit and main support engaging means at the opposite end. These apertures are provided by annular or ring-like members which encircle the outer casing of the drier on opposite sides of the blower unit and engage co-operating annular bearing surfaces thereon.

The invention consists further in the matters hereinafter described and claimed.

In the drawings—

Fig. 1 is a front view of my improved drier device having a pedestal support;

Fig. 2 is a transverse vertical sectional view taken through the blower unit on line 2—2 of Fig. 3;

Fig. 3 is a longitudinal vertical sectional view of the drier device taken on line 3—3 of Fig. 2;

Figs. 4 and 5 are horizontal sectional views taken through the pedestal on lines 4—4 and 5—5, respectively, of Fig. 1;

Fig. 6 is a perspective view of one of the sections of the yoke shaped support heretofore referred to; and

Fig. 7 is a perspective view of the outer casing for the heating unit.

In the drawings, the main support for the drier is in the form of a pedestal, which as shown in Fig. 1, has an upright column 1 and a relatively wide supporting base 2 at its lower end. The column and the base may have the configuration desired for ornamental purposes and serve to support the drier above the floor of a wash room at the height desired for convenient and ready use. The column is hollow to accommodate the electric wires or conductors which connect the main switch in the base 2 with the motor and the heating units of the drier. These wires are shown at 3, 3 in Figs. 2 and 3. The switch (not shown) in the base has an operable foot pedal 4 mounted on the base and extending outwardly therefrom through a slot, as shown in Fig. 5.

The drier comprises connected blower, motor and heating units A, B and C arranged above the upper end of the column 1 and connected therewith by a yoke shaped supporting member to be hereinafter described. The units are preferably

connected in axial alinement and are arranged with the blower unit between the other two.

The blower unit A, as shown in Figs. 2 and 3, comprises an outer casing 5 and a bladed air forcing member or fan 6. The casing 5 provides a housing for the fan, the latter being located in eccentric relation in the housing as in centrifugal blowers of this type. The air discharge nozzle 7 for the blower is on the front side of the housing 5 in tangential relation to the fan and extending outwardly from the housing as shown in Fig. 2. The outer or discharge end of the nozzle may be covered by a protective screen 8, as shown in this figure. Casing 5 and the nozzle 7 are integral, being preferably made of two sheet metal stampings, fitted together by a lock seam along their meeting edges. One section is provided with an air intake opening 9 for the blower about the axis of the fan 6.

The motor unit B comprises a universal electric motor 10 of the desired small size and power. Said motor is supported in a cup shaped case 11 extending into the adjacent section of the blower case 5 through an opening 12 therein. The case 11 is provided at this opening with a surrounding marginal flange 13 which by screws 14 is secured to the wall of the blower case about the opening. The motor is thus supported from the blower case and has its armature shaft 15 in line with and extending into the hub of the fan and directly secured thereto.

The heating unit C comprises an outer casing 16 disposed opposite the air intake opening 9 of the blower. A suitable electric heater is located in the casing 16 to heat the air drawn into the same by the blower. Casing 16 has an air intake opening 17 on its under side for this purpose. A protective screen 18 covers this opening as shown. The electric heater, in the form shown in the drawings, comprises an insulating support in the form of a spider 19 about which is wound a resistance wire 20 in coiled form.

The yoke shaped support for the drier comprises a two part casting divided longitudinally to have similarly shaped half sections, each having a base portion 22 to fit against the upper end of the column 1 on the outer side thereof, an upright arm portion 23 and an annular bearing portion or ring-like member 24 at the upper end of the arm. The base portions 22 are at the lower ends of the arms and when placed together provide a socket to engage about the upper end of the column 1. Bolts or screws 25 clamp the column in the socket, as shown.

The arms 23 are laterally spaced and receive the blower unit A between them, the bearing members 24 on the arms being on opposite sides of the blower casing 5 as shown. With the other units of the drier on opposite sides of the blower unit, the motor and the heating units are on the outer sides of the arms, the outer casings 16 and 26 of said units extending through the bearing apertures as provided by the ring-like members 24 on said arms. These apertures are in axial alinement and have diameters slightly greater than the outside diameters of the casings which extend through them to receive collars 27, 27, secured to the outer casing 5 of the blower unit on opposite sides thereof.

The collars 27 are secured to the blower casing 5 about the openings 9 and 12 therein and extend into and through the bearing members 24. The bearing members 24 encircle and engage the collars to rotatably mount the drier on the arms 23, whereby the nozzle 7 of the drier may be ad-

justed up and down on turning the drier in the arms. The fit between the collars and the arms is sufficiently tight to frictionally hold the nozzle in its various positions of adjustment.

The collar for the heating unit extends beyond its bearing member 24 and is secured, as by screws 28, to the outer casing 16 of that unit. The collar for the motor unit also projects beyond its support 24 and is secured by screws 29 to the outer casing 26 of that unit. For convenience of manufacture and assembling, the casings 16 and 26 extend into and overlap their respective collars 27. Both collars are flanged on their inner sides to overlap the blower casing for support and connection therewith. The flange 30 on one collar is secured by screws 31 to the blower casing. The flange 32 on the other collar is secured to said casing by the screws 14 heretofore referred to.

The arms 23 are preferably made hollow to provide passageways 33 for the electric conductors 3 which lead to the terminals of the motor 10 and the heating element 19, respectively. The collars 27 and the casing 16 and 26 have openings 34, 35 which register with each other and with the passageways 33 in the associated arms. These openings are in the form of slots elongated in the direction of rotation of the collars to avoid shearing of the conduits in the adjustment of the drier.

A suitable stop arrangement may be provided for limiting the upward swing of the nozzle, the latter contracting with the base portions 22 of the yoke shaped support to limit the downward swing. For the upward swing, I may provide co-operating stop lugs 36, 37 on the support and blower casing, respectively, as indicated in Fig. 2. The base 2 may be fastened to a floor to permanently secure the drier device at its place of use. For this purpose the base has holes 38 for the fastening bolts or screws.

With the rotative support for the drier encircling and engaging it on opposite sides of the blower casing, as herein shown and described, the drier may be made with its various units in axial alinement and mounted directly on the main support without the need of an outer cover or housing as heretofore employed. The outer casings of the drier units provide the protection and support required for the operative parts of such units. The construction is of such a simple and practical design that the manufacturing costs are so reduced that the devices may be retailed at prices low enough to make their use more or less universal. The construction is sturdy and strong and capable of withstanding hard use. The bearing members 24 and the co-operating bearing surfaces therefor on the drier as provided by the collars 27 have continuous engagement about the drier axis and provide an adequate pivotal support or mounting for the drier assembly. The nozzle may be adjusted to suit the requirements of the persons using the device and is held in its adjusted position by the frictional engagement between the bearing surfaces of the mounting, which surfaces are made wide enough for the purpose. Moreover, the mounting being of trunnion-like form, provides a simple and direct connection for the drier or at least the blower unit with the main support of the device. The trunnion formation enables the mounting to engage the outer casing of the drier intermediate the ends thereof and on the outer side of its outer casing, thus enabling a direct connection to be made between the drier and its

main support and doing away with an extra housing or casing for the drier unit.

The details of construction and arrangement of parts herein described and shown may be variously changed and modified without departing from the spirit and scope of my invention except as pointed out in the appended claims.

I claim as my invention:

1. A device of the character described, comprising a support having a pair of laterally spaced arms, a drier having connected blower, motor and heating units arranged with the blower between the arms and the motor and the heating units extending outwardly from the arms, an air discharge nozzle for the drier on the blower unit and an air intake opening for the drier in another of the units, and means on the arms encircling and engaging the drier on opposite sides of the blower to rotatably mount the drier on the arms whereby the nozzle may be adjusted on turning the drier in the arms.

2. A device of the character described, comprising a support having a pair of laterally spaced arms, a drier having connected blower, motor and heating units arranged with the blower between the arms and the motor and the heating units extending outwardly from the arms, an air discharge nozzle for the drier on the blower unit and an air intake opening for the drier in another of the units, and annular bearing surfaces on the drier on opposite sides of the blower, and ring-like members on the arms encircling and engaging said bearing surfaces to rotatably mount the drier on the arms whereby the nozzle may be adjusted on turning the drier in the arms.

3. A device of the character described, comprising a support having a pair of laterally spaced arms, a drier having connected blower, motor and heating units arranged with the blower between the arms and the motor and the heating units extending outwardly from the arms, an air discharge nozzle for the drier on the blower unit and an air intake opening for the drier in another of the units, annular members on the arms encircling the drier on opposite sides of the blower, and collars on the blower adjacent said members, said collars having flanges extending into and engaging said members to rotatably mount the drier on the arms whereby the nozzle may be adjusted on turning the drier in the arms.

4. A device of the character described, comprising a support having a pair of laterally spaced arms, a drier having a blower unit having an outer casing located between the arms and motor and heating units having outer casings on the outer sides of the arms, an air discharge nozzle for the drier on the outer casing of the blower unit and an air intake opening for the drier in the outer casing of another of the units, collars secured to the outer casing of the blower unit on opposite sides thereof and having flanges extending outwardly from the blower unit for connecting the outer casings of the other units thereto, and annular members on the arms encircling and engaging said flanges to rotatably mount the drier on the arms whereby the nozzle may be adjusted on turning the drier in the arms.

5. A device of the character described, comprising a yoke shaped support having a pair of laterally spaced arms having annular bearing members at their upper ends and main support engaging means at their lower ends, and a drier having connected blower, motor and heating units arranged with the blower between the arms and the motor and the heating units on the outer

sides of the arms, an air discharge nozzle for the drier on the blower unit and an intake opening for the drier in another of the units, the bearing members on the arms encircling and engaging the drier on opposite sides of the blower to rotatably mount the drier in the arms whereby the nozzle may be adjusted on turning the drier in the arms.

6. A device of the character described, comprising a yoke shaped support having a pair of laterally spaced arms having annular bearing members at their upper ends and main support engaging means at their lower ends, a drier having connected blower, motor and heating units arranged with the blower between the arms and the motor and the heating units on the outer sides of the arms, said drier having an air discharge nozzle on the blower unit and an air intake opening in another of the units, said bearing members encircling and engaging the drier on opposite sides of the blower to rotatably mount the drier on the arms whereby the nozzle may be adjusted on turning the drier in the arms, passage-ways in the arms to accommodate electrical conductors leading to the motor and heating units, respectively, and elongated slots in the drier in register with said passage-ways to prevent shearing of the conductors in the rotative adjustment of the drier.

7. A device of the character described, comprising a yoke shaped support having a pair of laterally spaced arms having bearing members at their upper ends and main support engaging means at their lower ends, a drier having a blower having an outer casing located between the arms and motor and heating units having outer casings located on the outer sides of the arms, said drier having an air discharge nozzle on the outer casing of the blower unit, and an air intake opening in the outer casing of another of the units, collars secured to the blower casing on opposite sides thereof and having flanges secured to and overlapped by the outer casings of the other units, said bearing members encircling and engaging said flanges to rotatably mount the drier on the arms whereby the nozzle may be adjusted on turning the drier in the arms, passage-ways in the arms for the electrical conduits leading to the motor and heating units, respectively, and elongated slots in the collars and the outer casings overlapped thereby, said slots registering with each other and with the passage-ways in the arms to prevent shearing of the conductors in the rotative adjustment of the drier.

8. A device of the character described, comprising a yoke shaped support having laterally spaced arms having annular bearing members at their upper ends and main support engaging means at their lower ends, and a drier having connected blower, motor and heating units arranged with the blower between the arms and the motor and the heating units on the outer sides of the arms, an air discharge nozzle for the drier on the blower unit and an air intake opening for the drier in another of the units, said bearing members encircling and engaging the drier on opposite sides of the blower to rotatably mount the drier on the arms whereby the nozzle may be adjusted on rotating the drier in the arms, said yoke shaped support being divided longitudinally to have similar half sections each containing a bearing member, an arm and a portion of the main support engaging means.

9. A device of the character described, comprising a yoke shaped support having a pair of

laterally spaced arms having annular bearing members at their upper ends and a main support engaging socket at their lower ends, a drier having connected blower, motor and heating units
 5 arranged with the blower between the arms and the motor and the heating units on the outer sides of the arms, an air discharge nozzle for the drier on the blower unit and an air intake opening for the drier in another of the units, said bearing
 10 members encircling and engaging the drier on opposite sides of the blower to rotatably mount the drier on the unit whereby the nozzle may be adjusted on turning the drier in the arms, and passage-ways in the arms and connecting with
 15 the socket to accommodate the electric conduits leading from the socket to the motor and heating units, respectively.

10. A device of the character described, comprising a support having a pair of laterally spaced
 20 arms having aligned bearing apertures therein, and a drier having connected blower, motor and heating units arranged with the blower unit between the arms and the other units extending laterally outward and beyond the arms through
 25 the bearing apertures therein, said apertures engaging the drier on opposite sides of the blower and providing a rotative mounting for the drier on the arms, and an air discharge nozzle for the drier on the blower unit and adjustable on the
 30 turning of the drier in the arms.

11. In a drier of the character described, a blower having a fan housing and a fan therein, said blower having an air intake opening and an
 35 air discharge nozzle, the latter being carried by the fan housing and extending outwardly therefrom, and a support for the blower, said support having trunnions engaging the fan housing in substantially parallel relation to the axis of rotation of the fan whereby the nozzle may be ad-
 40 justed on turning the fan housing in its support.

12. A drier of the character described, comprising in combination, a blower having a fan housing and fan therein, a motor for operating the fan and a heating element for heating the
 45 air discharged from the blower, said blower having an air intake opening and an air discharge nozzle, the latter being carried by the fan housing and extending outwardly therefrom, and a support for the blower, said support having a piv-
 50 otal connection with the fan housing in substantially parallel relation to the axis of rotation of the fan whereby the nozzle may be adjusted on turning the fan housing in its support.

13. A drier of the character described, comprising a fan, a housing for the fan, means for driv-
 55 ing the fan, means for heating the air discharged by the fan, and a support, said support engaging the fan housing in concentric relation to the axis of rotation of the fan and having pivotal connection therewith.

14. In a drier of the character described, means
 60 for producing a blast of air comprising a fan and

a housing for the fan, and a support for said means having adjustable connection with the fan housing in substantially parallel relation to the axis of rotation of the fan whereby the discharg-
 5 ing position of the air blast may be changed on adjusting the housing in said support.

15. A drier of the character described, comprising means for producing a blast of air comprising a fan and a housing for the fan, means
 10 for operating the fan, means for heating the air blast produced by the fan, and a support for the drier, said support serving to support all of said means through the air blast producing means by engaging the fan housing in substantially par-
 15 allel relation to the axis of rotation of the fan.

16. In a drier of the character described, a blower having a fan housing and a fan therein, said blower having an air intake opening and an
 20 air discharge nozzle, the latter being carried by the fan housing and extending outwardly therefrom, a support for the blower, said support having a pair of laterally spaced arms arranged on opposite sides of the fan housing, and means pro-
 25 viding a direct pivotal connection between the fan housing and the arms in substantially parallel relation to the axis of rotation of the fan, whereby the nozzle may be adjusted on turning the fan housing with respect to the arms.

17. In a drier of the character described, a blower having a fan housing and a fan therein, said blower having an air intake opening and an
 30 air discharge nozzle, the latter being carried by the fan housing and extending outwardly therefrom, a motor carrier by the fan housing and connected with the fan for operating the same, a
 35 heater carried by the fan housing for heating the air blast produced by the fan, a support for the drier, said support having a pair of laterally spaced arms arranged on opposite sides of the fan housing, and means pivotally connecting the fan housing to the arms independently of the
 40 motor and the heater and in substantially parallel relation to the axis of rotation of the fan whereby the motor and the heater will be supported by the arms through the fan housing and the
 45 nozzle may be adjusted on turning the fan housing with respect to the arms.

18. In a drier of the character described, a blower having a fan housing and a fan therein, said blower having an air intake opening and an
 50 air discharge nozzle, the latter being carried by the fan housing and extending outwardly therefrom, a support for the blower, said support having a pair of laterally spaced arms arranged on opposite sides of the fan housing, said arms hav-
 55 ing aligned bearing apertures, and means carried by the fan housing in concentric relation to the axis of rotation of the fan and extending into and engaging said apertures to rotatably mount the fan housing between the arms.

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