Aug. 26, 1969 J. P. ZAIDAN 3,463,169

HAIR CURLING APPARATUS

Filed July 1, 1966

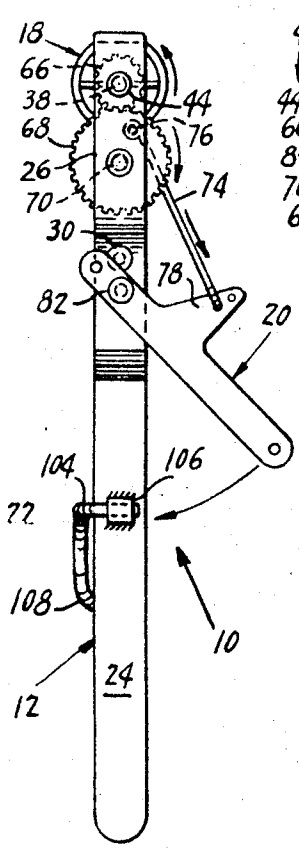

FIG. 2

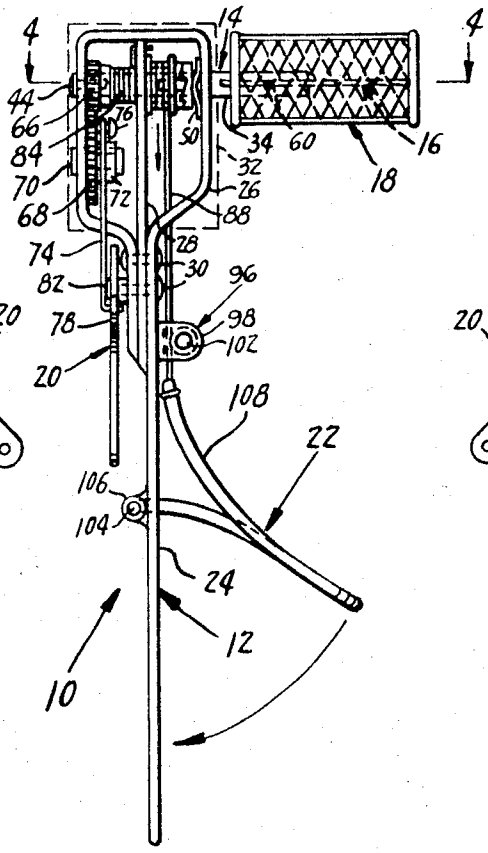

FIG. 1

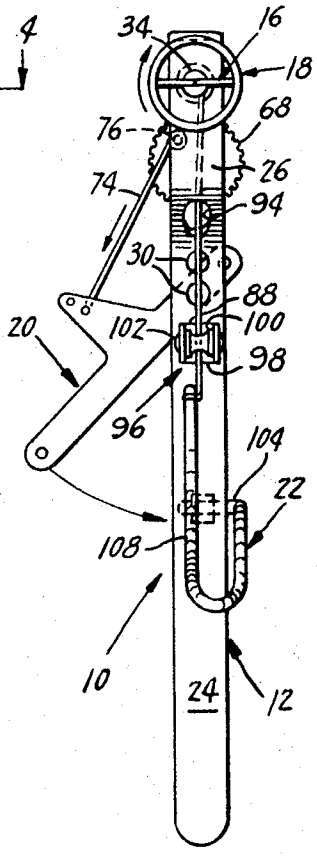

FIG. 3

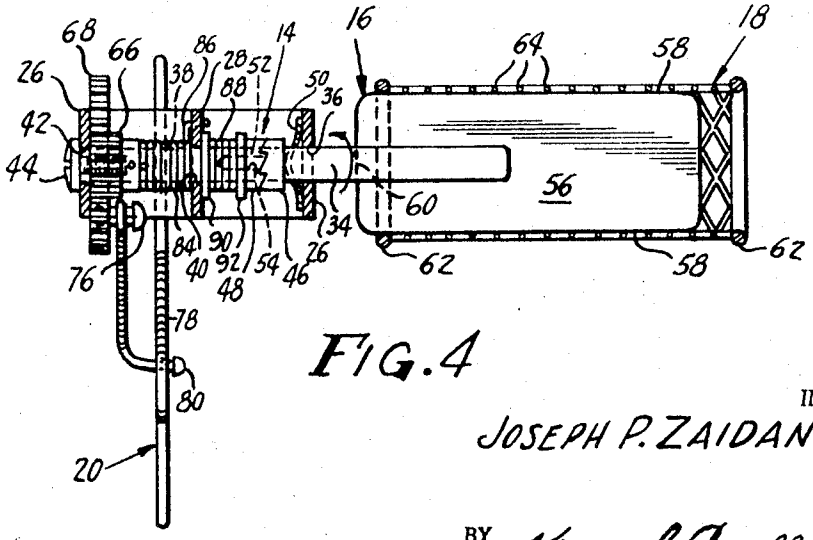

FIG. 4

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HAIR CURLING APPARATUS

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ABSTRACT OF THE DISCLOSURE

A hair curler comprising a support and a roller and a pair of compressible operating members adjacent the support each mechanically connected to the roller, the members being disposed in perpendicular relation to each other whereby the roller may be activated by either hand regardless of the position of the device relative to the hand of the user.

This invention relates to a hair curling apparatus, and more particularly to a device which may be used with conventional curlers to provide means for rapidly and expeditiously curling the hair of an individual.

Hair curling devices of the same general character as the type herein described are known in the prior art, but seem to be constructed for use only in beauty parlors because of the special purpose type of hair receiving element that is used. In addition, the hair curling devices of the prior art are unsatisfactory for home use since only one actuator is provided to rotate the hair receiving element thus requiring manipulation of the hair curler in such a manner that the individual cannot use the devices of the prior art to curl her own hair.

The instant invention seeks to overcome these disadvantages of prior art devices by providing means for connecting a conventional curler to the rotating element such that special purpose hair receiving elements are unnecessary. Another disadvantage evidenced by the prior art devices is overcome by the instant invention by providing a plurality of actuating means thereby allowing convenient actuation of the hair curler of the instant invention from any position.

In brief terms, the instant invention comprises a support, a shaft carried by the support for rotative movement, a tapered adaptor on the shaft for temporarily securing an annular curler thereto and means for selectively unidirectionally rotating the shaft.

Another mode of expressing the instant inventive concept is the provision of a support, a shaft carried by the support for rotative movement, an adaptor on the shaft for temporarily securing a curler thereto and at least a pair of actuating levers disposed on the support for movement at right angles to each other.

It is a primary object of the instant inventive concept to provide a hair curler which may be utilized either in the home or in a beauty parlor.

Another object of the instant inventive concept is the provision of a hair curler equipped with a tapered adaptor for temporarily securing a conventional annular curler thereto.

A still further object of the instant invention is to provide a hair curler equipped with at least a pair of

actuating elements disposed at right angles to each other allowing the rotation of the hair receiving element at any position of the hair curler.

Other objects and advantages of the instant inventive concept reside in the combinations of elements, arrangements of parts, and features of construction and operation, all as will be more fully pointed out hereinafter and disclosed in the accompanying drawing wherein there is shown a preferred embodiment of this inventive concept.

In the drawing:

FIGURE 1 is a top plan view of the hair curling device of the instant invention illustrated as receiving a conventional annular hair receiving curler;

FIGURE 2 is a left side elevational view of the hair curling device of FIGURE 1;

FIGURE 3 is a right side elevational view of the hair curling attachment of FIGURE 1; and

FIGURE 4 is a transverse cross-sectional view of the hair curler of FIGURES 1 to 3 inclusive, taken substantially along line 4—4 of FIGURE 1 as viewed in the direction indicated by the arrows.

Referring now to the drawing in detail, wherein like reference characters designate like elements throughout the several views thereof, the hair curler of the instant invention is illustrated generally at **10** and comprises a support shown generally at **12**, shaft means designated generally at **14** mounted for rotation on support **12**, an adaptor denoted generally at **16** for receiving a conventional annular hair receiving element illustrated generally at **18** and means for selectively and directionally rotating shaft **14** at the behest of the user. When it is desired to use the device of the instant invention to form a curl, the individual starts the curl around element **18** and inserts element **18** over adaptor **16** as shown in FIGURE 4. Subsequently, the individual may actuate either of a pair of levers shown generally at **20, 22** to rotate shaft **14** and thereby roll the hair upon element **18.**

Support **12** may be made of any suitable material, such as metal, plastic or the like, and includes a shank **24** bent at one end to form a substantially rectangular wall **26** with a central partition **28** extending centrally of wall **26** and secured thereto by a plurality of conventional fasteners **30**, such as rivets or the like. It should be understood, however, that support **12** may be of any convenient configuration to journal shaft **14** and provide a suitable platform for levers **20, 22** and the mechanisms connecting levers **20, 22** and shaft **14.** A cover **32** is illustrated in dashed lines in FIGURE 1 and encloses wall **26,** partition **28,** a portion of shaft means **14** and the inner mechanisms of the instant invention to present an attractive appearance.

Shaft means **14** is comprised of two segments, a first shaft **34** journaled through an opening **36** in wall **26** as shown in FIGURE 4, and a second shaft **38** extending through an opening **40** in partition **28** and an opening **42** in rectangular wall **26** aligned with openings **36, 40.** As shown best in FIGURE 4, a screw **44** extends through opening **42** and is received in the end of second shaft **38** thereby maintaining it in a predetermined position. The abutting ends of shafts **34, 38** respectively carry clutch segments **46, 48,** cooperating to form a one-way clutch to rotate shaft **34** in the direction shown by the arrow in FIGURE 4. An annular spring washer **50** resides between clutch segment **46** and rectangular wall **26** bias-

ing first shaft **34** toward second shaft **38** and consequently normally engaging clutch segments **46, 48**. A pin **52** is affixed to the center of clutch segment **46** and extends into a hole **54** in the end of second shaft **38**.

Adaptor **16** is secured on the exposed end of first shaft **34** and includes a substantially planar segment **56** having tapered edges **58** converging away from first shaft **34**. Although the connection between segment **56** and shaft **34** may be effected in any desired manner, a slot **60** in the end of shaft **34** preferably frictionally receives segment **56** thereby making a secure frictional fit and allowing disassembly of the device for easy storage.

Hair receiving element **18** is illustrated as a conventional hair curler comprised of a pair of toroidal ends **62** interconnected by a cylindrical mesh structure **64** about which the hair of the individual is wound. Element or curler **18** is normally made of plastic or the like and is resilient or deformable to receive tapered segment **56**. It will be readily apparent that the largest width of segment **56** preferably slightly exceeds the internal diameter of ends **60**. The pressing of curler **18** onto adaptor **16** will, for these reasons, result in a temporary but secure connection.

As previously mentioned, either of levers **20, 22** may be oscillated to unidirectionally rotate shaft **34** thereby winding the hair of the individual about curler **18**. The drive mechanism associated with lever **20** includes a first gear **66** secured to shaft **38** for rotation therewith, a second gear **68** mounted for rotation by a shaft **70** and retainer **72**, and a substantially rigid link **74** connecting second gear **68** and lever **20**. Link **74** is secured to gear **68** by a screw **76** off center with respect to the axis of gear **68** with link **74** being provided with an eye receiving screw **76**. The other end of link **74** is received in an opening formed in an ear **78** on lever **20** with an enlarged head **80** being provided on the end of link **74** to prevent separation of link **74** and lever **20**. Lever **20** is mounted for rotation on support **12** by a pin **82** thereby mounting lever **20** for pivotal movement in the direction shown by the arrow in FIGURE 2.

A coiled spring **84** surrounds second shaft **38** and has one end secured thereto with the other end **86** received in an opening in partition **28**. It will be apparent that the pivoting of lever **20** in the direction of the arrow shown in FIGURE 2 will result in link **74** moving in the direction indicated by the arrow in the same figure. Movement of link **74** will, of course, rotate second gear **68** in the direction indicated resulting in the opposite rotation of first gear **66** and consequently second shaft **38**. Since the one-way clutch formed by segments **46, 48** transmits this rotation to shaft **34**, it will be seen that the oscillation of lever **20** acts to rotate shaft **34** in the direction shown by the arrow in FIGURE 4. When lever **20** is released, spring **84** acts to rotate shaft **38** in the opposite direction thereby cocking the drive mechanism for another incremental rotary advancement of shaft **34**.

The drive mechanism associated with second lever **22** constitutes a flexible member **88** wound about separate shaft **38** between a pair of flanges **90, 92** secured to shaft **38** in spaced apart relation. Flexible element **88**, which may be a piece of string or other suitable tensioning element passes through an opening **94** in support **12** (FIGURE 3) and passes under a roller assembly shown generally at **96** and is secured to the movable end of lever **22**.

Roller assembly **96** includes a U-shaped bracket **98** affixed to shank **24** in any suitable manner carrying a roller **100** mounted for rotary movement by a pin **102** extending between the upstanding ears of bracket **98**.

Lever **22** includes a substantially straight section **104** journaled in a bearing **106** affixed to shank **24** opposite from roller assembly **96** and a generally U-shaped segment **108** interconnecting segment **104** and flexible cord **88**. It will be readily apparent that the pivoting of lever **22** in the direction shown by the arrow in FIGURE 1 acts to tension flexible member **88** and move it in the direction shown by the arrow in the same figure. Member **88** is

wound about shaft **38** to produce rotation thereof in the same direction as that shown by the arrow in FIGURE 4. Accordingly, the rotation of lever **22** in the direction shown in FIGURE 1 acts to rotate shaft **38**, clutch segments **46, 48**, shaft **34**, adaptor **16** and curler **18** in the desired direction. When the forces on lever **22** are relaxed, spring **84** returns shaft **38** to its original position thereby winding member **88** between flanges **90, 92** and cocking the drive mechanism of lever **22** for another operation.

It should be noted that levers **20, 22** are mounted for rotation about axes disposed 90° with respect to each other thereby providing a convenient actuating means regardless of the position of hair curling device **10**. Although it should be understood that this feature is highly desirable, it will be apparent that the device of the instant invention may be made with but a single actuating element.

It is now seen that there is herein provide an improved hair curling device which accomplishes all of the objects and advantages of the instant invention and others, including many advantages of great practical utility and commercial importance.

Since many embodiments may be made of the instant inventive concept, and since many modifications may be made of the embodiment hereinbefore shown and described, it is to be understood that the foregoing is to be interpreted merely as illustrative and not in a limiting sense.

I claim:

1. A device for curling hair comprising in combination:
- a support;
- a shaft carried by said support for rotative movement;
- means on the shaft for releasably securing an annular curler thereto;
- first manually operable lever means for unidirectionally rotating said shaft;
- and second manually operable lever means operating in a plane offset from the plane of operation of said first lever means for unidirectiontally rotating said shaft,
- the relative position of said two lever means facilitating manual rotation of the shaft by either hand regardless of the position of the curler on the head of the user.

2. The structure of claim **1** wherein the first and second lever means operate in planes perpendicular to each other.

3. The structure of claim **1** wherein the means on the shaft for securing an annular curler thereto include an adapter including a tapered segment having its larger end releasably secured to said shaft.

4. The hair curling device of claim **1** wherein the rotating means includes
- a second shaft carried by the support for rotative movement;
- a gear fixed on the second shaft;
- a one-way clutch drivably interconnecting the first and second shafts;
- a lever, pivotally connected to the support; and
- a substantially rigid link connected at one end to the lever and at the other end to the gear off center from the axis thereof.

5. The hair curling device of claim **1** wherein the rotating means includes
- a second shaft carried by the support for rotative movement;
- a flexible member wound about a portion of the second shaft;
- a one-way clutch drivably interconnecting the first and second shafts;
- a lever pivotally connected to the support, the flexible member being connected to the lever for rotating the second shaft upon oscillation of the lever; and

means biasing the second shaft in a direction opposite to the rotation induced by oscillation of the lever.

6. The hair curling device of claim 5 wherein the rotating means further includes

a gear fixed on the second shaft;

a second lever pivotally connected to the support for movement in a plane at right angles to the plane of movement of the first lever; and

a substantially rigid link connected at one end to the lever and at the other end to the gear off center from the axis thereof.

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