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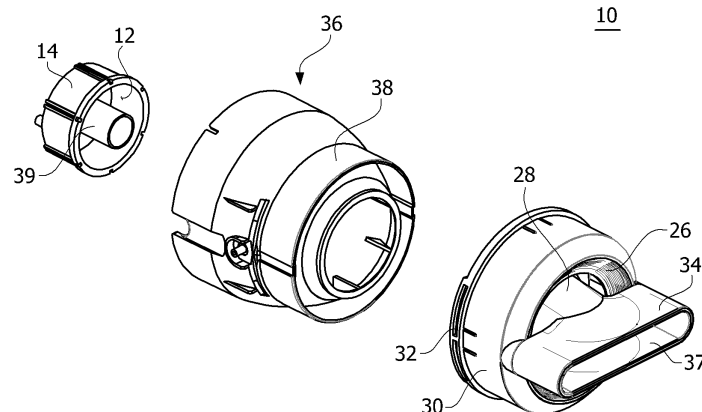
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(54) **WIND VELOCITY CHANGING DEVICE AND HAIR DRYER**

(57) According to one aspect of the present invention, a wind velocity changing device which focuses or disperses wind of a hair dryer to change wind velocity includes: a guide tube part having a hollow part of which one end is closed and the other end is closed, wherein the closed one end is disposed to face the wind so that the wind blows along an outer circumferential surface of the guide tube part; and a flow path altering part including a cone part and a flow path altering tube, wherein the cone part has one end, which is inserted into the hollow

part and enters and exits along the hollow part, and a cross section which becomes small in a forward direction, the flow path altering tube has one end, which is positioned to be spaced apart from the one end of the cone part in the forward direction so that an inlet into which the wind blowing through the guide tube part is introduced is formed, and is coupled to a part of the cone part which is inserted therewith, and the inlet focuses or disperses the wind when the cone part exits or enters the hollow part of the guide tube part.

FIG.1



Description

[Technical Field]

[0001] The present invention relates to a wind velocity changing device and a hair dryer. More specifically, the present invention relates to a wind velocity changing device, which is capable of conveniently changing wind velocity to focus or disperse wind discharged from a hair dryer so as to dry or style hair, and a hair dryer.

[Background Art]

[0002] Generally, hair dryers are used to blow cold or warm wind in a necessary direction such that users can dry or style their hair. Basically, when power is applied to a main body of the hair dryer and a switch is turned on, the main body suctions air from the atmosphere, and the suctioned air passes through a heater and a blower, is blown toward the outside of the main body, and dries or styles the user's hair.

[0003] In a case in which the hair is dried using a hair dryer, it is better to disperse wind that is blown from the hair dryer, and in a case in which the hair is styled using the hair dryer, it is better to focus wind and blow the wind toward the corresponding hair.

[0004] Conventionally, blower nozzles for hair drying and styling are individually provided, replaced, and used as necessary, and in this case, it is inconvenient to replace the air blow nozzles.

[Disclosure]

[Technical Problem]

[0005] The present invention is directed to providing a wind velocity changing device, which is capable of conveniently changing wind velocity to focus or disperse wind discharged from a hair dryer so as to dry or style hair, and a hair dryer.

[Technical Solution]

[0006] One aspect of the present invention provides a wind velocity changing device which focuses or disperses wind of a hair dryer to change wind velocity, the wind velocity changing device including: a guide tube part having a hollow part of which one end is closed, the other end is open, and the closed one end is disposed to face the wind so that the wind blows along an outer circumferential surface of the guide tube part; and a flow path altering part including a cone part and a flow path altering tube, wherein the cone part has one end, which is inserted into the hollow part and enters and exits along the hollow part, and a cross section which becomes small in a forward direction, the flow path altering tube has one end, which is positioned to be spaced apart from the one end of the cone part in the forward direction so that an

inlet into which the wind blowing through the guide tube part is introduced is formed, and is coupled to a part of the cone part which is inserted therinto, and the inlet focuses or disperses the wind when the cone part exits or enters the hollow part of the guide tube part.

[0007] The wind velocity changing device may further include a cover part which has a tube shape and in which the guide tube part is disposed so that an inner circumferential surface of the cover part is spaced apart from the outer circumferential surface of the guide tube part, wherein the flow path altering tube is withdrawn from one end of the cover part when the cone part enters or exits the hollow part.

[0008] The flow path altering tube may include a horn part in which an inner circumferential surface thereof is spaced apart from an outer circumferential surface of the cone part to form a flow path through which the wind blows and which has a tube shape in which a cross section becomes small in the forward direction to correspond to an exterior of the cone part.

[0009] The flow path altering part further may include a nozzle part which is formed at the other end of the flow path altering tube and in which a slot having a "-" shape is formed laterally.

[0010] The wind velocity changing device may further include a guide tube extending from an outer circumference of a cover part and having a tube shape, wherein the flow path altering part further may include a slide tube having a tube shape which is coupled to the flow path altering tube, into which the guide tube is inserted and which moves forward or backward along the guide tube, and a discharge part extending inward from the slide tube.

[0011] The wind velocity changing device may further include: a guide part extending forward from an inner bottom of the guide tube part; an elastic member inserted into the guide part; and a guide pin interposed between the elastic member and the cone part.

[0012] A hooking groove may be formed in an inner circumferential surface of the sliding tube.

[0013] Another aspect of the present invention provides a hair dryer which focuses or disperses wind in a forward direction to change wind velocity, the hair dryer including: a wind generator configured to generate and heat the wind; a guide tube part including a hollow part of which one end is closed, the other end is open, and the closed one end is positioned at a front end of the wind generator so that the wind blows along an outer circumferential surface of the guide tube part; and a flow path altering part including a cone part and a flow path altering tube, wherein the cone part has one end, which is inserted into the hollow part and enters and exits along the hollow part, and a cross section which becomes small in the forward direction, the flow path altering tube has one end which is positioned to be spaced apart from the one end of the cone part in the forward direction so that an inlet into which wind blowing through the guide tube part is introduced is formed and is coupled to a part of the

cone part which is inserted therein, and the inlet focuses or disperses the wind when the cone part exits or enters the hollow part of the guide tube part.

[0014] The wind generator may include: a motor; a motor supporting part having one end on which the motor is disposed and the other end on which a circuit board configured to control the motor is disposed; a blower fan which is coupled to a rotating shaft and rotates to generate the wind in the forward direction; a plurality of insulation wings of which one ends are each coupled to the motor supporting part and side ends are each coupled to the outer circumferential surface of the guide tube part, and which are radially disposed around the outer circumferential surface of the guide tube part to guide the wind to blow along an outer circumference of the guide tube part; and a heating wire which is wound around an outer circumference of the plurality of insulation wings and heats the wind.

[0015] The hair dryer may further include a cover part which has a tube shape and in which the guide tube part is disposed so that an inner circumferential surface of the cover part is spaced apart from the outer circumferential surface of the guide tube part, and the flow path altering tube is withdrawn from one end of the cover part when the cone part moves forward or backward.

[0016] The flow path altering tube may include a horn part in which an inner circumferential surface thereof is spaced apart from an outer circumferential surface of the cone part to form a flow path through which the wind blows and which has a tube shape in which a cross section becomes small in the forward direction to correspond to an exterior of the cone part.

[0017] The flow path altering part may further include a nozzle part which is formed at the other end of the flow path altering tube and in which a slot having a "-" shape is formed laterally.

[0018] The hair dryer may further include a guide tube extending from an outer circumference of a cover part and having a tube shape, and a discharge part including a sliding tube having a tube shape which is coupled to the flow path altering part, into which the guide tube is inserted and which moves forward or backward along the guide tube, and a step part which extends from an inner surface of the sliding tube so that the discharge part is spaced apart from an outer circumferential surface of the flow path altering part.

[0019] The hair dryer may further include a guide part extending forward from an inner bottom of the guide tube part, an elastic member inserted into the guide part, and a guide pin interposed between the elastic member and the cone part.

[0020] A hooking groove may be formed in an inner circumferential surface of the sliding tube.

[Advantageous Effects]

[0021] According to embodiments of the present invention, wind velocity can be conveniently changed such that

wind discharged from a hair dryer is focused or dispersed in order for drying or styling hair.

[Description of Drawings]

[0022]

FIG. 1 is an exploded perspective view illustrating a wind velocity changing device according to one embodiment of the present invention.

FIG. 2 is a perspective view illustrating a flow path altering part of the wind velocity changing device according to one embodiment of the present invention.

FIG. 3 is a view for describing a wind focusing process of the wind velocity changing device according to one embodiment of the present invention.

FIG. 4 is a view illustrating a wind dispersing process of the wind velocity changing device according to one embodiment of the present invention.

FIG. 5 is a perspective view illustrating a wind generator of a hair dryer according to another embodiment of the present invention.

FIG. 6 is a view for describing a configuration of the hair dryer according to another embodiment of the present invention.

[Modes of the Invention]

[0023] Since embodiments allow for various changes and numerous embodiments, specific embodiments will be illustrated in the drawings and described in detail in the written description. However, this is not intended to limit the embodiments to particular modes of practice, and it is to be appreciated that all changes, equivalents, and substitutes that do not depart from the spirit and technical scope of the embodiments are encompassed in the embodiments. In the description of the embodiments, certain detailed explanations of the related art are omitted when it is deemed that they may unnecessarily obscure the essence of the inventive concept.

[0024] Hereinafter, a wind velocity changing device and a hair dryer according to the invention will be described in detail with reference to the accompanying drawings, and when the wind velocity changing device and the hair dryer are described, components that are the same or correspond to each other will be denoted by the same reference numerals, and redundant descriptions will be omitted.

[0025] FIG. 1 is an exploded perspective view illustrating a wind velocity changing device according to one embodiment of the present invention, and FIG. 2 is a perspective view illustrating a flow path altering part of the wind velocity changing device according to one embodiment of the present invention. In addition, FIG. 3 is a view for describing a wind focusing process of the wind velocity changing device according to one embodiment of the present invention, and FIG. 4 is a view illustrating a wind dispersing process of the wind velocity changing

device according to one embodiment of the present invention.

[0026] In FIGS. 1 to 4, a wind velocity changing device 10, a hollow part 12, a guide tube part 14, a slider part 16, a cone part 18, a flow path altering tube 20, a horn part 22, an inlet 23, a connecting rib 24, a discharge part 26, a flow path altering part 28, a sliding tube 30, a hooking groove 32, a nozzle part 34, a cover part 36, a slot 37, a guide tube 38, a guide part 39, an elastic member 40, a guide pin 42, a wind generator 44, a motor 46, a blower fan 48, an insulation wing 50, a motor supporting part 52, a heating wire 54, and a circuit board 56 are illustrated.

[0027] The wind velocity changing device 10 according to the present embodiment focuses or disperses wind of a hair dryer in a forward direction to change wind velocity and includes the guide tube part 14 having the hollow part 12 of which one end is closed and the other end is open, wherein the closed one end is disposed to face the wind so that the wind blows along an outer circumferential surface of the guide tube part 14; and the flow path altering part 28 which has the cone part 18 of which one end is inserted into the hollow part 12 and enters and exits along the hollow part 12 and of which a cross section becomes small in the forward direction and the flow path altering tube 20 of which one end is positioned to be spaced apart from one end of the cone part 18 in the forward direction so that the inlet 23 through which wind blowing through the guide tube part 14 is introduced is formed and into which a part of the cone part 18 is inserted to be coupled to the flow path altering tube 20, wherein the inlet 23 focuses or disperses the wind when the cone part 18 exits or enters the hollow part 12 of the guide tube part 14.

[0028] The hair dryer may include an air suction port configured to suction external air, the wind generator 44 (see FIG. 6) configured to generate wind using the suctioned air and heat the wind, and a blower port 58 (see FIG. 6) configured to blow the wind generated by the wind generator in the forward direction.

[0029] The wind velocity changing device 10 according to the present embodiment may be coupled to a front end of the blower port of the hair dryer as a separate device or may be provided in the blower port of the hair dryer.

[0030] The present embodiment will be described on the basis of the wind velocity changing device 10 which is provided in the blower port of the hair dryer.

[0031] The wind velocity changing device 10 according to the present embodiment may increase wind velocity by focusing wind of the hair dryer or decrease the wind velocity by widely dispersing the wind of the hair dryer and blowing the wind toward user's hair. The hair dryer may widely disperse and blow the wind to the hair to dry the hair, or the hair dryer may intensively focus and blow the wind to a styling portion of the hair to style the hair.

[0032] The guide tube part 14 includes the hollow part 12 of which one end is closed and the other end is open, and the closed one end is disposed to face the wind so

that the wind blows along the outer circumferential surface of the guide tube part 14. The guide tube part 14 has a container shape of which one end is closed and the other end is open. In the present embodiment, the guide tube part 14 has a cylindrical shape, and the hollow part 12 in the guide tube part 14 also have a cylindrical shape.

[0033] The hair dryer includes the wind generator 44 (see FIG. 6) configured to generate wind using air suctioned from the outside and heat the generated wind, and the guide tube part 14 is disposed at a front end of the wind generator 44 so that the closed one end of the guide tube part 14 faces the wind generator 44. Accordingly, the wind generated by the wind generator 44 surrounds the outer circumferential surface of the guide tube part 14 and blows in the forward direction.

[0034] The cone part 18 of the flow path altering part 28, which will be described below, is inserted into the hollow part 12 of the guide tube part 14 and enters and exits along the hollow part 12 to guide linear movement of the flow path altering part 28.

[0035] The flow path altering part 28 includes the cone part 18 of which one end is inserted into the hollow part 12 and enters and exits along the hollow part 12 and of which the cross section becomes small in the forward direction, and the flow path altering tube 20 of which one end is positioned to be spaced apart from one end of the cone part 18 in the forward direction such that the inlet 23 into which wind blowing through the guide tube part 14 is introduced is formed and into which a part of the cone part 18 is inserted to be coupled to the flow path altering tube 20.

[0036] The cone part 18 has a shape of which one end is inserted into the hollow part 12 and enters and exits along the hollow part 12 and of which the cross section becomes small in the forward direction. The cone part 18 may have a conical form and include the slider part 16 which has a circular shape, is in contact with an inner surface of the hollow part 12, is slidable, and is provided on a lower surface of the cone part 18. The cone part 18 having the conical form may be integrally formed on an end portion of the slider part 16, and the cone part 18 moves forward and backward along the hollow part 12 in a state in which the cone part 18 is inserted into the hollow part 12 of the guide tube part 14.

[0037] The flow path altering tube 20 has a tube shape of which one end and the other end are open and which is coupled to the cone part 18 in a state in which a part of a front end of the cone part 18 is inserted into the flow path altering tube 20. Referring to FIGS. 2 and 3, one end of the flow path altering tube 20 is spaced apart from one end of the cone part 18, and in the state in which the front end of the cone part 18 is inserted into the flow path altering tube 20, the cone part 18 is coupled to the flow path altering tube 20 through the connecting rib 24. Accordingly, since one end of the cone part 18 is spaced apart from one end of the flow path altering tube 20, the inlet 23 through which wind is introducible is formed and

the wind introduced through the inlet 23 is discharged to the other end of the flow path altering tube 20 through a space between an outer circumferential surface of the cone part 18 and an inner circumferential surface of the flow path altering tube 20. A cross section of the other end of the flow path altering tube 20 is smaller than that of one end thereof so that the wind introduced through the inlet 23 is focused while passing through the flow path altering tube 20 and is discharged.

[0038] The flow path altering tube 20 according to the present embodiment includes the horn part 22 of which an inner circumferential surface is spaced apart from the outer circumferential surface of the cone part 18 to form a flow path for movement of wind and which has the tube shape of which a cross section becomes small in the forward direction to correspond to an exterior of the cone part 18. Since the flow path altering tube 20 is formed in a horn shape, wind is focused while being introduced from one end having a large cross section of the horn part 22 and blowing toward the other end having a small cross section thereof.

[0039] The connecting rib 24 couples the cone part 18 to the horn part 22, extends from the outer circumferential surface of the cone part 18, and is coupled to an inner surface of the horn part 22. In the present embodiment, the connecting rib 24 has a "+" shape, extends from the cone part 18, and is coupled to the horn part 22.

[0040] A method of focusing and dispersing wind according to operation the guide tube part 14 and the flow path altering part 28 will be described with reference to FIGS. 3 and 4.

[0041] In a state in which the cone part 18 of the flow path altering part 28 is inserted into the hollow part 12 of the guide tube part 14, when the cone part 18 enters the hollow part 12 so that the inlet 23 of the flow path altering part 28 is positioned in the hollow part 12 and is closed, wind blowing along the outer circumferential surface of the guide tube part 14 is not introduced through the inlet 23 and is widely dispersed (hereinafter referred to as "dispersed wind") while blowing along an outer circumferential surface of the flow path altering tube 20. Meanwhile, when the cone part 18 exits along the hollow part 12 to open the inlet 23 of the flow path altering part 28, wind blowing along the outer circumferential surface of the guide tube part 14 is focused (hereinafter referred to as "focused wind") while being introduced through the inlet 23, and blowing along the outer circumferential surface of the cone part 18 and the inner circumferential surface of the flow path altering tube 20, and is discharged from the other end of the flow path altering tube 20.

[0042] Meanwhile, in order to effectively style hair using focused wind, the nozzle part 34 in which the slot 37 having a "-" shape is formed may be coupled to the other end of the flow path altering tube 20 from which the focused wind is discharged. In order for styling to be effective, since it is better to discharge wind to have a "-" shape, focused wind passing through the flow path altering tube

20 blows through the nozzle part 34 and the focused wind having a "-" shape is discharged.

[0043] Meanwhile, the guide tube part 14 is disposed in the wind velocity changing device 10 according to the present embodiment so that an inner circumferential surface of the wind velocity changing device 10 is spaced apart from the outer circumferential surface of the guide tube part 14, and the wind velocity changing device 10 may further include the cover part 36 having a tube shape, in which the flow path altering tube 20 is withdrawn from one end of the cover part 36 when the cone part 18 enters or exits the hollow part 12.

[0044] Since an inner circumferential surface of the cover part 36 is spaced apart from the outer circumferential surface of the guide tube part 14, a flow path of dispersed wind blowing along the outer circumferential surface of the guide tube part 14 is provided. When the cone part 18 enters or exits the hollow part 12 to open or close the inlet 23, the flow path altering tube 20 connected to the cone part 18 exits or enters one end of the cover part 36.

[0045] Referring to FIG. 3, when the flow path altering tube 20 is withdrawn, one end of the flow path altering tube 20 faces one end of the cover part 36, and the discharge of dispersed wind is blocked. Referring to FIG. 4, when the flow path altering tube 20 enters the cover part 36, one end of the flow path altering tube 20 is moved inward to be spaced apart from one end of the cover part 36, and the discharge of dispersed wind begins.

[0046] In the present embodiment, since the cover part 36 is formed in a dome shape of which one end and the other end are open and a cross section becomes small in the forward direction, when the flow path altering tube 20 enters the cover part 36 and dispersed wind is discharged, dispersed wind having a slightly focused shape is discharged through the cover part having the dome shape.

[0047] Meanwhile, the cone part 18 may enter or exit the guide tube part 14 such that the flow path altering part 28 moves forward or backward with respect to the cover part 36. That is, as illustrated in FIGS. 3 and 4, the guide tube 38 having a tube shape is disposed to extend from an outer circumference of the cover part 36, and a slide tube which has a tube shape and is coupled to the flow path altering tube 20, into which the guide tube 38 is inserted, and which moves forward or backward along the guide tube 38 is disposed on the flow path altering part 28 so that the slide tube may linearly move according to guidance of the guide tube 38.

[0048] More specifically with reference to FIG. 1, one end of the flow path altering tube 20 protrudes forward from the discharge part 26, and the outer circumferential surface of the flow path altering tube 20 is spaced apart from the discharge part 26 so that dispersed wind is discharged through the discharge part 26. The nozzle part 34 is laterally coupled to one end of the flow path altering tube 20 protruding from the discharge part 26 so that both end portions of the nozzle part 34 are coupled to

the discharge part 26.

[0049] Meanwhile, the wind velocity changing device according to the present embodiment further includes the guide part 39 having a shape extending forward from an inner bottom of the guide tube part 14, the elastic member 40 inserted into the guide part 39, and the guide pin 42 interposed between the elastic member 40 and the cone part 18, and thus the flow path altering part 28 may easily move forward or backward using an elastic force of the elastic member 40. That is, when the flow path altering part 28 moves backward, the cone part 18 enters the hollow part 12 of the guide tube 38, the guide pin 42 compresses the elastic member 40, and thus, the elastic member 40 may apply an elastic force to the guide pin 42 as a reverse action thereto to move the flow path altering part 28 in the forward direction.

[0050] When the elastic member 40 is compressed due to the backward movement of the flow path altering part 28, and the flow path altering part 28 is hooked using a hooking part 62 (see FIG. 6) in a state in which the elastic member 40 is compressed, and dispersed wind is discharged in a state in which the inlet 23 is closed, and when the hooking part 62 is released, the flow path altering part 28 moves forward due to an elastic force of the elastic member 40, and the inlet 23 opens so that focused wind is discharged.

[0051] In order for hooking of the hooking part 62 to be executed, the hooking groove 32 is formed in an inner circumferential surface of the sliding tube 30, and the hooking part 62 is inserted into the hooking groove 32 so that the flow path altering part 28 may be hooked.

[0052] The above described wind velocity changing device 10 may be separately formed and coupled to the blower port of the hair dryer or may be installed in the hair dryer.

[0053] Hereinafter, a hair dryer in which a wind velocity changing device 10 according to the present embodiment is disposed in a blower port 58 (see FIG. 6) will be described.

[0054] FIG. 5 is a perspective view illustrating a wind generator of a hair dryer according to another embodiment of the present invention, and FIG. 6 is a view for describing a configuration of the hair dryer according to another embodiment of the present invention.

[0055] In FIGS. 5 and 6, a wind velocity changing device 10, a guide tube part 14, a flow path altering tube 20, a horn part 22, a discharge part 26, a sliding tube 30, a hooking groove 32, a nozzle part 34, a cover part 36, a guide tube 38, a guide part 39, an elastic member 40, a guide pin 42, a wind generator 44, a motor 46, a blower fan 48, insulation wings 50, a body housing 56, a blower port 58, a grip 60, a hooking part 62, and a stopper button 64b are illustrated.

[0056] A hair dryer according to the present embodiment may include the body housing 56 in which an air inlet 23 through which external air is introduced is formed at a rear end thereof and an open port is formed at a front end thereof, the grip 60 provided with a switch configured

to adjust power, temperature, and the like, the wind generator 44 which is embedded in the rear end of the body housing 56, generates wind, and heats the wind, the blower port 58 through which the wind generated by the wind generator 44 passes, and the wind velocity changing device 10 disposed in the blower port 58.

[0057] Since the wind velocity changing device 10 is the same as or similar to that of the above described one embodiment, the detailed description will be omitted.

[0058] The wind generator 44 generates wind to be blown from the hair dryer and heats the generated wind. Since the wind is heated, warm wind can be blown.

[0059] The wind generator 44 includes the motor 46; a motor supporting part 52 having one end on which the motor 46 is disposed and the other end on which the circuit board 56 configured to control the motor 46 is disposed; the blower fan 48 which is coupled to a rotating shaft and rotates to generate wind in a forward direction; the plurality of insulation wings of which one ends are each coupled to the motor supporting part 52 and side ends are each coupled to an outer circumferential surface of the guide tube part 14 and which are radially disposed on the outer circumferential surface of the guide tube part 14 and guide the wind to blow along the outer circumference of the guide tube part 14 in the forward direction; and a heating wire 54 which is wound around an outer circumference of the plurality of insulation wings and heats the wind.

[0060] The motor 46 supplies a rotating force to the blower fan 48 and may use any type of a motor 46 such as a brushless direct current (BLDC) motor 46.

[0061] The motor 46 is disposed on one end of the motor supporting part 52, and the circuit board 56 configured to control the motor 46 is disposed on the other end thereof. The motor supporting part 52 may be formed in a plate shape, and the motor 46 is disposed on one surface of a plate and the circuit board 56 configured to control the motor 46 is disposed on the other surface thereof.

[0062] The blower fan 48 is coupled to the rotating shaft of the motor 46 and rotates to generate wind in the forward direction. In the present embodiment, since the blower fan 48 is disposed behind the motor supporting part 52, the wind generated by the blower fan 48 blows in the forward direction of the hair dryer through the motor supporting part 52.

[0063] The insulation wings 50 have one ends coupled to the motor supporting part 52 and the other end coupled to the outer circumferential surface of the guide tube part 14 and are radially disposed on the outer circumferential surface of the guide tube part 14 to guide wind to blow along the outer circumference of the guide tube part 14 in the forward direction. The plurality of insulation wings 50 may be radially disposed around the guide tube part 14 and guide the wind generated by the motor 46 to blow between the insulation wings 50 and to linearly blow along the outer circumferential surface of the guide tube part 14. The insulation wings 50 are formed of an insulator

to limit conduction of heat generated by the heating wire 54.

[0064] The heating wire 54 is wound around the outer circumference of the plurality of insulation wings and heat wind. The heating wire 54 is wound along the outer circumference of the plurality of insulation wings 50 and heats wind blowing along the insulation wings 50.

[0065] Since the guide tube part 14 according to the above described one embodiment is connected to the wind generator 44 according to the present embodiment through the insulation wings 50, wind generated by the wind generator 44 linearly blows along the outer circumferential surface of the guide tube part 14 due to the insulation wings 50.

[0066] Meanwhile, the stopper button 64 configured to vertically move the hooking part 62 is provided on the body housing 56, and the hooking part 62 is inserted into or withdrawn from the hooking groove 32 of the flow path altering part 28 to hook or release the flow path altering part 28 by operating the stopper button 64 in conjunction with the elastic member 40.

[0067] Since the other configuration of the wind velocity changing device 10 is the same as the above described configuration, descriptions thereof will be omitted.

[0068] While the present invention has been described with reference to the embodiments thereof, it will be easily understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

Claims

1. A wind velocity changing device which focuses or disperses wind of a hair dryer to change wind velocity, the wind velocity changing device comprising:

a guide tube part including a hollow part of which one end is closed and the other end is open, wherein the closed one end is disposed to face the wind so that the wind blows along an outer circumferential surface of the guide tube part; and

a flow path altering part including a cone part and a flow path altering tube, wherein the cone part has one end, which is inserted into the hollow part and enters and exits along the hollow part, and a cross section which becomes small in a forward direction, the flow path altering tube has one end, which is positioned to be spaced apart from the one end of the cone part in the forward direction so that an inlet into which the wind blowing through the guide tube part is introduced is formed, and is coupled to a part of the cone part which is inserted therinto, and the inlet focuses or disperses the wind when the

cone part exits or enters the hollow part of the guide tube part.

2. The wind velocity changing device of claim 1, further comprising a cover part which has a tube shape and in which the guide tube part is disposed so that an inner circumferential surface of the cover part is spaced apart from the outer circumferential surface of the guide tube part, wherein the flow path altering tube is withdrawn from one end of the cover part when the cone part enters or exits the hollow part.
3. The wind velocity changing device of claim 1, wherein the flow path altering tube includes a horn part in which an inner circumferential surface thereof is spaced apart from an outer circumferential surface of the cone part to form a flow path through which the wind blows and which has a tube shape of which a cross section becomes small in the forward direction to correspond to an exterior of the cone part.
4. The wind velocity changing device of claim 1, wherein the flow path altering part further includes a nozzle part which is formed at the other end of the flow path altering tube and in which a slot having a "-" shape is formed laterally.
5. The wind velocity changing device of claim 2, further comprising a guide tube extending from an outer circumference of the cover part and having a tube shape, wherein the flow path altering part further includes a slide tube having a tube shape, which is coupled to the flow path altering tube, into which the guide tube is inserted and which moves forward or backward along the guide tube, and a discharge part extending inward from the slide tube.
6. The wind velocity changing device of claim 5, further comprising:
 - a guide part extending forward from an inner bottom of the guide tube part;
 - an elastic member inserted into the guide part; and
 - a guide pin interposed between the elastic member and the cone part.
7. The wind velocity changing device of claim 6, wherein a hooking groove is formed in an inner circumferential surface of the sliding tube.
8. A hair dryer which focuses or disperses wind in a forward direction to change wind velocity, the hair dryer comprising:
 - a wind generator configured to generate and heat the wind;

a guide tube part including a hollow part of which one end is closed and the other end is open, wherein the closed one end is positioned at a front end of the wind generator so that the wind blows along an outer circumferential surface of the guide tube part; and

a flow path altering part including a cone part and a flow path altering tube, wherein the cone part has one end, which is inserted into the hollow part and enters and exits along the hollow part, and a cross section which becomes small in the forward direction, the flow path altering tube has one end which is positioned to be spaced apart from the one end of the cone part in the forward direction so that an inlet into which wind blowing through the guide tube part is introduced is formed and is coupled to a part of the cone part which is inserted thereto, and the inlet focuses or disperses the wind when the cone part exits or enters the hollow part of the guide tube part.

9. The hair dryer of claim 8, wherein the wind generator includes:

a motor;

a motor supporting part having one end on which the motor is disposed and the other end on which a circuit board configured to control the motor is disposed;

a blower fan which is coupled to a rotating shaft and rotates to generate the wind in the forward direction;

a plurality of insulation wings of which one ends are each coupled to the motor supporting part and side ends are each coupled to the outer circumferential surface of the guide tube part and which are radially disposed around the outer circumferential surface of the guide tube part to guide the wind to blow along an outer circumference of the guide tube part; and

a heating wire which is wound around an outer circumference of the plurality of insulation wings and heats the wind.

10. The hair dryer of claim 8, further comprising a cover part which has a tube shape and in which the guide tube part is disposed so that an inner circumferential surface of the cover part is spaced apart from the outer circumferential surface of the guide tube part, wherein the flow path altering tube is withdrawn from one end of the cover part when the cone part moves forward or backward.

11. The hair dryer of claim 8, wherein the flow path altering tube includes a horn part in which an inner circumferential surface thereof is spaced apart from an outer circumferential surface of the cone part to

form a flow path through which the wind blows and which has a tube shape of which a cross section becomes small in the forward direction to correspond to an exterior of the cone part.

12. The hair dryer of claim 8, wherein the flow path altering part further includes a nozzle part which is formed at the other end of the flow path altering tube and in which a slot having a "-" shape is formed laterally.

13. The hair dryer of claim 11, further comprising:

a guide tube extending from an outer circumference of a cover part and having a tube shape; and

a discharge part including a sliding tube having a tube shape, which is coupled to the flow path altering part, into which the guide tube is inserted, and which moves forward or backward along the guide tube, and a step part which extends from an inner surface of the sliding tube so that the discharge part is spaced apart from an outer circumferential surface of the flow path altering part.

14. The hair dryer of claim 13, further comprising:

a guide part extending forward from an inner bottom of the guide tube part;

an elastic member inserted into the guide part; and

a guide pin interposed between the elastic member and the cone part.

15. The hair dryer of claim 13, wherein a hooking groove is formed in an inner circumferential surface of the sliding tube.

FIG.1

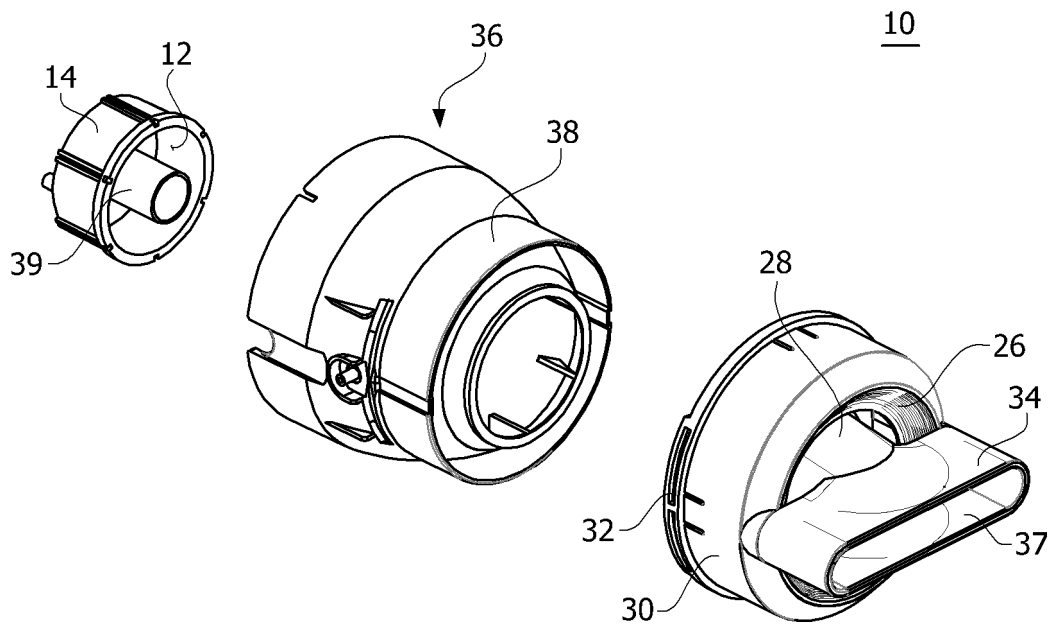


FIG.2

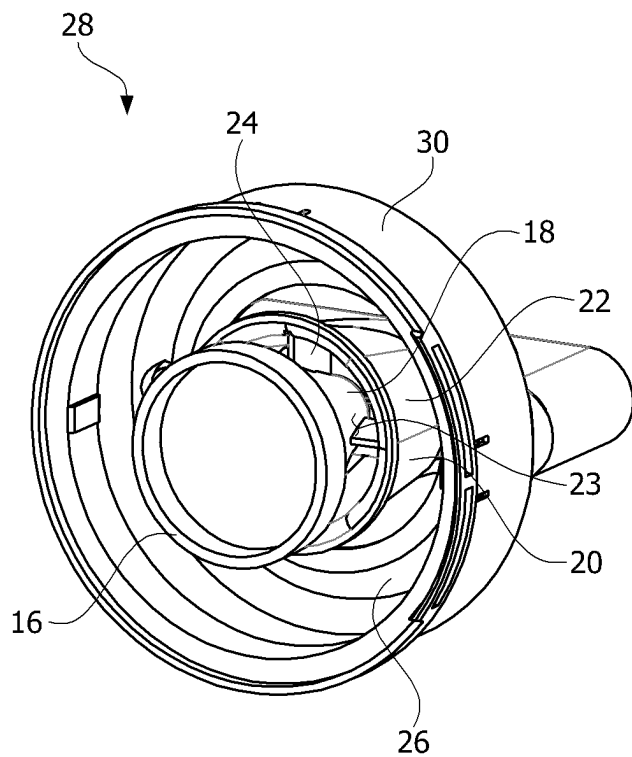


FIG.3

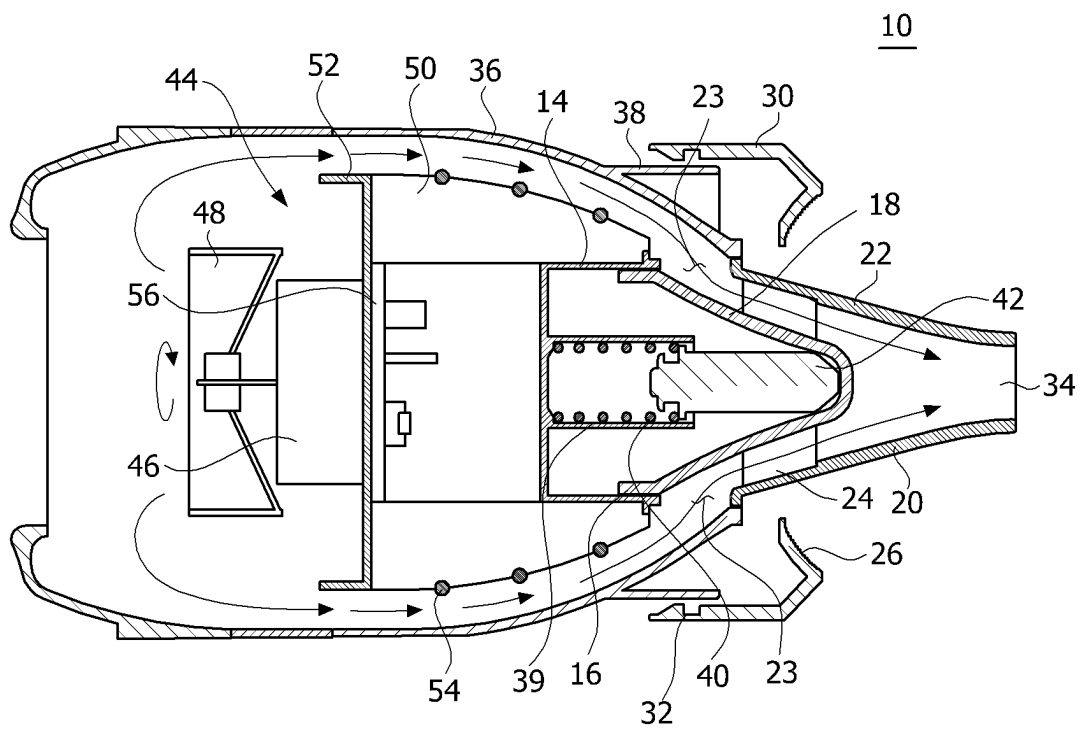


FIG.4

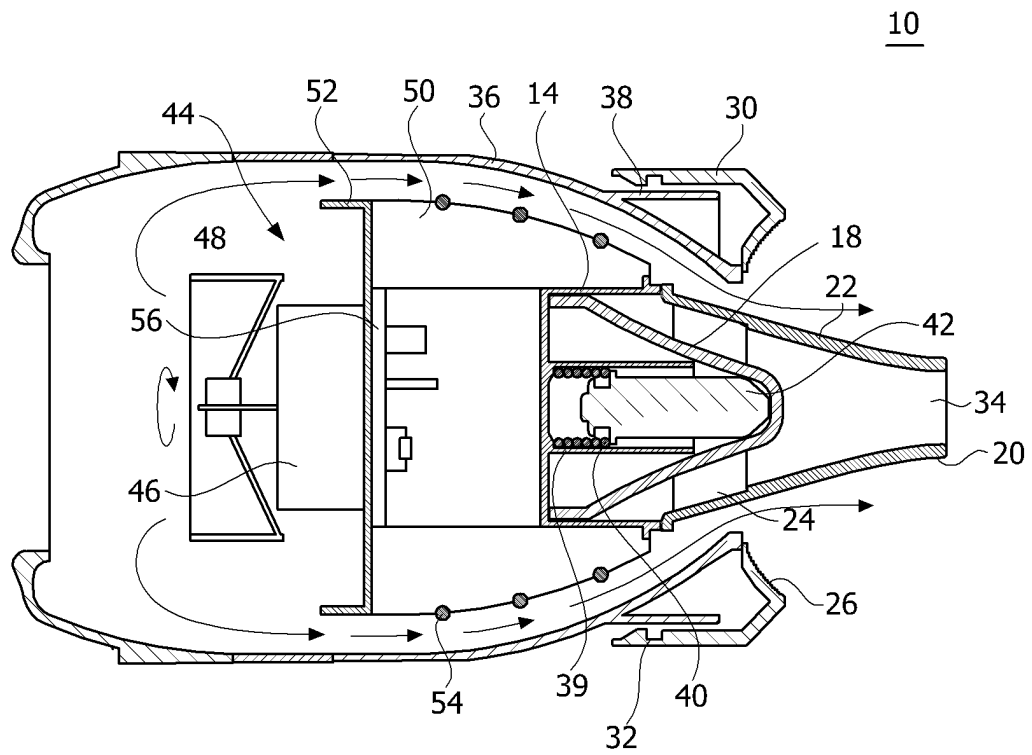


FIG.5

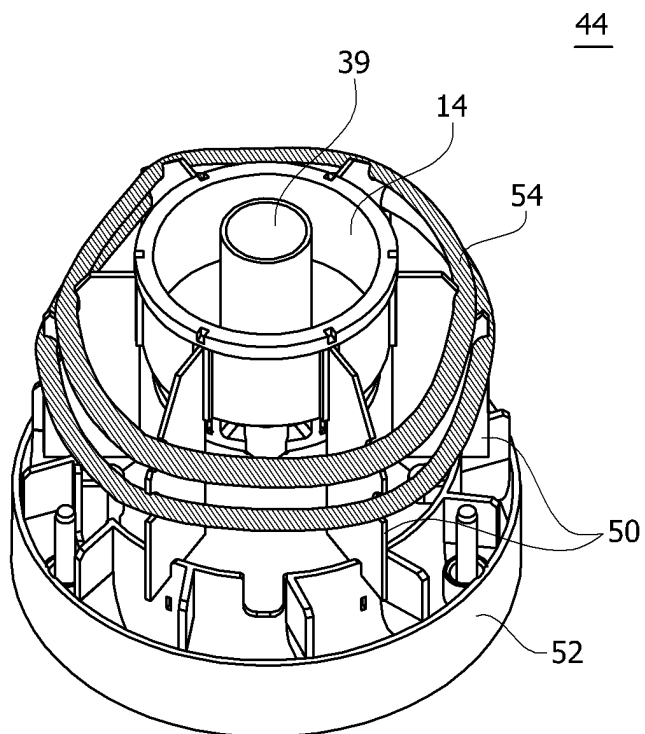
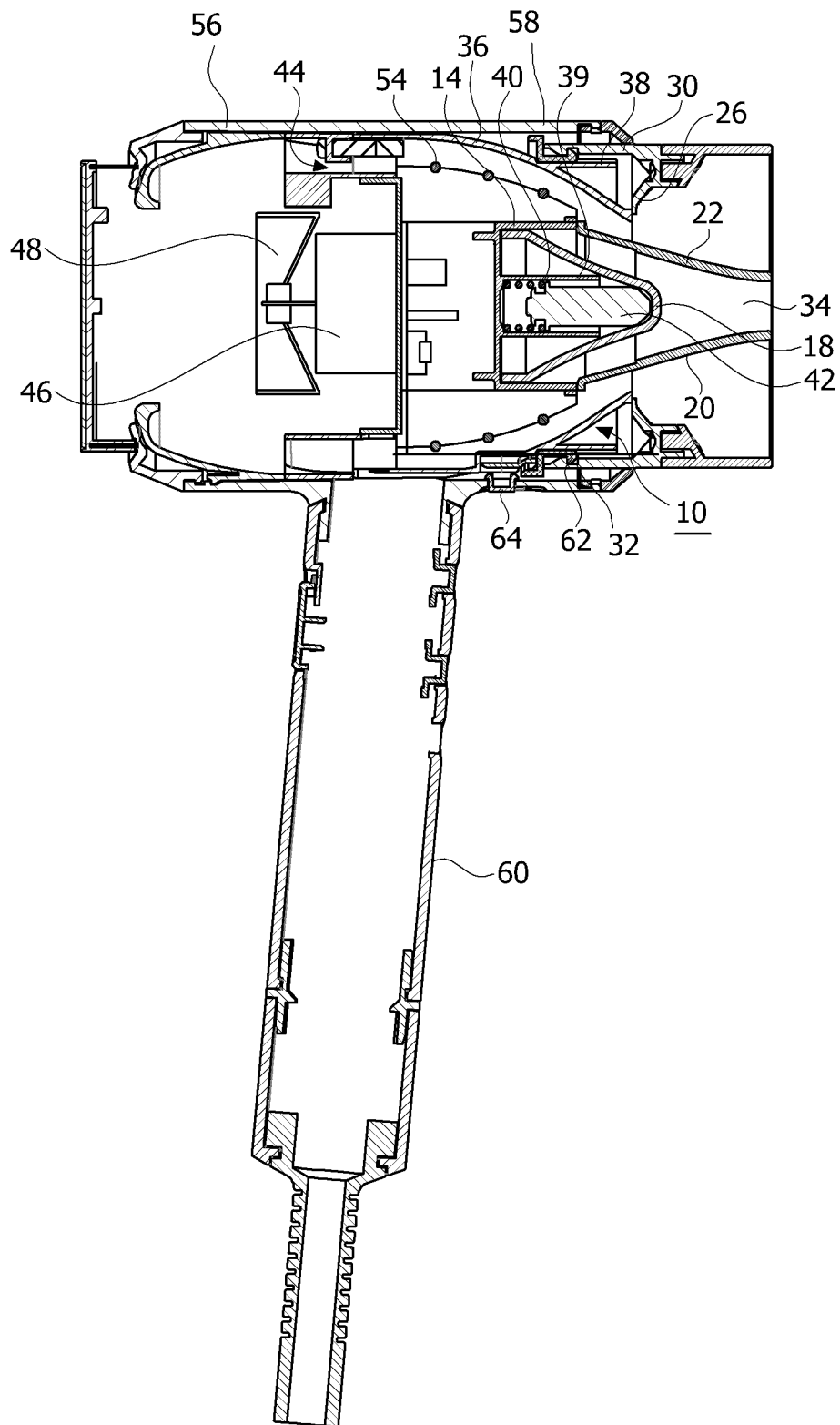


FIG.6



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2018/006403

A. CLASSIFICATION OF SUBJECT MATTER

A45D 20/12(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A45D 20/12; A45D 20/10; B05B 1/12; B05B 1/16; B05B 9/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models: IPC as above

Japanese Utility models and applications for Utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & Keywords: wind speed, flow path, direction, nozzle, dryer, dryer, focusing, dispersion

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| A | JP 2010-274050 A (KITANO, Hanyuki) 09 December 2010 See paragraphs [0019]-[0033]; claim 1; and figures 1-4. | 1-15 |
| A | JP 2531560 Y2 (MARUICHI CORPORATION) 02 April 1997 See page 2, lines 18-23; claim 1; and figures 1-3. | 1-15 |
| A | WO 2014-121705 A1 (XIAMEN SOLEX HIGH-TECH INDUSTRIES CO., LTD.) 14 August 2014 See paragraphs [0032]-[0043]; and figures 1-4. | 1-15 |
| A | JP 05-130915 A (KYUSHU HITACHI MAXELL LTD.) 28 May 1993 See paragraphs [0008]-[0012]; and figures 1-4. | 1-15 |
| A | KR 20-0424576 Y1 (LEE, Hyoung Young) 22 August 2006 See paragraphs [0030]-[0049]; and figures 1-6. | 1-15 |

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Date of the actual completion of the international search

15 OCTOBER 2018 (15.10.2018)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2018/006403

| Patent document cited in search report | Publication date | Patent family member | Publication date |
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| | | DE 112014000701 T5 | 22/10/2015 |
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Form PCT/ISA/210 (patent family annex) (January 2015)