May 30, 1967 H. O. DE BOER, JR., ET AL 3,322,144

HAIR DRYER CURLING ATTACHMENT

Filed June 30, 1965 3 Sheets-Sheet 1

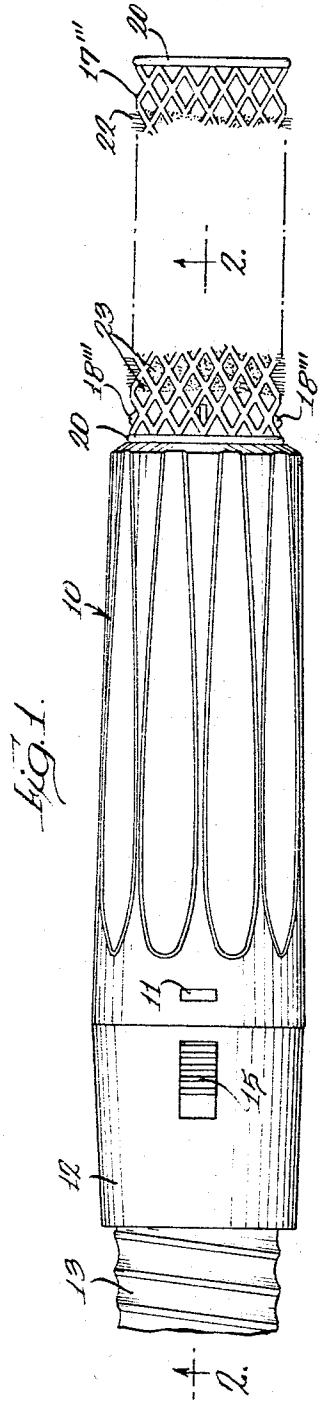


Fig. 1.

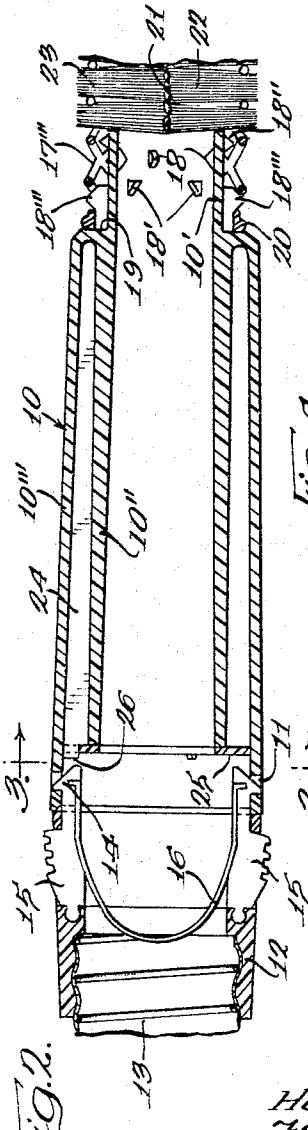


Fig. 2.

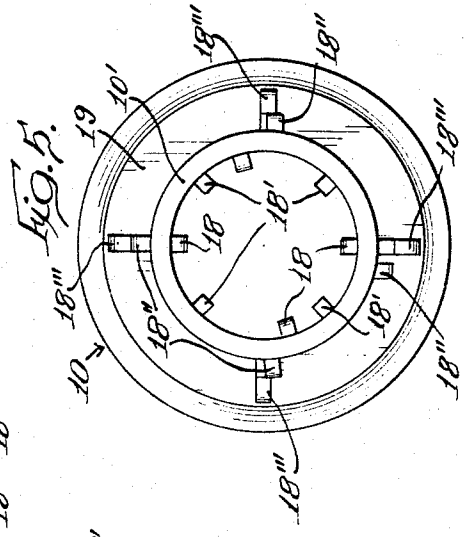


Fig. 5.

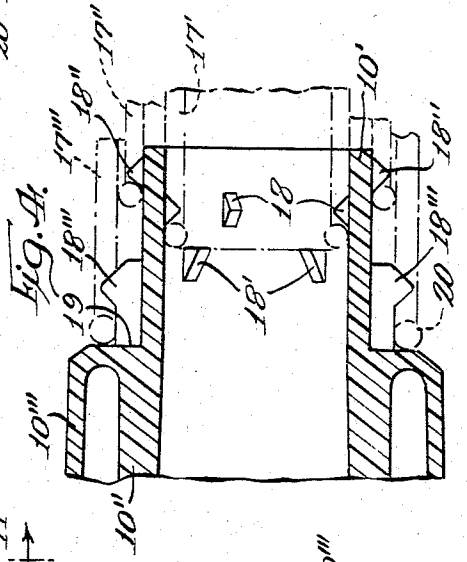


Fig. 4.

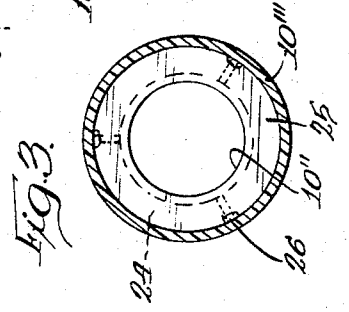


Fig. 3.

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HAIR DRYER CURLING ATTACHMENT

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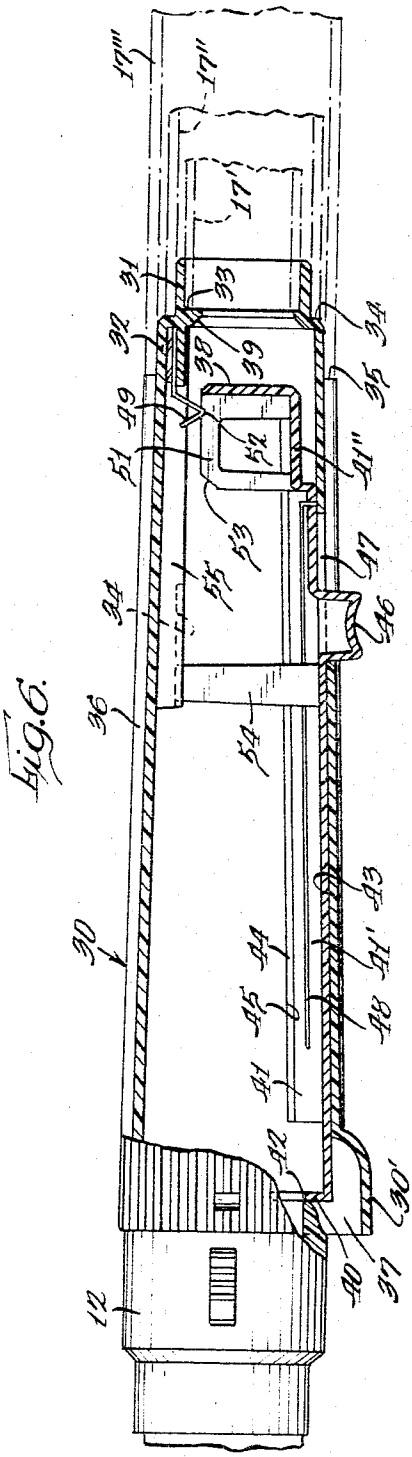


Fig. 6.

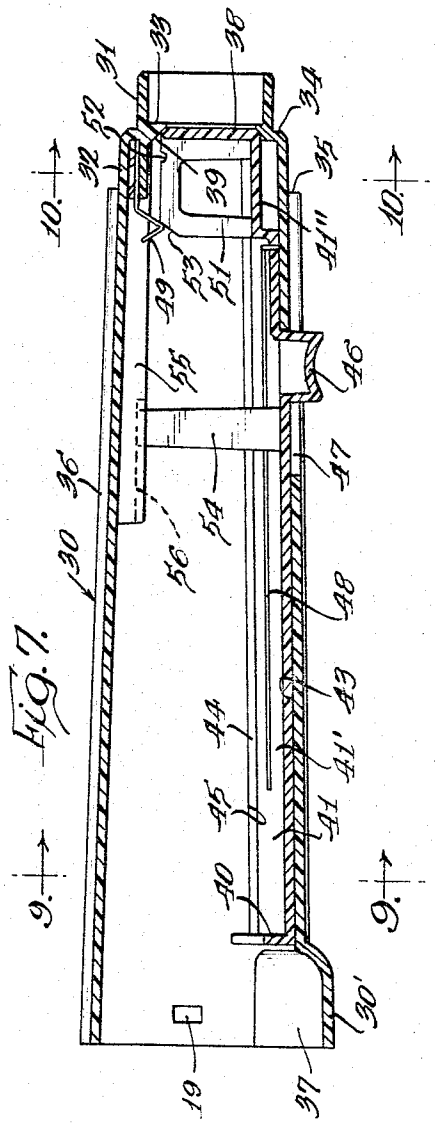


Fig. 7.

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Fig. 8.

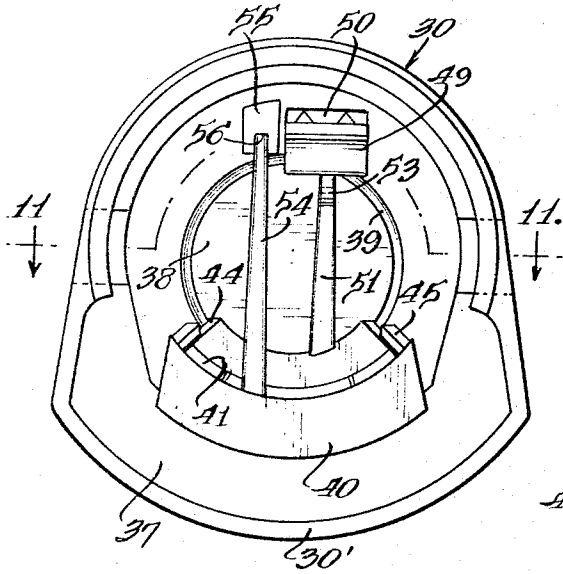


Fig. 9.

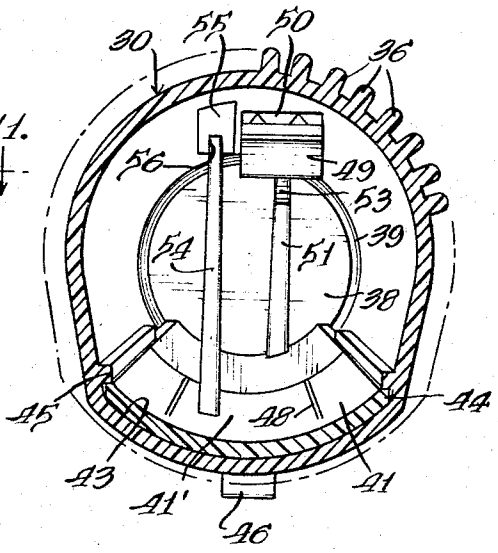


Fig. 10.

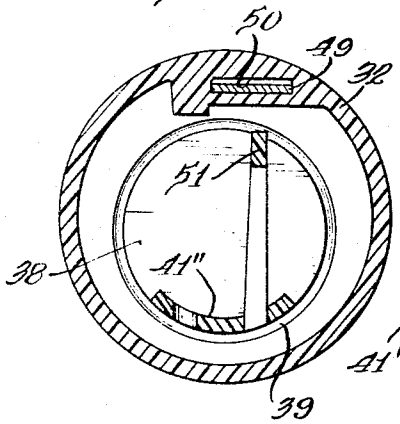
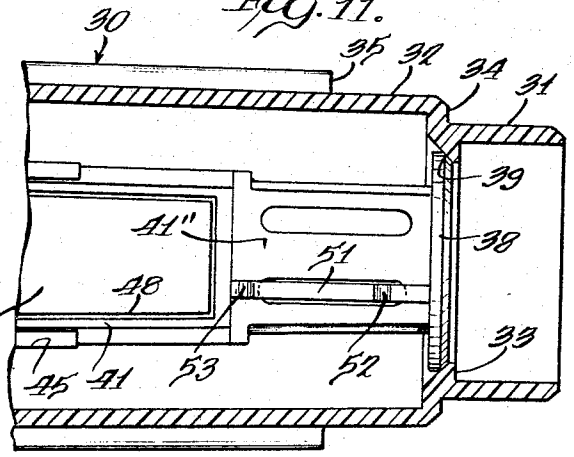


Fig. 11.



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3,322,144

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HAIR DRYER CURLING ATTACHMENT

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Filed June 30, 1965, Ser. No. 468,301

7 Claims. (Cl. 137—375)

This invention relates to a curling attachment for adapting hair dryers to dry hair curled on a hair curling form.

In the past several years, the home hair dryer has become a very popular appliance. It has relieved the woman of the necessity of going to the beauty parlor to wash, set and dry her hair. The home hair dryer conventionally comprises a motor-fan-heater unit, a plastic sheet material hair drying cap, and an air hose interconnecting the two. With proper design and usage, a woman can achieve professional results in the home with her home hair dryer.

In order to increase the continuing popularity and versality of the home hair dryer, several attachments have been introduced. One such attachment has been a curling attachment for purposes of touching-up previously set curls. Obviously, such an attachment besides being effective must be simple, low cost, versatile and easy to use if it is to be accepted by a prospective purchaser or user.

Accordingly, it is an object of this invention to provide an effective curling attachment for home hair dryers which is simple, low cost, versatile and easy to use.

Briefly, in the invention, the curling attachment comprises a tubular member. One end of the tubular member is adapted to be quickly and removably connected to the outlet end of a hair dryer hose. The other end of the tubular member is adapted to be quickly and removably connected to a plurality of different size hair curling forms which are readily available on the market. Since the user will be holding or grasping the attachment by its tubular member, heat insulating means is provided to prevent the tubular member from becoming too hot to the sense of touch. Such means may comprise a double walled insulated construction in the tubular member or insulation fins. In addition, in a refinement of the invention a valving arrangement may be provided inside the tubular member to selectively conduct hot air to the curling form or to by-pass the hot air to the atmosphere.

The invention will be better understood by considering the following description taken in connection with the accompanying drawings, and its scope will be pointed out in the appended claims.

In the drawings, FIG. 1 is an elevation view of one form of the invention;

FIG. 2 is a sectional view taken along the section line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken along the section line 3—3 of FIG. 2;

FIG. 4 is an enlarged broken away view of the invention illustrating in broken lines how the hair curler attachment is adapted to receive three different sizes of hair curler forms;

FIG. 5 is a right hand end view of FIG. 4;

FIG. 6 is a broken away elevation view of a second form of the invention showing the device in its hair curl drying position;

FIG. 7 is a view similar to FIG. 6 showing the device in its non-hair curl drying position;

FIG. 8 is an enlarged left hand end view of FIG. 7;

FIG. 9 is an enlarged sectional view taken along the section line 9—9 of FIG. 7;

FIG. 10 is an enlarged sectional view taken along the section line 10—10 of FIG. 7; and

FIG. 11 is a broken away sectional view taken along the section line 11—11 of FIG. 8.

Referring now first to FIGS. 1 to 5 of the drawings, the hair curling attachment comprises an elongated and cylindrical or tubular member **10** having a slight taper. The left hand end of member **10** has a pair of notches **11** formed therein so that the connector or coupling **12** at the outer end of a hair dryer hose **13** can be quickly and removably connected thereto. The hose coupling **12** is described in detail in Chambers et al. Patent No. 3,168,382 issued Feb. 2, 1965 and assigned to the same assignee as the instant patent application. It has a pair of outwardly spring biased latching elements **14** which snap into grooves **11** when the connector **12** is inserted into the left hand end of member **10**. To remove the connector **12** from the curling attachment, it is only necessary to depress the portions **15** of the latches **14** against the bias of their spring **16**.

The right hand end of member **10** is adapted to be quickly and removably connected to three different sizes of hair curler forms indicated in broken lines in FIG. 4 by reference numerals **17'**, **17''**, and **17'''**. The right hand outermost extremity of member **10** is provided with a reduced diameter or shouldered nose portion **10'**. A pair of spaced rows of latching tabs or shoulders **18** and **18'** are provided inside nose **10'** for the purpose of quickly and removably connecting the smallest curling form **17'** to the curling attachment. A pair of spaced rows of latching tabs or shoulders **18''** and **18'''** are also provided on the outside of nose **10'**. The two rows of tabs **18''** and **18'''** removably latch the intermediate size hair curler form **17''**. The row of tabs **18'''** are spaced from a shoulder **19**, and the tabs **18'''** and shoulder **19** removably latch the large size curler form **17'''** to the curling attachment.

The curling forms **17'**, **17''**, and **17'''** are readily available on the market in drug and notions stores or the like. They comprise pliable plastic screen-like cylinders having beads **20** at their opposite ends. Cylindrical brushes comprising a central wire form **21** and radiating brush bristles **22** are located inside the curling forms. The brush bristles **22** protrude slightly through the apertures **23** of the curling forms. As is well known in the art, hair is curled or rolled on the curling forms and the curled hair will not unintentionally unroll because it is retained on the form by the protruding bristles **22**. Since the screen-like cylinders of the curling forms are constructed from pliable plastic material, their ends can be easily forced past the tabs **18**, **18''**, and **18'''**. The tabs, of course, will enter the apertures **23** to removably latch the curling forms on the nose **10'** as is illustrated in the drawings.

Since hot air is conducted by the curling attachment from the hose **13** to the curling forms, the curling attachment will become warm. At the hot or high setting of the not shown motor-fan-heater unit of the hair dryer, the curling attachment may become rather warm for comfortable hand holding or grasping of the curling attachment. Therefore, in the form of the invention illustrated in FIGS. 1–5, the tubular member **10** is given a double walled heat insulated construction. More particularly, the member **10** has concentrically spaced inner and outer walls **10''** and **10'''**. Between the walls **10''** and **10'''** is a dead air space **24**. The dead air space **24** is closed at its right hand end by the shoulder **19** and at its left hand end by a heat insulating washer or ring **25**. The washer **25** is held in place by integral tabs **26** which are formed on the wall **10'''** and then heat staked over against the washer **25**. This double walled heat insulating construction in the member **10** makes it comfortable to the sense of touch even though very warm or hot air may be traveling through member **10** to the hair curling forms.

The second form of the invention will now be described by reference to FIGS. 6–11. The second form of the in-

vention is similar to the first form except in addition there's a valving arrangement inside the hair curler attachment to let air either pass therethrough or to bypass or vent the air to the atmosphere. The advantage of this is that after the hair dryer comes up to heat, the hot air can be by-passed away from the nose of the attachment so that a strong blast of hot air isn't directed immediately against the head while the woman is connecting up the attachment to a hair curler form on her head.

The curling attachment comprises a round tubular member **30** having a slight taper. The left hand end has grooves **19** as before described for purposes of connecting a hair dryer hose coupling or connector **12**. At its right hand end, there's a nose portion having two reduced diameter portions **31** and **32** and an internal circular shoulder **33** on the portion **31**. The nose portion is adapted to receive three different sizes of hair curler forms **17'**, **17''**, and **17'''** as illustrated in broken lines in FIG. 6 and similar to those previously described. The smallest curler **17'** fits inside portion **31** against the shoulder **33**. The in-between size curler **17''** fits on the outside of portion **31** against a shoulder or step **34** located between portions **31** and **32**. The largest curler **17'''** fits on the outside of portion **32** against a shoulder **35** at the left hand end of portion **32**. The curlers are retained on the nose of the attachment by a snug or friction fit. The heat insulation means for comfortable holding of tubular member **30** comprises a plurality of integral and spaced lengthwise extending fins **36**.

For purposes of venting the hot air to the atmosphere, a vent opening **37** and valve **40** and valve seat **42** are provided at the left hand end of tube **30** and a valve **38** and valve seat **39** are provided at the right hand end of tube **30**. The opening **37** is defined by an integral enlarged portion **30'** which extends for about 90 degrees about the left hand edge of tube **30**. Portion **30'** has a larger radius than the left hand end of tube **30** so as to be spaced therefrom to define the opening **37**. The opening **37** is opened and closed by the valve element **40** integrally formed on the left hand end of a valve slide actuator **41**. The valve **38** is integrally formed at the right hand end of valve slide **41**. When the slide **41** is moved to the right, valve **38** seats on valve seat **39** to close off air flow through tube **30**. At the same time, the valve **40** is moved off the contiguous edge **42** of the hose connector **12** to open the vent **37**. That is to say, edge **42** is the equivalent of a valve seat for the valve **40**. When slide **41** is moved to the right, valve **40** leaves valve seat **42** to place the opening **37** in communication with the inside of tube **30**. Since at this time the right hand end of tube **30** is closed, the hot air exits from inside tube **30** through vent or by-pass opening **37** to the atmosphere. When the hot air is vented through opening **37** there is no blast of air leaving the nose of the tube **30** which will impinge on the woman's head as she is connecting tube **30** to one of the hair curler forms.

The slide **41** extends lengthwise of tube **30** and it has a width equivalent to about 90 degrees of the tube **30**. A slide groove **43** extends lengthwise of tube **30**. The slide **41** is nested in the slide groove **43** for back and forth movement therein. Opposite side edges **44** of slide **41** are tapered and the tapered edges **44** fit beneath undercut shoulders **45** formed along opposite sides of the groove **43**. Actually, this slide **41** and its groove **43** have a gradual reduced width or taper from left to right. Therefore, it is possible to completely withdraw the slide **41** from within tube **30** by pulling it out in a left hand direction. However, normally movement of slide **41** is limited to just a sufficient distance to operate the valves **38** and **40**. Movement of slide **41** is limited by a thumb actuator **46** integrally formed on slide **41** and which rides in a notch **47** formed in the side of tube **30**.

The slide guide groove **43** at its right hand end extends as far as the right hand end of the thumb actuator groove **47**. At the left hand end of slide **41**, the valve element **42** is about 90 degrees wide similar to the about 90 degree

width of the enlargement **30'** to completely close off the opening **37** when the slide **41** is moved to the left. At the right hand end of the device, the shoulder **33** is aligned with the shoulder **34** so as to comprise an integral extension thereof, and the right hand valve seat **39** is formed in the back side of shoulder **33** which faces the right hand valve element **38**. The valve element **38** is circular, as is its valve seat **39**, and the axes of these two parts are aligned with the axis of the tubular member **30**. The slide **41** is a common valve control or actuator for each of valves **38** and **40**.

The thumb actuator **46** is actually carried by an integral resilient finger part **41'** of slide **41**. The finger **41'** is cut out of slide **41** by a U-shaped groove **48**. The right hand end of finger **41'** is free whereas the left hand end is integral with the slide **41**. Since the slide **41** is constructed from plastic the finger **41'** is resilient. That is to say, finger **41'** can be pushed in a direction away from the slide groove **43** when inserting slide **41** in its groove **43** when assembling the device. Due to the taper of the slide **41** and its groove **43**, the slide is inserted in groove **43** in a left to right direction. At this time, the finger **41'** is pushed in so that the button **46** rides on the inside surface of groove **43** until it reaches its notch **47** after which it will snap into place therein.

Actually, in both forms of the invention the hair curler attachment tubes are constructed from molded plastic. In the first form of the invention, the tube is a composite one-piece member. In the second form of the invention, the tube is split lengthwise thereof into semi-cylinders. The slide **41** is mounted in one half. The other half has a latch spring **49** to latch the slide **41** in either its left hand vent closed or right hand vent open extreme positions. The spring **49** is seated in a groove **50** formed in this other half of the tube **30** which other half is the upper half when viewing the drawings. The valve **38** is carried by the front end of slide **41** by an integral extension **41''**. Behind the valve **38** is an integral bridge portion **51** having a front latch notch **52** and a rear latch sloped surface **53**. When the slide is moved forwardly to close valve **38** and open valve **40** and vent **37** the spring **49** catches on surface **53** to retain the slide in the position shown in FIG. 7. When the slide **41** is moved to the left to open valve **38** and close valve **40** and vent **37**, the spring **49** catches in the notch **52** to retain the slide in the position shown in FIG. 6.

Once the parts are assembled as shown in the drawings, the thumb actuator **46** is retained captive in its notch **47** by an integral strut **54** formed on finger **41'** and a cooperative guide ridge **55** formed on the upper half of the tube. As shown in the drawings, the free or upper end of strut **54** moves in a lengthwise extending notch **56** formed in the guide **55** which also extends lengthwise of tube **30**. The semi-cylinders of the tube can be connected together by a suitable cement or by not shown clamping rings or the like slipped over the tube after the parts are assembled together. To disassemble the device, the semi-cylinders are first removed with respect to each other. This removes the ridge **55** from abutting relationship with respect to the free or upper end of strut **54**. This being so, the thumb button **46** can then be pushed in to clear its notch **47** so that the slide **41** is free to be removed by withdrawing it from its guide **43** in a left hand direction.

It will now be seen that the invention provides a hair curler attachment for hair dryers which is simple and easy to use and has a minimum number of parts whereby it is low cost. In addition, the device is versatile inasmuch as it is adaptable for connection to existing hair dryer hoses and a range of different sizes of existing hair curling forms.

While there have been shown and described particular embodiments of the invention, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the invention, and that it is intended by the appended claims to cover all such

changes and modifications as fall within the true spirit and scope of the invention.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A hair dryer curling attachment, comprising a tubular member, means at one end of said tubular member adapting said one end for removable connection to a hair dryer hose, means at the other end of said tubular member adapting said other end for removable connection to any one of a plurality of different size tubular hair curling forms, and means for heat insulating the portion of said tubular member between said ends to the sense of touch.

2. In an attachment as in claim 1, wherein said tubular member is constructed from molded plastic material, said means at said one end of said tubular member comprises a pair of diametrically spaced notches at said one end, and said means at the other end of said tubular member comprises a reduced diameter portion at said other end and shoulder means on the inside and outside of said reduced diameter portion.

3. In an attachment as in claim 2, wherein said heat insulating means comprises said tubular member having a pair of concentrically spaced tubular side walls, said tubular side walls being spaced from each other, and means entrapping dead air space between said side walls.

4. In an attachment as in claim 2, wherein said that insulating means comprises spaced external integral fins on said tubular member extending lengthwise thereof, and said means at the other end of said tubular member comprises two reduced diameter portions at said other end.

5. In an attachment as in claim 4, wherein valve means is provided inside said tubular member at the opposite ends of said tubular member, a common valve slide actuator positioned in said tubular member for alternately opening each of said valve means and closing the other, the valve means at said one end being opened when the valve means at said other end is closed whereby said one end is vented to the atmosphere when said other end is closed to the passage of air therethrough.

6. A hair dryer curling attachment, comprising a tubular member, means at one end of said tubular member adapting said one end for removable connection to a hair dryer hose, means at the other end of said tubular member adapting said other end for removable connection to a tubular hair curling form, valve means inside said tubular member at the opposite ends thereof, a common valve slide actuator positioned inside said tubular member for alternately opening each of said valve means and closing the other, an atmospheric vent opening at said one end controlled by said one end valve means whereby when said common valve slide actuator is operated to close the valve means at said other end said one end is vented to the atmosphere.

7. In an attachment as in claim 6, wherein said common valve slide actuator comprises an elongated member extending lengthwise of said tubular member, the valve means at said other end comprising a circular valve seat at said one end having its axis aligned with the axis of said tubular member and a valve element on the contiguous end of said elongated member for opening and closing said valve seat, and the valve means at said one end comprising a valve element at the other end of said elongated element and a valve seat, said last mentioned valve seat comprising the contiguous edge of a hair dryer hose connector which is adapted to be inserted into said one end, and said vent opening comprising an air passageway formed at said one end, the inner end of said passageway being in communication with said one end valve means and the outer end of said passageway being open to the atmosphere.

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