US00RE35287E

United States Patent [19]

Caruso

[11] E **Patent Number: Re. 35,287**

[45] **Reissued Date of Patent: Jul. 2, 1996**

[54] **HAIR CURLER**

[76] Inventor: **Richard Caruso**, 7801 Montgomery Ave., Elkins Park, Pa. 19117

[21] Appl. No.: **116,213**

[22] Filed: **Sep. 2, 1993**

Related U.S. Patent Documents

Reissue of:

[64] Patent No.: **4,453,554**
Issued: **Jun. 12, 1984**
Appl. No.: **464,538**
Filed: **Feb. 7, 1983**

U.S. Applications:

[63] Continuation of Ser. No. 374,934, Jun. 29, 1989, abandoned.

[51] **Int. Cl.**[6] **A45D 6/14**

[52] **U.S. Cl.** **132/251**; 132/245

[58] **Field of Search** 132/251, 252, 132226, 228, 243, 245, 254, 250, 248

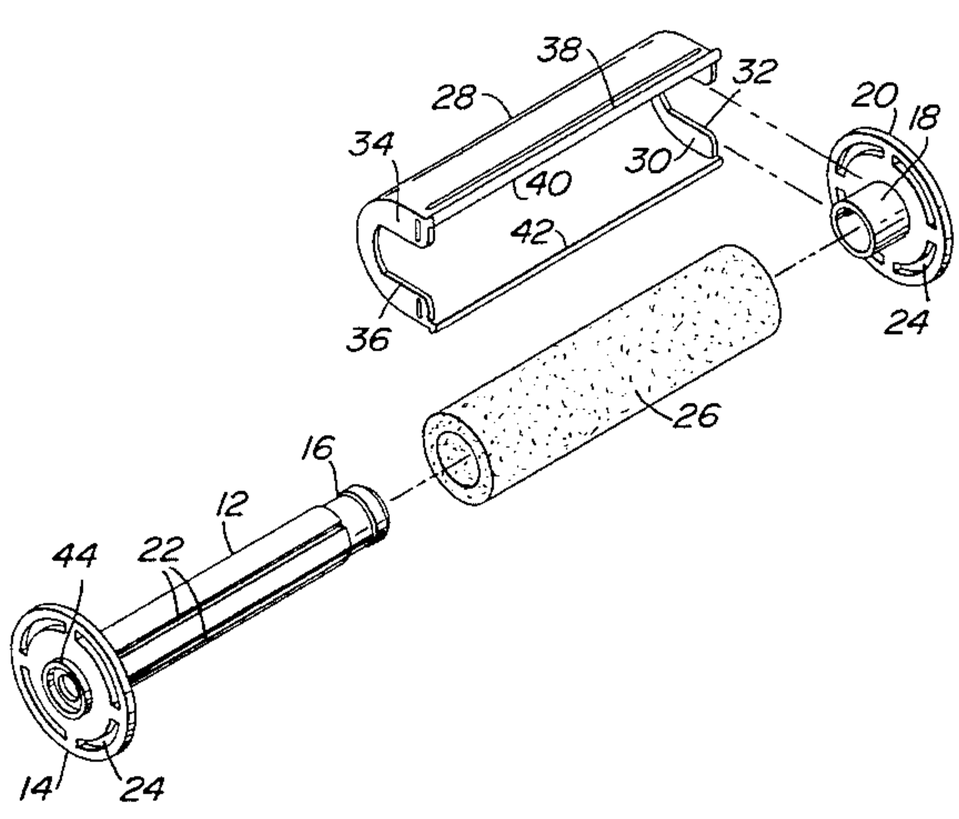
[56] **References Cited**

U.S. PATENT DOCUMENTS

D. 190,543	6/1961	Hoffmann et al.	D86/10
D. 204,355	4/1966	Solomon	D86/10
D. 215,129	9/1969	Talge	D86/10
D. 244,881	6/1977	Berkowitz	D28/37
582,563	5/1897	Wegefarth .	
1,442,260	1/1923	Fister	132/40
1,631,989	6/1927	Tabb	132/233
1,652,356	12/1927	Hammerly	132/35
1,775,440	9/1930	Peavler .	
1,895,815	1/1933	Peterson .	
1,906,756	5/1933	Keele .	
1,939,323	12/1933	Slavick	132/36
2,002,840	5/1935	Stein et al.	132/36
2,087,604	7/1937	Mosher	132/33
2,106,355	1/1938	Ligot	132/36
2,145,539	1/1939	Bottorf	132/38
2,171,956	9/1939	Urs	132/33
2,254,239	9/1941	Norman	132/33
2,409,081	10/1946	Torrens	132/31
2,429,176	10/1947	Watson	132/40
2,600,727	6/1952	Berman et al.	132/40
2,747,585	5/1956	Allen	132/12
2,828,753	4/1958	Pileggi et al.	132/42
2,833,293	5/1958	Parker	132/112
2,892,460	6/1959	Leclabart .	
2,910,989	11/1959	Russell	132/40
2,937,649	5/1960	Gresham et al. .	
3,016,909	1/1962	Schrock	132/40
3,220,423	11/1965	Zinzel	132/41
3,258,016	6/1966	Roepnack	132/40
3,265,075	8/1966	Edman et al.	132/9
3,347,248	10/1967	Weitzner .	
3,348,554	10/1967	Solomon	132/39
3,433,233	3/1969	Thackeray	132/40
3,455,309	7/1969	Koss	132/33
3,470,888	10/1969	Kuhn	132/40
3,523,542	8/1970	Elsier	132/33
3,572,350	3/1971	Adams et al.	132/39
3,656,490	4/1972	Grossman	132/39
3,667,482	6/1972	Morgan	132/9
3,759,271	9/1973	Caruso	132/233
3,766,930	10/1973	Madsen et al.	132/33
3,858,588	1/1975	Walter et al.	132/33
3,877,471	4/1975	Boyd	132/9
4,135,525	1/1979	Kriger	132/39
4,164,951	8/1979	Shaler et al.	132/31 R
4,202,360	5/1980	Walter	132/40
4,224,955	9/1980	Meyerhoefer et al.	132/33
4,258,732	3/1981	Mariani et al.	132/41 R
4,284,877	8/1981	Abura et al.	219/222
4,318,419	3/1982	Puckett	132/40
4,627,452	12/1986	Caruso	132/252

FOREIGN PATENT DOCUMENTS

700617	12/1964	Canada .	
48031	11/1933	Denmark .	
0046887	7/1981	European Pat. Off. .	
046887	3/1983	European Pat. Off. .	
585153	2/1925	France .	
0800169	6/1936	France	132/228
1318776	12/1963	France .	
1366819	12/1964	France .	
1387219	12/1965	France .	
2239966	3/1975	France .	
596209	4/1934	Germany .	
142791	4/1935	Germany .	
1020161	11/1957	Germany .	
1046846	12/1958	Germany .	
2030489	1/1972	Germany .	
2338330	2/1975	Germany .	
2636250A1	2/1978	Germany .	
53-6897	3/1978	Japan .	



6058844	7/1983	Japan .	
58-116312	7/1983	Japan .	
296190	1/1954	Switzerland .	
281294	9/1970	U.S.S.R. .	
328495	5/1930	United Kingdom .	
357608	10/1931	United Kingdom .	
401191	11/1933	United Kingdom .	
449400	6/1936	United Kingdom .	
505093	5/1939	United Kingdom .	
591071	8/1947	United Kingdom .	
728460	4/1955	United Kingdom .	
962906	7/1964	United Kingdom .	
0962906	7/1964	United Kingdom	132/251
1051933	12/1966	United Kingdom .	
1206938	9/1970	United Kingdom .	
1394628	5/1975	United Kingdom .	
2061721	5/1981	United Kingdom .	
2117636	10/1983	United Kingdom .	
1012743	1/1984	United Kingdom .	
2129294	5/1984	United Kingdom .	

OTHER PUBLICATIONS

Celeste Co., Inc., *Molecular Hair Rollers® Make Hot Rollers Obsolete,* 2 pages.
Brochure entitled, "The Richard Caruso Molecular Hair Vapor Rollers", Celeste Company, Inc., 1981.

Primary Examiner—John G. Weiss
Attorney, Agent, or Firm—Woodcock, Washburn, Kurtz, Mackiewicz & Norris

[57] **ABSTRACT**

A hair curler for subjecting hair to steam to effect a curling action includes a hollow perforated core surrounded by a compressible porous foam pad. A generally semicylindrical shield has notches in end walls for receiving the core.

21 Claims, 3 Drawing Sheets

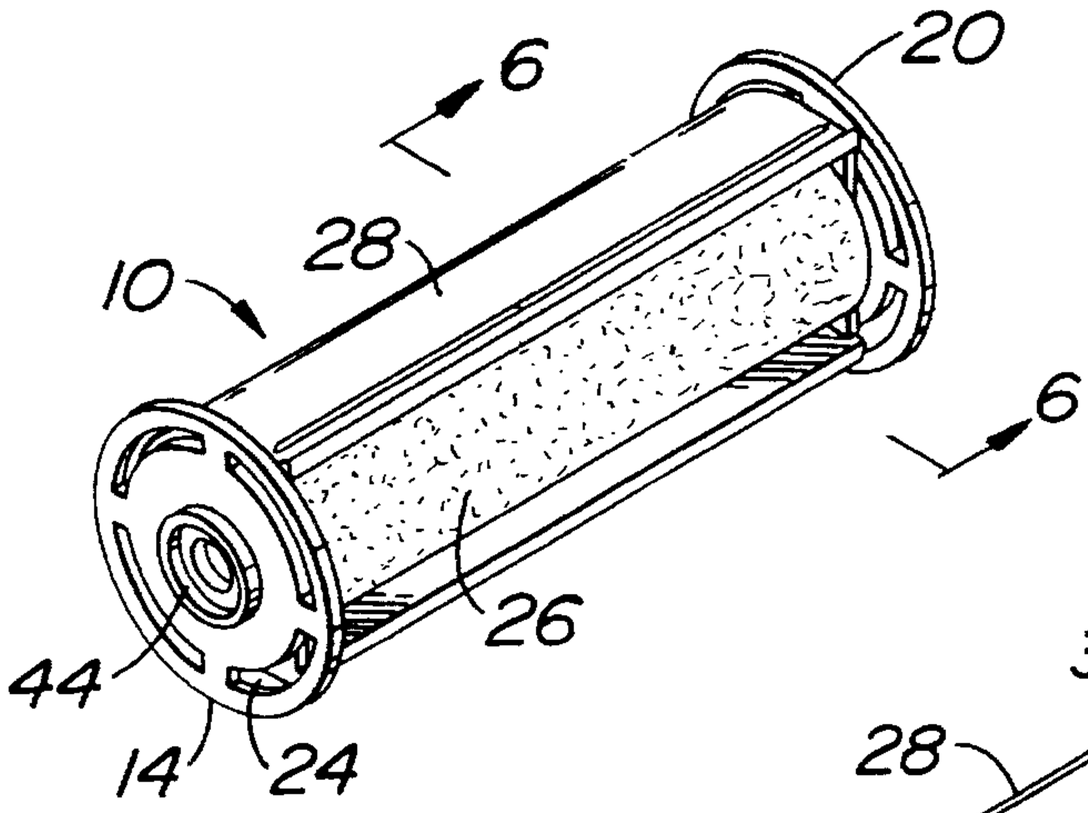


FIG. 1

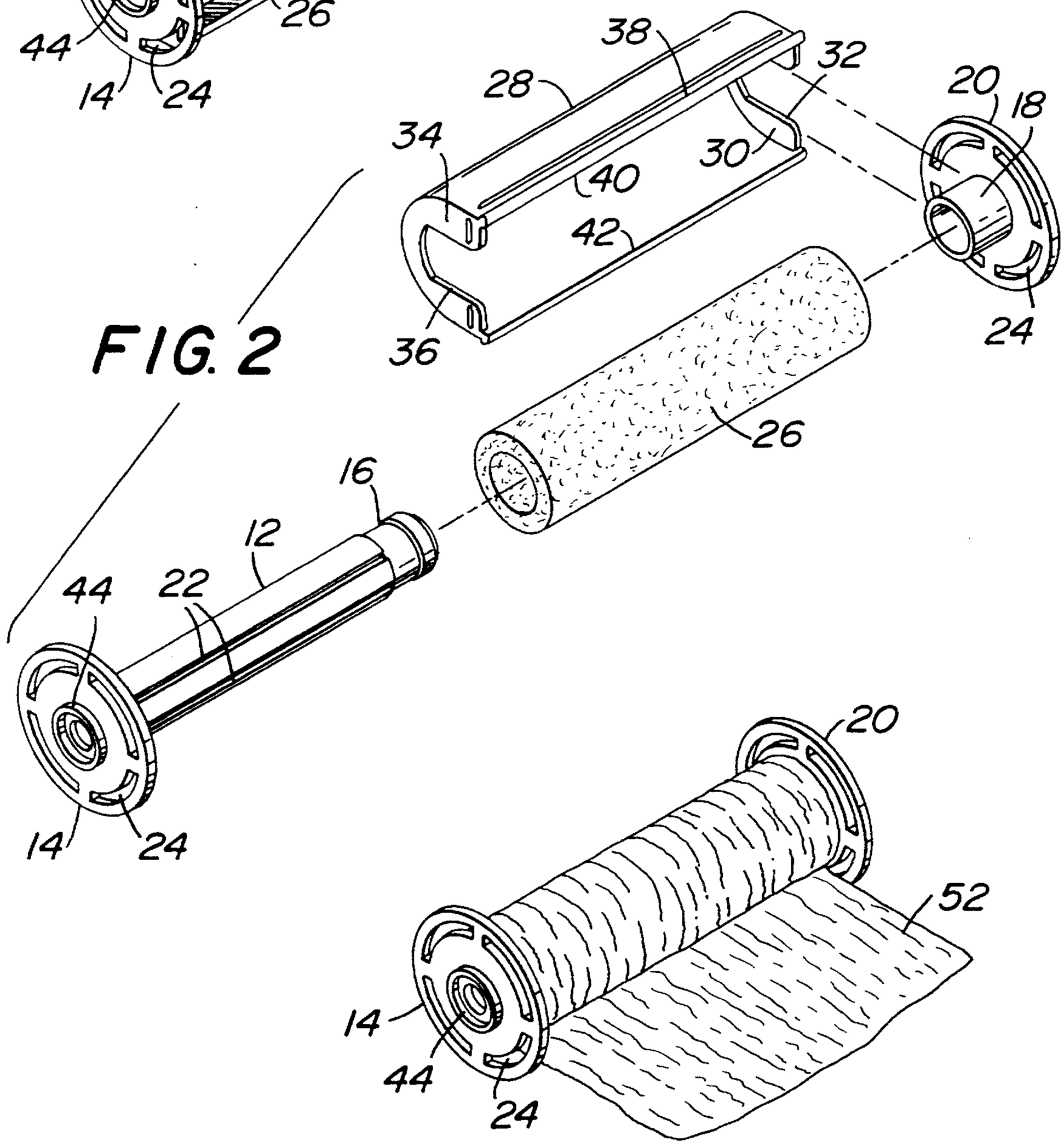


FIG. 2

FIG. 3

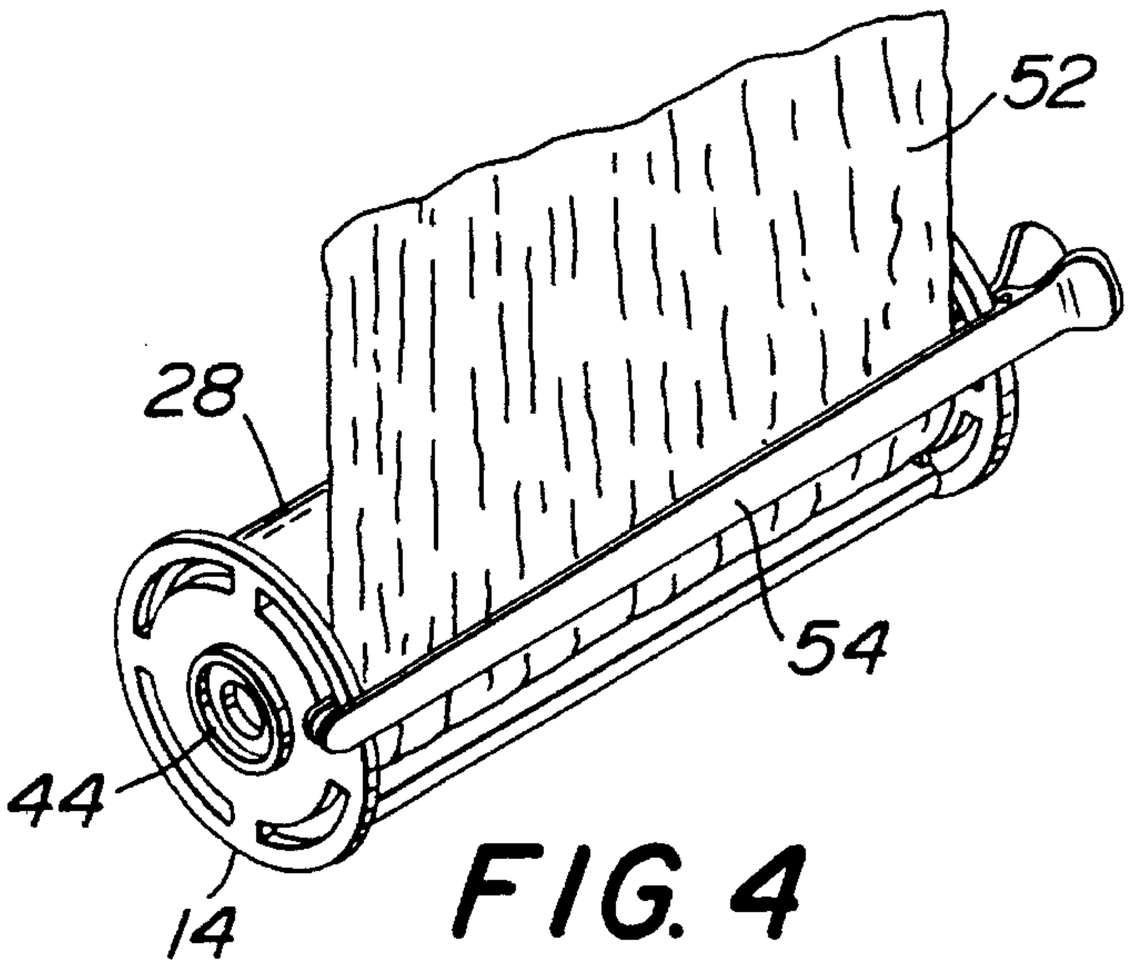


FIG. 4

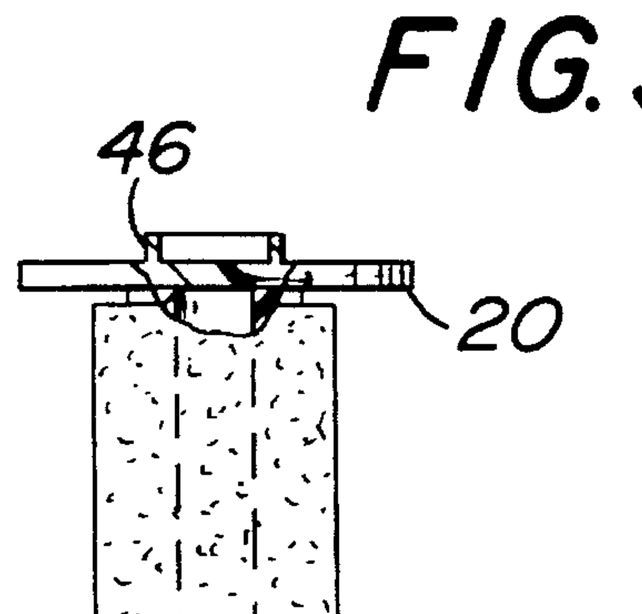


FIG. 5

FIG. 6

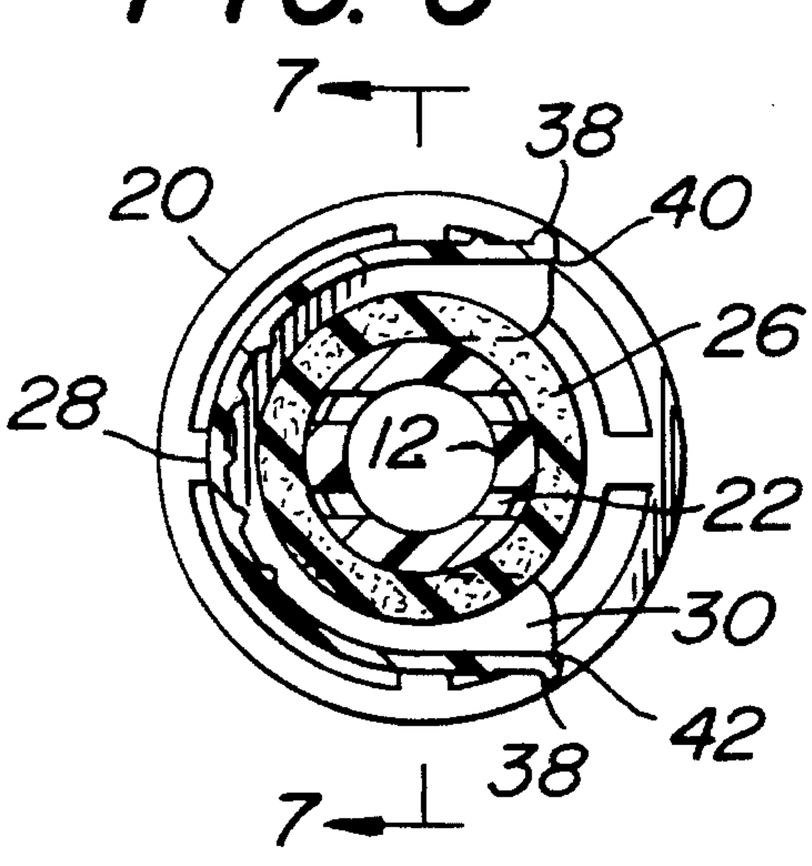


FIG. 7

FIG. 8

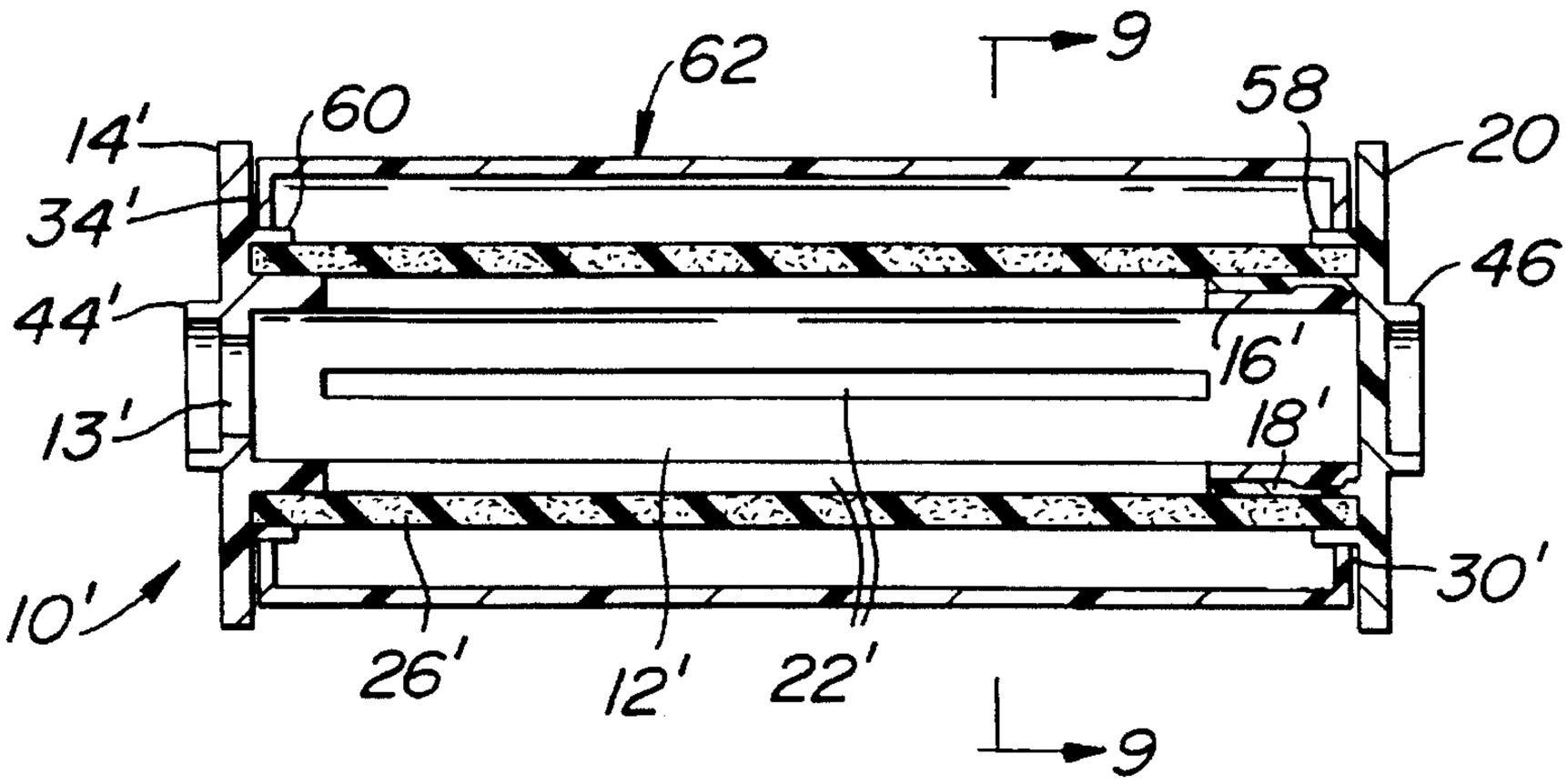


FIG. 11

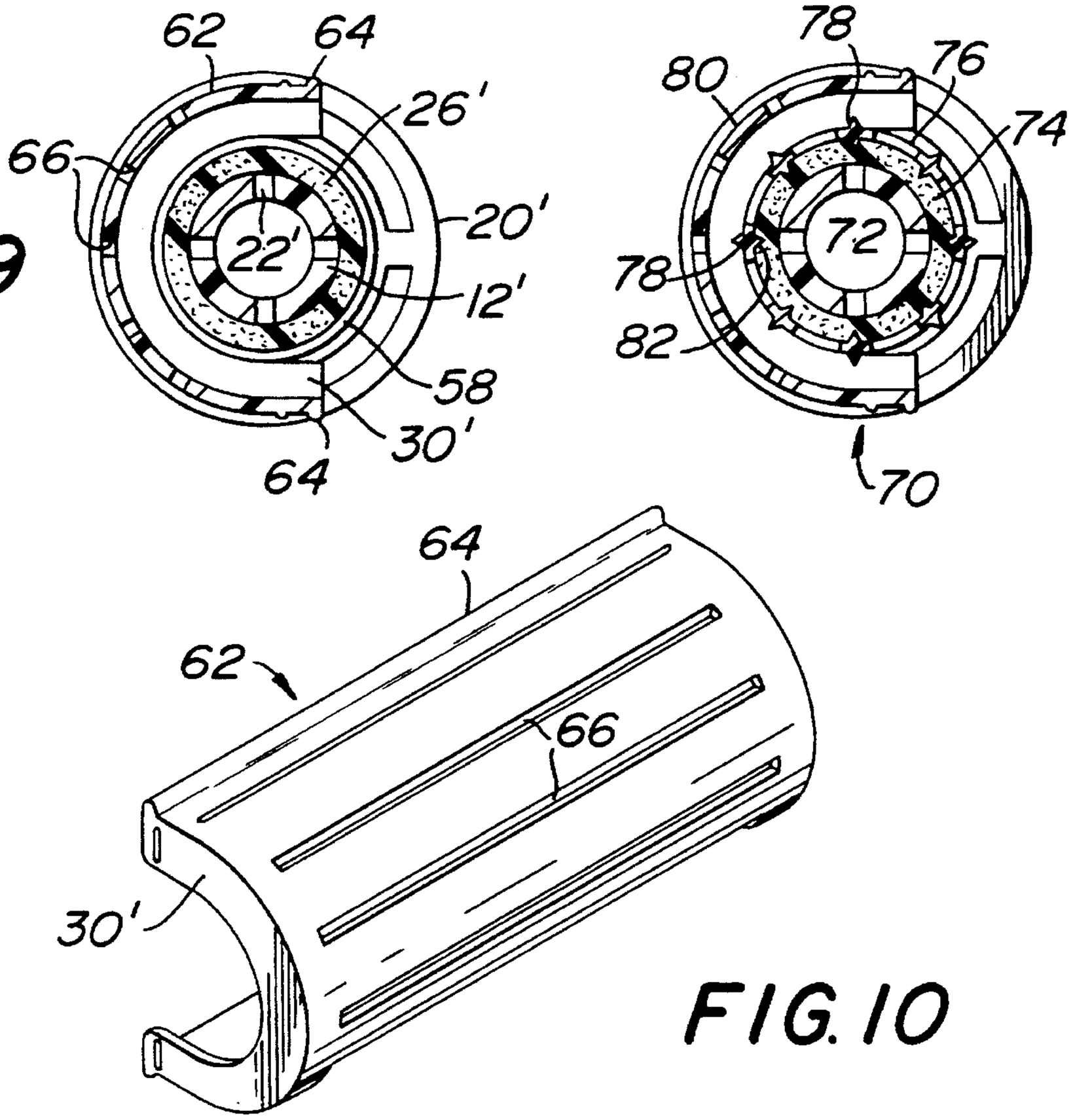


FIG. 9

FIG. 10

HAIR CURLER

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

This is a continuation of application Ser. No. 07/374,934, filed Jun. 29, 1989 now abandoned, which is a reissue of Ser. No. 06/864,538 filed on Feb. 7, 1983 now U.S. Pat. No. 4,453,554.

BACKGROUND OF THE INVENTION

Hair curlers of the general type involved herein are known. See my U.S. Pat. No. 3,759,271 dated Sep. 18, 1973 entitled Hair Curler. The present invention is directed to an improved hair curler which resolves a number of problems associated with the hair curler disclosed in said patent and which are only ascertainable after substantial experience with the use of said hair curler.

While the hair curler disclosed in said patent has been satisfactory, I have found a number of ways to make the hair curler more superior and easier to use. The structural features involved will be described in greater detail hereinafter.

SUMMARY OF THE INVENTION

The present invention is directed to a hair curler adapted for use with steam. The hair curler includes a hollow perforated core. The core has an opening at one end through which steam can be introduced. A porous plastic sleeve surrounds the core. A rim is provided at each end of the core. The diameter of the rim is greater than the diameter of the core. At least one rim is releasably connected to the core. An annular boss is provided on each rim outer surface. Each boss is coaxial with said opening.

The present invention is directed to a hair curler for use with steam which is easier to manufacture and easier to use than the prior art.

Other objects and advantages of the present invention will appear hereinafter.

For the purpose of illustrating the invention, there is shown in the drawings a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIG. **1** is a perspective view of a hair curler in accordance with the present invention.

FIG. **2** is an exploded view showing the complements of the hair curler.

FIG. **3** is a perspective view showing hair being wound around the hair curler.

FIG. **4** is a perspective view showing the hair curler clipped to hair.

FIG. **5** is a vertical sectional view showing the hair curler mounted on the steamer.

FIG. **6** is a sectional view taken along the line **6—6** in FIG. **1**.

FIG. **7** is a sectional view taken along the line **7—7** in FIG. **6**.

FIG. **8** is a sectional view similar to FIG. **7** but showing another embodiment of the present invention.

FIG. **9** is a sectional view taken along the line **9—9** in FIG. **8**.

FIG. **10** is a perspective view of the shield shown in FIGS. **8** and **9**.

FIG. **11** is a transverse sectional view through a hair curler in accordance with a third embodiment of the present invention.

DETAILED DESCRIPTION

Referring to the drawings in detail, wherein like numerals indicate like elements, there is shown in FIG. **1** a hair curler in accordance with the present invention designated generally as **10**. Hair curler **10** includes a core **12** integral at one end with a rim **14**. The core **12** is hollow and has an inlet **13** at the end attached to the rim **14**. See FIGS. **5** and **7**. The core **12** has a reduced diameter portion **16** which telescopically receives a hub **18** on rim **20**. See FIG. **7**. It will be noted that the rim **20** does not have a hole coaxial with the hub **18**. The outer diameter of hub **18** corresponds to the outer diameter of core **12**.

The core **12** has a plurality of longitudinally extending slots **22** which terminate at the reduced diameter portion **16**. Each of the rims **14**, **20** has a plurality of arcuate slots **24**. By making core **12** and rim **14** a one piece and hub **18** and rim **20** as a separate piece, manufacture of the roller **10** is simplified. A tubular pad or sleeve **26** surrounds the core **12**. Pad **26** is preferably a foam polymeric plastic material so as to be highly porous and compressible. Pad **26** acts as a distributor of steam in all directions with respect to hair to be wound therearound. The tubular pad **26** is telescoped over the core **12** and then hub **18** is snapped onto the reduced diameter portion **16** with a friction fit.

A shield **28** is provided to minimize loss of steam. Shield **28** is generally semi-circular and has end walls **30**, **34**. A notch **32** is provided in end wall **30**. A notch **36** is provided in end wall **34**. The tranverse dimensions across the notches **32**, **36** corresponds generally to the diameter of the core **12** and hub **18**. The end walls **30**, **34** have a slight interference, e fit with the inner surfaces of the rims **14**, **20**.

In order to facilitate rapid separation of the shield **28** from the remainder of the curler **10**, there is provided a plurality of ribs or beads **38** adjacent the edge portions **40**, **42** on the shield **28**. The beads **38** provide a non-slip portion on the otherwise smooth plastic shield.

After a shield is removed and it is desired to unroll the curler from the hair **52**, I have found that the easiest and fastest way to do this is to provide the outer surface of the rims **14**, **20** with coaxial bosses **44**, **46** respectively. With a thumb in boss **44** and a tip of the forefinger in boss **46**, the fingertips act as an axel for unwinding the curler from the hair **52**. Boss **44** performs an added function. A table top electrical steamer **48** has an outlet port **50**. The outer diameter of boss **44** is slightly smaller than the diameter of outlet **50**. In this manner, the boss **44** fits inside the outlet **50** and acts as a guide to be certain that inlet **13** is in direct communication with the steam within the table top steamer **48**.

The hair curler **10** is preferably provided in sets of different diameters. A set of curlers of a small diameter would be used in connection with short hair, the intermediate diameter one would be used with hair of intermediate length, and the largest diameter set would be used with long hair to make large curls. The bosses **44**, **46** should be coaxial with the longitudinal axis of the core **12** but need not be of the same diameter. Thus, boss **44** may be of larger diameter than the boss **46**.

The hair curler **10** is used as follows. The core **12** with the pad **22** therearound is placed on a steamer as shown in FIG. **5**. After a few seconds, the curler is removed and applied to hair **52** while the shield **28** is placed over the outlet **50** on the steamer **48**. After hair **52** has been wound around the pad **26**, a pin or clip **54** may be utilized to anchor the hair **52** to the rims **14**, **20**. Clip **54** is optional in the event that the shield is not used. The shield **28** may be positioned so as to embrace the hair **52** that is wound around the pad **26** in the disposition shown in FIG. **6**. It will be noted that there is an annular space between the inner surface of shield **28** and the outer surface of pad **26** to accommodate the hair **52**.

After a few minutes of being exposed to the steam escaping radially outwardly through slots **22** and pad **26**, clip **54** if present is removed. Shield **28** when present is removed by grasping the beads **38**. Thereafter, the curler is separated from the hair by putting the thumb in boss **44** and the tip of the forefinger in boss **46**. As a pressure is applied in removing the hair curler, the hair curler spins and unwinds itself from the hair.

In FIGS. **8–10**, there is illustrated another embodiment of the present invention wherein the hair curler is designated generally as **10'**. Hair curler **10'** is identical with the hair curler **10** except as will be made clear hereinafter. Corresponding elements are identified by corresponding prime numerals.

The rim **20'** has a hub **58** coaxial with the hub **18'**. The rim **14'** has a hub **60** coaxial with the core **12'**. The hubs **58**, **60** overlie the adjacent end portions of the pad or sleeve **26'**. This prevents the wearing out of the end portions of the pad **26'** by repeaded contact with the notches in the end walls of the shield. The shield **62** has notches in its end walls **30'**, **34'** which correspond to the outer diameter of the hubs **58**, **60**.

The free end portions of the shield **62** are provided with one or more beads or ridges **64** to prevent slippage between fingers and the shield **62** during removal of the shield **62**. The shield **62** has a plurality of longitudinally extending slots **66**. The slots **66** facilitate more rapid drying of hair by blowing hot air from a blower through the slots **66** while the shield **62** remains in a position embracing hair wound on the core **12'**.

In FIG. **11** there is shown a sectional view of another embodiment of the present invention designated generally as **70**. The hair curler **70** is identical with hair curler **10** except as will be made clear hereinafter. The hair curler **70** includes a slotted core **72** corresponding to core **12** and surrounded by a pad **74** corresponding to pad **26**. A porous sleeve **76** surrounds the pad **74** and has outwardly extending projections **78** which contact the inner surface of the shield **80** and thereby act as a limit stop. The sleeve **76** may have inwardly extending projections **82** which partially enter pad **74** to prevent relative rotation between sleeve **76** and pad **74**.

The sleeve **76** may be made porous to steam in any manner. Thus sleeve **76** may be made of plastic with cut out areas or slots. The projection **78** more effectively catch the hair **52** wound therearound and eliminate the need for a clip corresponding to clip **54**. Hair curler **70** is otherwise identical with hair curler **10**.

Each embodiment of the present invention has finger contact portions such as those defined by the bosses **44**, **46** to facilitate rapid separation of the curler from the hair **52**. The boss **46** need not be annular. In each embodiment of the present invention, there is frictional contact between the end walls of the shields and the inner surfaces of the rims as well as frictional contact between an axially extending surface and the surfaces of the notches in the end walls of the shields. The embodiments of the present invention are structurally interrelated in a manner which facilitates the need for less expensive molds to manufacture the hair curlers and more efficient relationship between the shield and the core and rims for steam retention, and facilitates more rapid removal of the curler from the hair after the hair has been curled.

The present invention may be embodied in other specific forms without deprting from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification, as indicating the scope of the invention.

I claim:

1. A hair curler for use with steam comprising a hollow perforated core, said core having an opening only at one end, a **[**purous**]** *porous* sleeve around said core, a rim at each end of the core, the diameter of the rim being greater than the diameter of the core, at least one rim being releasably connected to the core, **[**and**]** a finger contact surface on the exterior surface of each rim, at least one of said finger contact surfaces being annular and coaxial with said opening, *and a shield which is generally semi-circular, said shield having end walls, each end wall having a notch, said end walls being juxtaposed to an associated rim and being between the rims while the core is received in said notches, an outer peripheral surface of the core engaging the surfaces of a notch in the end wall of the shield.*

[2. A hair curler in accordance with claim **1** including a shield which is generally semicircular, said shield having end walls, each end wall having a notch, said end walls being juxtaposed to an associated rim and being between the rims while the core is received in said notches.**]**

[3. A hair curler in accordance with claim **2** wherein the outer peripheral surface of the core engages the surfaces of a notch in the end wall of the shield.**]**

4. A hair curler in accordance with claim **[2]** *1* wherein each rim has an axially extending hub overlying an adjacent end portion of the sleeve, the outer periphery of each hub being in contact with a surface of the notch on the associated end wall of the shield.

5. A hair curler in accordance with claim **[2]** *1* including at least one ridge on the outer peripheral surface of the shield adjacent the free ends thereof to increase friction and facilitate rapid grasping of the shield.

6. A hair curler in accordance with claim **[2]** *1* including a plurality of passages in the shield to facilitate blowing hot air through said passages.

7. A hair curler in accordance with claim **1** including a second sleeve surrounding said first sleeve, said second sleeve having integral outwardly extending projections to facilitate catching hair.

8. A hair curler in accordance with claim **1** wherein each of said finger contact surfaces is an annular boss extending in opposite directions away from their associated rims and having a diameter corresponding generally to the diameter of the core.

9. A hair curler for use with steam comprising a hollow core having longitudinally extending slots, an opening at only one end of the core, a porous sleeve around said core, a rim at each end of the core, means cooperating with the outer periphery of said core to define an annular channel at each end of the core, each end of said sleeve extending into one of said annular channels *wherein said annular channels overlie each end of said sleeve*, a finger contact portion on the outer surface of each rim and extending away from the adjacent end of said core, one of said finger contact portions being annular and coaxial with said opening.

10. A hair curler for use with steam comprising a hollow perforated core, said core having an opening only at one end, a porous foam plastic tubular pad around said core, a rim at each end of the core, the diameter of the rim being greater than the diameter of the core, a finger contact surface on the exterior surface of each rim, each of said finger contact surfaces being annular and coaxial with said opening, a shield which is generally semi-circular, said shield having end walls, each end wall having a notch, said end walls being Juxtaposed to an associated rim and being between the rims while the core is received in said notches, *an outer peripheral surface of the core engaging surfaces of the notches in the end walls of the shield*, and at least one ridge on the outer peripheral surface of the shield adjacent the free ends thereof to increase friction and facilitate rapid grasping of the shield.

[11. A hair curler in accordance with claim **10** wherein the outer peripheral surface of the core engages the surfaces of a notch in the end wall of the shield.**]**

12. A hair curler in accordance with claim **10** wherein each rim has an axially extending hub overlying an adjacent end portion of the pad, the outer periphery of each hub being in contact with a surface of the notch on the associated end wall of the shield.

13. A hair curler in accordance with claim **10** including a plurality of passages in the shield to facilitate blowing hot air through said passages.

14. A hair curler in accordance with claim **10** including a sleeve surrounding said pad, said sleeve having integral outwardly extending projections to facilitate catching hair.

15. A hair curler in accordance with claim 1 wherein the end walls of said shield frictionally contact inner surfaces of said rims.

16. A hair curler for use with steam comprising a hollow perforated core, said core having an opening only at one end, a porous sleeve around said core, a rim at each end of the core, the diameter of the rim being greater than the diameter of the core, at least one rim being releasably connected to the core, and a finger contact surface on the exterior surface of each rim, at least one of said finger contact surfaces being annular and coaxial with said opening, and a shield which is generally semi-circular, said shield having end walls, each end wall having a notch, said end walls being juxtaposed to an associated rim and being between the rims while the core is received in said notches, said shield being disposed between said rims, the end walls of the shield frictionally contacting inner surfaces of the rims.

17. A hair curler for use with steam comprising a hollow perforated core, said core having an opening only at one end, a porous sleeve around said core, a rim at each end of said core, a finger contact surface on the exterior surface of each rim, at least one of the finger contact surfaces being annular and coaxial with the opening, the diameter of the rim being greater than the diameter of the core, at least one rim being releasably connected to the core, a shield which is generally semi-circular and disposed between said rims, said shield having end walls, each end wall between said rims, said shield having end walls, each end wall having a notch, said end walls being juxtaposed to an associated rim and being between the rims while the core is received in said notches, an outer peripheral surface of the core frictionally contacting the surfaces of a notch in the end wall of the shield.

18. A hair curler in accordance with claim 17 wherein the end walls of said shield frictionally contact inner surfaces of said rims.

19. A hair curler for use with steam comprising a hollow perforated core, said core having an opening only at one end, a porous sleeve around said core, a rim at each end of the core, a finger contact surface on the exterior surface of each rim, at least one of the finger contact surfaces being annular and coaxial with the opening, the diameter of the rim being greater than the diameter of the core, at least one rim being releasably connected to the core, and a shield which is generally semi-circular, said shield having end walls, each end wall having a notch, said end walls being juxtaposed to an associated rim and being between the rims while the core is received in said notches, said shield being disposed between said rims, the end walls of the shield frictionally contacting inner surfaces of said rims.

20. A hair curler in accordance with claim 16, 17 or 19 wherein the finger contact surface projects axially outwardly from the exterior surface of each rim.

21. A hair curler in accordance with claim 16, 17 or 19 wherein the finger contact surface is a protrusion from the exterior surface of each rim.

22. A hair curler in accordance with claim 16, 17 or 19 wherein the finger contact surface is an annulus in the exterior surface of each rim.

23. A hair curler in accordance with claim 22 wherein the annulus is an annular boss that extends away from the exterior surface of each rim.

24. A hair curler in accordance with claim 1 wherein the outer peripheral surface of the core engages the surfaces of the notch in the end wall of the shield by frictional contact therebetween.

* * * * *