Sept. 23, 1958 S. BRANCACCIO 2,853,080

EXPANDING AND RETRACTING HAIR CURLER

Filed April 20, 1955

Fig. 1.

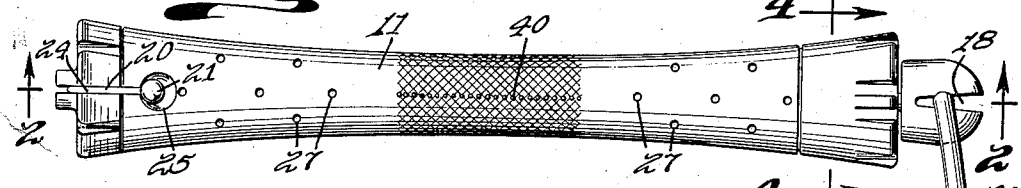


Fig. 2.

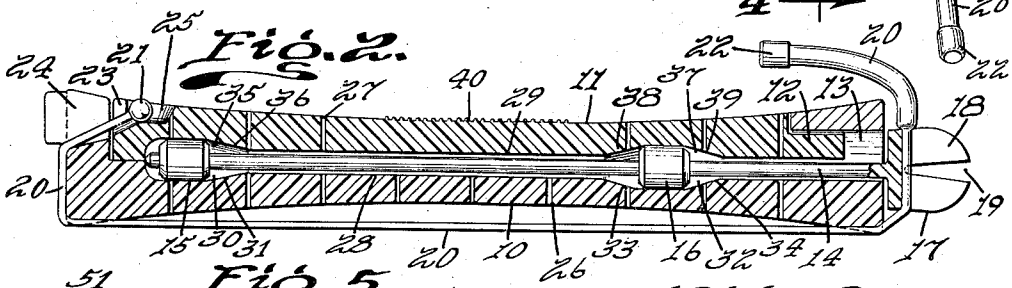


Fig. 5.

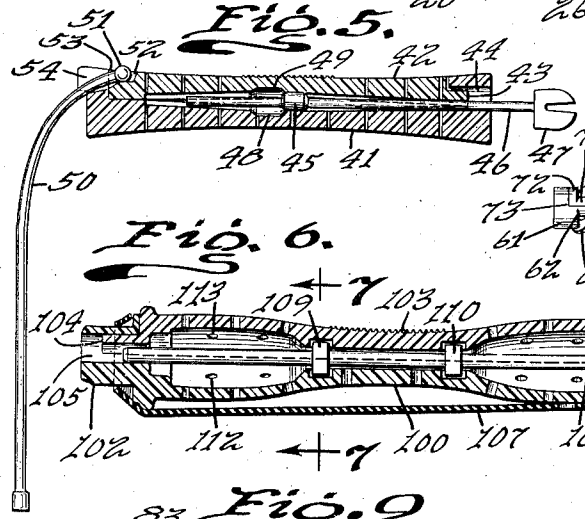


Fig. 8

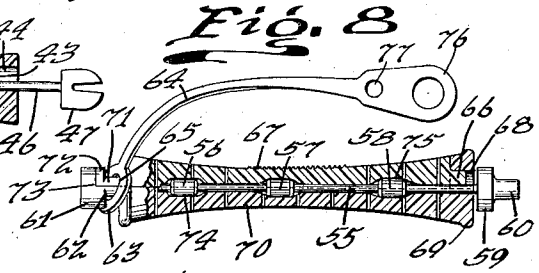


Fig. 6.

Fig. 7

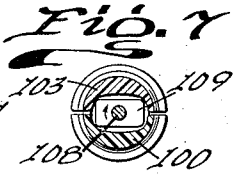


Fig. 9

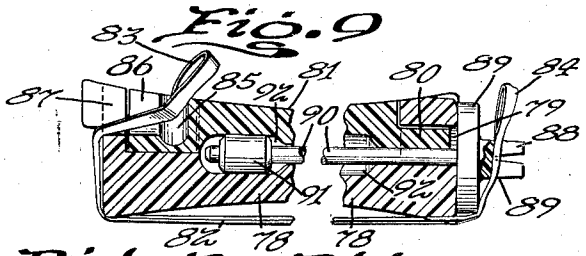


Fig. 10.

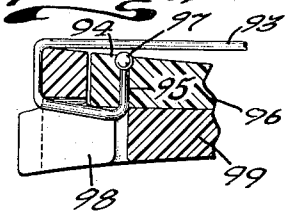
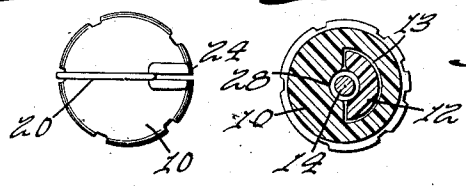


Fig. 3 Fig. 4



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EXPANDING AND RETRACTING HAIR CURLER

Silvere Brancaccio, Washington, D. C.

Application April 20, 1955, Serial No. 502,674
11 Claims. (Cl. 132—42)

This invention relates to hair curlers of the expanding and contracting type wherein a hair curling rod is formed with two substantially semi-cylindrical sections and wherein means is provided in the rod for expanding the cross sectional area thereof.

The purpose of this invention is to provide an expansible hair curler in which the parts are retained in assembled relation without screws, bolts, or other mechanical fastening means.

This application is an improvement over my copending applications, one being filed April 6, 1953 with the Serial No. 347,060, now U. S. Patent 2,758,605, for a Cold Permanent Wave Rod, and the other filed October 7, 1953 with the Serial No. 384,723, now U. S. Patent 2,753,874, for an Expanding Hair Curling Rod, the present application adding a semi-cylindrical tongue on the end of one section of the rod that is inserted in a similarly shaped recess in a collar on the end of the other section for retaining one end of the body together, and an elastic cord extended through registering slots in the opposite ends of the sections for retaining the opposite end of the rod assembled.

Various types of expansible hair curlers have been provided; however, it has been found difficult to connect the parts of an expansible curler without using projections that catch in the hair and without using parts that are removable from the rods. Where parts are removed from the rods, they are readily dropped and misplaced and where hair catches in elements of the rod customers object to use thereof.

With this thought in mind, this invention contemplates an expanding and contracting hair curling rod having cams on a shaft extended into the body thereof and in which the parts are secured together with a cord extended through slots in the elements at one end of the rod and in which the parts or sections are held at the opposite end with a semi-cylindrical tongue extended from one section and nested in a collar of the other section, the cord being adapted to be held in slots in a head on the end of the cam carrying shaft, at the end of the rod opposite to that in which the cord receiving slots are positioned.

The object of this invention is, therefore, to provide an improved expansible hair curling rod in which the expanding elements are embodied in a rod of conventional design.

Another object of the invention is to provide an improved hair curling rod wherein an elastic cord extended longitudinally over the outer surface of the rod is adapted to actuate a cam or a plurality of cams within the rod for permitting the sections of the rod to contract.

Another important object of the invention is to provide an improved expansible hair curler in which sections of the curler are adapted to be expanded and contracted with either rotary or sliding action of a cam or of a plurality of cams within the curler.

A further object of the invention is to provide an improved expanding and contracting hair curling rod having

expanding means therein in which the rod is of a simple and economical construction.

With these and other objects and advantages in view, the invention embodies a hair curler formed with two substantially semi-cylindrical sections each having a concave outer surface and with a shaft carrying cams thereon extending longitudinally between the two semi-cylindrical sections whereby the shaft on being drawn outwardly expands the rod and when the shaft is moved inwardly the sections come together whereby the rod contracts. A cord extends through slots of the sections at one end of the rod and is adapted to be snapped into slots through a head on the cam carrying shaft at the opposite end of the rod, said opposite end of the rod being retained in assembled relation with an arcuate section extended from one of the sections nested in a similarly shaped recess in the other section and with the sections of the rod retained in assembled relation at the opposite end of the curler by the elastic band which extends through registering slots of the sections retaining the hair wrapped on the curler and also retaining the curler nested against the surface of a head.

Other features and advantages of the invention will appear from the following description, taken in connection with the drawing, wherein:

Figure 1 is a plan view of the improved hair curling rod showing the rod with the parts assembled.

Figure 2 is a longitudinal section through the rod, taken on line 2—2 of Figure 1, also showing the parts assembled and showing sections of the rod contracted.

Figure 3 is an end elevational view of the improved curler or rod showing the end in which the parts are retained in assembled relation by the cord.

Figure 4 is a cross section through the opposite end of the rod, taken on line 4—4 of Figure 1, showing the arcuate shoulder or tongue extended from one section of the rod nested in a recess in the opposite section.

Figure 5 is a longitudinal section through the curler taken substantially on line 2—2, such as of Figure 1, illustrating a modification wherein a single cam is provided on a sliding shaft extended longitudinally into the rod whereby upon drawing the cam and shaft to the position illustrated in Figure 5 the intermediate part of the curler is expanded.

Figure 6 is a longitudinal section through the rod illustrating another modification wherein a plurality of cams are provided on the intermediate part of the rod and wherein the rod is formed with a comparatively thin perforated shell.

Figure 7 is a cross section through the rod shown in Figure 6 being taken on line 7—7 thereof.

Figure 8 is a longitudinal section through a curler, also similar to that shown in Figure 5, illustrating a curler having three cams on the sliding or rotating shaft and showing a band for retaining hair on the curler instead of the cord.

Figure 9 is a longitudinal section through a curler or rod illustrating a further modification wherein the cam carrying shaft extended longitudinally through the rod is retained in position with a flat band which is also of resilient material.

Figure 10 is a longitudinal section through a portion of one end of the curler showing means for anchoring the elastic cord or band in slots of the sections of the curler.

Referring now to the drawing, wherein like reference characters denote corresponding parts, the improved hair curling rod of this invention includes an elongated body having a lower section 10, an upper section 11, a semi-cylindrical tongue or shoulder 12 extended from one end of the section 11 and adapted to be positioned in a similar shaped recess 13 in one end of the section 10 with a clearance permitting slight transverse movement,

a shaft **14** having cams **15** and **16** on the intermediate part and a head **17** having right angularly positioned slots **18** and **19** therein extended from one end, and a cord **20** having knobs **21** and **22** on the ends retaining hair wrapped on the curler and also for holding the curler against the surface of a head and being adapted to be positioned with one end extended through a slot **23** in the section **11** and a slot **24** in the section **10** and wherein the knob **21** is positioned in a recess **25** at the end of the slot **23**. Slight transverse movement is also permitted between the sections **10** and **11** at their cord attaching end.

The lower or base section **10** is provided with perforations **26** and similar perforations **27** are provided in the upper section **11**. The inner surface of the section **10** is provided with a longitudinally disposed recess **28** which is semi-circular in cross section and the inner surface of the section **11** is provided with a similar semi-circular recess **29** which, with the parts assembled, provides a circular opening in which the shaft **14** is positioned.

The lower section **10** is provided with an enlarged area **30** with inclined surfaces **31** connecting the area **30** to the recess **28**, the area **30** providing a cavity for one side of the cam **15**, and a similar enlarged area **32** with inclined surfaces **33** and **34** at the ends is provided in the opposite end of the section whereby a cavity is provided for one side of the cam **16**. The inner surface of the upper section **11** is provided with an area **35** similar to the area **30** and an inclined surface **36** similar to the surface **31** at one end and also an area **37** with inclined surfaces **38** and **39** at the opposite end, the area **35** providing a cavity for the upper side of the cam **15** and the area **37** providing a similar cavity for the upper portion of the cam **16**.

With the parts assembled as illustrated in Figure 2, the cord **20**, which may be elastic or formed of a conventional cord, is removed from the slot **18** in the head **17** of the shaft and with the head **17** drawn outwardly whereby the cams **15** and **16** expand the curler hair is wrapped on the curler transversely from one end to the other with the tips of the strands gripped by the knurling or serrations as indicated by the numeral **40** on the surface of the intermediate portion of the curler or rod and with the hair so wrapped on the curler until the curler reaches the surface of the head of a customer whose hair is being curled, the cord **20** is drawn along the curler with the portion upon which the knob **21** is positioned retained by the knob in the slots **23** and **24** and with the opposite end inserted in one of the slots **18** and **19** whereby upon release of the knob **22** at the end of the cord the cord draws the shaft **14** into the curler thereby releasing the expanding means and permitting parts of the curler to contract. By this means tension of the cord **20** retracts the shaft **14** drawing the shaft into the body of the curler and permitting sections thereof to contract relieving tension of hair wrapped around the rod and retained in position thereon by the cord and securing the curler against the head.

In the design illustrated in Figure 5, a similar rod having sections **41** and **42** with a semi-cylindrical tongue **43** extended into a similarly shaped recess **44** of the section **41** is provided and in this design a single cam **45** carried by a shaft **46** with a knob **47**, similar to the head **17**, on the outer end, and the sections **41** and **42** of the curler are provided with recesses **48** and **49** that are positioned to receive the cam **45** when the curler is contracted. With the head **47** drawn outwardly to the position shown in Figure 5, the sections **41** and **42** are spread by the cam **45** and after hair is wrapped on the curler the head **47** is forced inwardly, by hand or by the tension of a cord **50**, simliar to the cord **20**, whereby the cam **45** passes into the recesses **48** and **49** permitting the sections of the curler to contract. The end of the cord **50** is provided with a knob **51** and the knob is positioned in a recess **52** of the section **42** with the cord extending through the slots **53** and **54**, similar to the slots **23** and **24** of the design shown in Figure 2. By this means the shaft, which extends from one end of the curler, is actuated to expand and contract sections of the curler with a single cam, whereas in the design shown in Figure 2, the shaft is provided with two cams and in the design illustrated in Figure 8 a shaft **55** is provided with a plurality of cams such as the three cams **56**, **57** and **58**.

The curler illustrated in Figure 8 is, otherwise, similar to that shown in Figure 2 except that the shaft **55** is provided with a button **59** having a post **60** extended therefrom and a head **61** which extends from the opposite end of the curler is provided with an annular groove **62** in which an end **63** of a cord or strap **64** is positioned.

The end **63**, which is provided with an opening **65**, is adapted to expand to stretch the opening **65** over the head **61**. In this design a semi-cylindrical tongue **66** on the end of a section **67** extends into a recess **68** in a collar on an end **69** of a section **70**, similar to the section **10**, and the opposite end of the section **67** is provided with a semi-cylindrical stud **71** having a flange **72** at the end thereof which is adapted to nest into a recess **73** in the head **61** and the stud **62**. The sections **67** and **70** are provided with cavities **74** in the section **70** and **75** in the section **67**, similar to the cavities **30** and **32** of the section **10** and **35** and **37** of the section **11** whereby the cams are adapted to snap into the cavities to permit sections of the curler to retract and are also adapted to be drawn longitudinally to expand sections of the curler.

The end **76** of the strap or cord **64** is provided with an additional opening **77** to provide adjustment in the tension of the strap and an eye in the end **76** is adapted to be drawn over the post **60** extended from the button **59** on the end of the shaft **55** to positively secure hair on the curler and also to retain the curler in a nested position against the surface of a head on which the curler is used.

In the design illustrated in Figure 9, a base **78**, similar to the base or section **10**, is provided with a recess **79** for receiving a tongue **80** which is substantially semi-cylindrical in cross section and which extends from a section **81**, similar to the section **11**, and the sections are retained in assembled relation with an elastic band **82** having loops **83** and **84** on the ends.

The loop **83** of the band **82** is adapted to be positioned in a recess **85**, similar to the recess **25**, with the band extended through a slot **86** in the section **81**, similar to the slot **23**, and also through a slot **87** in the section **78** and similar to the slot **24**. The opposite end of the elastic band on which the loop **84** is positioned is adapted to be frictionally held in slots **88** of a button or disc **89** on the end of a shaft **90** similar to the shaft **14**. The shaft **90** is provided with a cam or a plurality of cams **91** that are adapted to coact with cavities **92** in the sections **78** and **81** whereby pulling the shaft **90** outwardly actuates the cam to spread or expand the sections and forcing the shaft inwardly such as by placing the end **84** of the band **82** in one of the slots **88** with the band in tension permits the sections to contract.

In the section shown in Figure 10, the end of an elastic band or cord **93** is secured in a counterbore **94** in the inner end of an opening **95** through an inner section **96**, similar to the section **11**, and with a ball or knob **97** on the end of the cord positioned in the counterbore or recess **94**, the outer portion of the band is adapted to be drawn through a slot **98** in a section **99**, similar to the section **10**, whereby with the end of the cord positioned in the opening **95** and extended through the slot **98** the sections of the curler or rod are temporarily retained in assembled relation.

It will be understood that the end of the cord or band may be arranged as illustrated in Figure 2 or as illustrated in Figure 10, as may be desired.

In the design illustrated in Figure 6, a section **100**, similar to the section **10**, is provided with a collar **101** on one end and a corresponding collar **102** on the op-

posite end and a complementary section **103**, similar to the section **11**, is provided with a tongue **104** that extends into an opening **105** of the collar **102** thereby providing means for retaining one end of the section **103** in one end of the section **100**. The opposite end of the section **103** is provided with a substantially semi-circular collar **106** that is complementary to the collar **101** and with the parts assembled an elastic band **107** is positioned over hair on the assembly with an eye on one end extended over the collar **102** and with an eye on the opposite end stretched over the semi-circular sections **101** and **106** of the collar extended from the end of the body of the curler.

The curler illustrated in Figure 6 is provided with a shaft **108**, the intermediate part of which is provided with cams **109** and **110** and one end of which is provided with a knurled disc or knob **111**. The sections **100** and **103** are provided with perforations, as indicated by the numerals **112** and **113**, respectively. The shaft **108** is also provided with a collar **114** which restrains longitudinal movement thereof.

With this assembly of elements, an improved expansible hair curling rod is provided in which, with the parts expanded, hair is adapted to be wrapped around the curler and with the hair in position thereon and with the curler against the surface of the head of a customer the shaft is moved inwardly permitting the sections to contract thereby relieving tension in hair wrapped on the curler making it possible for hair treating solutions to penetrate more rapidly through the hair. The shaft is adapted to be moved inwardly by hand, however, upon application of the elastic cord or strap through slots of the head or post at the end of the curler the tension of the band draws the shaft inwardly permitting the sections to contract and relieving tension in hair wrapped on the curler.

By this means lotions are permitted to penetrate throughout the hair wrapped around the curler or rod coming into contact with all strands of hair in the lock.

The semi-cylindrical tongue, such as the tongue **12**, extended into the recess **13** in one end of the curler coacts with the cord **20** in the slots **23** and **24** at the opposite end, wherein the ends of the rod are secured in assembled relation.

In use, for example, by referring to the curler in Figures 1 and 2, the plunger head **18** is pulled outwardly thereby expanding the two parts **10** and **11** making up the curler body. A tress of hair to be curled has the end thereof placed against the serrations **40** at the central part of the curler rod and then by manipulation of the fingers of the operator, the tress of hair is wound on the curler so that the curler with the tress wound thereon is in a position against the head. At this point the rubber cord **20** is extended from one end over the tress of hair and the free end of the cord is secured in the slots **19** provided in the head **18** of the plunger and the plunger is moved inwardly whereby the parts **10** and **11** contract together releasing the tension created in winding the lock of hair. The cord extending from one end of the curler to the other holds the tress of hair wound on the curler and secured against the head from unwinding.

It will be understood that modifications, within the scope of the appended claims, may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. A hair curling rod comprising a section substantially semi-circular in cross section and having a longitudinally disposed recess in the inner surface extending throughout the full length thereof, a complementary section also substantially semi-circular in cross section and also having a longitudinally disposed recess in the inner surface and extending throughout the full length thereof, said sections being adapted to be assembled to provide a substantially cylindrical body, means for retaining the sections in assembled relation, a shaft having a cam thereon extended between the sections and adapted to be actuated to expand the sections, and a cord extended through aligned slots in each of the sections at one end of the curling rod and adapted to be frictionally held at the opposite end of the rod.

2. A hair curling rod comprising an elongated substantially cylindrical body formed with a pair of substantially semi-cylindrical sections with a tongue at the end of one section adapted to be positioned in a recess in the end of the other section and with both sections having longitudinally disposed substantially semi-circular recesses in inner surfaces thereof, a shaft having cams thereon extended through the semi-circular recesses and adapted to project at one end of the body, said shaft having a head with slots therein extended from the end of the body and said sections having registering slots therein and said slots being positioned at the end of the body opposite to that from which the head of the shaft extends, and an elastic cord adapted to be positioned with one end retained in the slots at one end of the body and with the opposite end adapted to be frictionally retained in slots of the head of the shaft at the opposite end of the body.

3. A hair curling rod comprising an elongated substantially cylindrical body formed with a pair of substantially semi-cylindrical sections with a tongue at the end of one section adapted to be positioned in a recess in the end of the other section and with both sections having longitudinally disposed substantially semi-circular recesses in inner surfaces thereof, a shaft having cams thereon extended through the semi-circular recesses and adapted to project at one end of the body, said shaft having a head with slots therein extended from the end of the body and said sections having registering slots therein and said slots being positioned at the end of the body opposite to that from which the head of the shaft extends, and an extensible cord adapted to be positioned with one end retained in the slots at one end of the body and with the opposite end adapted to be frictionally retained in slots of the head of the shaft at the opposite end of the body, said shaft being adapted to be actuated to operate the cams to expand the sections of the body.

4. In a hair curler, the combination which comprises an elongated substantially cylindrical body having a concave outer surface and including a pair of sections substantially semi-circular in cross section, one of said sections having a substantially semi-cylindrical tongue extended from one end and the other section having a similarly shaped recess positioned to receive the tongue for retaining the sections in assembled relation at one end of the curler, said sections having registering slots at the opposite end of the curler and a recess in communication with the slot of one of the sections, an elastic cord having knobs on the ends positioned with one end thereof extended through the slots of the sections and with the knob in the recess at the end of one of the slots, the opposite end of the cord being adapted to extend longitudinally of the curler, inner surfaces of the sections of the body having longitudinally disposed recesses with enlarged areas therein, and a shaft extended through the curler between said sections and having cams thereon positioned to register with the enlarged sections of the recesses, and said shaft having a head with slots therein extended from one end of the body and positioned to receive the extended end of the cord, said shaft being adapted to be actuated to expand the body of the curler.

5. A hair curling rod comprising an elongated substantially cylindrical body formed with a pair of substantially semi-cylindrical sections with a tongue at one end of one section adapted to be positioned in a recess at one adjacent end of the other section, said recess receiving said tongue for slight movement transverse to the longitudinal axis of said curling rod, both of said sections having means at their other adjacent ends for holding those ends together also for slight movement transverse to the longitudinal axis of said curling rod, both of said sections

having longitudinally disposed substantially semi-circular recesses in inner surfaces thereof with at least one cam surface in each section and a shaft having a cam thereon extending between the sections to project beyond an end of the rod and adapted to be actuated at said projecting end so that the cam thereon cooperates with the cam surface on each section to move the sections transversely to the longitudinal axis of the rod and thereby expand the curling rod and permit the sections to move transversely toward each other.

6. A hair curling rod according to claim 5 wherein said other end of each of the sections has a registering slot therein and including an elastic cord adapted to be positioned with one end retained in the slots and holding said sections yieldingly together for slight transverse movement under action of said cam and adapted to be secured at the other end to the projecting portion of said shaft, said cord when secured being adapted to hold a lock of hair wound on said rod.

7. A hair curling rod according to claim 6 wherein said shaft is movable longitudinally to cause said cam sections to move transversely apart and together.

8. A hair curling rod according to claim 5 including an elastic strap secured at one end about said other adjacent ends of said sections thereby biasing them toward each other and having the other end thereof adapted to be secured to said first ends of the sections and said shaft being rotatable so as to rotate said cam to cause said sections to move transversely apart and together.

9. A hair curling rod according to claim 5 including means connected to the rod for holding a tress of hair wound thereon.

10. A hair curling rod according to claim 5 including cord means having one end thereof connected at one end of said curling rod and connectable at the other end with said shaft projecting from the rod.

11. A hair curling rod according to claim 5 including cord means having one end thereof connected to said projecting shaft and the other end of the cord connectable with the end of the rod opposite from the plunger projecting end thereof.

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