April 5, 1960 R. E. FULTON 2,931,368

HAIRPIN

Filed Oct. 8, 1956 2 Sheets-Sheet 1

FIG. 1.

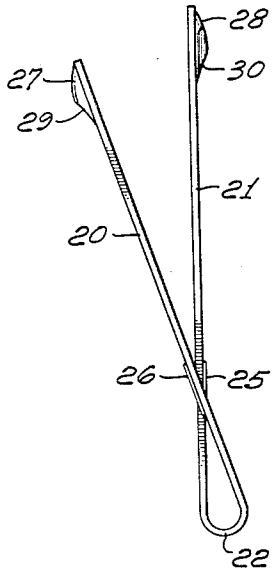


FIG. 2.

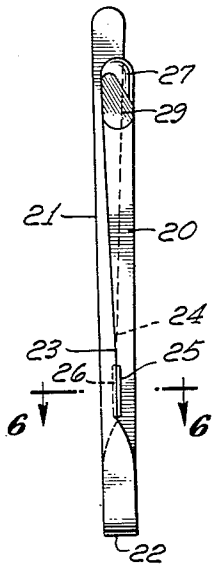


FIG. 3.

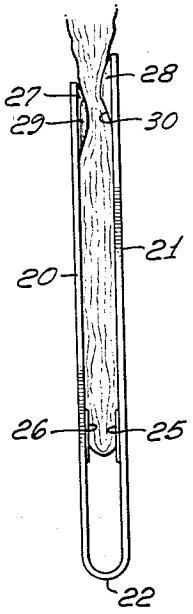


FIG. 4.

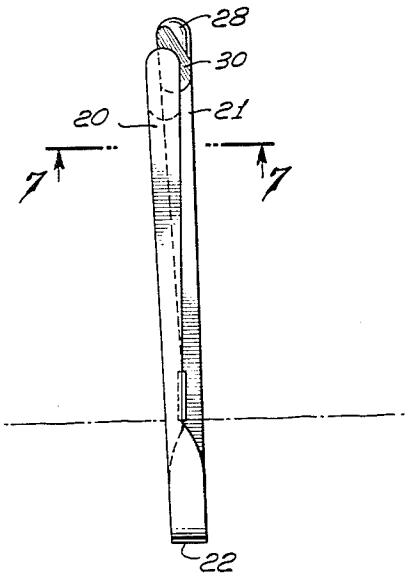
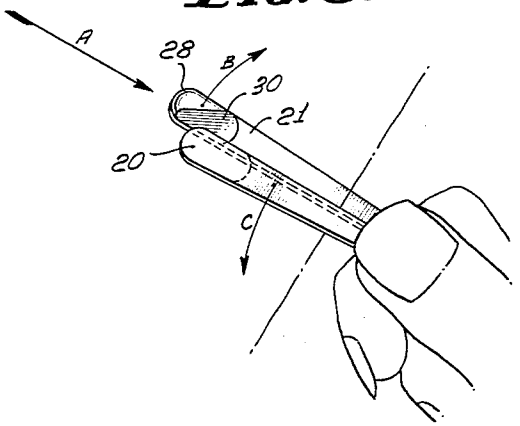


FIG. 5.



INVENTOR.
RUTH E. FULTON
BY
Bernard Kriegel
ATTORNEY.

April 5, 1960 R. E. FULTON 2,931,368

HAIRPIN

Filed Oct. 8, 1956 2 Sheets-Sheet 2

FIG. 6.

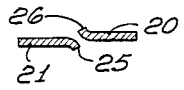


FIG. 7.

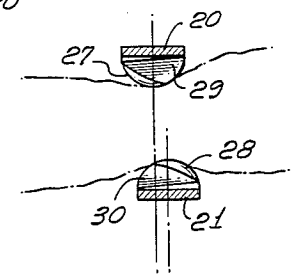


FIG. 8.

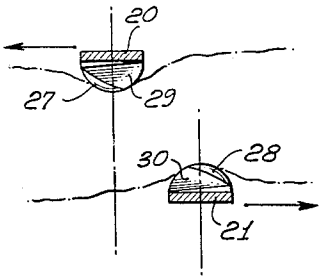


FIG. 9.

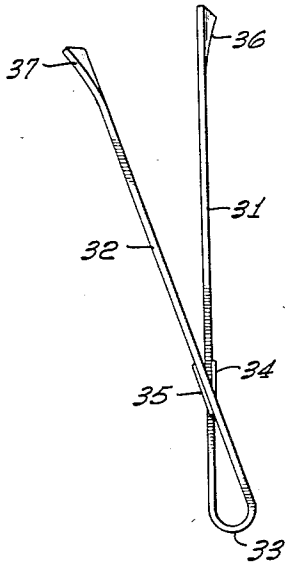


FIG. 10.

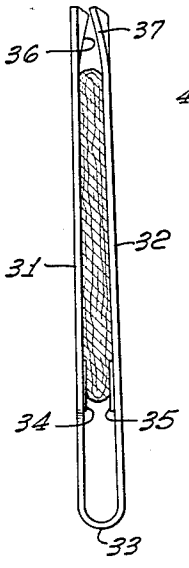


FIG. 11.

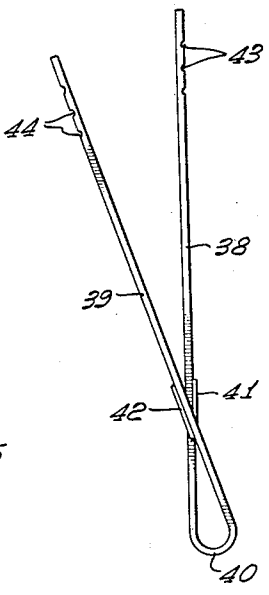
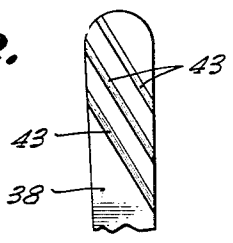


FIG. 12.



INVENTOR.
RUTH E. FULTON
BY
Bernard Kriegel
ATTORNEY.

United States Patent Office

2,931,368

Patented Apr. 5, 1960

2,931,368

HAIRPIN

Ruth E. Fulton, Los Angeles, Calif.

Application October 8, 1956, Serial No. 614,713

2 Claims. (Cl. 132—50)

The present invention relates to hair holding devices such as hair pins and the like. More particularly it relates to hair pins of the crossed arm type, which are inexpensive to make, simple to use and will not tear or otherwise damage the hair during the application and removal.

Attempts have been made by the prior art to provide hair pins formed with two legs of spring steel or the like in which the legs are normally crossed and closed at one end, diverging at the other end to provide an opening for receiving a strand of hair. Pins of such construction have been provided in which the legs may be uncrossed by applying pressure and rotating the closed end in one direction thereby causing the open ends of the legs to close together in substantially superimposed clamping position. However, such prior art pins have proved undesirable in that the uncrossing action of the legs when rotating into clamping position, as well as their recrossing action when the pin is removed from the hair, tends to cut or otherwise damage the hair by the frictional effects of such action and the tendency towards cutting which results through the shearing action of one leg in frictional engagement with the other during the opening and closing of the pin. Furthermore, upon withdrawal of the pin from the strand of hair the pressure which the legs tend to exert against the mass of hair therebetween, as well as against each other, may cause the hair to bind between the legs and resist the outward pull, thereby causing tearing or other damage to the hair beside requiring extra time and care to be utilized in the withdrawal of such pins.

It is therefore an object of the present invention to provide a hair holding pin which will not pull or tear the hair during insertion or removal.

It is a further object of the present invention to provide a hair pin which will open automatically when removed from the hair with a direct pull and without requiring any substantial twisting action.

It is an additional object of the present invention to provide a hair pin of a crossed arm type which will hold hair firmly and equally throughout its length and will remain closed while engaging the hair without using hooking devices or catches.

In accordance with the present invention, the above objects are achieved by forming a pin from a flat strip or ribbon of a spring material such as steel cut to the desired size and shape. The strip from which the pin is formed is so shaped in the region where the legs will cross during clamping or unclamping that the legs will not be required to contact or abrade against each other under pressure in such region. Furthermore, relatively flat bearing surfaces are provided in the regions where the legs tend to cross which will eliminate the tendency of sharp surfaces to damage hair positioned therebetween during closing and opening of the pin. Additionally, the present invention provides a special bevel and cam-like construction at the engaging ends of the pin when in closed position which will insure effective clamping

action but will facilitate opening of the pin and removal from the hair, and in which the mass of hair will bear against the cam-like surfaces and cooperate in the opening of the pin while it is being withdrawn with a direct pull.

This invention possesses many other advantages and has other objects which may be made more clearly apparent from consideration of the forms in which it may be embodied. These forms are shown in the drawings accompanying and forming part of the present specification. They will now be described in detail, for the purpose of illustrating the general principles of the invention; but it is to be understood that such description is not to be taken in a limiting sense, since the scope of the invention is best defined by the appended claims.

Referring to the drawings:

Figure 1 is a side view in elevation of one form of the pin of the invention in open position.

Fig. 2 is a top view in elevation of the pin of Fig. 1.

Fig. 3 is a side view in elevation of the pin of Figs. 1 and 2 shown in closed position engaging a strand of hair.

Fig. 4 is a top view in elevation of the pin of Fig. 3 in hair engaging position.

Fig. 5 is a view in perspective illustrating operation of the pin as it is withdrawn from the hair in returning from closed position to open position.

Fig. 6 is a horizonal transverse cross-section taken along the lines **6**—**6** of Fig. 2 showing the structure of the legs in their crossed position when the pin is open.

Fig. 7 is a horizontal transverse view partly in cross-section and partly in elevation taken along lines **7**—**7** of Fig. 4 illustrating the novel structure at the end of the legs when the pin is in closed position.

Fig. 8 is a horizontal transverse view partly in cross-section and partly in elevation taken along the same plane as Fig. 7 illustrating the position of the legs as the pin is withdrawn from the hair in the manner illustrated in Fig. 5.

Fig. 9 is a side view in elevation of another form of the pin of this invention in open position.

Fig. 10 is a side elevational view of the pin of Fig. 9 in closed position engaging a strand of hair.

Fig. 11 is a side view in elevation of still another form of the invention in open position.

Fig. 12 is a top view in elevation illustrating the structure of one of the open ends of the pin shown in Fig. 11.

As illustrated in Figs. 1 to 8, inclusive, of the drawings, which describe one form of the invention, the hair pin is formed of a single length of narrow strip spring steel or the like having inherent spring characteristics, which is bent to form legs **20** and **21** and closed end **22**. As shown in Figs. 1 and 2, the pin is formed by bending the legs so that they normally tend to assume a crossed position, diverging to form a V-shaped opening therebetween, due to the inherent spring characteristics of the material. When a strand of hair is engaged between the divergent legs and the closed end **22** is twisted, the legs will tend to uncross and be forced to be into superimposed clamping position with the inside portions of the free ends opposed to each other. In the structure illustrated in Fig. 1, for example, the legs will cross when counter-clockwise pressure is applied to the closed end.

In order to minimize or eliminate frictional or abrading effects upon the hair by rubbing of the side edges of legs **20** and **21** against each other during crossing and uncrossing from open to closed position, and vice versa, leg **20** is formed with an inwardly tapered or cut-out construction, as shown at **23** in Fig. 2, and leg **21** is formed with a tapered or cut-out area shown by the dotted line **24** so that in the area where the legs normally tend to engage during crossing, a desired amount of material has been removed therebetween and the legs

have each been narrowed to provide an area of reduced width at that point. As a result, when the end **22** is twisted to open the pin, the legs will achieve crossed position, preferably with no contact between their inward side edges, which may be spaced apart to some extent. When a strand of hair is positioned between the divergent ends, the degree of pressure and any resultant cutting or abrading action on the hair is therefore minimized or eliminated when the pin is twisted into closed position. The legs may be reduced in width in the normal crossing area thereof in various ways as by grinding or cutting out portions of the material of the legs in this area, or by initially forming the legs with a tapered construction, the objective being to provide relief in this area where the greatest degree of pressure upon the hair is liable to occur. It has also been found desirable to provide the normal crossing area of each leg with enlarged surfaces which will act to distribute any pressure which may be applied between the legs over a larger area, thereby facilitating crossing and uncrossing of the legs and minimizing pressure upon the hair therebetween. Such enlarged areas are shown at **25** and **26** in Figs. 1, 3 and 6 which are, by way of example, in the form of lips or bent over portions formed in the plane of the flat surface of each leg and at an angle to the plane in which the legs move during crossing and uncrossing. In this way enlarged flat bearing surfaces are provided which may engage the hair and upon which the hair will slide when the pin is applied and removed. This also facilitates shifting the legs to clamping position, as well as their return to normal position.

The crossing position of the legs is preferably beyond the midpoint of the pin relatively close to the closed end in order that a greater hair holding area may be provided. It has been found that the relieved construction of the legs plus the beveled areas at the point of crossing permits opening and closing of the pin with a minimum of force despite the reduced leverage resulting from this position of the crossing area.

The open ends of the legs are provided with downwardly inclined members near the inward opposed ends of the legs when they are in closed clamping position. These members are designed to function like cams in order to facilitate removal of the pin from the hair and to provide for automatic recrossing of the legs to their normal open position upon direct withdrawal of the hair without the necessity of the turning or twisting of the pin. One form of such an end construction is also illustrated in Figs. 1 to 8, inclusive. Enlarged areas are provided at **27** and **28** of legs **20** and **21**, respectively. These areas are formed at or near the ends of the legs upon the sides which are opposed to and in contact with each other when the pin is in closed position. These enlarged areas are shaped to form downwardly inclined beveled surfaces **29** and **30** with the slope of these bevels extending toward the near edge of each leg, the near edge being considered that which is opposed to a corresponding edge of the other leg during crossing and uncrossing of the legs. The position and function of these cam-like elements is illustrated more particularly in Figs. 3, 5, 7 and 8. As shown in Figs. 3 and 7, legs **20** and **21** engage a mass of hair in clamping position with enlarged areas **27** and **28** opposed to each other and with the hair engaged between opposed beveled elements **29** and **30** formed in the enlarged areas. Upon the direct removal of the pin from the hair by pulling in the direction of the arrow A in Fig. 5, the action of the mass of hair engaging the beveled surfaces **29** and **30** tends to force the legs in the respective directions illustrated by arrows B and C which reinforces the tendencies of the legs to return to their normal crossed position due to the inherent spring of the material. This is illustrated further in Fig. 8. Because of this cam-like action, the legs of the pin will tend to return to their normal crossed position without the necessity for further twisting or

rotation of the closed end of the pin and will thus act to ensure automatic release from the closed position.

A modified form of the invention is illustrated in Figs. 9 and 10 in which the pin is formed with legs **31** and **32** having closed end **33** and beveled portions formed in the region of normal crossing, as shown at **34** and **35**. The ends of the legs are formed with inclined cam-like surfaces **36** and **37** which are formed by the bending of the ends rather than by the beveling of an enlarged area, as in the case of Figs. 1 to 8. These cam-like portions are inclined inwardly toward the respective crossing edges of the legs and function in a manner similar to that described in Figs. 1 to 8, namely in a cam-like manner whereby a mass of hair positioned between the legs in closed position, as shown in Fig. 10, will, upon direct withdrawal of the pin, tend to bear against the inclined surfaces to cooperate with the normal spring tendency of the material in forcing the legs apart and encouraging them to return to normal crossed position without the application of rotary pressure to the closed end.

A still further modification of the invention is illustrated in Figs. 11 and 12 in which normally divergent legs **38** and **39** having closed ends **40** are formed with enlarged areas **41** and **42** in their normal crossing position. One or more downwardly inclined grooves or sets of grooves **43** and **44** are formed in the inner opposed surfaces of each leg at the ends thereof, as shown. These grooves incline downwardly toward the inner edges of the respective legs in order to provide a cam-like action when the closed pin is withdrawn from a mass of hair between the legs, thereby exerting outward pressure upon the legs to encourage them to return to their normal crossed position, as described above in connection with the other modifications.

It will be readily apparent that a hair pin of the cross arm type has been provided. Pressure relief has been provided in the normal crossing area, thus permitting crossing and uncrossing of the legs of the pin with less force. At the same time shorter pins may be formed with adequate clamping pressure due to the location and structure of the crossing area of the legs. Additionally fuller insertion of hair is permitted prior to turning the legs into clamping position due to the location of the crossing area nearer the closed end. It has also been found that when used with pin curls, distortion of the curl is prevented since it is unnecessary to push the pin beyond the normal crossing position of the legs since this position is beyond the intermediate portion of the pin closer to the closed end. The advantages of the cam action provided at the ends in facilitating automatic release of the legs from clamping to open position have been clearly described above.

While the foregoing embodiments illustrate certain desirable forms of this invention, it is to be understood that these are for the purpose of illustration only, and various changes and modifications may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

The inventor claims:

1. A hair pin comprising a pair of clamping legs having free ends and a closed end, said clamping legs being normally in crossing position with the free ends diverging to provide a hair receiving opening, said closed end being twisted in one direction whereby said legs become uncrossed and snap into superimposed generally parallel hair clamping position with the free ends disposed one above the other, and cam means on at least one of said free ends engageable with the hair when the free ends are disposed one upon the other, said cam means being responsive to manual movement of the hair pin in the direction of its length to shift said leg having said cam means laterally of said other leg to return said legs to their normal crossing position, the adjacent edge portions of said legs in the region where said legs normally cross tapering gradually from said region to a wider width in

the direction of said free ends to permit the center lines of said legs to be disposed laterally closer to one another when said legs are in normal crossing position, the width of said legs where said legs normally cross being substantially less than the width of said legs at their closed end.

2. A hair pin comprising a pair of clamping legs having free ends and a closed end, said clamping legs being normally in crossing position with the free ends diverging to provide a hair receiving opening, said closed end being twisted in one direction whereby said legs become uncrossed and snap into superimposed generally parallel hair clamping position with the free ends disposed one above the other, and cam means on said free ends engageable with the hair when the free ends are disposed one upon the other, said cam means being responsive to manual movement of the hair pin in the direction of its length to shift said legs laterally in opposite directions to return said legs to their normal crossing position, the

adjacent edge portions of said legs in the region where said legs normally cross tapering gradually from said region to a wider width in the direction of said free ends to permit the center lines of said legs to be disposed laterally closer to one another when said legs are in normal crossing position, the width of said legs where said legs normally cross being substantially less than the width of said legs at their closed end.

References Cited in the file of this patent

UNITED STATES PATENTS

D. 144,309	Levin	Apr. 2, 1946
2,161,946	Beiter	June 13, 1939
2,268,629	Wardell	Jan. 6, 1942
2,490,856	Daras	Dec. 13, 1949
2,523,548	Adler	Sept. 26, 1950
2,601,435	Einhorn	June 24, 1952
2,620,808	Santis	Dec. 9, 1952