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B. FRIEDMAN

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APPARATUS FOR DRYING ARTICLES

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Fig. 1

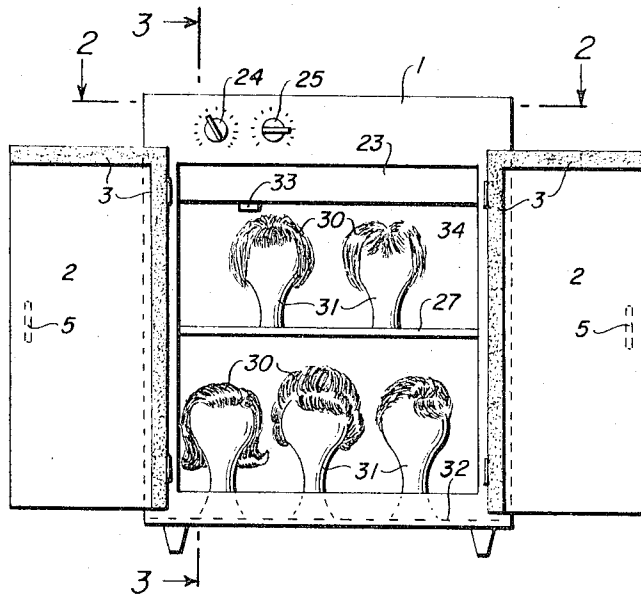


Fig. 3

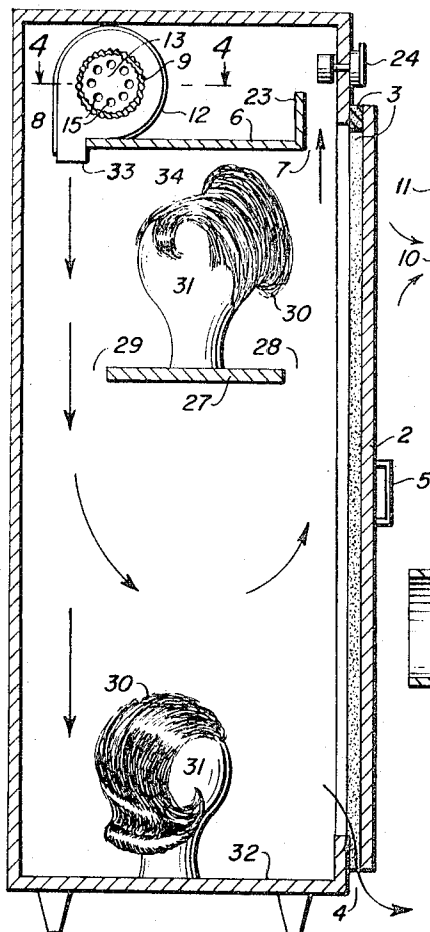


Fig. 2

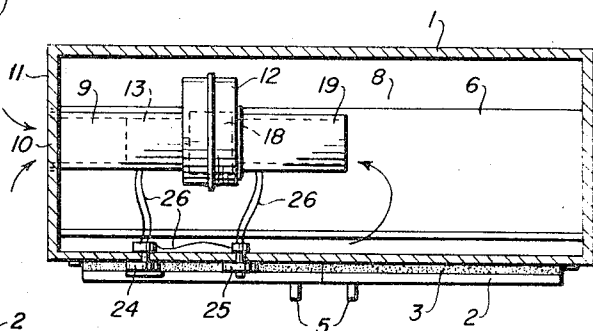
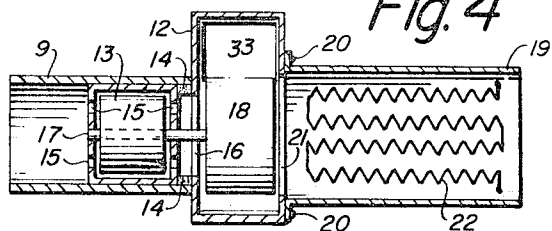


Fig. 4



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1

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APPARATUS FOR DRYING ARTICLES

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This invention relates broadly to drying apparatus and, specifically, to apparatus for drying block-mounted wigs.

The present popularity of wigs among the female portion of our population is well known, and it is also well known that wigs frequently require washing, setting and drying for the best cosmetic effect. The ordinary beauty parlor has a number of hair driers, one for each seat which ordinarily accommodates a customer who has had her hair washed and set. With the tremendous rise in wig use, and to provide the necessary wig care as above-mentioned, these beauty parlors have simply placed a washed and set wig on a block in each of the above-mentioned seats, one wig under a hair drier. Consequently, a tremendous amount of space in said beauty parlors has been tied up for each wig being dried, as well as equipment. Moreover, large and excessive quantities of power have been expended in the drying of each wig.

The present invention provides a solution to the foregoing problems and has been quite successful in practice. Briefly, an insulated housing or wooden cabinet, which is adapted to hold a plurality of block-mounted wigs for simultaneous drying, as provided with a heater and with a motor-driven blower so arranged that the blower aspirates through the motor housing cool dry ambient air from the outside to cool the motor, which air, thus heated, is combined in the blower with recycled warm air and passed over the wigs to dry the same, at the same time a small fraction of the cooled humid air in the cabinet is discharged through a gap at the bottom of the cabinet between the cabinet and the doors.

One of the objects of this invention is to provide apparatus for drying block-mounted wigs.

A further object of this invention is to provide apparatus for drying a plurality of block-mounted wigs with a minimum expenditure of power and occupying minimum space.

Yet another object of this invention is to provide apparatus for efficiently drying a plurality of block-mounted wigs having a heater and a motor driven blower which aspirates cool dry ambient air through the motor housing to cool the motor and simultaneously to heat the said air for use in drying the said block-mounted wigs.

Other and further objects of this invention will become apparent during the course of the following description and by reference to the appended claims.

Referring now to the drawing, in which like numerals represent like parts in the several views:

FIGURE 1 represents a view in front elevation of the wig drier cabinet with the doors open to show the interior thereof.

FIGURE 2 represents an enlarged view in horizontal section taken along the line 2-2 of FIGURE 1, showing particularly the air duct, heater, motor and blower, with the doors of the cabinet closed.

FIGURE 3 represents a further enlarged view in vertical section taken along the line 3-3 of FIGURE 1, with the doors of the cabinet closed and with connecting wiring omitted for purposes of clarity.

FIGURE 4 represents a further enlarged detail in horizontal section taken along the line 4-4 of FIGURE 3, with some connecting wire omitted for purposes of clarity.

The wig drier is seen as comprising an insulated housing which may be wooden cabinet 1, with doors 2 hinged thereto, and with gaskets 3 arranged along the tops and hinged sides of the said doors 2 as shown in FIGURE 1

2

so that, when the said doors 2 are closed, the sides and tops thereof are sealed against cabinet 1. It will be noted that no gaskets need be provided at the unhinged sides of doors 2 if the said doors 2 are close fitting, which is customary in the cabinet making art. It will also be noted that no gasket is provided at the bottoms of doors 2, and this is deliberately done so as to leave slot or gap 4 between the bottoms of said doors 2 and cabinet 1 for reasons which will hereinafter appear. Handles 5 are provided on doors 2 to facilitate the opening and closing thereof.

Shelf 6 is mounted in cabinet 1, extending from side to side thereof as shown in FIGURE 2, but not completely from front to back as shown in FIGURE 3, there being a front passage 7 between shelf 6 and the front of cabinet 1, and a rear passage 8 between shelf 6 and the rear of cabinet 1. Insulated duct 9 communicates with the outside through hole 10 in side 11 of cabinet 1 and abuts centrifugal blower housing 12 in tight-fitting relation, the latter being suitably secured to shelf 6. Motor 13 is seated in insulated duct 9 in tight-fitting relation, and is mounted to one side of blower housing 12 by means of screws (not shown), rubber gasket 14 being interposed between the said motor 13 and blower housing 12. It will be noted that motor 13 has perforations 15 in the two longitudinal sides of its housing, and that blower housing 12 has opening 16 on one side registering with the said motor 13 within the circle described by rubber gasket 14. It will also be noted that the armature 17 of motor 13 extends through opening 16 and impeller 18 is secured to one end thereof. Heater duct 19 is mounted to the other side of blower housing 12 by means of screws 20, and communicates with the interior thereof through opening 21 in the said blower housing 12. Heater duct 19 is provided with open wire heating element 22 mounted around the inner periphery thereof in suitable fashion. Duct 9, motor 13, blower housing 12 and heater duct 19 may be preassembled on shelf 6 and inserted as a unit in cabinet 1. Face plate 23 may be mounted to the front of shelf 6 to conceal the working elements supported thereby thus to provide a more attractive piece of cabinetry.

Adjustable thermostat 24 and mechanical timer switch 25 are mounted to the front of cabinet 1 and are connected to motor 13 and heating element 22 through wires 26. Preferably, the motor 13 and heater element 22 are in parallel, the timer switch 25 being connected to control both the motor 13 and the heating element 22 and capable of being set to operate the wig drier for an adjustable and predetermined length of time. Thermostat 24 senses the temperature of air being drawn through front passage 7 to heater duct 19 for subsequent recycle, and provides automatic temperature control by regulation of current fed to heating element 22. The detailed circuitry required to accomplish the above will be obvious to those familiar with the art and need not be shown herein.

Wig-block supporting shelf 27 is mounted in cabinet 1, extending from side to side thereof as shown in FIGURE 1, but not from front to back completely, as shown in FIGURE 3, there being a front passage 28 between shelf 27 and the front of cabinet 1, and a rear passage 29 between shelf 27 and the rear of cabinet 1. While only one wig-block supporting shelf 27 has been shown, it will be understood that several such shelves 27 may be installed in cabinet 1.

The operation of the wig drier will now be described.

Wigs 30, which have been washed and set or shaped on forms or blocks 31, are placed in cabinet 1 on the bottom 32 thereof and on shelf 27, and doors 2 are closed. Thermostat 24 and timer switch 25 are set to suitable and predetermined values.

The drying of wigs consists of circulating warm dry air past and around the wigs to accelerate the vaporization

3

of the water contained in the wig. Under normal conditions, surface moisture on the wig is rapidly vaporized, but moisture at the roots of the wig hairs and in the nap of the wig is vaporized at a much slower rate, and large volumes of warm air are required to remove the last-mentioned moisture.

Impeller 18 draws into blower housing 12 a small amount of cool, relatively dry ambient air through duct 9 and through perforations 15 in the housing of motor 13, to cool the said motor 13 and to heat the said incoming air, and also draws into blower housing 12 a large amount of cooled humid air from cabinet 1 through heater duct 19 and past heating element 22 therein. The air from both sources is mixed in blower housing 12 and is discharged by impeller 18 through discharge outlet 33 into the drying chamber 34 of cabinet 1, thence past wigs 30 to remove moisture therefrom. As shown by arrows in FIGURES 2 and 3, the heated mixed air of humidity intermediate the humidity of the aspirated makeup air and the humidity of the recycled air flows past wigs 30, it being noted that the heated mixed air reaches wigs 30 on the bottom of cabinet 1 through rear passage 29 between shelf 27 and the rear of cabinet 1. As the heated mixed air is discharged from discharge outlet 33 into cabinet 1, it displaces the humid air therefrom, a small amount of the displaced air, substantially equal in quantity to the air aspirated into blower housing 12 through duct 9, being discharged from cabinet 1 through gap 4, the major amount of the displaced air passing upwardly through front passages 28 and 7 to be reheated in heater duct 19.

The rate of flow of air aspirated through duct 9 preferably is proportioned to the rate of drying of wigs 30, it being remembered that moisture in the wig nap and at the roots of the wig hairs is vaporized quite slowly. The optimum flow of makeup air, for a typical situation in which perhaps six wigs 30 are simultaneously dried in cabinet 1, expressed as a fraction of total air blown past wigs 30, is approximately 15%, with 85% of the cooled humid air in cabinet 1 being reheated and recycled, and with 15% of the cooled humid air in cabinet 1 being discharged therefrom through gap 4.

In the above-mentioned typical situation, less than 15% makeup air would mean that the wigs are not being dried as rapidly as they might be, and more than 15% makeup air would mean that, although the wigs are being dried at a maximum rate, excessive power is being consumed to heat the air in heater duct 19. The 85% of recycled relatively cool humid air, which is still at a temperature considerably higher than the 15% makeup air, serves primarily to maintain a high temperature uniformly throughout cabinet 1, thereby to reduce power consumption in the drying of the wigs therein.

The air displaced from cabinet 1 is discharged, as previously mentioned through gap 4 at the bottom of the said cabinet, away from opening 10 to avoid recycle thereof, and also not to inconvenience personnel near the said cabinet. It has been found, in this typical situation, that six wigs may be dried with an expenditure of power less than that normally required in present beauty parlor drying arrangements for one wig; also, that the air conditioning or ventilating fan requirements of the beauty parlor are considerably reduced; further, that the herein described wig driers may be stacked one above the other to dry even more wigs with the same floor space utilization.

While I have shown the best embodiment of my invention now known to me, I do not wish to be limited to the exact structure shown and described herein, but may use such modifications, substitutes or equivalents as are embraced within the scope of the specification or as pointed out in the attached claims.

I claim:

1. Apparatus for drying articles by means of a current of warm air, said apparatus comprising:

(a) a thermally insulated cabinet adapted to receive the articles to be dried,

4

(b) air blower means mounted in said cabinet, said air blower means having first and second air inlets and an air discharge, said second air inlet and said air discharge communicating with the interior of the cabinet,

(c) an air intake duct in said cabinet and communicating between said first air inlet and the outside atmosphere through an opening in a wall of the cabinet, said air intake duct thereby isolating said first air inlet from the interior of the cabinet,

(d) heating means operatively interposed between said air blower means and the interior of said cabinet to heat air passing through said air blower means,

(e) vent means communicating between the interior of said cabinet and the outside atmosphere for the discharge of air from the interior of said cabinet,

(f) an electric motor operatively associated with said air blower means, said electric motor being mounted inside said air intake duct,

(g) all of the air entering the first air inlet of said air blower means passing through said air intake duct and cooling said electric motor.

2. Apparatus as in claim 1, further comprising:

(h) the opening in the wall of the cabinet through which said air intake duct communicates with the outside atmosphere being located adjacent the top of the cabinet.

3. Apparatus as in claim 1, further comprising:

(h) said air intake duct being proportioned relative to said second air inlet to supply approximately 15% of the air discharged from the air discharge of the air blower means into said cabinet.

4. Apparatus for drying articles by means of a current of warm air, said apparatus comprising:

(a) a thermally insulated cabinet adapted to receive the articles to be dried,

(b) a first shelf mounted in said cabinet extending from side to side thereof,

(c) a front passage defined by one edge of said first shelf and the front of said cabinet,

(d) a rear passage defined by another edge of said first shelf and the rear of said cabinet,

(e) air blower means mounted in said cabinet on said first shelf, said air blower means having first and second air inlets and an air discharge, said second air inlet communicating with the interior of the cabinet, said air discharge communicating with the interior of the cabinet through one of said passages,

(f) an air intake duct in said cabinet and communicating between said first air inlet and the outside atmosphere through an opening in a wall of the cabinet, said air intake duct thereby isolating said first air inlet from the interior of the cabinet,

(g) heating means in said cabinet interposed between said second air inlet and the interior of said cabinet to heat air entering said second air inlet,

(h) said cabinet having an air discharge port remote from said air intake duct, said air discharge port communicating with the outside atmosphere for the discharge of air from the interior of said cabinet,

(i) an electric motor operatively associated with said air blower means, said electric motor being mounted inside said air intake duct,

(j) all of the air entering the first air inlet of said air blower means passing through said air intake duct and cooling said electric motor.

5. Apparatus as in claim 4, further comprising:

(k) the opening in the wall of the cabinet through which said air intake duct communicates with the outside atmosphere being located adjacent the top of the cabinet.

6. Apparatus as in claim 4, further comprising:

(k) said air intake duct being proportioned relative to said second air inlet to supply approximately 15% of the air discharged from the air discharge of the air blower means into said cabinet.

5

7. Apparatus as in claim 4, further comprising:

(k) a second shelf mounted in said cabinet below the first shelf and extending from side to side of said cabinet and adapted to support articles to be dried thereon,

(l) a second front passage defined by one edge of said shelf and the front of said cabinet,

(m) a second rear passage defined by another edge of said second shelf and the rear of said cabinet.

8. Apparatus for drying articles by a current of warm air, said apparatus comprising:

(a) an insulated cabinet adapted to receive the articles to be dried,

(b) door means mounted to said cabinet,

(c) gasket means interposed between said cabinet and the sides and top of said door means but not between said cabinet and the bottom of said door means whereby a slot is provided to discharge air from said cabinet,

(d) a first shelf mounted in said cabinet extending from side to side thereof,

(e) a front passage defined by one edge of said first shelf and the front of said cabinet,

(f) a rear passage defined by another edge of said first shelf and the rear of said cabinet,

(g) air blower means mounted in said cabinet on said first shelf, said air blower means having first and second air inlets and an air discharge,

(h) air intake duct means mounted in said cabinet and communicating between said first air inlet and the outside atmosphere through an opening in one side of said cabinet,

(i) said second air inlet communicating with the interior of said cabinet,

(j) said air discharge communicating with the interior of said cabinet through one of said passages,

(k) heating duct means in said cabinet interposed between said second air inlet and the interior of said cabinet.

6

9. Apparatus as in claim 8, further comprising:

(m) said air intake duct means supplying approximately 15% of the air discharged from said air blower means into said cabinet.

10. Apparatus as in claim 8, further comprising:

(m) a second shelf mounted in said cabinet below said first shelf and extending from side to side of said cabinet and adapted to support articles to be dried therein,

(n) a second front passage defined by one edge of said second shelf and the front of said cabinet,

(o) a second rear passage defined by another edge of said shelf and the rear of said cabinet.

11. Apparatus as in claim 8, further comprising:

(m) an electric motor operatively associated with said air blower means, said electric motor being mounted inside said air intake duct means and cooled by air passing through said air intake duct means to the first air inlet of said air blower means.

12. Apparatus as in claim 1, further comprising:

(h) said heating means being interposed between said second air inlet and the interior of said cabinet,

(i) said vent means comprising an air discharge port remote from said air intake duct.

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