United States Patent [19]

Tucker

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[54] **HAIR DRYING AND STYLING APPARATUS**

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[73] Assignee: **The Gillette Company**, Boston, Mass.

[22] Filed: **Oct. 9, 1973**

[21] Appl. No.: **404,193**

Related U.S. Application Data

[63] Continuation of Ser. No. 258,648, June 1, 1972, abandoned.

[52] **U.S. Cl.** **132/9**; 39/91

[51] **Int. Cl.**[2] **A45D 20/00**

[58] **Field of Search** ..... 132/9, 11 A, 160; 15/23, 15/400; 34/91, 97

[56] **References Cited**

UNITED STATES PATENTS

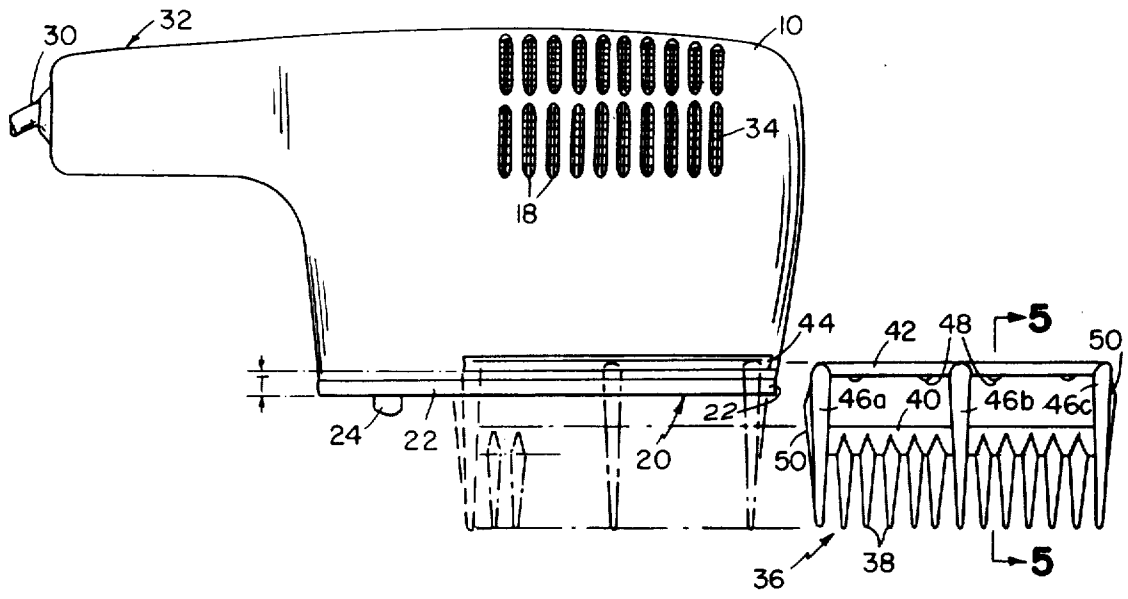
1,597,855	8/1926	Zahorsky	15/400
3,150,393	9/1964	Taylor et al.	15/23
3,241,560	3/1966	Willat	132/9
3,420,247	1/1969	Seagrave	132/9
3,613,257	10/1971	Yashiike et al.	34/91
3,696,818	10/1972	Weber	132/9
3,721,250	3/1973	Walter	132/11 A

Primary Examiner—G. E. McNeill

[57] **ABSTRACT**

Hair drying and styling apparatus featuring multiple tool supports and styling tools interchangeably mountable thereon, one of the supports being a hair drying unit.

8 Claims, 16 Drawing Figures



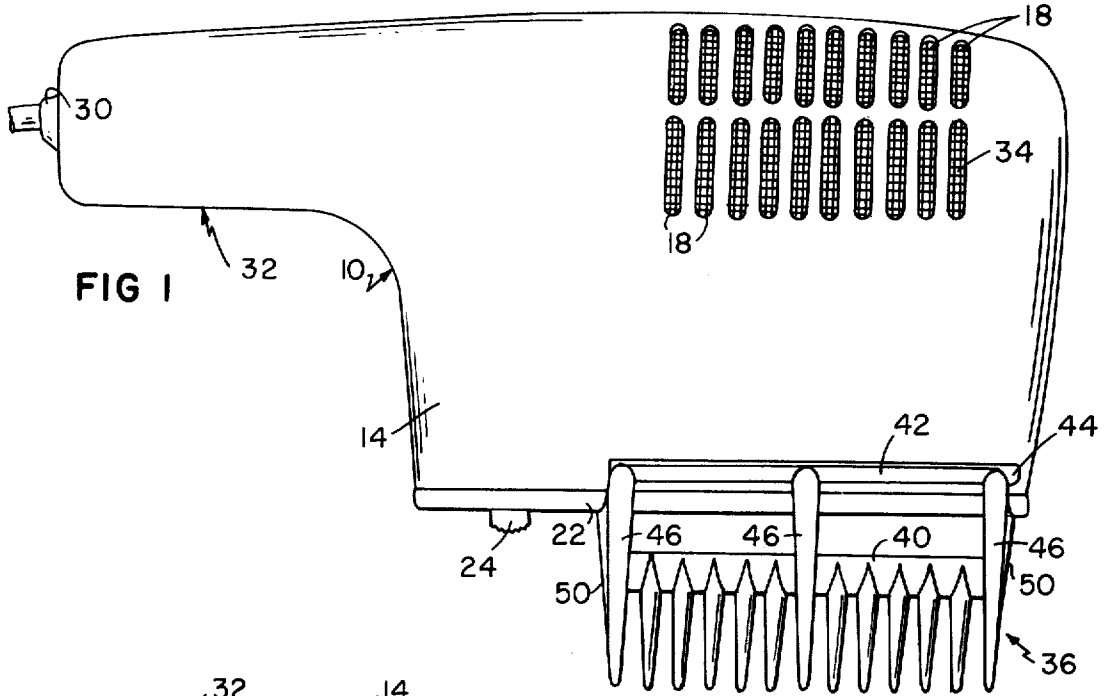


FIG 1

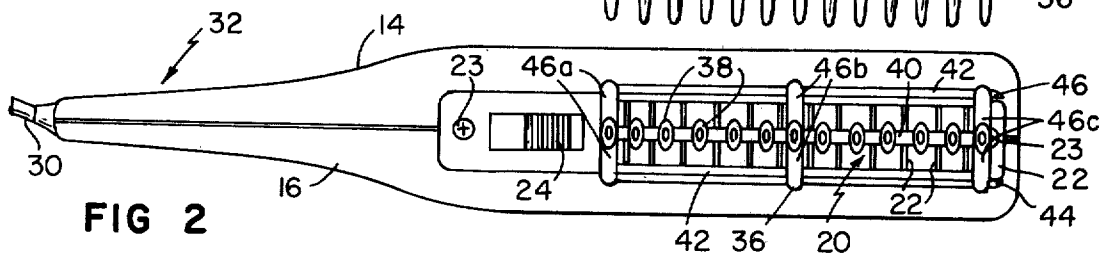


FIG 2

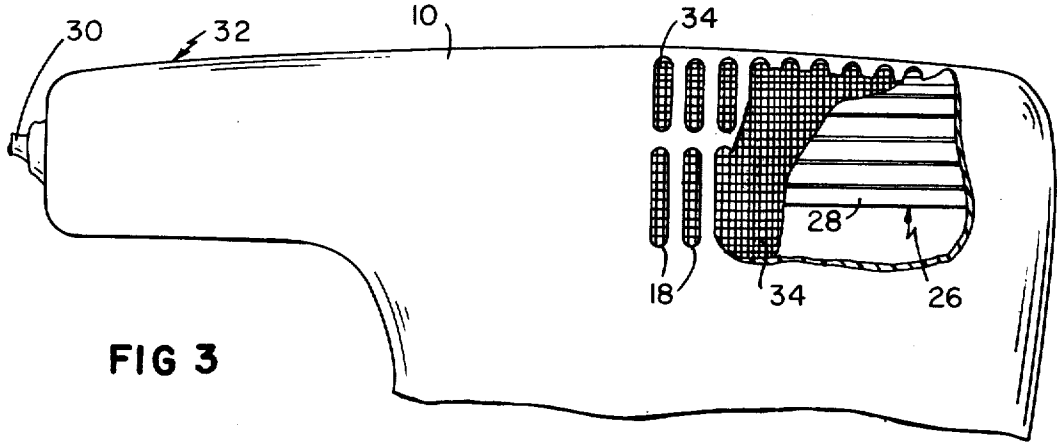


FIG 3

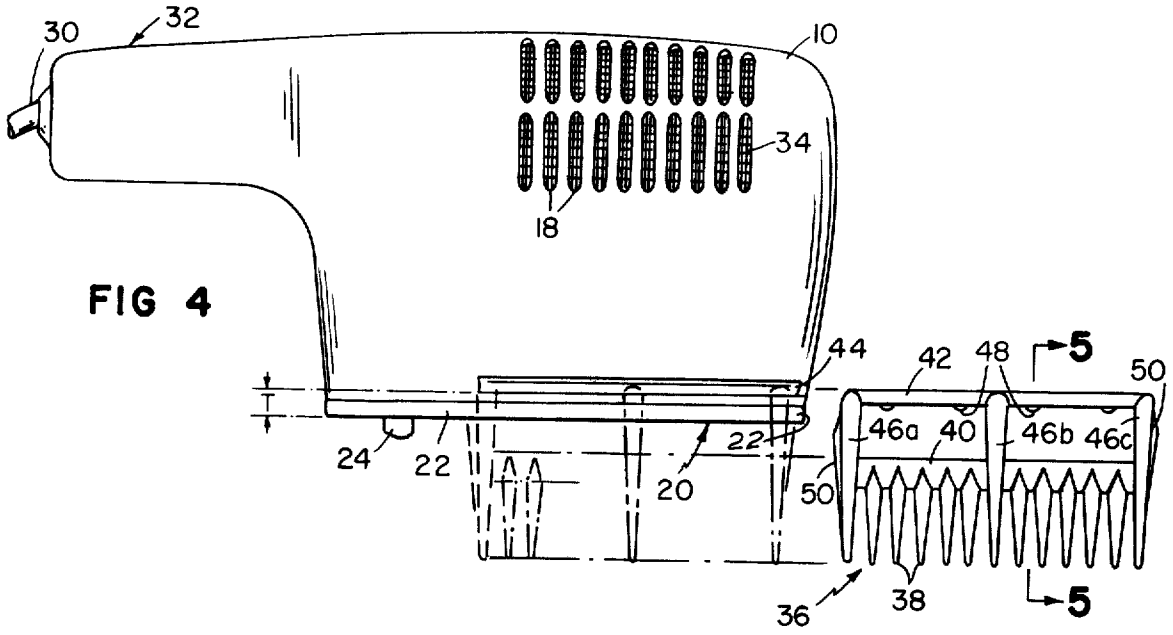


FIG 4

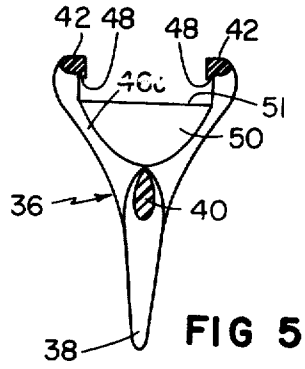


FIG 5

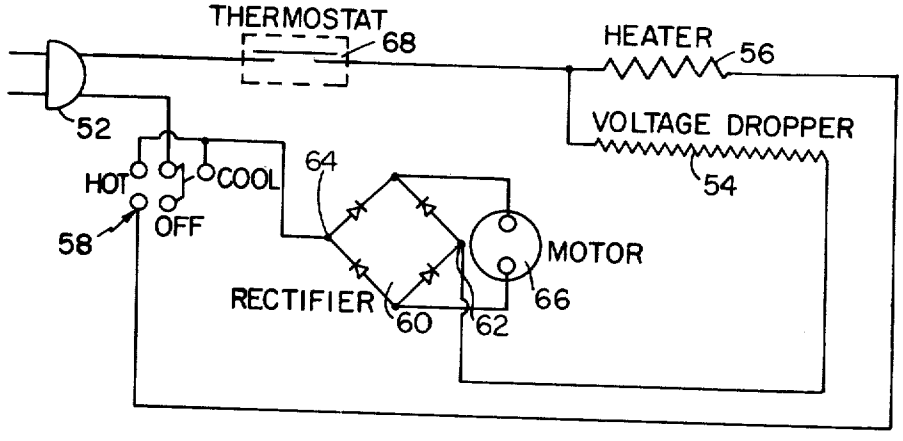
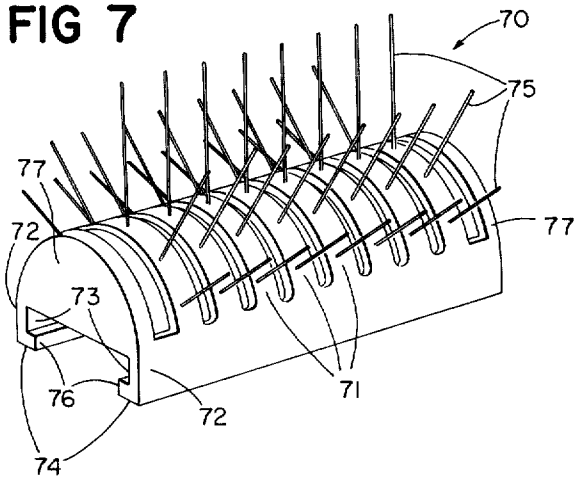


FIG 6

FIG 7



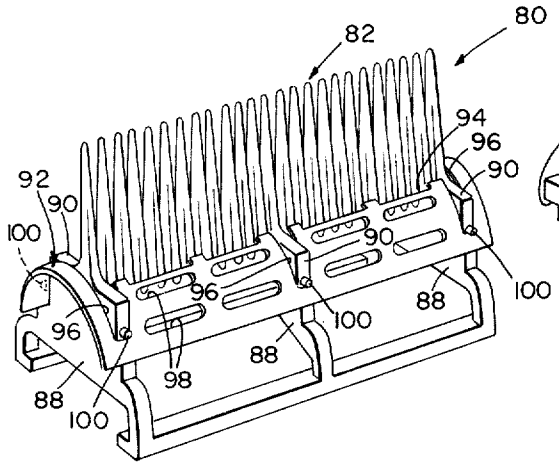
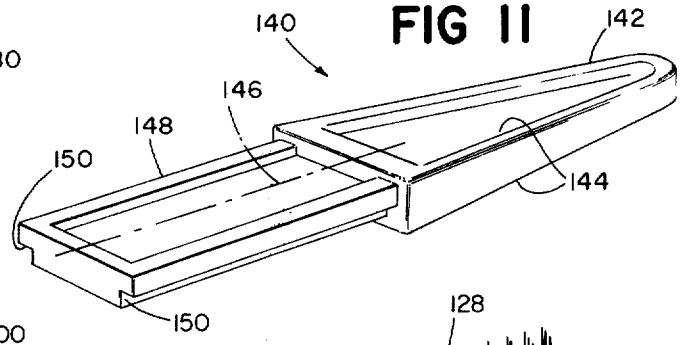


FIG 8

FIG 11



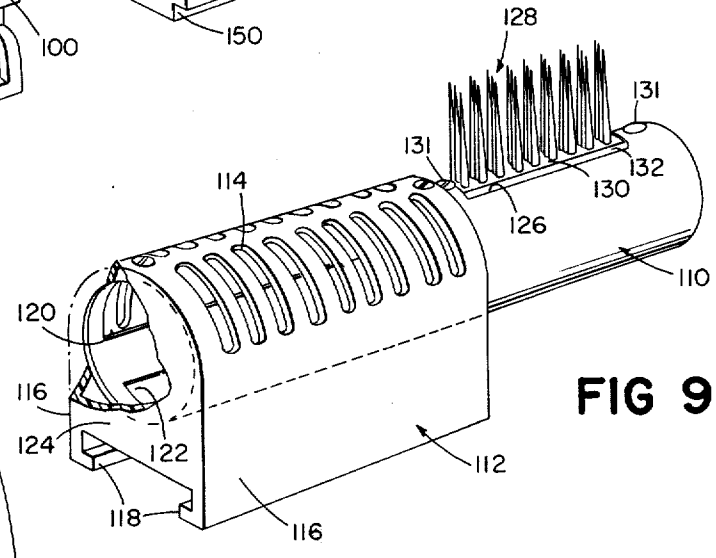


FIG 9

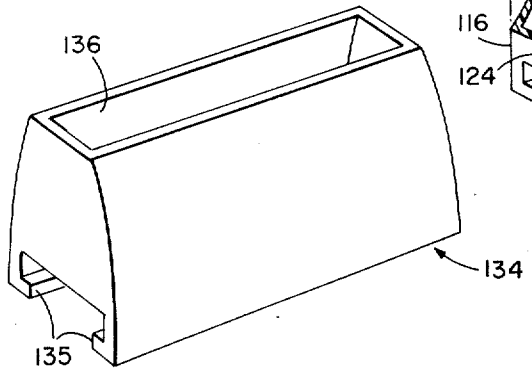


FIG 10

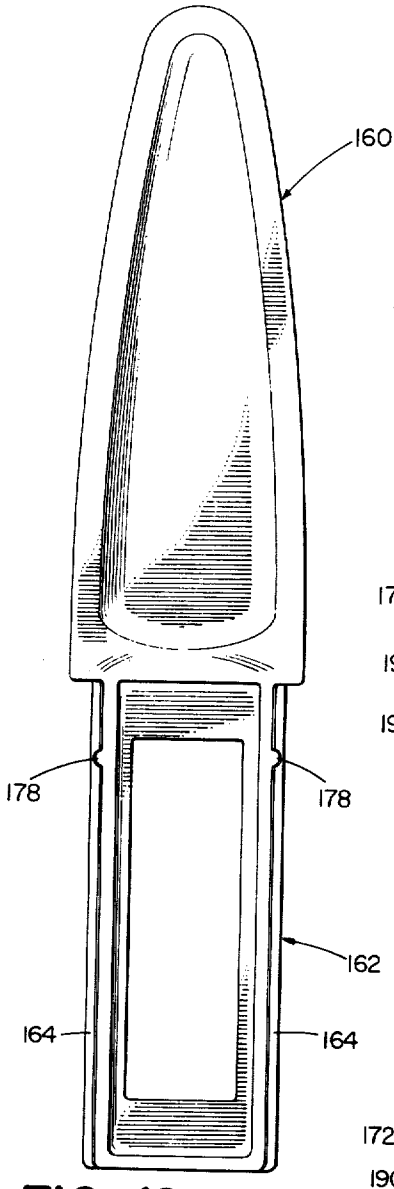


FIG 12

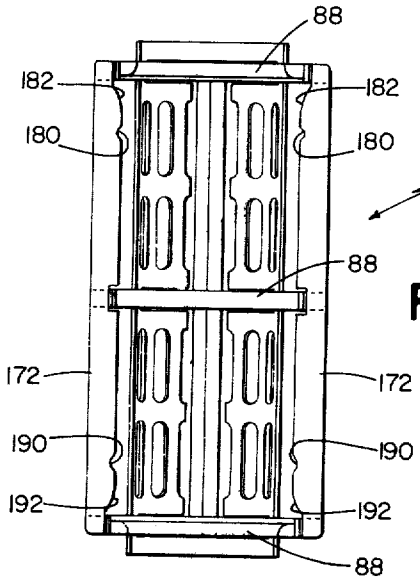


FIG 14

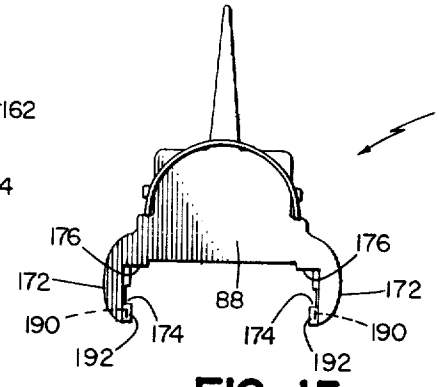


FIG 15

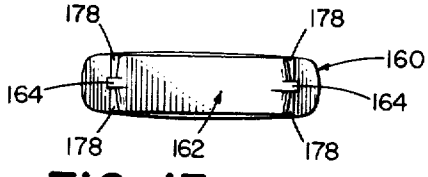


FIG 13

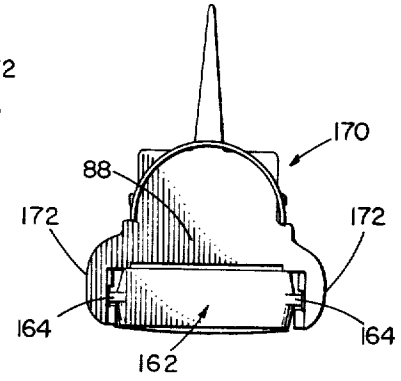


FIG 16

HAIR DRYING AND STYLING APPARATUS

This is a continuation of application Ser. No. 258,648, filed June 1, 1972, now abandoned.

BACKGROUND OF THE INVENTION

This invention relates to portable hair drying and styling apparatus.

While electrically-heated forced-air hair dryers have been proposed in a variety of forms, most have suffered from various deficiencies such as lack of portability or lack of access to the hair for manipulating it during the drying process. In the case of those which have provided for portability and access to the hair, there has been no provision of implements for manipulating the hair apart from those mounted on the dryer in fixed position with respect to the air stream. For most effective use of forced hot air hair dryers it is important to have a variety of hair-styling implements available both for interchangeably mounting on the housing of the dryer in fixed position with respect to the stream of heated air and also for interchangeable use independently of but in conjunction with the dryer, as for example when the dryer is manipulated with one hand while an implement is manipulated with another.

SUMMARY OF THE INVENTION

The invention provides a hair dryer with styling tools in an arrangement which is easily used and allows great flexibility in the sorts of styling operations which may be carried out.

In general, the invention features multiple tool supports and styling tools interchangeably mountable on the supports. One of the supports is a hair drying unit, and the other is a handle having a hand grip and a mounting portion extending in opposite directions along an axis, the mounting portion being slidably engagable with the tools. In another aspect the invention features a hair curling tool mountable on the dryer and having comb teeth extending outwardly from a curved metallic heat sink about which hair can be wrapped, the heat sink having a portion in the path of air from the dryer when installed.

Other advantages and features of the invention will be apparent from the description and drawings herein of a preferred embodiment thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a hair dryer according to the invention;

FIG. 2 is a view taken from the bottom of FIG. 1;

FIG. 3 is a view similar to FIG. 1 in which portions of the hair dryer have been broken away to reveal details of its construction;

FIG. 4 is a view similar to that of FIG. 1 showing the comb portion of the hair dryer in a detached position;

FIG. 5 is a view taken at 5—5 of FIG. 4;

FIG. 6 is a circuit diagram for the hair dryer of FIG. 1;

FIGS. 7–9 are perspective views of additional styling tools, FIG. 9 being partially broken away;

FIG. 10 is a perspective view of an air concentrator;

FIG. 11 is a perspective view of a handle for the tools;

FIG. 12 is a plan view of a modified and reversible form of handle;

FIG. 13 is an end view of the handle taken from the bottom of FIG. 12;

FIG. 14 is a bottom plan view of a styling tool similar to that shown in FIG. 8 modified for mounting on the handle of FIG. 12;

FIG. 15 is an end elevational view of the tool of FIG. 14; and

FIG. 16 is an end elevational view showing the tool of FIG. 14 mounted on the handle of FIG. 12.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings, the hair dryer includes a dryer housing **10** which is preferably made of plastic and comprises separable portions **14** and **16** which are held together by means of screws (not shown). The housing defines an air inlet in the form of a series of elongated slots **18** in the portion **14** of the housing **10.** An air outlet **20** is provided in the lower end of the hair dryer as seen in FIG. **2.** A protective grill **22** (FIG. **2**) is mounted over the opening of the air outlet, by means of screws **23,** to protect the user from injury during operation of the dryer. A three position switch **24** is also provided. The operation of switch **24** will be understood in connection with the description of the circuit diagram of FIG. **6.**

Blower means are provided within the housing **10** for drawing a stream of air into the air inlet, through the dryer housing and forcing it out of the air outlet. As shown best in FIG. **3,** the blower means may comprise a tangential fan **26** of cylindrical form having a plurality of blades **28** which are generally parallel to the cylindrical axis. Fan **26** is mounted for rotation directly below the air inlet slots **18.** A channel is provided within the housing **10** which extends between the fan **26** and the air outlet **20.** Electrical air heating means (described below with relation to FIG. **6**) may be positioned in the channel. An electrical power cord **30** extends from the end of a handle portion **32** of the housing **10.**

As best seen in FIG. **3,** a fine mesh screen **34** such as conventional insect screening is mounted within the housing **10** extending across the entire region of the air inlet slots **18.** Such a screen may conveniently be attached to the inner surface of the upper portion **14** in any conventional fashion.

Various hair styling attachments may be interchangeably mounted over the air outlet **20.** Thus, comb **36** includes a plurality of teeth **38** which, when the comb is mounted on the dryer (FIG. **1**), are aligned with the general direction of air flow from outlet **20** (i.e., perpendicular to grill **22**), and which preferably taper in a direction away from the air outlet **20.** The teeth extend from a back member **40** which is preferably tear-drop shaped, or airfoil, in cross section with the pointed end facing the air outlet **20.** This configuration provides for a smooth flow of air to both sides of the comb's teeth **38.** A pair of parallel bars or clamps **42** are provided for engagement with elongated recesses or slots **44** in the surface of dryer housing **10** adjacent to, and generally parallel with, the air outlet **20** on opposite sides of the housing. The bars **42** are connected to the back member **40** by means of a plurality of ribs **46.** The ribs **46** are preferably paired as best seen in FIGS. **2** and **5.** The embodiment illustrated includes three pairs of ribs, those pairs being identified by the reference numbers **46***a*, **46***b*, and **46***c*. The ribs (as well as the entire comb **36**) are preferably made from stiff but resilient plastic material. Walls **50** are provided between the ribs at the ends of the comb (i.e., ribs **46***a* and **46***c*) to assist in

channeling the air from the air outlet **20** along the comb's teeth.

Projections **48** protrude slightly in the direction of teeth **38** from the undersurface of bars **42.** The distance between the plane of upper edges **51** of walls **50** and the lower surfaces of projections **48,** in the relaxed configuration of the comb, is slightly less than the thickness T (FIG. **4**) of housing **10** and grill **22** below recesses **44.** With this arrangement the comb may be easily attached or removed from the dryer by a relative sliding motion, and yet is firmly retained in position by the resilient force of projections **48** and edges **51** against the adjacent dryer surfaces.

In operation, the hand held hair dryer may be used with or without comb **36** in close proximity to the hair without fear of the hair being drawn through the air inlet into contact with the rotor **26,** because of the protective screen **34.** It has been found that by use of the comb **36,** with drying air being supplied to flow along the teeth **38,** more rapid drying of the hair is accomplished.

Referring to the electrical circuit diagram of FIG. **6,** a power cord **52** supplies power to a voltage dropper **54** (and heater **56** if switch **58** is in the "HOT" position). Rectifier **60** is supplied at its opposite input terminals **62** and **64** from the voltage dropper and the other line of the power cord. Motor **66** is supplied from the rectifier and is connected in a conventional fashion to rotate the blower means described above. Thermostat **68** is located within the dryer housing **10** and opens the circuit to protect the dryer if overheating occurs. The heater **56** preferably comprises resistance coils which are positioned in the channel leading from the blower **26** to the air outlet **20.**

Additional attachments are shown in FIGS. **7–10,** all preferably of the same material as comb **36** except as described otherwise.

Styling brush **70** (FIG. **7**) has a series of curved, spaced ribs **71** extending between side portions **72.** Portions **72** are internally recessed at **73** to define ridges **74** which serve the purpose of bars **42** discussed above. Bristles **75** (most of which have been omitted in the drawing to expose the ribs) extend at various angles from ribs **71.** An alternate manner of holding a styling tool in place on the dryer is shown in connection with brush **70;** surfaces **76** of ridges **74** are, in the relaxed configuration of the brush, spaced apart slightly less than the distance between recesses **44,** so that the resilient clamping forces are exerted against the floor surfaces of the recesses. End walls **77** serve the purpose of walls **50** of comb **36.**

Curl curver **80** (FIG. **8**) includes a comb **82** much like comb **36,** except that its teeth are closer together and its ribs **88** have central enlarged, generally rectangular walls **90** which provide a seat for semi-cylindrical metal curver **92.** Curver **92** has a central longitudinal slot **94** through which the comb teeth fit, transverse slots **96** through which the corners of walls **90** fit, and shorter slots **98** which provide a generally perforated surface. Lateral projections **100** from walls **90** snap into slots **96** when curver **92** is pressed onto comb **82,** retaining the two pieces together. In use, air from the dryer heats curver **92,** which acts as a metal heat sink. Hair may be curled by wrapping it around curver **92.**

Another form of curl curver is shown in FIG. **9.** Metal cylinder **110** has half its length covered by a plastic support **112** having a slotted semi-cylindrical grill **114** from which extend parallel walls **116** internally recessed to provide ridges **118** which cooperate with recesses **44** of the dryer. Cylinder **110** has an open sector **120** adjacent grill **114,** and, opposite sector **120,** a smaller open sector **122.** End wall **124** of support **112** closes the end of cylinder **110.** The other half of cylinder **110** has a slot **126** through which extend comb teeth **128** arranged in three staggered rows on comb back **130.** Back **130** is riveted to cylinder **110** at **131** and is narrower than slot **126** so as to leave air flow spaces **132** around the comb. In use, cylinder **110** acts as a heat sink in much the same manner as curver **92,** thus aiding the curling of hair wrapped around the metal.

Air concentrator **134** (FIG. **10**) is a four walled housing of converging cross-section with internal ridges **135** at its wider end arranged to cooperate with recesses **44** to hold the concentrator on the dryer. In use, the concentrator narrows and increases the velocity of the air stream from the dryer, which exits through the narrower end **136** of the concentrator.

FIG. **11** shows a plastic handle **140** having a tapered, hand-sized grip **142,** with finger recesses **144** on opposite surfaces, and, extending from the grip in the opposite direction along longitudinal axis **146,** a tool mount **148.** Mount **148** is generally rectangular and has recesses **150** along its opposite edges parallel to axis **146.** Recesses **150** correspond dimensionally and in function to recesses **44** on the dryer and enable any of the styling tools described above to be alternately mounted on handle **140.** Thus, for example, long hair may be conveniently curled by mounting one of the curl curvers on handle **140,** curving the hair around the curl curver with one hand, while directing the dryer (perhaps using concentrator **134**) with the other hand. Many other combinations are possible. The provision of both the dryer and handle **140** as interchangeable tool mounts, with a set of interchangeable tools, makes possible great efficiency and flexibility in use of the equipment.

In the modified form of handle and tool shown in FIGS. **12** to **16** the handle **160** is generally similar to that of FIG. **11** except that the tool mount **162** is provided with stepped sidewall portions in the form of laterally projecting median tongue **164, 164** extending along both opposite edges equally spaced from top and bottom surfaces, as appears best in FIG. **13.** Tool **170** is provided with side walls **172** supported by ribs **88** and having longitudinal grooves **174** spaced from the bottom surface **176** of ribs **88** by a dimension equal to the spacing between tongues **164** and the top and bottom surfaces of tool mount **162.** Detents **178, 178** project from the sides of tool mount **162** both above and below tongues **164** in position to seat in recesses **180, 180** of the side walls **172** of the tool. In addition, the side walls are flared at their ends to provide camming surfaces **182, 182** which, because of the resiliency of the molded plastic from which the ribs **88** and side walls **172** are made permit the side walls to separate laterally to ride up over detents **178** when the tool is slid endwise onto the tool mount with tongues **164, 164** seated in grooves **174, 174,** the sliding being continued until the detents **178** are resiliently seated in recesses **180,** thus removably or releasably locking the tool in operative position. A similar set of recesses **190, 190** and camming surfaces **192, 192** are provided at the opposite end of the tool side walls, so that the locking action will take place no matter which end of the tool mount enters the tool

first and no matter which face of the tool mount is uppermost.

The modified construction of FIGS. 13–16 is useful on hair dryers as well as on handles, although end for end reversibility alone, not top for bottom reversibility, is advantageous in the case of dryers.

Other embodiments are within the following claims:

I claim:

1. Portable hair styling apparatus, comprising

a plurality of hair styling tools, and

a pair of tool supports,

said tools and said supports having respective complementary portions engageable for interchangeably detachably mounting said tools on either of said supports,

one of said supports comprising a dryer housing defining an air inlet and a single air outlet and including therein blower means disposed within the housing for drawing a stream of air into the air inlet, through the dryer housing, and forcing it out of the air outlet, said complementary portions of said one of said supports being arranged on said housing for engaging said complementary portions of said tools to support said respective tools at least partially within the air stream from said outlet,

the other of said supports being a handle having hand-grip and mounting portions extending in opposite directions along an axis, said complementary portions of said other of said supports being arranged on said mount portion for engaging said complementary portions of said tools to support said respective tools projecting laterally from said axis.

2. The apparatus of claim 1 wherein said complementary portions of said tools are relatively slidably engageable with said complementary portions of said supports.

3. The apparatus of claim 1 wherein one of said tools comprises a hair curler having

a base;

a metallic, curved, heat sink mounted on said base and having a portion disposed to be in the path of air from said outlet when said curler is mounted on said dryer,

said dryer including means for heating air in said stream, and

comb teeth extending outwardly from said heat sink.

4. The apparatus of claim 1 wherein said complementary portions comprise mating tongue and groove constructions resiliently mounted for movement laterally of each other together with detents and recesses adjacent said tongue and groove arranged for mating during sliding engagement of said tongue and groove for releasably locking said tools and supports in operative position.

5. The apparatus of claim 1 wherein said plurality of tools include a styling brush, a comb, and a hair curler.

6. Portable hair styling apparatus, comprising

a dryer housing defining an air inlet and a single air outlet and including therein blower means disposed within the housing for drawing a stream of air into the air inlet, through the dryer housing, and forcing it out of the air outlet, and

a hair curling tool comprising

a base

a metallic, curved, heat sink mounted on said base, said dryer including means for heating air in said stream, and

comb teeth extending outwardly from said heat sink,

said tool base and said housing having respective portions complementary to each other engageable to enable said tool to be detachably mounted on said dryer with a portion of said heat sink in the path of air from said dryer outlet.

7. The apparatus of claim 6 wherein said base and said teeth are integral and formed of plastic and said teeth project through said heat sink.

8. The apparatus of claim 7 wherein said heat sink extends partially around an axis and has its concave side facing said base and exposed by said base to said air stream from said outlet when said tool is mounted on said housing, said teeth are arranged longitudinally of said axis, and said heat sink is provided with openings for air passage therethrough at opposite sides of said teeth.

* * * * *