

(21) Application No 8027102
 (22) Date of filing 20 Aug 1980
 (43) Application published
 3 Mar 1982

(51) INT CL³
 A45D 4/10
 A46B 11/06

(52) Domestic classification
 A4V 14A3 14A5B 14AX
 A4K BX

(56) Documents cited
 GB 1185689
 GB 1146755
 GB 778634
 GB 535326
 GB 531747
 GB 406924
 GB 334153

(58) Field of search
 A4K
 A4V

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(54) **Brushing and curling apparatus
 for hair**

(57) A brushing and/or curling apparatus for hair comprises a device for generating an air flow which can be adjusted to a desired temperature and a plurality of curlers 6 which can be fixed in the hair which is being treated. An air distributor device 3, is connected with the air flow-generating device 1 and contains a multiplicity of air exit or outlet openings 4. There is provided a

plurality of hoses 5 which are connected at one end with the outlet openings 4 of the distributor device 3 and at the other end with a related curler 6. There is provided in a further embodiment a mobile air flow and distribution unit and a curler adapted to direct air longitudinally about its outer casing as well as radially outward. Each curler may be attached to air distribution hoses by a flexible connection or ball and socket connection and may be replaced by a brush or a brush-type of curler.

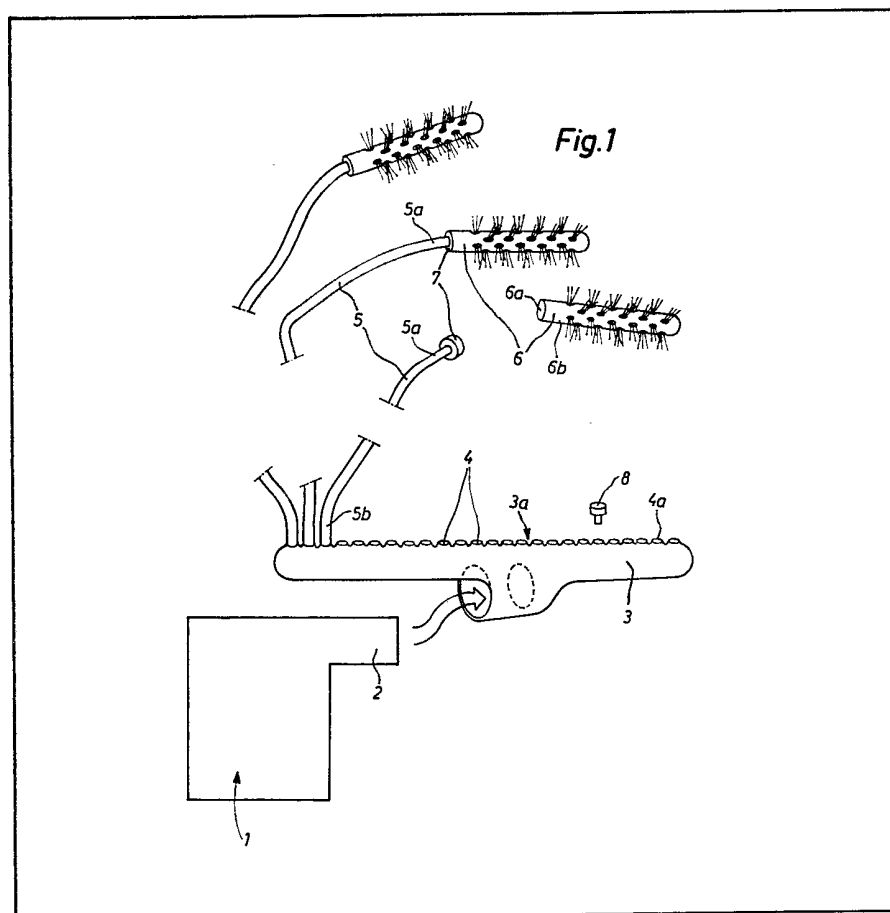
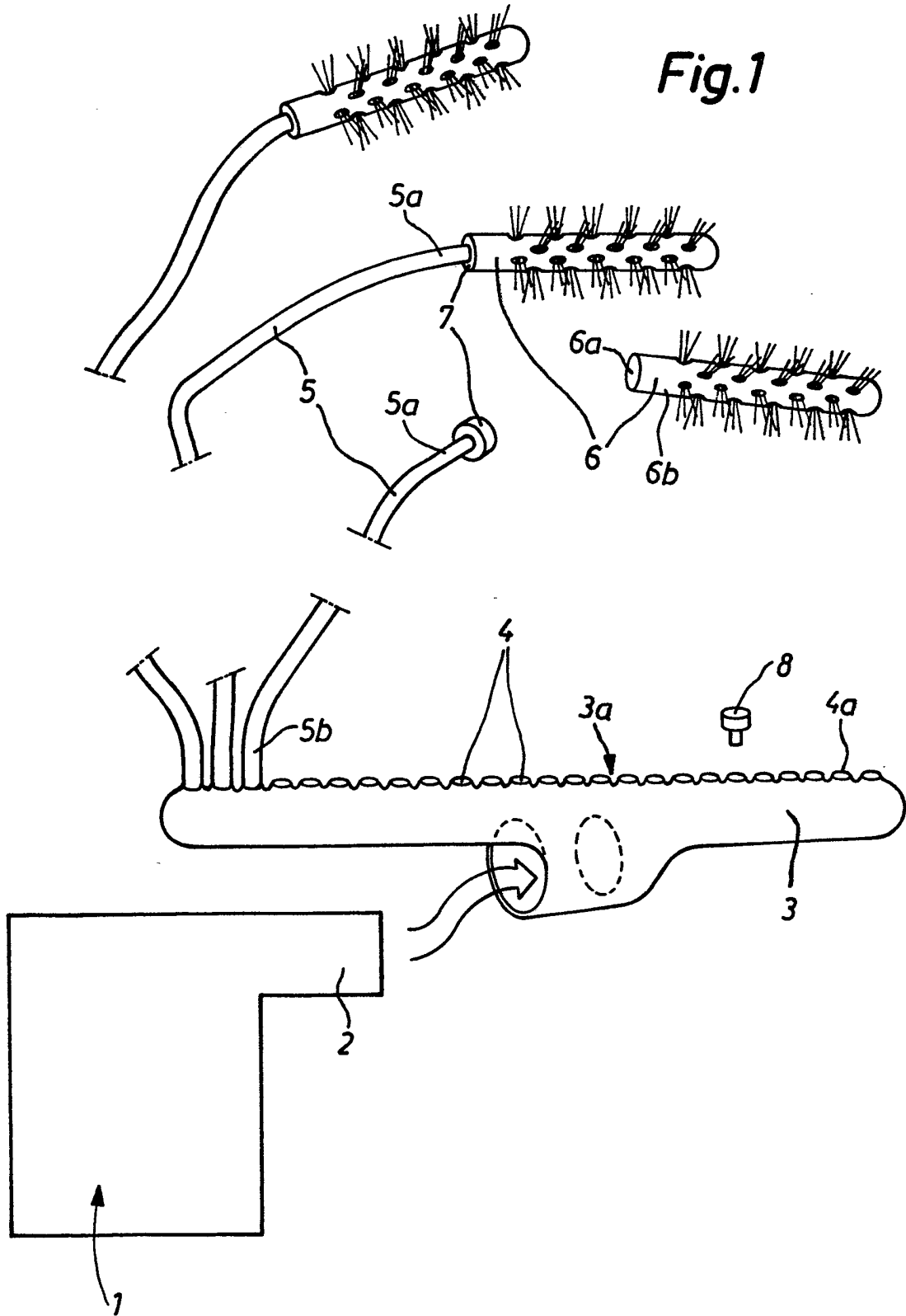
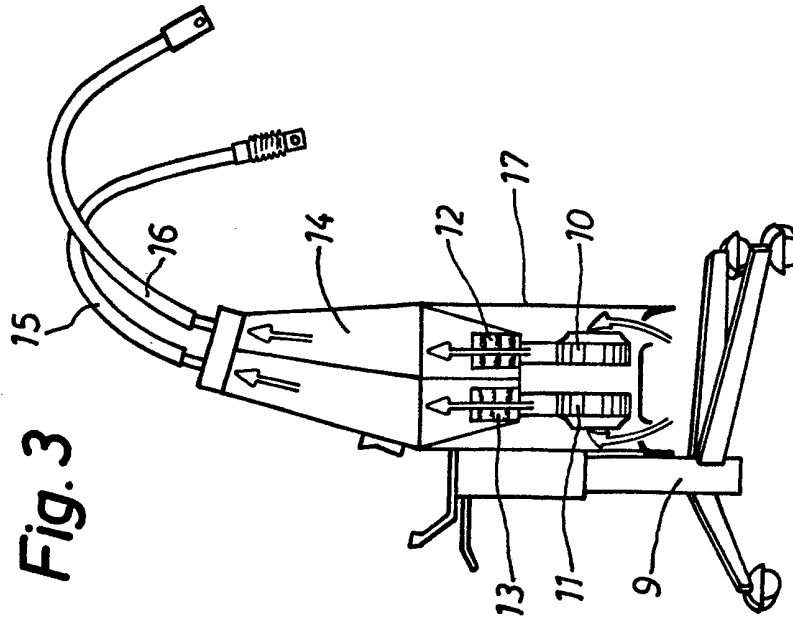
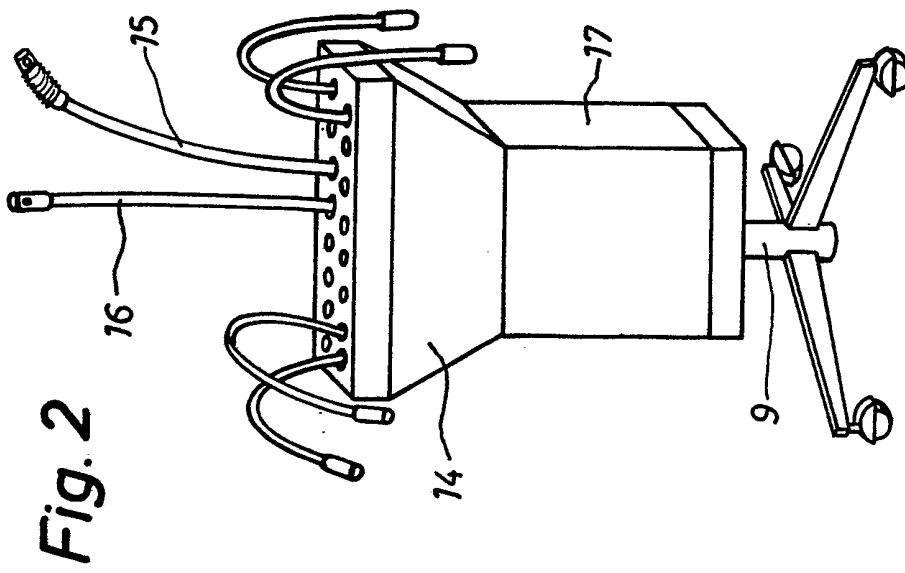
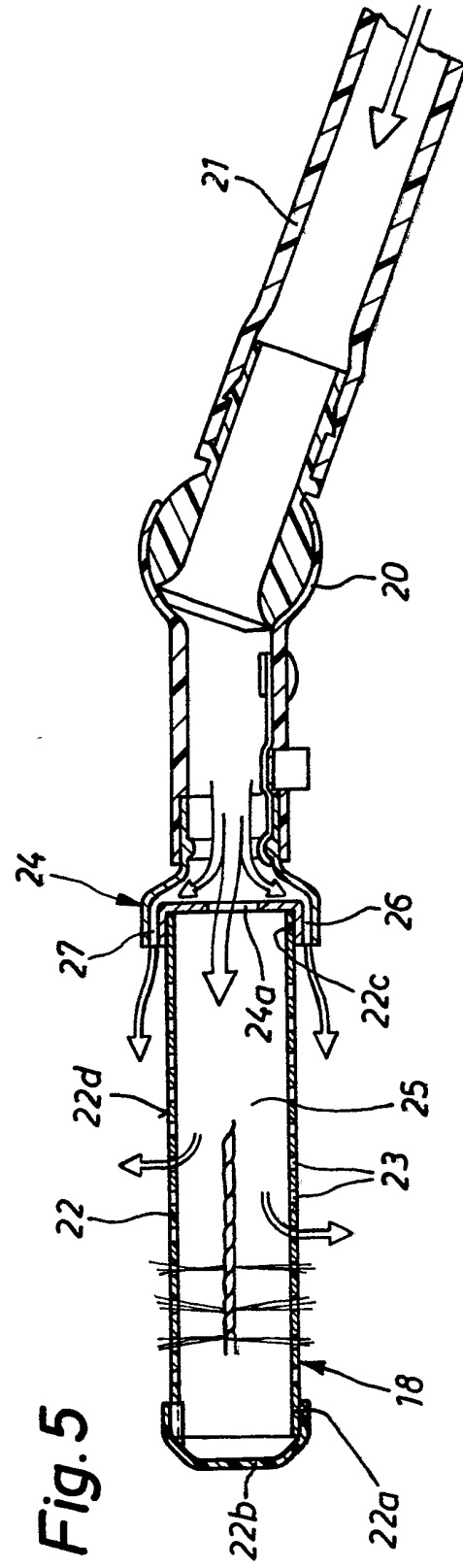
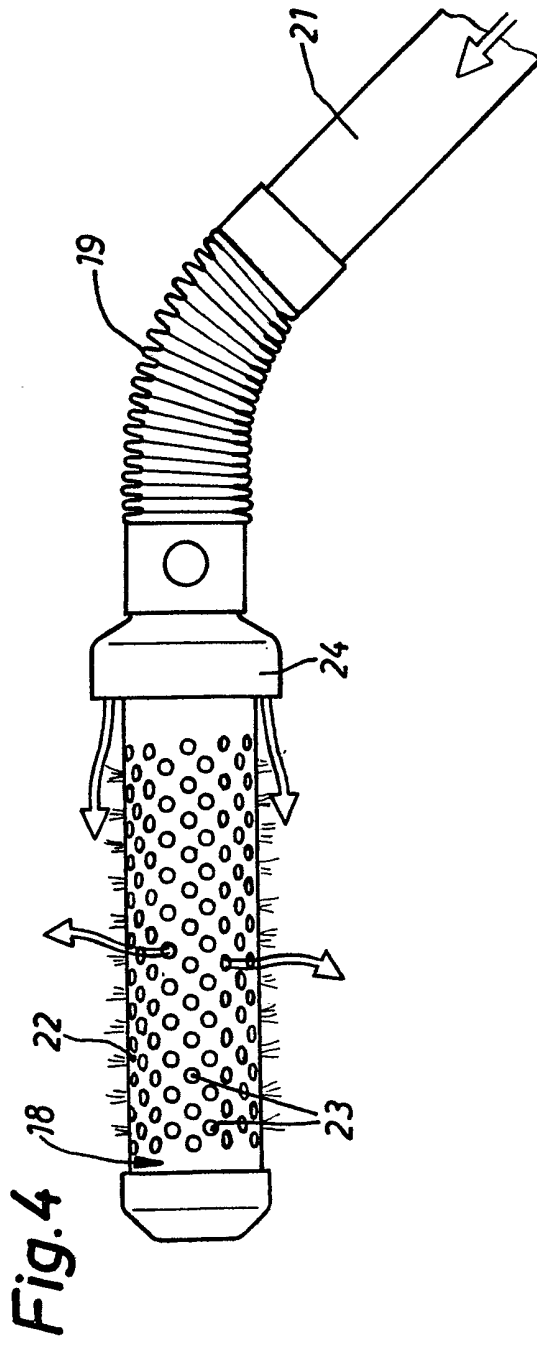


Fig.1







SPECIFICATION

Hair drying apparatus

5 The present invention relates to a new and improved construction of a hair styling apparatus, and, in particular, relates to a novel brushing, curling and drying apparatus for hair.

10 The apparatus of this invention is the type comprising a number of perforated hollow curlers which can be fixed, for instance by means of clips, in the hair which is being treated or styled. Further, there is provided a device for generating an air flow which can be regulated to a predetermined temperature.

15 The presently known hair drying techniques and the equipment which is available to beauticians in beauty parlours or the like do not enable brushing of the hair when it is wet.

20 Usually it is necessary to at least pre-dry the hair, and thereafter to brush the same. On the one hand, this procedure is extremely time-consuming and, on the other hand, also precludes any rational mode of operation. The same considerations are equally applicable when a woman washes her hair at home and subsequently dries and brushes and curls her hair; therefore, with the foregoing in mind, it is a primary object of the present invention to provide a new and improved construction of drying apparatus for hair which is not associated with the aforementioned shortcomings and limitations of the prior art constructions.

Another and more specific object of the present invention aims at providing a new and improved drying apparatus by means of which it is possible to solve the aforesaid problems with extremely modest equipment expenditure and in a most simple manner.

40 A further significant object of the present invention aims at providing a new and improved construction of hair curler for use with the apparatus of the invention.

Accordingly, there is provided an air distributor vessel which is connectable with an air flow-generating device; the distributor vessel comprises a multiplicity of air outlet openings and there are also provided means such as hoses or the like for connecting the outlet openings of the distributor vessel with related curlers and/or brushes, or more particularly brush type curlers.

50 The curlers can be constructed for instance as hollow brush type curlers and preferably consist of a perforated cylindrical tube or pipe, having one end, as an embodiment described hereinafter, which is closed; a brush can be introduced through the other, open, curler end so that in the end position the bristles of the brush extend through holes of the jacket or outer surface of the tube. Alternatively, brush hairs may be affixed to the outside of the curler.

60 Preferably, for initial curling of the hair around the brush/curler the hollow brush/curler can be coupled with a handle or handgrip. After removal of the handle a hose connects the internal space of the

brush with the air distributor.

Another preferred type of curler consists of a hollow, elongate curler body, the side walls of which are provided with air outlet or exit openings and a coupling element for the connection of the curler with an air feed hose. At the air inlet or infeed end and at the coupling element of the curler there are provided branching or branched channels for the air flow.

70 These branched channels extend in a manner such that they terminate externally of the side walls of the curler and direct the air flow to flow parallel to the curler body. Again this curler may be provided with bristles or a brush secured inside so that the hairs of the brush extend through the air outlet openings.

When hoses are not being used then there can be advantageously provided means in order to obturate some of the air outlet or exit openings of the distributor vessel or, alternatively the brush/curler ends of the hoses. This closure means can consist of, by way of example and not limitation, insertable covers or plugs, formed of e.g. rubber.

85 The air flow device can comprise a conventional hair dryer, typically for instance a fan or blower. With professional equipment the air flow-generating device and the distributor vessel together with the hoses are preferably arranged upon a mobile frame or housing.

90 The invention will be further described by way of example with reference to the accompanying drawings in which:

Figure 1 schematically illustrates the major components of a first exemplary embodiment of apparatus according to the invention;

95 Figure 2 is a perspective view of construction of a further embodiment in the form of a mobile or movable unit;

Figure 3 illustrates the apparatus of Figure 2 in side view and partially in sectional view;

100 Figure 4 is a cross-sectional view of a curler constructed according to the invention and connected to an air distributor hose.

Figure 5 illustrates the curler of Figure 4 in sectional view, but provided with a different hinge connection to the air distribution hose.

Figure 1 shows a schematically illustrated brushing, curling and drying apparatus for hair which can be seen to comprise a suitable air supply device 1, such as a conventional hair blower or fan, which has been schematically illustrated, which serves to generate an air flow having a certain or preselected temperature. Connected with the outlet end 2 of the air flow-generating device 1 is an air distributor device 3, here in the form of a distributor vessel, which is equipped with a plurality of relatively small air exit or outlet openings 4. A number of flexible hoses or pipes 5 is connected with the openings 4, and a number of hollow brush type curlers or brush elements 6 or other curlers, as shown in Figures 4 and 5, are provided, which can be connected in each case to the free end of the hoses 5.

At the air exit side 3a of the air distribution or distributor device or vessel 3 the other ends 5b of the

hoses 5 can be connected with the studs 4a of the air outlet openings 4 or such hose ends 5b can themselves be inserted into the related openings 4.

In consideration of the particular construction of the hollow brushes 6 the brush openings 6a leading to the not particularly referenced internal space of the brushes 6 are relatively large. The connection of each hose 5 with the brush 6 can be accomplished, by way of example, by means of a rubber collar or connector 7 which is fixedly seated upon the corresponding hose 5 and while mounted on such hose can be plug-connected into the tubular portion or tube 6b of the related brush 6.

In the event that only part of the hoses 5 are needed, then it is possible to either close the brush-side hose ends 5b or the air outlet openings 4 of the distributor vessel 3 by a pluggable cover member or plug 8 or the like, so that there is no undesired pressure drop in the air flow.

With the illustrated apparatus it is possible to curl into the washed wet hair the brushes or curlers 6 which can be of different size. By connecting these brushes 6 with the air flow it is then possible to simultaneously dry and brush and curl the hair.

Now in Figures 2 and 3 of the drawings there is illustrated an exemplary embodiment of apparatus which can be arranged upon a mobile or travelling frame 9. With this construction there are provided two ventilators or fans 10 and 11 following which there are operatively connected heaters 12 and 13 for heating-up the sucked-up air. The thus prepared air is infed to a distributor device 14, here in the form of a distributor cabinet or vessel, at which there are connected hoses 15 and 16 which lead to brushes or curlers 6. The entire arrangement is mounted in a suitable housing 17.

Figures 4 and 5 show a particularly suitable construction of curler or brush 18 which is connected, in the showing of Figure 4 by means of a hinge structure 19, and in the showing of Figure 5 by means of a hinge structure 20, with a hose 21 leading from the distributor vessel or cabinet 3 or 14 as the case may be. In the arrangement of Figure 4 the hinge means 19 is constituted by a flexible or bellow-like hinge element, whereas in the arrangement of Figure 5 the hinge means 20 is constituted by a ball-and-socket hinge joint.

The structural details of the curler brush 18 will be apparent from the showing of Figure 5. It will be seen to comprise an elongate, tubular-shaped body member 22 having a multiplicity of holes or openings 23 through which air can flow outwards in radial direction. One end 22a of the body or body member 22 is conveniently closed off, for instance by means of the closure of cover member 22b, whereas at the other end 22c of body member 22 there is provided a coupling or connection element 24, here shown for instance as a substantially cup-shaped connection element 24. This connection or coupling element 24 is structured such that part of the infed air flow reaches the internal space or chamber 25 of the curler 18, specifically by flowing through a central opening 24a of such connection element 24, whereas another part of the air flow-or stream is guided towards the outside in the direction of the

peripheral region of such connection or coupling element 24. This air then can flow through the outlet channels 26 and 27, and specifically, approximately in the lengthwise direction of the curler over its outer surface 22d. As exceptionally effective drying effect is obtained from this curler design.

CLAIMS

1. Hair drying apparatus comprising means for generating an air flow which can be regulated so as to substantially have a desired air temperature; a number of curlers adapted to be fixed in the hair which is to be treated; air distributor means operatively associated with the means for generating the air flow and having a plurality of air outlet openings; and a plurality of hose members having opposed ends, one end of each hose member being connectable with a related outlet opening of the air distributor means and the other end of each such hose member being connectable with a related one of the curlers.

2. Apparatus as claimed in claim 1, wherein said air distributor means comprises an air distribution vessel having an inlet for receiving air from the air flow-generating means and a plurality of outlets for connection to the air hose members.

3. Apparatus as claimed in claim 1 or 2, further comprising means for closing air outlet openings of the air distributor means.

4. Apparatus as claimed in claim 1, 2 or 3 further comprising means for closing the said other ends of the hoses.

5. Apparatus as claimed in any of claims 1 to 4 wherein, said means for generating said air flow comprises a hair dryer.

6. Apparatus as claimed in any of claims 1 to 4 wherein said means for generating said air flow comprises at least one fan; and air heating means operatively associated with said fan for adjusting the temperature of the generated air flow.

7. Apparatus as claimed in any of claims 1 to 6 further comprising support means for supporting said means for generating said air flow-generating means and said air distributor means.

8. Apparatus as claimed in claim 7 wherein said support means comprises a mobile frame unit.

9. A curler adapted for connection with an air flow-generating means, said curler comprising a hollow, substantially elongate curler body the curler body having air outlet openings provided in side walls or walls thereof; an air infeed end; means defining branch channel means for the air flow provided at said air infeed end of said curler body, said branch channel means having branches which open externally of the side walls of said curler body to direct or enable at least part of the air supplied to flow essentially parallel to the longitudinal direction of said curler body.

10. A curler as claimed in claim 9, wherein there is provided a coupling element for connecting the curler to an air infeed hose.

11. A curler as claimed in claim 10, wherein the coupling element includes a hinge portion.

12. A curler as claimed in claim 11, wherein the hinge portion comprises a bellows.

13. A curler as claimed in claim 11, wherein the

hinge portion comprises a ball and socket.

14. A curler as claimed in any of claims 9 to 13, wherein a brush is located within the curler such that hairs of said brush project through the air outlet

5 openings.

15. Hair drying and styling apparatus comprising means for providing a flow of air at a regulated temperature, means for distributing said air to a plurality of outlets, means for connecting a said outlet to a curler or brush, a curler or brush for connection to the connecting means.

16. Hair drying apparatus substantially as hereinbefore described with reference to Figure 1, or Figures 2 and 3, or Figures 1 or Figures 2 and 3 in combination with Figure 4 or Figure 5 of the accompanying drawings.

17. A curler substantially as hereinbefore described with reference to the accompanying drawings.

18. A curler substantially as hereinbefore described with reference to Figure 4 or Figure 5 of the accompanying drawings.

19. Hair drying apparatus as claimed in any of claims 1 to 8, including a curler as claimed in any of claims 9 to 14.

20. The features hereinbefore disclosed or their equivalents in any novel combination.

Printed for Her Majesty's Stationery Office by The Tweeddale Press Ltd.,
Berwick-upon-Tweed, 1982.
Published at the Patent Office, 25 Southampton Buildings, London, WC2A 1AY,
from which copies may be obtained.