W. MILLS & C. H. HERSHEY.
Hair-Crimper.

No. 218,300. **Patented Aug. 5, 1879.**

Fig. 1.

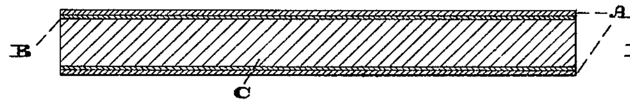


Fig. 2.

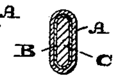
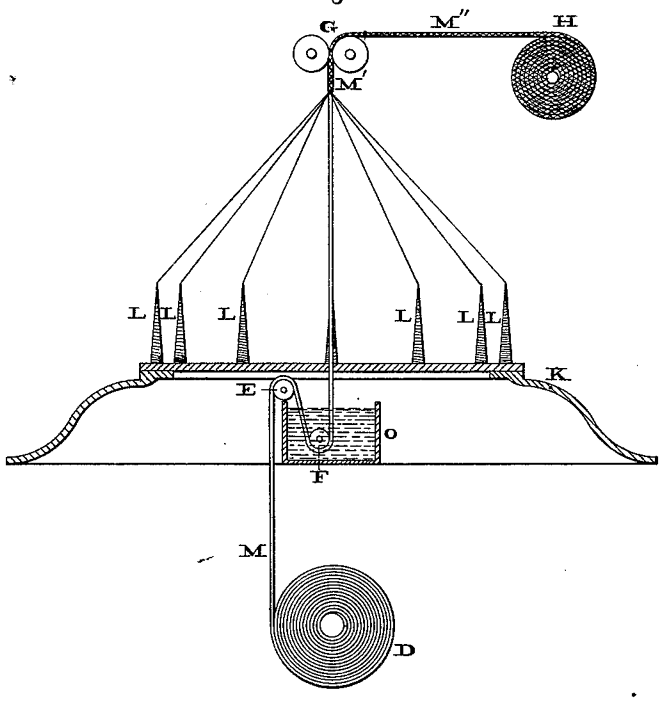


Fig. 3.

Fig. 4.



Witnesses:
W. F. Kircher
John A. Wiedersheim.

Inventor:
C. H. Hershey
Wm. Mills
Per J. W. Steyinger Atty.

UNITED STATES PATENT OFFICE.

WILLIAM MILLS AND CHRISTIAN H. HERSHEY, OF PHILADELPHIA; SAID MILLS ASSIGNOR TO SAID HERSHEY; SAID HERSHEY ASSIGNOR OF ONE-FOURTH HIS RIGHT TO JOHN L. HEYSINGER, OF LOWER PROVIDENCE, PENNSYLVANIA.

IMPROVEMENT IN HAIR-CRIMPERS.

Specification forming part of Letters Patent No. **218,300**, dated August 5, 1879; application filed April 14, 1879.

To all whom it may concern:

Be it known that we, WILLIAM MILLS and CHRISTIAN H. HERSHEY, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain Improvements in the Manufacture of Hair-Crimpers, of which the following is a full, clear, and exact description, reference being had to the drawings accompanying and forming part of this specification.

Figure 1 is an enlarged longitudinal view through the flat side of a hair-crimper of our construction, Fig. 2 being a transverse section of the same. Fig. 3 shows a strip of crimper stuff upon a reduced scale, the transverse lines indicating points of division of the separate crimpers. Fig. 4 is a sectional view of a braiding-machine, showing the method of applying the cement while the core is passing through the same.

The lettering is uniform.

This hair-crimper is intended to be applied to the hair in the manner of the crimping-papers formerly in common use, the ends being turned under out of sight, and the hair retained by the folds thus made.

It consists, essentially, of a strip of soft non-elastic metal, preferably flat, covered with a fibrous coating, cemented thereto, so that when cut into proper lengths for use the ends will not fray out, but remain the same into whatever number of pieces the crimper may be divided, thus rendering it especially adapted for use with children, where crimpers of different lengths are often required, while at the same time greatly simplifying and cheapening the cost of manufacture.

The material we use for the core of this crimper is what is known to the trade as "gardeners' lead," though a thicker strand may be employed, if so desired. This lead is drawn out in great lengths, and is round in section. The various strands, being disentangled from the coil, are spooled separately. The lead is then passed between grooved rollers, so as to elongate and flatten it.

It is found by experience that in order to prevent brittleness in the product it is necessary to reduce it gradually by repeated rollings, two being usually sufficient. It is then ready for the reception of the braid. An examination of Fig. 4 will serve to illustrate this process.

The braider K stands horizontally, the spools L L L L (usually sixteen or eighteen in number) revolving about the center in involved circles. The spooled lead is taken from beneath, D, and passes up through the center of the machine, making a double turn over the rollers E and F, so as to pass through the liquid cement in the cup O, and thence up to the rollers G, between which the finished crimper stuff M″ passes to the reel H. The braid or fibrous covering is laid upon the lead at M′, and the adhesive material, taken up in its passage through the cup O, is interposed between the fibrous coating A and the soft-metal core C, making a firm adhesion, while leaving the outer surface soft and unsaturated. Were the fibrous surface thoroughly saturated with adhesive matter, the crimper would be comparatively useless, as the least moisture in the hair would cause its adhesion thereto. This sometimes occurs by accident, and necessitates the rejection of considerable quantities of the finished goods.

The cement found preferable is a solution of dextrine, with or without the addition of a small portion of liquid glue, though any other cement may be employed, if desired.

After passing through the braider, the stuff upon the reel is laid away to dry, after which it is run through a cutting-machine of peculiar construction, which rapidly cuts the strip into pieces of equal length, laying them out in dozens, which are then, without further preparation, bundled and boxed for the market, though, of course, the cutting and counting may be performed by hand, if preferred.

As all these operations are performed by machinery, the finished product can thus be delivered at a comparatively slight advance upon the cost of material, and the increasing popularity of this article during the few months in which it has been made seems to indicate

that it is likely to become a manufacture of considerable value.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. A hair-crimper consisting of the non-elastic metallic core C and braided covering A, said covering A being cemented to said core C throughout its entire length, substantially as described.

2. The process of manufacturing hair-crimpers by first flattening soft-metal wire between rollers, then covering it with a braided fibrous coating, attached thereto by means of an adhesive substance, and afterward dividing the material into suitable lengths for hair-crimpers, substantially as herein described.

WM. MILLS.
C. H. HERSHEY.

Witnesses:
F. W. RICE,
WM. P. HIBBERD.