

1,419,712.

Fig. 1

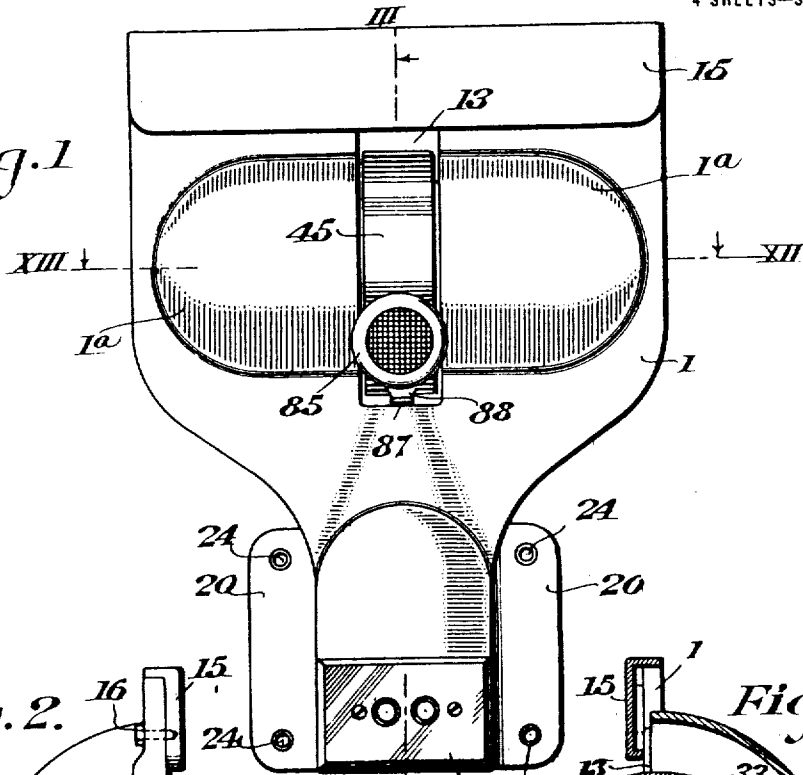


Fig. 2.

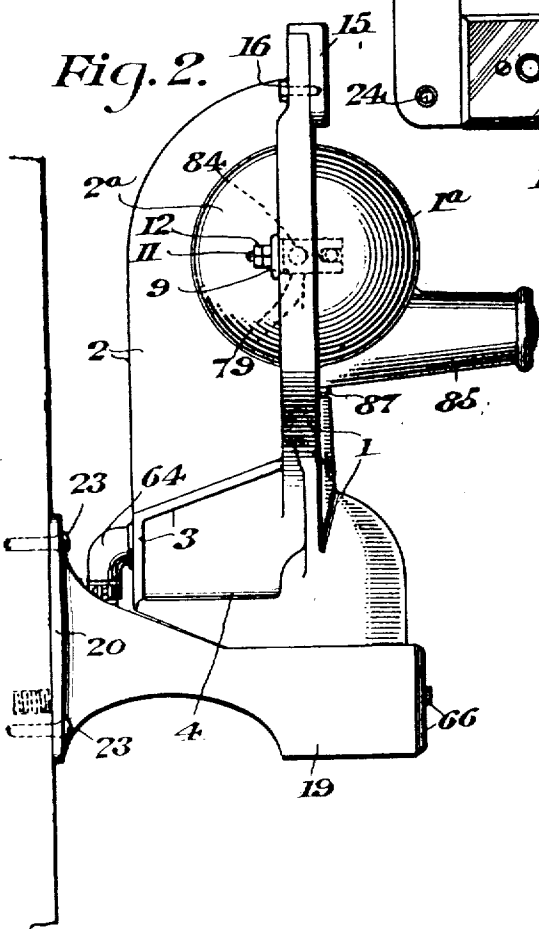
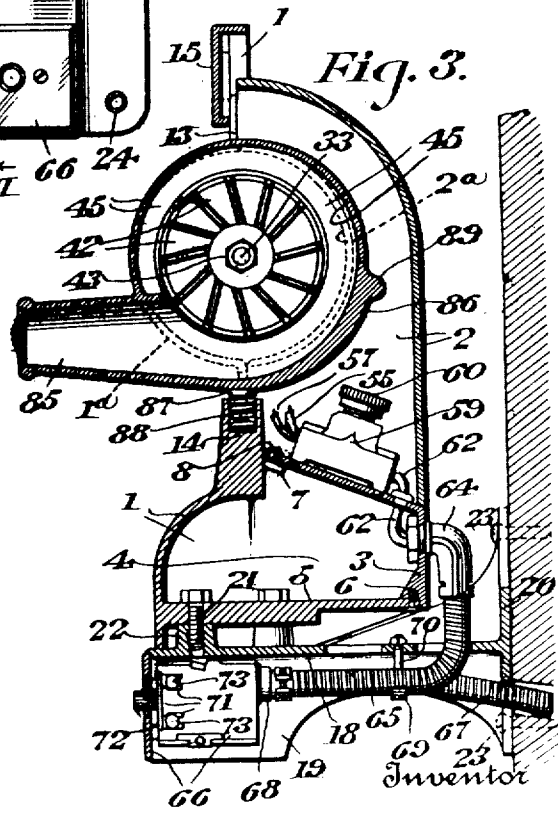


Fig. 3.



John G. Bassette

By *Davis Davis*
 his Attorneys.

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Patented June 13, 1922.
 4 SHEETS—SHEET 2.

Fig. 4.

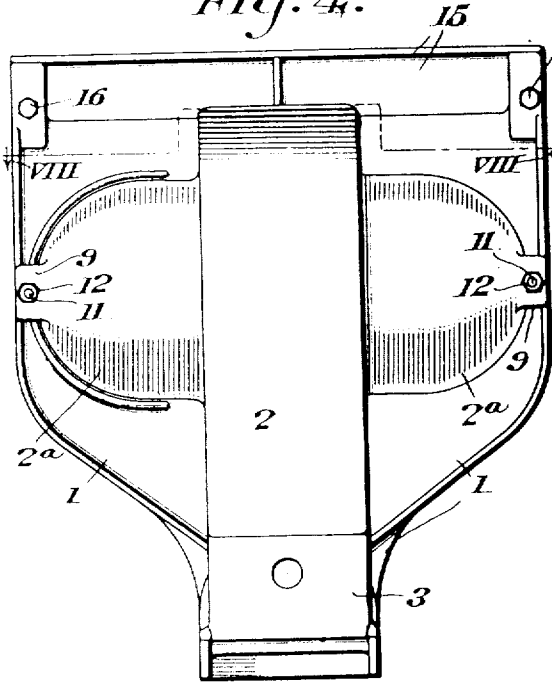


Fig. 5.

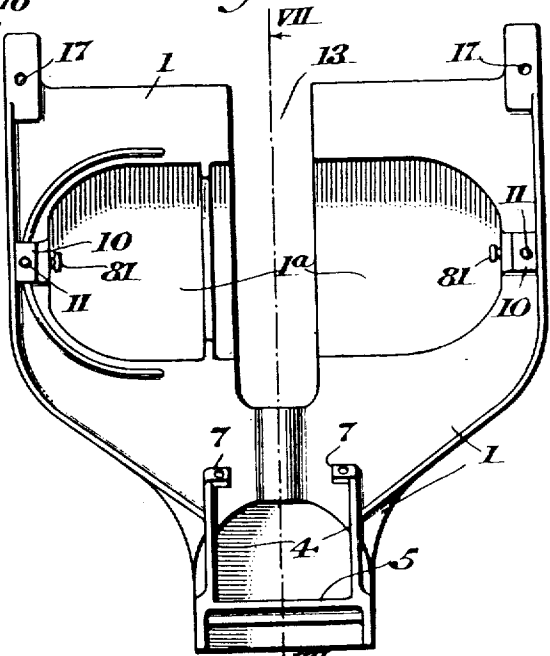


Fig. 6.

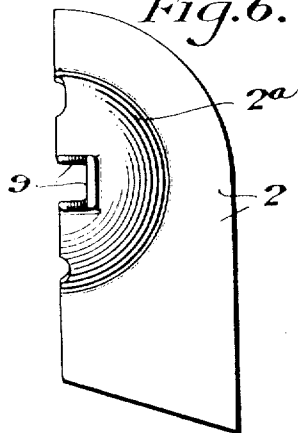


Fig. 7.

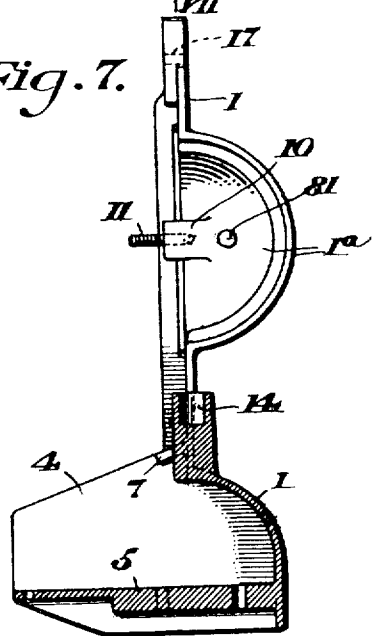
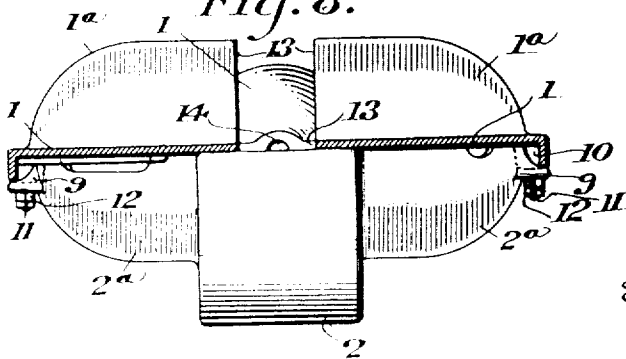


Fig. 8.



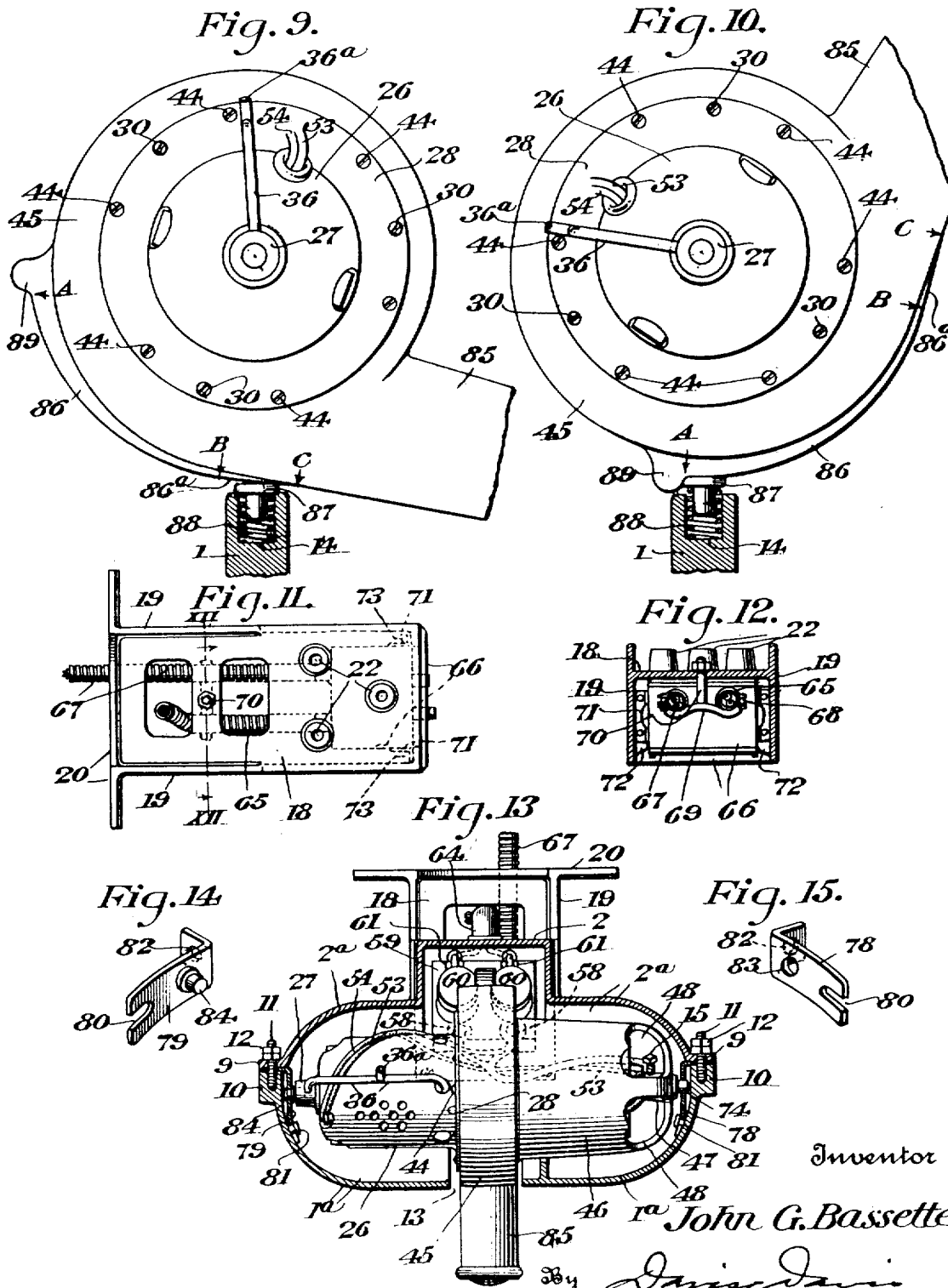
Inventor
 John G. Bassette

384 *Diomedes*
 his Attorneys.

1,419,712.

Patented June 13, 1922.

4 SHEETS—SHEET 3.



Inventor

John G. Bassette

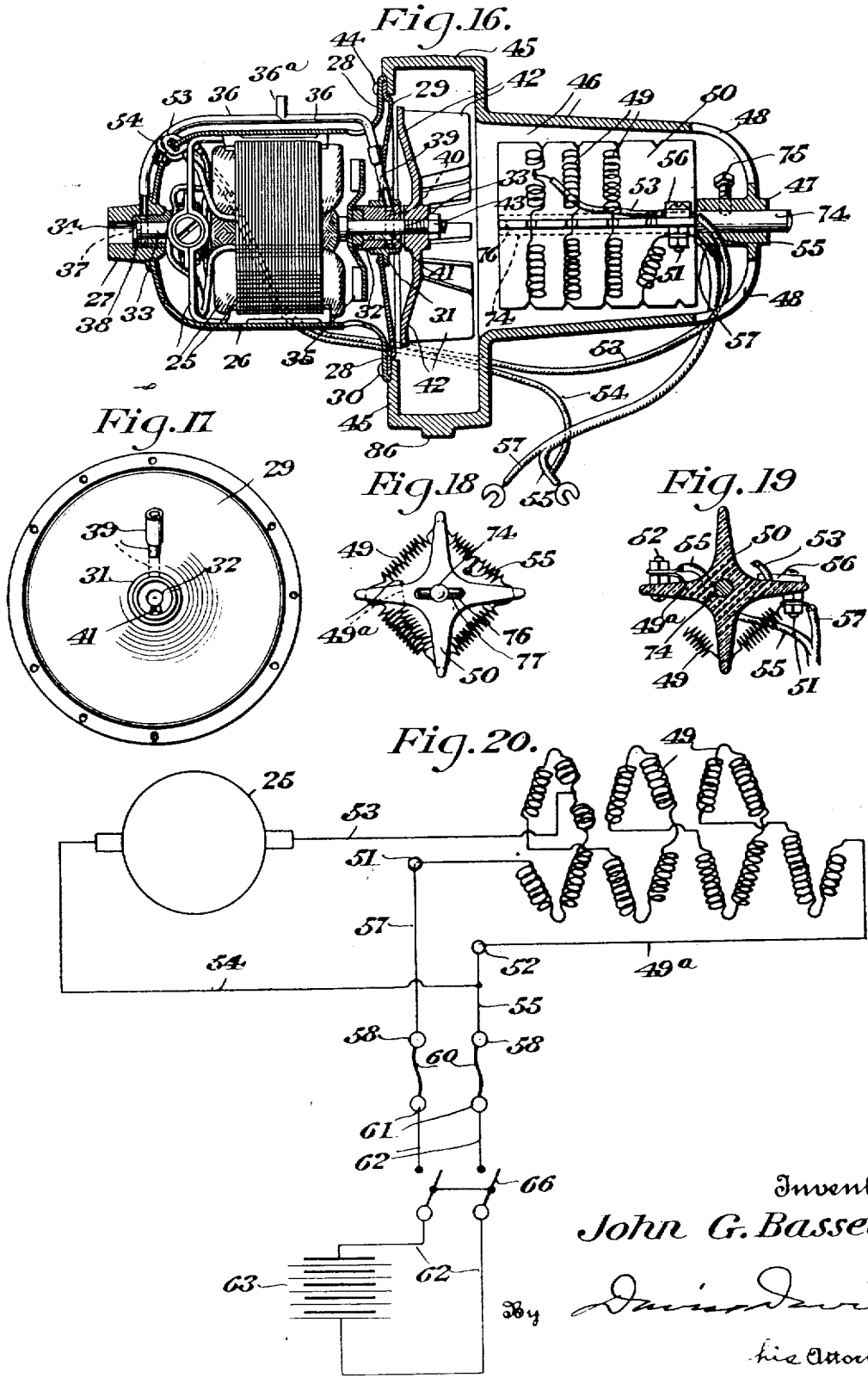
Davidson

his Attorneys.

1,419,712.

Patented June 13, 1922.

4 SHEETS—SHEET 4.



Inventor
 John G. Bassette

Davidson
 his Attorneys

UNITED STATES PATENT OFFICE.

JOHN GILBERT BASSETTE, OF GROTON, NEW YORK, ASSIGNOR TO AIRDRY CORPORATION, OF GROTON, NEW YORK, A CORPORATION OF NEW YORK.

DRYING MACHINE.

1,419,712.

Specification of Letters Patent. Patented June 13, 1922.

Application filed July 21, 1920. Serial No. 397,831.

To all whom it may concern:

Be it known that I, JOHN GILBERT BASSETTE, a citizen of the United States, and resident of Groton, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Drying Machines, of which the following is a specification.

This invention relates to improvements in drying machines and has for its object to provide a simple and efficient apparatus for delivering a blast of heated air for drying the face and hands or the hair of a person, or for drying jewelry, metal parts, glass-ware, fabrics, or other articles.

In the accompanying drawings, Figure 1 is a front elevation of the machine;

Fig. 2 a side elevation thereof;

Fig. 3 a vertical sectional view on the line III—III of Fig. 1;

Fig. 4 a rear view, the supporting bracket, switch-box and wire conduits being omitted to more clearly illustrate the construction of the sectional casing;

Fig. 5 a rear view of the front section of the casing;

Fig. 6 a side elevation of the rear section or back plate of the casing;

Fig. 7 a vertical sectional view on the line VII—VII of Fig. 5;

Fig. 8 a horizontal section on the irregular line VIII—VIII of Fig. 4;

Figs. 9 and 10 detail views showing the means for limiting the rotary movement of the motor-blower-heater unit;

Fig. 11 a plan view of the combined wall-bracket and switch-box;

Fig. 12 a transverse section on the line XII—XII of Fig. 11;

Fig. 13 a horizontal sectional view on the line XIII—XIII of Fig. 1;

Figs. 14 and 15 perspective views of the two removable end-bearing brackets for the motor-blower-heater unit;

Fig. 16 a detail vertical longitudinal sectional view of the motor-blower-heater unit;

Fig. 17 a side elevation of the removable partition which separates the motor and blower casings and carries the inner bearing for the motor shaft;

Fig. 18 an end view of the air-heating coil and its supporting core and shaft, showing the inner end thereof;

Fig. 19 a transverse section of the heater assembly shown in Fig. 18; and

Fig. 20 a diagram of the electric wiring system.

The main frame or casing comprises a cast metal front section 1, a metal back plate or rear section 2, and an angular metal plate 3. The plate 3 abuts against the upper and rear edges of the rearwardly extending walls 4 of the contracted base of the front section and against the rear edge of the bottom wall 5 of this contracted base and is removably held to the bottom wall 5 by a screw 6 and to lugs 7 on the walls 4 by two screws 8. The rear section 2 has a vertically elongated three-walled central portion of substantially the same width as the contracted base of the front section the lower edges of the side and back walls of which abut against the angular plate 3, and two horizontal semi-cylindrical extensions 2^a at opposite sides thereof the rounded outer ends of which terminate in angular sockets 9 for receiving bosses 10 formed on the rear face of the front section 1. A headless bolt or screw 11 is held in each boss 10 and the front and back sections of the casing are separably held together by nuts 12 threaded on the outer ends of said bolts 11, the rear walls of sockets 9 being provided with apertures through which the bolts loosely pass.

The front section 1 of the casing is provided with a relatively wide vertical slot 13 centrally thereof, open at its upper end, and is also provided with a boss or thickened portion at the bottom of said slot formed with an upwardly facing socket 14. At opposite sides of the slot 13 the section 1 is formed with semi-cylindrical bulged portions 1^a registering with the semi-cylindrical extensions 2^a of section 2. A finishing plate 15 is removably secured to the upper end of section 1 of the casing by screws 16 threaded through apertures 17 in said section and into said plate 15. The sectional casing above described is supported on and removably held to a cast metal wall bracket comprising a horizontal web or plate 18, two side plates or vertical webs 19, and an end plate or vertical rear wall 20. The lower edges of the contracted base of section 1 of the casing rest on the bracket, and three screws 21 passing through the bottom wall 5 of the casing and screwed into apertures or threaded sockets in bosses 22 on the web 18 of the bracket serve to rigidly hold the casing on the bracket. The bracket is adapt-

ed to be removably held to a wall or other support by four screws or bolts 23 passing through apertures 24 in the rear wall 20 of the bracket.

5 A rotatably adjustable motor, blower and air-heater assembly is mounted in the casing with the discharge nozzle of the blower projecting through the slot 13 and adjustable up and down in said slot. The motor, blower
10 and heater assembly is so constructed and mounted in the machine that it may be removed as a unit when the back plate 2 and finishing plate 15 are detached, as hereinafter described. The motor, apart from its casing,
15 shaft bearings, oiling system, and its mounting in the main casing and connection with the blower casing, may be constructed in various ways and be of any suitable capacity, the motor shown being a well-known
20 H. P. universal motor manufactured by the General Electric Company, modified in the respects set forth.

The motor 25 is enclosed in a novel cylindrical metallic outer casing 26 having a
25 closed outer end in which a metal hub 27 is mounted, said hub extending through an axial opening in the closed end of the motor casing and being secured to the casing in any suitable manner. The opposite end of the
30 casing 26 is open and formed with a circumferential flange 28 to which a circular dished metallic closure plate 29 is removably held by short screws 30 which extend only through said flange and plate. The closure plate 29
35 is provided with a hub 31 in which is screwed a bushing or sleeve 32 forming a bearing for the inner end of the shaft 33 of the motor. The outer end of the motor shaft is
40 journalled in a bushing or sleeve 34 fixed in the inner end of hub 27 on the motor casing. The motor casing is provided with the usual air inlet openings and the usual motor-cooling fan 35 is mounted on the motor shaft to rotate therewith, as shown.

45 The two bearings for the motor shaft are supplied with lubricating oil through a conduit 36, one end of which is secured in a passage in hub 27 which communicates with a circumferential channel 37 in the bushing
50 34. The channel 37 communicates with a longitudinal channel or groove extending nearly the entire length of the bore of bushing 34 and containing a strip of wicking or other absorbent material 38. The other end
55 of conduit 36 extends downwardly through one of the air inlet openings of the motor casing 26 and abuts against the upper end of a short conduit 39 extending through the removable end wall 29 of the motor casing.
60 The short conduit 39 is in effect a separable section of conduit 36, removable with the disk 29, and is secured at its lower end in a passage which extends through hub 31 of disk 29 and communicates with a circumferential channel 40 in the bushing 32. The

channel 40 communicates with a longitudinal channel or groove which extends nearly the entire length of the bore of bushing 32 and contains a strip of wicking or other absorbent material 41. The conduit 36 is provided with a short branch 36^a through which
70 oil is introduced and said conduit is preferably filled with a length of wicking.

The blower fan or impeller 42 comprises a light metal disk, dished as shown, and provided at one side with a plurality of integral
75 blades, the hub of the fan being screwed on the threaded inner end of motor shaft 33 and removably locked thereon by a nut 43.

The motor, with its shaft bearings, casing
80 and oil supply system, and the impeller 42 of the blower form a unitary assembly detachably held to the inner wall of the impeller casing 45 by screws 44. This inner wall of the impeller casing 45 is provided with a
85 large circular aperture through which the impeller 42 passes when the motor is connected with or disconnected from the impeller casing, which aperture is entirely
90 closed by the disk 29 when the parts are assembled. The impeller casing is provided with an integral substantially cylindrical extension 46 of substantially the same size as the motor casing 26, the rounded outer end
95 of which is provided with an integral hub or sleeve 47, and a plurality of relatively large air inlet openings 48. The extension 46 forms the intake of the blower and also serves as an enclosing casing for an electrical
100 air-heating device for heating the air drawn in through openings 48 by the fan 42 of the blower.

The air heater comprises a coiled wire 49 supported on and extending spirally around a porcelain core 50 from a binding post 51
105 at the outer end of the core to the inner end of the core and having an uncoiled extension 49^a passing through an aperture in one wing of the spider-like core and running back along said wing to a second binding post 52
110 at the outer end of the core. Two wires 53 and 54, connected in the usual way with the brushes and field coils of the motor 25, extend through an aperture in the motor casing 26, the wire 54 being connected with a wire 55
115 and the end of wire 53 being connected with the heating coil 49 at any desired point intermediate the ends of the coil so that more or less of the coil will serve as a resistance for the motor. By connecting wire 53 at the
120 proper point along coil 49 the speed of the motor may be regulated as desired. The wire 53 is preferably clamped to core 50 by a fiber block 56 held to the core by the binding screw 51. The wires 55 and 57 extend
125 from the binding posts 52 and 51, respectively, and are provided at their other ends with terminal clips, as shown in Fig. 16, for detachably connecting said wires with terminals 58 on a porcelain fuse-holding block 59
130

secured on plate 3 of the casing. A pair of fuses 60 in the block 59 are interposed between the terminals 58 and two line terminals 61 on the block 59 to which line wires 62 leading to a source of current 63 are connected.

The covered wires 62 extend from terminals 61 through an aperture in the inclined part of plate 3 to an elbow fitting 64 held to the vertical part of plate 3 and thence through a flexible metal conduit 65 to two terminals of the switch 66. The line wires extend from the other two terminals of the switch through a flexible metal conduit 67 to a suitable outlet box in a wall or other point of supply. The conduits 65 and 67 are detachably connected with the casing of the switch by suitable clamp couplings 68 secured to the switch casing and are supported from the wall bracket by a yoke 69 suspended on a bolt 70. The switch casing is detachably supported in the forward end of the wall bracket by two angular sheet metal brackets 71 each of which is secured to an inwardly turned flange 72 on the side members 19 of the wall bracket. Each bracket 71 has two arms provided with open-ended horizontal slots to receive the shanks of screws 73 held to the switch casing. The switch shown is an ordinary two-button snap switch the front or finishing plate of which abuts against the forward edges of the members 18 and 19 of the wall bracket.

The electric air heater is removably mounted in its casing, core 50 being supported on a metal rod or shaft 74 which extends entirely through the core outwardly beyond the outer end of hub 47 of the blower casing and is locked in said hub against rotation by a set screw 75. A transversely extending pin 76, secured in the inner end of rod 74 and seating in a recess 77 in the end of core 50 when the parts are assembled, serves to hold the core on the rod and also prevents rotation of the core about the rod. The motor, blower and heater unit is rotatably supported on brackets 78 and 79 removably mounted inside of the main casing of the apparatus. The forward end of each of these brackets is provided with an open-ended slot 80 to receive the shank of a headed stud 81 on the inside of front plate 1 of the casing, and the rear end of each bracket is bent outwardly and provided with an aperture 82 to permit the same to be slipped on and off the headless screws 11. The bracket 78 is provided with an aperture 83 forming a bearing or journal for the outer end of rod 74, and a stud or short stub shaft 84 secured to bracket 79 and engaging loosely in the outer end of hub 27 of the motor casing forms a pivotal support for the other end of the blower-motor-heater unit.

The discharge nozzle 85 of the blower is formed integrally with the blower casing 45

and it will be obvious that the nozzle may be swung up and down in slot 13 in the front plate to vary the direction of the air blast. To limit the extent of rotary movement of the adjustable blower-motor-heater unit and the extent of the swinging movement of the nozzle 85, and to hold the unit in its various adjusted positions, the impeller casing 45 is provided with a rib 86 extending partly around the same and having a friction surface against which the head of a plunger or shoe 87 is pressed by a coiled spring 88. The spring 88 is coiled around the reduced shank of the plunger 87 which is mounted in the socket 14 in the casing section 1 at the lower end of slot 13. The friction of the shoe 88 on the rib is sufficient to hold the nozzle in any position between its two limits of movement. The rib 86 is formed with a shoulder or abutment 89 at its rear end which serves to limit the upward movement of the nozzle, as shown in Fig. 10. From stop shoulder 89 to a point adjacent the forward end of rib 86 the friction surface of the rib is curved on an arc of which the pivotal axis of the motor and blower casing is the center, this concentric portion of the friction surface extending between the points indicated by arrows A and B in Figs. 9 and 10. From the point B to point C at the forward end of the rib the friction surface of the rib extends tangentially to the arc of the portion A—B of the friction surface, thus forming a cam surface 86^a adapted to depress the head of plunger 87 against the adjacent edge of section 1 of the outer casing and arrest the downward movement of the nozzle, as shown in Fig. 9.

What I claim is:

1. In a drying apparatus, the combination of a motor-enclosing case section having a removable wall at its inner end provided with a shaft bearing, an impeller-enclosing casing section provided with a discharge nozzle and having a circular opening at its inner end of larger diameter than the impeller and an elongated extension at its outer end provided with an air intake, means for detachably connecting the inner ends of the casing sections together with the removable wall of the motor-enclosing section closing the opening in the impeller-enclosing section, an electric motor in the motor-enclosing casing section having a shaft the inner end of which extends through the shaft bearing in the removable wall of said section into the impeller-enclosing casing section, and an impeller mounted on the inner end of the motor shaft.

2. In a drying apparatus, the combination of a motor-enclosing casing section having a removable wall at its inner end provided with a shaft bearing, an impeller-enclosing casing section provided with a dis-

charge nozzle and having a circular opening at its inner end of larger diameter than the impeller and an elongated extension at its outer end provided with an air intake, means for detachably connecting the inner ends of the casing sections together with the removable wall of the motor-enclosing section closing the opening in the impeller-enclosing section, an electric motor in the motor-enclosing casing section having a shaft the inner end of which extends through the shaft bearing in the removable wall of said section into the impeller-enclosing casing section, an impeller mounted on the inner end of the motor shaft, and an electric heating device housed in the extension of the impeller casing section and detachably supported at its outer end only on said extension.

3. In a drying apparatus, the combination of a motor-enclosing casing section having a removable wall at its inner end provided with a shaft bearing, an impeller-enclosing casing section provided with a discharge nozzle and having a circular opening at its inner end of larger diameter than the impeller and an elongated extension at its outer end provided with an air intake, means for detachably connecting the inner ends of the casing sections together with the removable wall of the motor-enclosing section closing the opening in the impeller-enclosing section, an electric motor in the motor-enclosing casing section having a shaft the inner end of which extends through the shaft bearing in the removable wall of said section into the impeller-enclosing casing section, an impeller mounted on the inner end of the motor shaft, a rod detachably secured at its outer end to said extension of the impeller casing section, and a heating coil and insulator therefor supported on said rod and removable therewith through the opening in the inner end of the impeller casing section when said casing section is disconnected from the motor casing section.

4. An electrically operated air heating blower comprising an electric motor having a drive shaft, an impeller mounted on the motor shaft, a casing having a motor-enclosing section and an impeller and heater enclosing section detachably connected together end to end, the impeller enclosing section of said casing having an opening at its inner end through which the impeller may pass and an air intake adjacent its outer end, an insulating core, an electric heating coil supported on said core, and a supporting rod extending through the core supported at its outer end on the outer end of the impeller and heater enclosing casing section.

5. An electrically operated air heating blower comprising an electric motor having

a drive shaft, an impeller mounted on the motor shaft, a casing having a motor-enclosing section and an impeller and heater enclosing section detachably connected together end to end, the impeller-enclosing section of said casing having an opening at its inner end through which the impeller may pass and an air intake adjacent its outer end, an insulating core, an electric heating coil supported on said core, a supporting rod extending through the core having a transverse pin secured thereto countersunk in a recess in the inner end of the core, and a hub on the outer end of the impeller casing section in which the outer end of the rod is detachably held.

6. In a drying apparatus, the combination of a casing having tubular end portions and an enlarged central portion provided with a nozzle and adapted to house an impeller, means for rotatably supporting the casing, said enlarged portion of the casing being formed with an external rib extending partly therearound having a continuous friction surface concentric with the axis of rotation of the casing and terminating at one end in a cam surface and at its other end in a stop shoulder, a spring-pressed shoe frictionally engaging said rib, an electric motor in one tubular end portion of the casing, an electric heating coil in the other end portion of the casing, and an impeller in the enlarged central portion of the casing mounted on the shaft of said motor, the end portion of the casing enclosing the heating coil being provided with an air intake.

7. In a drying apparatus, the combination of a housing having a front section provided with an elongated vertically extending opening and a rear section detachably held to the front section, a blower having an impeller and a casing provided with a discharge nozzle extending through the opening in the front section of the housing and a laterally extending tubular portion provided with an air intake opening, an electric motor secured to the blower casing at the side thereof opposite said tubular portion and operatively connected to drive the blower impeller, means for supporting said motor and blower in the housing to rotate as a unit about a horizontal axis, an electric heater in the tubular portion of the blower casing, a wall bracket upon which the housing is detachably secured, wires forming a circuit including the motor and heater, and an electric switch for making and breaking the circuit having a housing detachably secured to the wall bracket.

8. In a drying apparatus, the combination of a wall bracket, a housing mounted on the bracket having a vertical slot therein, an electrically operated air-heating blower mounted in the housing to rotate about a

horizontal axis and having a discharge nozzle projecting through said slot, and an electric switch mounted on said bracket for controlling the air-heating blower.

9. In a drying apparatus, the combination of a wall bracket, a housing having a front section detachably mounted on said bracket and a rear section detachably held to the front section, said front section being provided with a vertical slot, an electrically operated air-heating blower, having a discharge nozzle projecting through the slot in the front section of the housing, means for detachably supporting the air-heating blower on the front section of the housing to swing about a horizontal axis, and an electric switch mounted on the wall bracket for controlling the air-heating blower.

10. In a drying apparatus, the combination of a housing having a unitary front and base section provided with a vertical slot and a rear section detachably mounted on the front and base section, an electric-motor-driven blower in the housing having a nozzle projecting through said slot, and a pair of brackets removably mounted on the inner side of said front section in which said motor-driven blower is pivotally supported to oscillate about a horizontal axis.

11. In an air drying apparatus, the combination of a housing having a unitary front and base section provided with a vertical slot and a rear section detachably held to

the front and base section, an electric-motor-driven blower supported within the housing on the front section to oscillate about a horizontal axis and having a nozzle projecting through said slot, a wall bracket to the upper side of which said front and base section is detachably secured provided with depending side flanges, and an electric switch for controlling said motor-driven blower enclosed in a casing detachably secured to the wall bracket between said depending side flanges with the front wall of said switch casing at the forward end of the bracket.

12. In a drying apparatus, the combination of an electric motor having a drive shaft, a motor casing having bearings at its ends for the motor shaft provided with oil passages, an oil supply conduit connected at its ends with the motor shaft bearings and provided with an oil supply inlet intermediate its ends, a blower casing provided with an air intake at one side and connected with the motor casing at its other side and having an opening through which the motor shaft extends, an impeller in the blower casing mounted on the motor shaft, and an electric air heating device mounted in the blower casing between the air intake and impeller.

In testimony whereof I hereunto affix my signature.

JOHN GILBERT BASSETTE.