This invention relates to a device for use in opening hairpins of the type commonly referred to as "bobby" pins, and other pins and clips of a similar U-shaped construction, in which the legs of the pin, adjacent to the open end thereof, are in close or contact relation when the pin is in its normal closed condition.

At the present time there is no satisfactory device for opening pins and clips of this kind and they are commonly opened by means of the teeth, in order to leave one hand free to hold the curl of hair.

I propose to avoid the necessity for using the teeth, or two hands, in opening pins of this type by providing a device which can be attached to a convenient surface and which will make the opening of such pins an easy, quick and simple operation requiring the use of only one hand.

A primary object of my invention is therefore to provide a new and novel opener which, in conjunction with the fingers of one hand, will constitute means for quickly and easily opening bobby pins and other similar articles.

Another primary object of my invention is to provide an opener which may be attached to a vertical, sloping or horizontal surface at a convenient point thereon, and which will function properly and adequately in the position selected.

Another object of my invention is to provide an opener which may be removably attached to the surface of a mirror, tile wall, glass shelf, porcelain washstand, enamel basin or other surface of a similar smooth character.

A further object of my invention is to provide an opener which includes means for guiding the pin to a suitable position for opening and means for limiting the movement of the pin while it is being opened.

The accompanying drawing illustrates some preferred forms of my invention and the method of its use, it being understood however that no limitation is made to the precise details shown therein.

In the drawing:

1 Fig. 1 is a side elevation of my invention in its simplest form, which is a plate or body provided with a base by means of which it may be attached to a surface. This view also illustrates various positions, with respect to the opener, in which a pin may be placed in using the opener.

2 Fig. 2 is a plan view of the opener shown in Fig. 1 illustrating the method of opening a pin.

3 Fig. 3 is a side elevation of another form of opener consisting of a body, a pin guide and stop fixed to one side or face of the body, and means, such as a suction cup, for removably attaching the opener to a smooth surface.

4 Fig. 4 is a front elevation of the opener illustrated in Fig. 3 showing the pin guide and stop projecting outwardly from a face or side of the body plate.

5 Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, it will readily be seen that in its various forms the primary parts of my invention are a body or plate, which can go between the legs of a bobby pin or similar article, and a base or means for attaching the opener to a surface. In the various forms of the invention, 18 is the body or plate, 11 is a base for fixedly attaching the opener to a surface, and 12 is a suction cup or similar base for removably attaching the opener to a surface.

6 Figs. 1 and 2 show an opener fixedly attached by its base 11 to a vertical surface 20 with its body or plate 10 extending outwardly from the surface 25. Various positions, with respect to the opener, in which a pin may be placed for the purpose of opening it are shown by the dotted outline 30. Within rather wide limits the specific position of the pin on the opener immediately prior to opening is determined by the position of the opener in relation to the body of the person using it. In order to facilitate the opening of pins in the various positions the outline of the body 10 is angular, with each of the edges 17 through 21 in a different angular relation with the surface 29. When the opener is attached to a vertical surface at a point substantially below elbow level the angle at which a pin is brought into contact with the opener is such that the pin would normally be in a position as indicated at the edges 17 and 18, and therefore these edges would be used. With the opener at a point from slightly below to slightly above elbow level, edges 18, 19 or 20 would be used. When at a point substantially above elbow level, edges 20 and 21 would be used. When attached to a horizontal surface, edges 20 and 21 would normally be used.

7 To open a pin by means of the opener the closed end of the pin is held between the thumb and middle finger of either hand. The open end of the pin is brought into contact with the edge of the body of the opener so that the ends of the legs of the pin are separated from each other by the edge of the opener, the pin is then slid onto the opener with a leg on each side of the body. When the pin has reached a point where a substantial part of the pin is
on the opener the forward motion is stopped and the closed end is moved laterally in angular relation to the plane of the body 18. When the pin is raised to the right hand the lateral motion is to the left and when held in the left hand it is to the right. The opener remains in its fixed position when the closed end of the pin is moved laterally and therefore the body 10 acts as a lever forcing the legs of the pin apart as shown in Fig. 3. In Fig. 2 the legs of the pin are indicated by the reference characters 31 and 32.

With the pin open as shown in Fig. 2 the tip of the index finger is inserted between the body 10 of the opener and the leg 32 of the pin, in the manner shown. The pin is then withdrawn from the opener with the index finger in the position shown keeping it open.

In using the form of opener shown in Figs. 1 and 2 the motion of the pin onto the opener is stopped by the user when the pin is in an approximately the correct position for opening and any tendency for it to slide out of position during the operation of opening is counteracted by the fingers.

The opener shown in Fig. 3 and 4 has, as a component part thereof, a pin guide and stop which guides the pin into a correct opening position and stops it at that point. It further prevents the pin from moving out of position during the operation of opening. For simplicity in design the pin guide and stop is shown in a drawing in a combined form which fulfills the three functions of guiding the end of a pin to the proper stopping point, stopping the forward motion of the pin when that point has been reached, and limiting the lateral motion of the pin along the surface of the body of the opener by confining it within a given area. However, if desired, openers can be made in which the three functions are separately treated or in which only one or two of the functions are provided for.

In the form of opener illustrated in Figs. 3 and 5 the members of the pin guide and stop 13 project outwardly from the surface 14 of the body 10 and are arranged thereon in a spoke-like manner, extending from a central point 15 to the edge of the body 10. Adjacent members of the pin guide and stop form the vertices 18, each of which is subtended respectively by an edge 17 through 21 of the body 10. In this arrangement the distance from any point on the edge 21 to its subtended vertex 18 is within the limits of the distance required for the efficient opening of a pin of the character for which the opener is designed. This is similarly the case with respect to the other edges 17 through 20 and their respective subtended vertices. In the opener shown the distances from each of the vertices 18 to similar points on their respective edges are equal. However, if desired, the said distances may be unequal, to provide for pins of different lengths. In operation the end of the pin will slide along a surface of one of the members of the pin guide and stop 13 until it reaches and stops in a vertex 18. As the pin is confined to the space between the adjacent members of the pin guide and stop and as any position of the pin within this space is a proper position for the operation of opening provided the end of the pin is in the vertex, the pin cannot move out of a correct opening position while being opened.

From the foregoing description of some preferred forms of my invention it will now be understood that I have disclosed a new and novel opener by means of which a hairpin of the form commonly referred to as a Bobby pin, or a similar article, may be easily and quickly opened with one hand, and that I have further provided an opener which can be attached at a convenient point, to a vertical, sloping or horizontal surface and will function properly in the position selected.

It will also be seen that I have provided an opener of the character described which can be removably attached to the surface of a mirror, glass shelf, tile wall, porcelain washstand or other similar smooth surface.

It will further be seen that I have provided an opener for Bobby pins as well as similar clips and articles, which has means for guiding and limiting the motion of the pin during the operation of positioning the pin for opening and limiting the movement of the pin during the operation of opening.

While I have described some preferred forms of my new and novel opener it is obvious that my invention is not limited to the particular forms shown and described and that the opener can have any one of a wide variety of structural forms and details without departing from the fundamental principles and operational principles of my invention. It is obvious that an opener can be made in which a separate member is provided for each of the functions of guiding the pin into the opening position, stopping its forward motion and limiting its lateral movement, as each of these functions is performed by a separate portion of the combined pin guide and stop. In order to provide a separate means for each function it is merely necessary to divide each of the rib-like members of the illustrated pin guide and stop into three parts, one for each function. It is also obvious that it is not essential that the rib-like members of the pin guide and stop radiate from a central point but that the various elements performing the aforesaid functions may be placed on a surface of the opener body in any desired relation to each other. Therefore I desire it understood that the elements of the pin guide and stop may project outwardly from a surface of the body of the opener in any desired arrangement, that the outline of the body may have any desired form, and that the plane of the body may be in angular or parallel relation to the surface to which the opener is attached, without exceeding the limits of my invention, and that alterations and modifications within the scope of the appended claims may be resorted to when desired.

Having thus described my invention and pointed out the new and novel features therein, what I claim is:

1. An opener for hairpins comprising a plate adapted to enter between the legs of a hairpin and act as a lever for separating said legs, and means by which the opener may be attached to a surface, the said plate being of such size and shape that the end of a leg of the hairpin will be in contact with a surface of the plate when the plate has entered between the legs of the hairpin for a substantial portion of the length of the hairpin.

2. A conveniently transportable opener for hairpins comprising a plate adapted to enter between the legs of a hairpin and act as a lever for separating said legs when pressure is applied to the closed end of the hairpin at an angle to the surface of the plate, and a suction
cup attached to said plate for removably attaching the opener to a surface, the said plate having a plurality of edges in angular relation, each of a plurality of the angles formed by the said edges being greater than ninety degrees, and the distance between a portion of the edge and a portion of an opposite edge being more than half the length of the type hairpin for which the opener is designed.

3. An opener for hairpins comprising a plate adapted to enter between the legs of a hairpin, a suction cup attached thereto for attaching the opener to a surface, and a plurality of bars attached to a surface of the plate, a portion of one of said bars being in close relation to a portion of an adjacent bar and the said adjacent bars being in angular relation to each other thereby forming an angle on the surface of the plate, the apex of the said angle being spaced from a portion of an edge of the plate by a distance equal to a substantial portion of the length of the type hairpin for which the opener is designed, the said distance being measured on a line passing through the open base of the angle.

4. An opener for hairpins comprising a plate with a plurality of shoulders formed on a surface thereof, and means attached to the plate for attaching the opener to a surface of the plate, a portion of one of said shoulders being in close relation to a portion of an adjacent shoulder and the said shoulders being in angular relation, a plurality of adjacent shoulders in said angular relation constituting, in combination, means for guiding a hairpin into a proper position for opening, stopping the longitudinal movement of the hairpin when in said position and retaining it in a proper opening position during the opening operation.

5. An opener for hairpins comprising a plate adapted to enter between the legs of a hairpin and act as a lever for separating said legs when pressure is applied to the closed end of the hairpin at an angle to the surface of the plate, a portion of one of said bars forming a plurality of angles on the surface of the plate, a portion of each of the bars forming each of the said angles at the apex thereof being adapted to engage the end of a leg of a hairpin and thereby limit both the longitudinal and the lateral movement of the said hairpin along the surface of the plate.

6. An opener for hairpins comprising a plate adapted to enter between the legs of a hairpin and act as a lever for separating said legs when pressure is applied to the closed end of the hairpin at an angle to the surface of the plate, means attached to said plate for attaching the opener to a surface, and a plurality of bars fixed to a surface of the plate with one of a plurality of adjacent bars extending from a point on the plate towards an edge thereof, and one of the said adjacent bars forming an angle on the surface of the said plate, a portion of each of the bars forming the said angle, at the apex thereof, being adapted to engage the end of a leg of a hairpin and thereby limit both the longitudinal and the lateral movement of said hairpin along the surface of the plate, a portion of one of the said adjacent bars, spaced from the apex of the said angle, being adapted to engage the side of the hairpin and thereby further limit its lateral movement during the opening operation.

7. An opener for hairpins comprising a plate adapted to enter between the legs of a hairpin and act as a lever for separating said legs when pressure is applied to the closed end of the hairpin at an angle to the surface of the plate, a suction cup attached to said plate for attaching the opener to a surface, and a plurality of rib-like members attached to a surface of said plate, a plurality of the said rib-like members being joined in angular relation to each other thereby dividing a portion of the plate into a plurality of partially enclosed sections, each of a plurality of said sections in combination with adjacent rib-like members and a portion of an edge of the plate constituting means for opening hairpins, in each of the said separate means for opening hairpins an angle being formed by adjacent rib-like members and a portion of each of said adjacent rib-like members at the apex of the said angle being adapted to engage the end of a leg of a hairpin and thereby limit both the longitudinal and the lateral movement of the said hairpin along the surface of the plate, and a portion of one of the said adjacent rib-like members spaced from the apex of the said angle being adapted to engage the side of the hairpin and thereby further limit its lateral movement during the opening operation.

OTTO C. SEMONSEN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,243,659</td>
<td>Friesleben</td>
<td>Oct. 18, 1917</td>
</tr>
<tr>
<td>2,150,144</td>
<td>Andersen</td>
<td>Mar. 14, 1939</td>
</tr>
<tr>
<td>2,226,237</td>
<td>Cooper</td>
<td>Dec. 24, 1949</td>
</tr>
<tr>
<td>2,288,443</td>
<td>Felton</td>
<td>June 30, 1942</td>
</tr>
<tr>
<td>2,414,947</td>
<td>Welch</td>
<td>May 25, 1948</td>
</tr>
<tr>
<td>2,445,378</td>
<td>Sewol</td>
<td>June 20, 1948</td>
</tr>
<tr>
<td>2,445,379</td>
<td>Turner</td>
<td>July 20, 1948</td>
</tr>
<tr>
<td>2,481,209</td>
<td>Farnsworth</td>
<td>Sept. 6, 1949</td>
</tr>
</tbody>
</table>