(No Model.)

I. W. HEYSINGER.

HAIR CRIMPER.

No. 309,854. Patented Dec. 30, 1884.

Fig. 1.

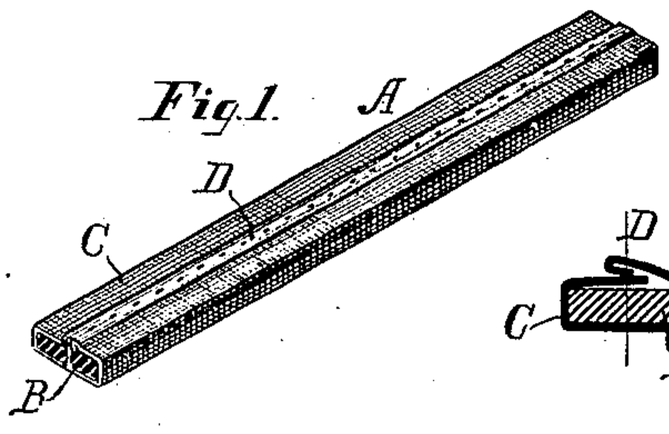


Fig. 2.

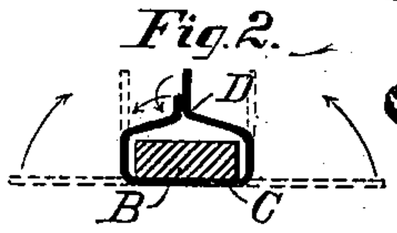


Fig. 3.

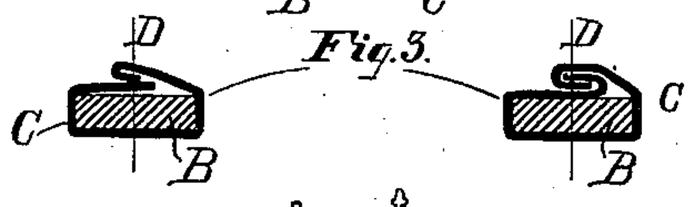


Fig. 5.

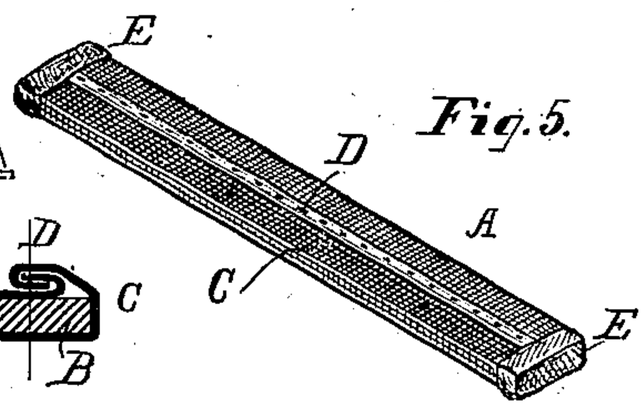


Fig. 6.

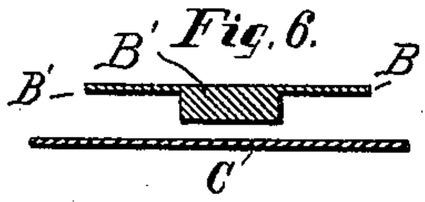


Fig. 8.

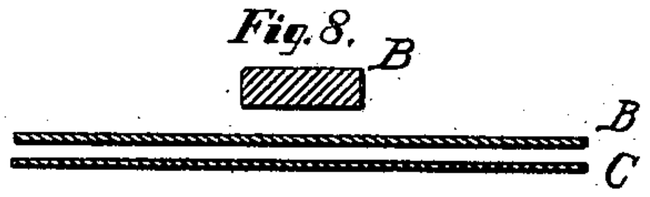


Fig. 7.

Fig. 4.

Fig. 11.

Fig. 9.

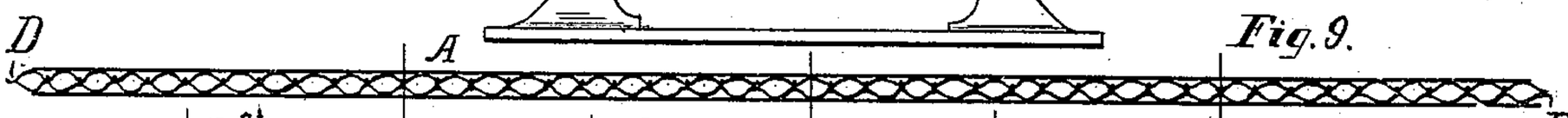
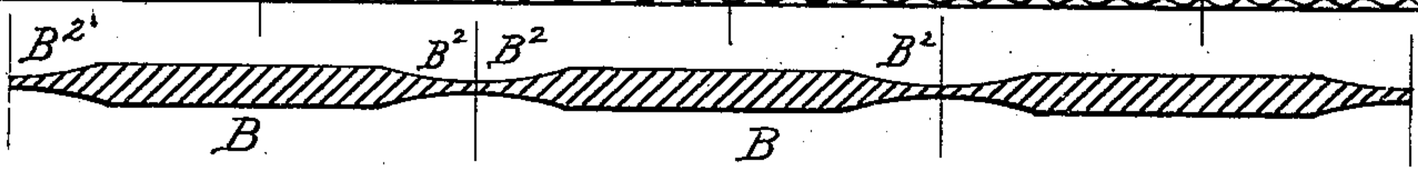


Fig. 10.



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HAIR-CRIMPER.

SPECIFICATION forming part of Letters Patent No. 309,854, dated December 30, 1884.

Application filed July 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, ISAAC W. HEYSINGER, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Hair-Crimpers and in the Manufacture thereof, of which the following is a full, clear, and exact description, reference being had to the drawings accompanying and forming a part of this specification, in which—

Figure 1 is a perspective view of a hair-crimper partially embodying my invention, showing the soft-metal core, the textile or woven covering, and the longitudinal seam by which the said covering is secured, no cement having been used. Fig. 2 shows the various steps by which the textile or woven fabric is laid around the soft-metal core. Fig. 3 shows the core, the covering fabric and the completed seam before rolling in cross-section. Fig. 4 shows the seam as rolled down flat upon the core to secure the same. Fig. 5 is a side view of the flat surface of a hair-crimper partially embodying my invention, in which the surface of the fabric covering the core has been rolled under embossing or figured rolls to give the said surface a pebbled or other ornamental finish, and in which, also, the ends of the crimper have been dipped in cement to prevent the unraveling of the ends of the covering thereof. Fig. 6 shows a transverse sectional form of the metallic core when it is designed to seam the fabric upon the core without stitching the same. Fig. 7 shows in cross-section a crimper-core, the sides of which are thus turned in and seamed down to hold the fabric. Fig. 8 shows a core of soft metal in which the metallic wrapping, which, in this form, as in Figs. 6 and 7, is turned over to form the seam, is made of a separate sheet-metal strip, the textile or woven fabric being applied and folded therewith. Fig. 9 is a longitudinal section of a length of hair-crimper stuff before cutting the same into crimpers, and shows the stitches by which the seam is fastened to the core. Fig. 10 shows a plan view of length of core to be afterward covered with textile or woven fabric, and cut into crimpers upon the cross-lines shown in the figure, in which the said core is of various diameters, so as to form the finished crimpers with ends thinner and more flexible than the central portion or body of said crimpers. Fig. 11 shows the method by which a sewing-machine is adapted to produce a hair-crimper embodying my invention.

The lettering in all the figures is uniform.

The first part of my invention relates to the construction of a hair-crimper provided with a core of soft metal surrounded with a covering of textile or woven fabric and adapted to be used for crimping, curling, and frizzing the hair of children, ladies, or others, by winding separate strands of the hair around the said crimper and afterward turning in the ends so as to clasp and hold the hair until it has become set in its new twisted direction, in which said hair-crimper the covering fabric is cut into strips of a suitable width in the process of manufacture and wrapped around the core so as to form a sheath or envelope for the same, and fastened by a row of stitches running longitudinally through the center of the crimper and passing through the core, so as to make a secure seam and also prevent the covering from stripping off the core longitudinally into whatever length the crimper may be cut, whereby the use of cement, or metallic caps, or other similar attaching means are dispensed with and a cheaper and stronger crimper is made than those in ordinary use.

The second part of my invention relates to the construction of a hair-crimper of the general form shown, and adapted to be used as described, in which the free ends thereof have been dipped or otherwise coated with a cementing surface, which, when dry, will prevent the unraveling of the ends of the woven covering thereof, or the pulling out of the stitches when the seams are closed thereby.

The third part of my invention relates to the construction of a similar hair-crimper, provided with a solid soft-metal core having lateral thinned edges or flanges, which are adapted to be turned over along with the textile or woven covering and form a resistant flanged seam with inturned edges, whereby the use of stitches may be avoided, if desired, the seam being held down, and the textile covering secured, when closed upon the core, by the stiffness of the metal fold in contact therewith.

The fourth part of my invention relates to a continuous core of soft metal for the manu-

facture of hair-crimpers, rolled, drawn, forced, or cut with swells upon its length, so that when the crimpers are cut off from the said continuous core, each crimper may have its middle part or body of larger size than the ends which are to be turned in under the strands of hair, to hold the same.

The fifth part of my invention relates to the method of manufacture of said crimpers, as will be described hereinafter.

Referring to the drawings, A is a hair-crimper adapted to be used as above described, consisting of a central core, B, of soft metal, preferably lead. This core I form from a continuous length of lead wire, such as is commonly manufactured at lead-pipe works. If made rectangular or flat in cross-section it may be used as delivered from the die, but if of round sectional form it should be flattened between suitable rolls.

It is well known in the arts that soft metal, when drawn or forced into the form of a continuous wire through suitable dies, is capable of being made much more ductile from having its grain or fiber laid along its length by this process than if cut into strips from a sheet of thin metal, and the increased ductility thus secured for my lead wire renders it possible for me, without making it brittle, to double it at the sides by folding its edges over, so as to overlap and retain the edges of the covering-strip, as will be hereinafter described, when no stitches are used. By this method of manufacture I am enabled to produce a laterally overlapped or folded metal core which has far more ductility to resist, without breaking, the frequent flexions to which it is subjected, than if cut from sheet metal in strips of a suitable width, and in far greater continuous lengths and at a less cost. While I sometimes use other soft metals—such as iron, copper, or soft brass—I prefer to use a lead wire, which is forced through a die by pressure, as the lead requires no annealing, gives a larger body to the crimper in proportion to its flexibility than the other metals named, and is entirely free from elasticity, which is an important feature in practical use.

I provide a strip of textile or woven fabric—such as muslin, linen, silk, stockinet, gum-cloth, or other like material—of such width that it may surround the core, leaving a free edge to be turned over and inward to form a seam, D, upon the top surface of the length of crimper. To furnish these strips of uniform width and with economy, I take a piece of the goods to be used from fifty to a hundred yards in length, and wind the same tightly upon a rod rotated by a handle or pulley. When the roll is completed, I fasten down the free edge thereof across the roll with paste or glue, and then remove the said roll from the rod upon which it has been wound. After drying the cemented edge, I place the roll endwise in a paper-cutter, such as is used by printers, the width of each cut being properly graduated by a gage, and cut off wheels of the fabric of the proper width. I place each wheel C^2 in a vertical case, in which it is adapted to rotate, or place it upon an axle beneath a sewing-machine table, F, Fig. 11, and loosening the pasted edge, I draw it upward over a roller, K, at the edge of the machine-table, and so forward through a flat channel, H, the sides of which are gradually turned upward and then toward each other, and finally turned in to the proper degree, somewhat as in a sewing-machine hemmer, so that the strip is delivered under the needle in the form of a hollow case or tube with a folded upper side. Just where the strip of fabric passes the edge of the sewing-machine table and the roller K, the core joins it and afterward travels with it. The spool B^3, from which the lead core is unwound, is so placed as to deliver the core along the center line of the strip, which is thus folded around it and seamed above it, as shown in Fig. 11. The folded material then passes beneath the needle, being fed either by the sewing-machine feed or by a special feed, and is stitched with a lock-stitch by the jointly-acting needle and shuttle through the fold, the lead core, and the covering beneath. It then passes onward, and I prefer to pass it between the compressing-rolls $K' K^2$, which close down the burrs made by the needle passing through the lead core, and compress the lead around the stitches so as to more securely hold the same, and at the same time, by their suitably-roughened surfaces, figure or emboss the surface of the crimper stuff, which may also be figured or otherwise ornamented by a separate pair of rolls or other means, if desired. It is then wound upon the reel B^4, which receives its motion from the sewing-machine by a slipping belt, so that it keeps the stuff between the needle and the reel B^4 at the proper tension. The material thus wound upon the reel B^4 accumulates until the reel is full, when the reel is removed and an empty one substituted.

While I describe the above operations as being performed on an ordinary sewing-machine, I only do so for the purpose of more clearly illustrating the method of manufacture, and I do not confine myself to the use of a sewing-machine, or claim the same as a part of my invention in this application, but reserve the right to do so in a separate application. After the completion of the roll above described, it is fed from the reel into a suitable cutting-machine, whereby it is cut into suitable lengths for hair-crimpers, or may be left in longer pieces, to be cut off from time to time, as desired.

In order to prevent the ends of the crimpers from unraveling, or the threads of the stitches from drawing out, I sometimes seal the ends, as shown in Fig. 5, by dipping them, as ordinary lucifer matches are dipped, into a bath of liquid glue or cement, which I afterward dry. As these are dipped in large quantities at one operation, the process is very inexpensive, and a smooth finish is given to each

end. I prefer a solution of shellac for this purpose, though other cementing material may be used, if desired. I also sometimes prefer not to stitch the covering to the core, but to make the cover itself self-sustaining. For this purpose I roll out the lead wire into a core of the sectional form shown in Fig. 6, having flanges at the sides thereof. To do this I prefer to use flattening-rolls suitably grooved. The strip of textile or woven fabric C being fed into the machine will be turned in and seamed over the core, carrying with it the flanged edges B′ B′, the rolls K′ K² completing the seam D, which is afterward flattened and embossed.

I do not limit my invention to any especial form of fold or seam, but use any of those known or in general use, whereby the free edges of the fabric may be turned inward under the folded edges of the metal strip, and be securely held thereby. Nor do I confine myself to the precise transverse sectional forms of the metal core shown in the figures, my invention being designed to produce a crimper by the conjoined use of the metal core and covering strip seamed thereto and attached along its whole length, whether by the turned-in edges of the metal or the row of stitches, or both, substantially as described.

Sometimes, instead of rolling the core B with flanges B′ B′, I use a core of the ordinary sectional form, (see Fig. 8,) and lay a strip of sheet-lead inside the strip of textile or woven fabric, so that both are fed and turned in over the core and seamed at the same time.

For certain purposes it is desirable to have the body of the crimper of considerable size, as for curling the hair. As this would, if the core were of uniform size throughout, make it more difficult to bend the ends inward to hold the hair inward in place, in such case I roll, cut, force, or draw the core into the form shown in Fig. 10, whereby, when the crimpers are cut off, the ends are of a smaller thickness than the centers, and may be readily turned inward, while the hair, which is wrapped around the middle, may be of considerable bulk.

While I show a single covering around the core I sometimes fold the fabric twice or more around the same, before stitching it down, whereby a softer and bulkier crimper is made than with a single wrap. I also sometimes lay two flat soft-metal strips upon each other to form the core, instead of a single one, whereby greater flexibility and durability are secured.

Instead of bundling the finished crimpers in dozens, I sometimes spool the stuff in lengths of one or more yards, which may be cut off into different lengths at will by the purchaser to suit his convenience. I also sometimes, instead of covering the core with a strip of fabric, braid a covering around it like hoop-skirt wire, and afterward run a row of stitches through the same to secure the covering to the core. I also sometimes wrap the strip of textile or woven material in the form of a spiral around the core, and then seam it to the core by a row of stitches running along the crimper, as described, and I also modify my invention in various other equivalent ways, such as would suggest themselves to any intelligent mechanic to meet special requirements.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, hair-crimper stock consisting of a continuous core of soft-lead wire, and a covering-strip of flexible non-metallic fabric, said core having its lateral edges turned over and inward, so as to fold in and secure thereto the edges of the said fabric, the said stock adapted to be cut into suitable lengths, substantially as and for the purpose described.

2. As a new article of manufacture, a hair-crimper composed of a ductile, non-elastic core of soft-metal wire, and a covering-strip of non-metallic fabric, said wire having its lateral edges turned over upon itself so as to secure the cover thereto, substantially as described.

3. In a hair-crimper, a soft-metal core consisting of a central body with thinned lateral edges, substantially as and for the purposes set forth.

4. As a new article of manufacture, a continuous length of hair-crimper stock consisting of a soft-metal core and a covering of flexible non-metallic fabric, said fabric being attached to said core by a longitudinally-stitched seam, said stitches passing through both the covering and the core, the said stock adapted to be cut into suitable lengths, substantially as and for the purpose described.

5. A flat metal hair-crimper, having a textile or woven covering united thereto from end to end by a series of stitches in which the threads pass through both sides of the covering and through the metallic core of the said crimper, and having the sides of the needle-holes swaged down upon the threads, so that the said covering shall not strip from the said core when the said crimper is cut into various lengths, substantially as described.

6. In a hair-crimper, a soft-metal wire having the length thereof provided with swells and contractions B B², so that when cut into lengths the body of the crimper may be of a different diameter from the ends thereof, substantially as described.

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Witnesses:
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M. B. FENNINGER.