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(54) Hair straightening appliance with flocked edge plates

(57) A hair-straightening device (10) has a pair of opposing arms (12, 14) joined by a hinge (16), which enables the opening and closing of the arms (12, 14). At the ends of the arms, opposite the hinge (16), are plates (20, 22) made of a material with properties for straightening the hair (18) of a user. Between the arms (12, 14) and the plates (20, 22) are heaters (24, 26) that heat the plates (20, 22) to a temperature sufficient to straighten the hair. Various controls (30) can be used to turn the device (10) on and off, as well as to set the temperature of the plates.

The plates (20, 22) are attached to the arms (12, 14) by small metallic bezels that are crimped over and set around the angular edges of the plates. Alternatively, opposing retaining channels (36, 38) can be extruded into the metallic frames and the plates (20, 22) can then be slid into the channels. In order to avoid the exposure of the edges of the turned metal bezel and the plates and to protect the hair (18) from possible sharp and rough edges, which can cut and scrape the hair, the retaining bezels and a portion of the plate edges can be flocked with nylon or other similar material.

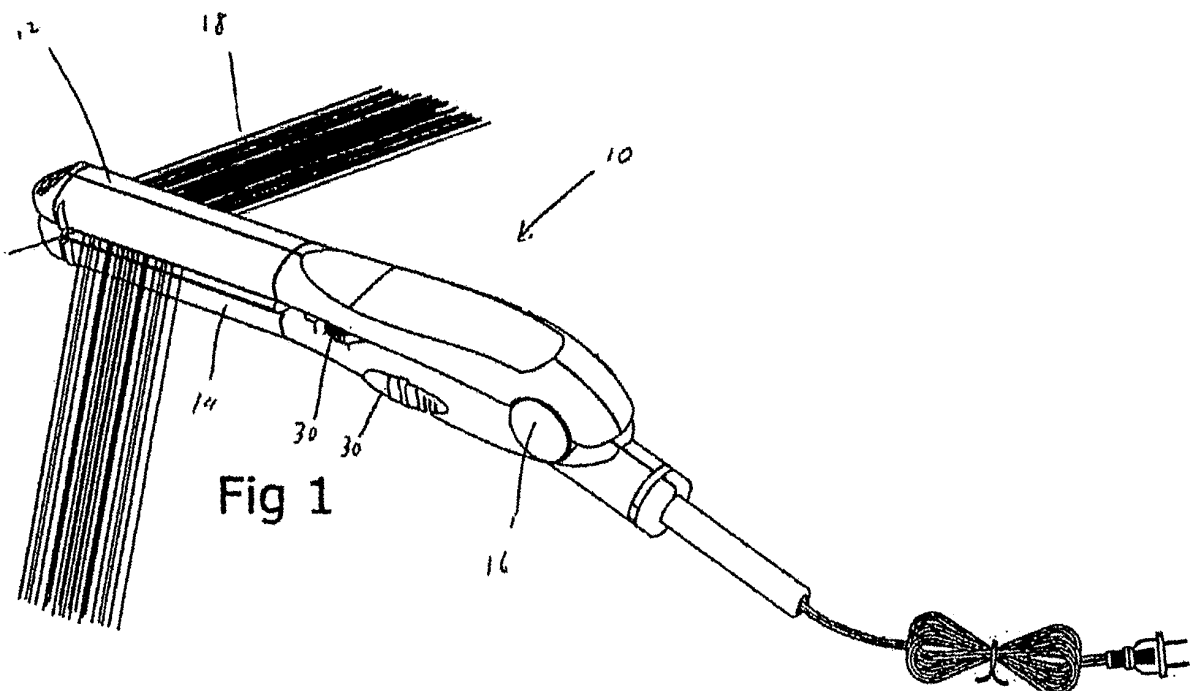


Fig 1

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Description

TECHNICAL FIELD

[0001] The present invention relates to hair appliances and, more particularly, to an electrical hair-straightening device, especially of the type having heated plates with flocked edges to protect hair from being scraped or cut by the plates.

BACKGROUND OF THE INVENTION

[0002] It is known in the art to provide a hair-straightening device having a pair of opposing arms joined by a hinge, in which the arms contain heated metal plates that are adapted to grip a strand of hair and straighten the hair between the plates through the use of heat and tension. There have been numerous variations manufactured with combs or brushes added adjacent to the plates and variations having steam or ionic features enhancing the heated plates.

[0003] While various known hair-straightening devices exist generally, there is a need for a device that creates a burnishing effect on the hair and one that improves straightening of hair without any scraping or cutting. This is especially true where materials used in the plates are a hard substance. Other known devices do not create a burnishing effect or straighten the hair as efficiently while at the same time protecting the hair from being scraped or cut.

[0004] One way to prevent this is by trapping the edges of the plate inside channels that are molded into the housing halves. A problem with this, however, is that the hair is lifted off the plate surface, which affects the heat transfer to the hair strands and reduces the effectiveness of the device. One method of avoiding this situation is to mount the plates above the housing. However, with that method, the sharp edges of the plates are exposed. A method of overcoming this situation is to grind the edges into soft radii and polish them. However, this treatment is difficult and expensive. Such shortcomings make it desirable to provide a hair-straightening device with plates composed of a hard material that is proficient in straightening hair without having sharp edges that may scrape or cut the hair as it is pulled through such a device.

OBJECTS OF THE INVENTION

[0005] It is an object of the invention to provide a hair-styling device that overcomes the above-mentioned shortcomings.

[0006] It is a further object of the present invention to provide a hair-straightening device having a pair of gripping plates made of a hard material with properties that accomplish a burnishing effect on the hair while improving the efficiency with which the hair is straightened, while at the same time, protecting the hair from any sharp edges of any hard material. These and other objects are de-

scribed below or inherent with respect to the present invention.

SUMMARY OF THE INVENTION

[0007] In the preferred embodiment of the invention, a hair-straightening device comprises a pair of opposing arms joined by a hinge, which enables the opening and closing of the arms. At the ends of the arms, opposite the hinge, are plates made of a material with properties for straightening the hair of a user. Between the arms and the plates are heaters that heat the plates to a temperature sufficient to straighten the hair. Various controls can be used to turn the device on and off, as well as to set the temperature of the plates.

[0008] To attach the plates to the arms, small metallic bezels may be crimped over and set around the angular edges of the plates. Alternatively, opposing retaining channels can be extruded into the metallic frames and the plates can then be slid into the channels.

[0009] In order to avoid the exposure of the edges of the turned metal bezel and the plates, which can cut and scrape the hair, the retaining bezels and a portion of the plate edges can be flocked with nylon or other similar material. This would protect the hair from possible sharp and rough edges, while offering additional heated treatment surfaces. Furthermore, the flocking of the side mounting details also affords a neat and pleasing appearance.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010]

Fig. 1 is a perspective view of a preferred embodiment of a device according to the present invention. Fig. 2 is an exploded view of the embodiment shown in Fig. 1.

Fig. 3 is a partly magnified view of Fig. 2 according to the present invention.

Fig. 4 is a partly magnified view of a preferred embodiment of a device according to the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0011] The present invention is described in the preferred embodiments as directed to a hair-straightening device having heated plates with flocked edges to protect hair from being scraped or cut by the plates. It is understood, however, that the present invention is not limited to such applications and, as understood by one skilled in the art, may be adapted for application to other similar uses.

[0012] Referring to Figs. 1 and 2, a hair-straightening device 10 comprises a pair of opposing arms 12, 14, which are joined at one end by a hinge 16. The hinge 16 enables the opening and closing of the opposing arms

12, 14. Opposite the hinge 16, the opposing arms 12, 14 hold plates 20, 22, one plate in each arm, made of a material with properties for straightening the hair 18 of a user. Between the arms and the plates are heaters 24, 26 that heat the plates 20, 22 to a temperature sufficient to straighten the hair. Power is supplied to the heaters 24, 26 through a cord set 28. Various controls 30 can be used to turn the device on and off, as well as to set the temperature of the plates 20, 22. Preferably, the arms can be biased away from one another by a spring, as known to those skilled in the art.

[0013] To attach the plates to the arms, small metallic bezels 32, 34 can be crimped over and set around the angular edges of the plates 20, 22. Alternatively, opposing retaining channels 36, 38 can be extruded into the metallic frames and the plates 20, 22 can then be slid into the channels, as shown in Figs. 3 and 4. Adhesive can be used to better secure the plates inside the channels.

[0014] In order to avoid the exposure of the edges of the turned metal bezel 32, 34 and the plates 20, 22, which can cut and scrape the hair, the retaining bezels and a portion of the plate edges can be flocked with a nylon flocking 40, 42 or other similar material. This would protect the hair from possible sharp and rough edges, while offering additional heated treatment surfaces. Furthermore, the flocking of the side mounting details also affords a neat and pleasing appearance.

[0015] This flocking material can be applied by first placing some type of adhesive to the arms in order to allow the material to remain on the arms. This can be accomplished using glue, double-sided tape, spray adhesive, fastened with snaps, or any other method suitable for this purpose. The fabric material can then be cut to the appropriate size and pressed onto the arms having adhesive. In another embodiment of the present invention, the flocking material can be sprayed on.

[0016] This flocking material can be made of nylon, felt or any other material that would protect hair from being scraped or cut, while at the same time not hindering heat from being transferred to the hair. This flocking could be placed on one or both arms of the device.

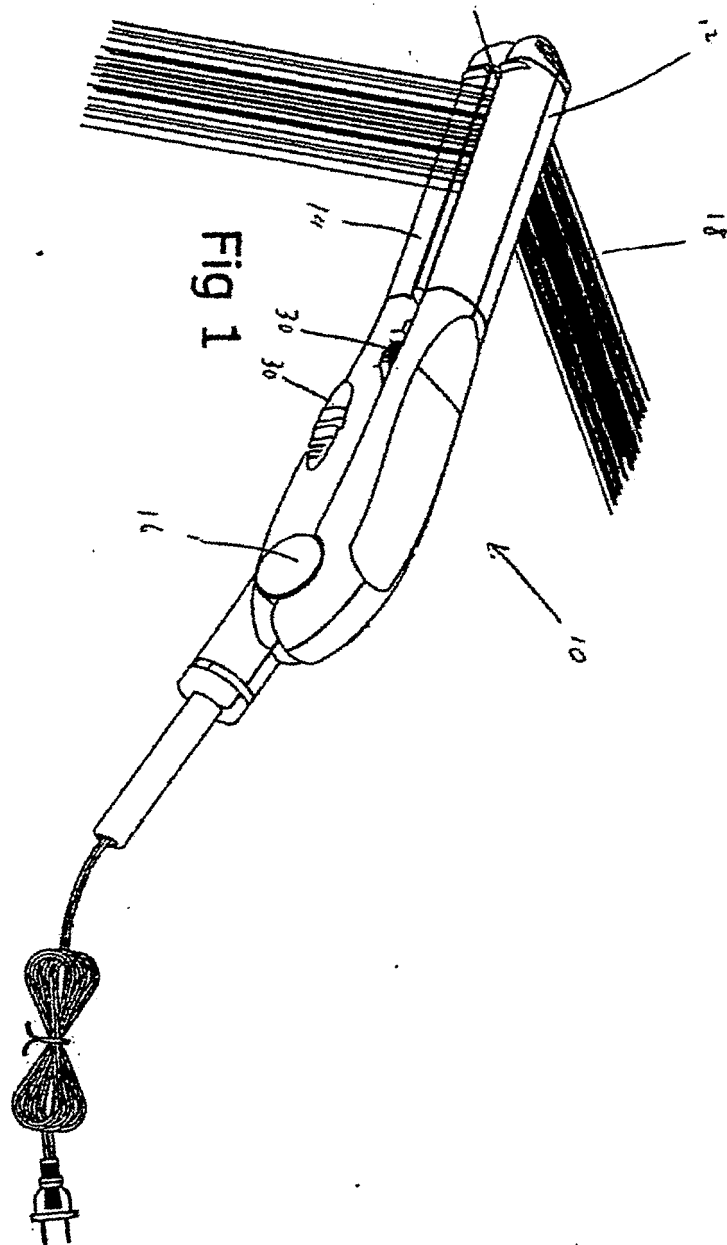
[0017] The plates 20, 22 can be made from any conductive material such as metal, ceramic, or in one embodiment of the present invention, glass. The use of hard glass creates a burnishing effect on the hair and improves the straightening.

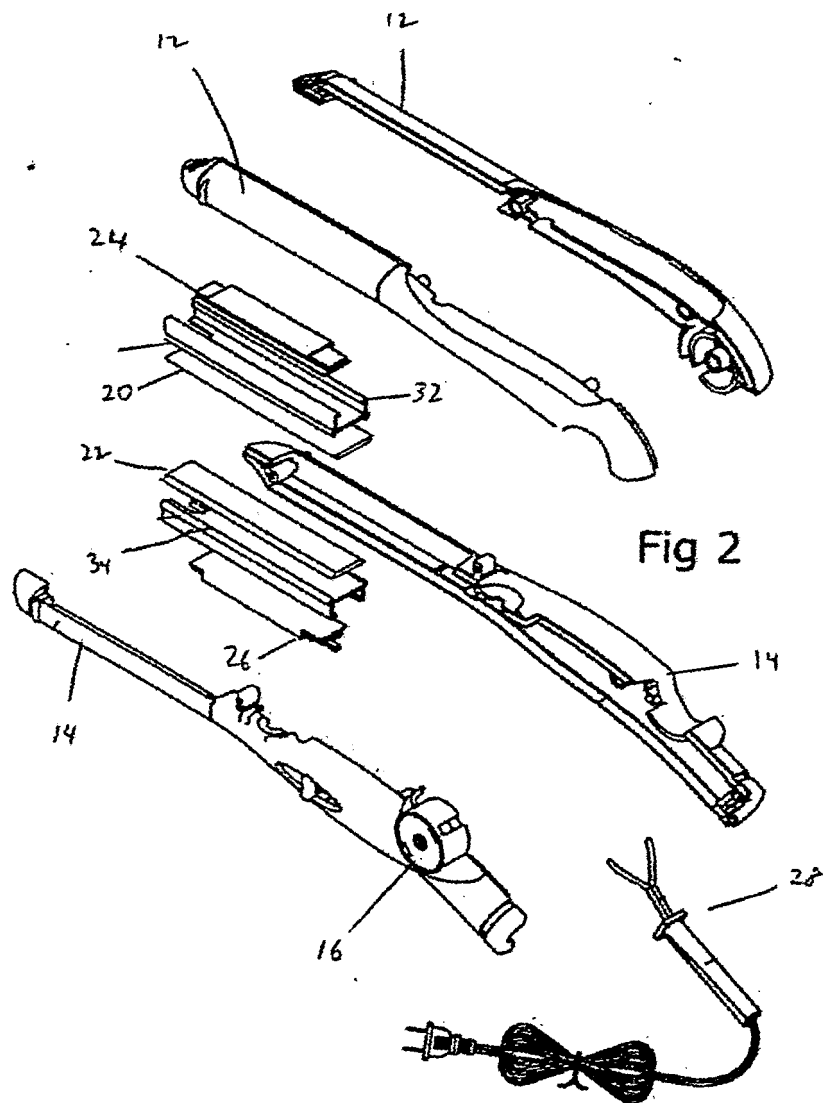
[0018] A user of the device would grasp the arms 12, 14 on the side of the hinge 16 and set the controls 30 to the desired temperature. The user would then place the hair 18 between the plates 20, 22 having the flocked edges 40, 42, and close the arms 12, 14 onto the hair 18. The user would then repeatedly slide the plates 20, 22 from the root side of the hair to the tip side of the hair. This would straighten the hair, as well as create a burnishing effect upon it.

Claims

1. A hair styling device comprising:

- 5 a first arm (12);
a second arm (14);
a hinge (16) connecting said first arm (12) and said second arm (14);
10 a first plate (20) on said first arm (12) for contacting a user's hair (18) and a second plate (22) on said second arm (14) for contacting a user's hair (18);
15 a first heater (24) for heating said first plate (20) and a second heater (26) for heating said second plate (22), and
a flocking material (40, 42) covering the edges of at least one of said first and second plates.
- 20 2. A hair styling device according to claim 1, wherein said flocking material (40) is made from nylon.
3. A hair styling device according to claim 1, wherein said flocking material (40) is made from felt.
- 25 4. A hair styling device according to any of claims 1 to 3, further comprising
an adhesive to secure said flocking material to said device.
- 30 5. A hair styling device according to any of the claims 1 to 4, further comprising
a button (30) on said device (10) to control said device (10).
- 35 6. A hair styling device according to any of the claims 1 to 5, wherein
said first and second plates (20, 22) are made from a conductive material selected from the group consisting of metal, ceramic and glass.
- 40 7. A hair styling device according to any of the claims 1 to 6, further comprising
a spring within said hinge to bias said first arm and said second arm away from each other.
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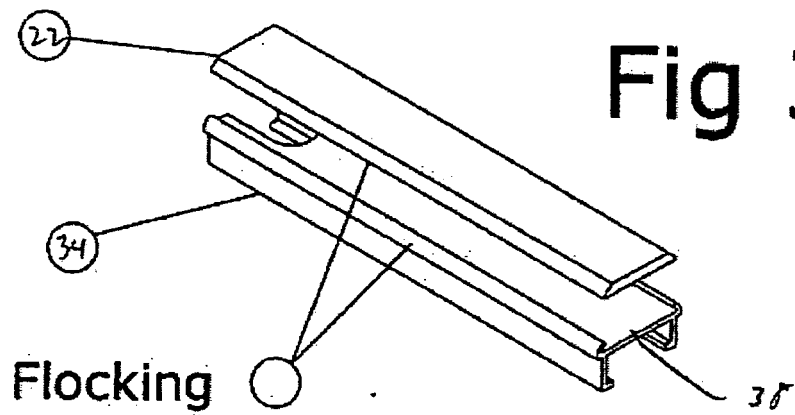
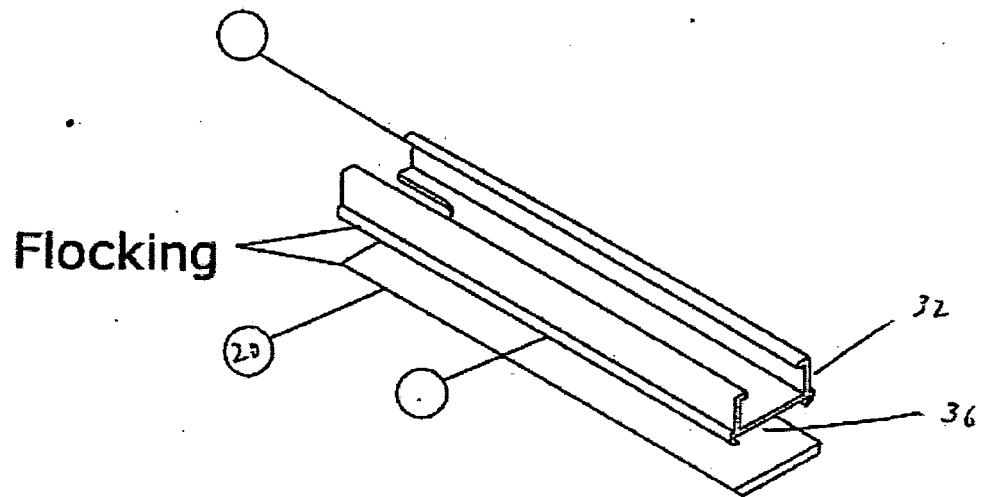


Fig 3

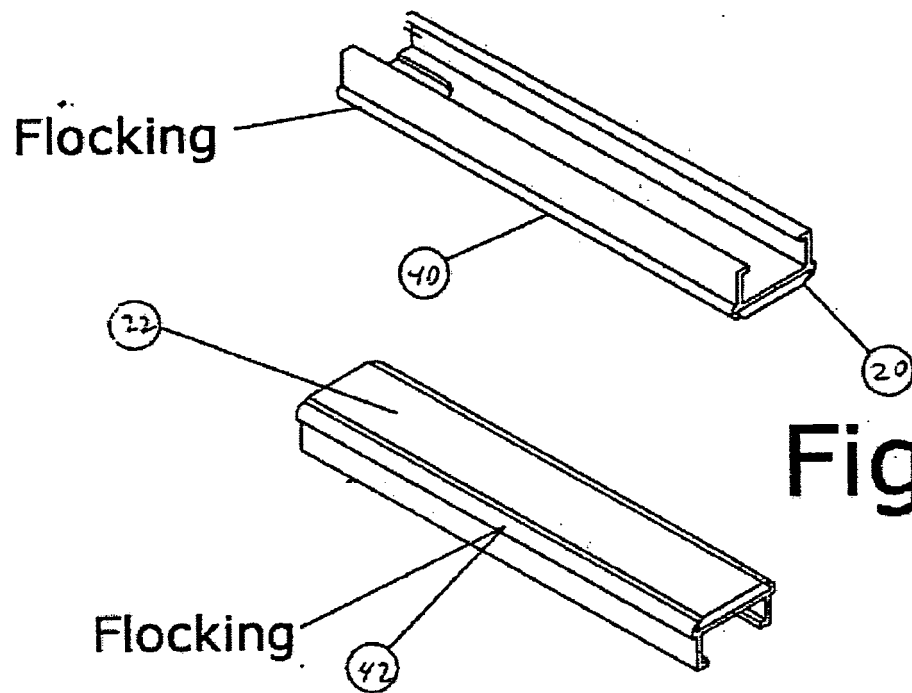


Fig 4



European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 05 01 7227

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 6 173 718 B1 (OKUMOTO MASATAKA ET AL) 16 January 2001 (2001-01-16) * abstract *	1	A45D1/06 A45D2/00
A	US 4 581 519 A (THALER ET AL) 8 April 1986 (1986-04-08) * abstract *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			A45D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		7 December 2005	Zetzsche, B
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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07-12-2005

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