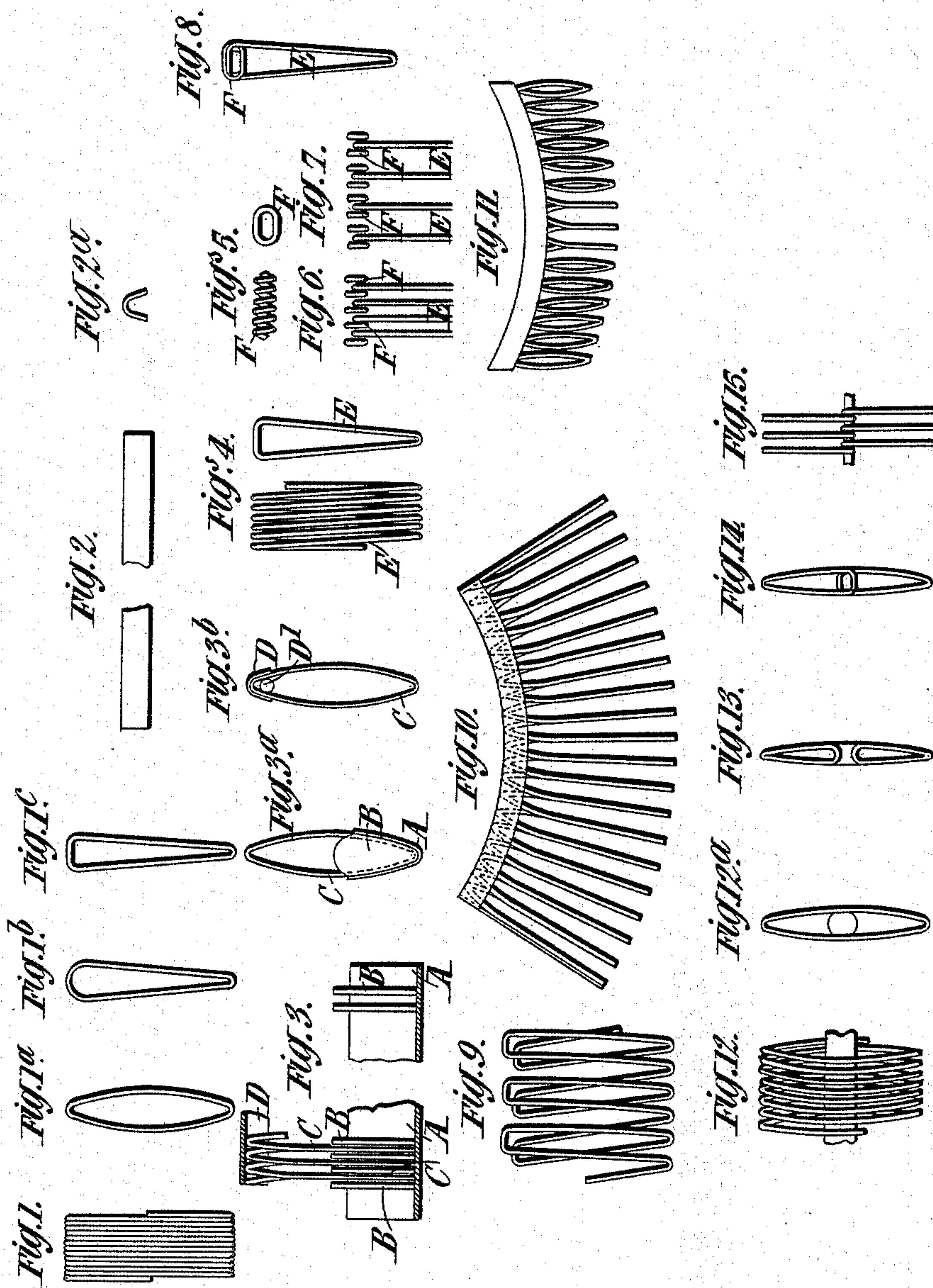


(No Model.)

N. RHEINBERG.
COMB.

No. 527,509.

Patented Oct. 16, 1894.



Witnesses:

Joe E. Banks

J. A. Fleischmann

Inventor
Nathan Rheinberg
by his Attorney

1 Anne Pettit.

UNITED STATES PATENT OFFICE.

NATHAN RHEINBERG, OF LONDON, ENGLAND.

COMB.

SPECIFICATION forming part of Letters Patent No. 527,509, dated October 16, 1894.

Application filed March 21, 1894. Serial No. 504,542. (No model.) Patented in England February 14, 1891, No. 2,743; in France December 4, 1891, No. 217,841; in Germany December 13, 1891, No. 64,865, and in Belgium, February 19, 1892, No. 98,424.

To all whom it may concern:

Be it known that I, NATHAN RHEINBERG, merchant, a subject of the Queen of Great Britain, residing at 32 Snow Hill, in the city of London, England, have invented certain new and useful Improvements in Hair-Combs, (for which I have obtained patents in Great Britain, No. 2,743, dated February 14, 1891; in France, No. 217,841, dated December 4, 1891; in Germany, No. 64,865, dated December 13, 1891, and in Belgium, No. 98,424, dated February 19, 1892,) of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to certain improvements in hair combs, that is to say combs consisting of a single row of teeth such as are used for dressing and combing the human hair.

The principal object of my invention is to produce a metallic comb from wire in such manner as to form a light comb having the points of its teeth rounded so as not to irritate the skin when in use.

In the accompanying drawings:—Figure 1 is a side elevation of a short length of spirally coiled wire suitable for the manufacture of a hair comb in accordance with my invention. Figs. 1^a, 1^b and 1^c are end elevations illustrating various forms in which the spiral may advantageously be made. Fig. 2 is a side view and Fig. 2^a an end view of a thin metallic back piece suitable for a comb formed from a spiral such as shown in Figs. 1 and 1^a. Fig. 3 is a longitudinal sectional elevation, and Fig. 3^a an end elevation of a device which may be advantageously employed for holding a spiral extended during the operation of securing on the back piece. Fig. 3^b is a transverse section of a comb constructed in accordance with a modification of my invention. Fig. 4 illustrates in side and end elevation a spirally wound wire from which a comb may be manufactured. Fig. 5 illustrates in side and end elevation a wire wound the form of a small spiral and adapted to separate the various coils of a larger spiral such as shown in Fig. 4 and to hold the spiral stretched so as to form separate teeth. Figs. 6 and 7 are front views, and Fig. 8 is a cross section illustrating a comb formed of the two

spirals. Fig. 9 illustrates a wire bent into zigzag form in such manner as to make a series of rows of teeth. Figs. 10 and 11 are front views of various descriptions of combs constructed in accordance with my invention. Fig. 12 is a face view of a double-sided comb made in accordance with my invention. Figs. 12^a and 13 are cross sections illustrating various forms of bent or stamped teeth, and Figs. 14 and 15 are respectively a cross section and an elevation of a further modification.

According to one method the teeth of my improved comb are formed by winding wire into a spiral having its sides flattened in such manner as to make the spiral of V-shape or shuttle-shape in cross section and the various coils or turns of the spiral are then separated so that each will form a tooth and be secured to a backing to keep them in place.

In such a comb as shown for instance in Figs. 1^c and 8 each tooth appears to be formed of a piece of wire bent to a V or shuttle shape, the planes of the teeth being parallel and substantially perpendicular to the back of the comb. In other words, each tooth stands crosswise of the back and not parallel with it and as each tooth is hollow the entire set of teeth when assembled forms a hollow comb which may be very readily kept clean.

The shape in cross section which the spiral assumes may be that shown in any of the figures of the drawings, the wedge or V shape however being deemed preferable.

The back of the comb is formed from a strip of metal bent into the form of a trough as shown in Fig. 2^a, its contour in cross section depending, of course, upon the contour of the spiral forming the teeth and the back is soldered or otherwise secured to the various coils of the spiral in any suitable manner.

Referring now to Figs. 3 and 3^a A represents a trough shaped bar in which are a number of metal plates B, standing at a right angle to the length of the bar and at a distance from each other depending upon the amount of space which it is desired to have between the teeth of the comb. In using this device the pointed tooth extremities of the coil, C, are inserted between the plates, B, which may be situated only at each end of the bar or extend

at equal distances from each other throughout its entire length. As the space between two adjoining plates B, is only wide enough for the reception of a single tooth it follows
 5 that the coils of the spiral will be held at regular and even distances from each other and the teeth of the resultant comb will be evenly spaced throughout the entire length. The number of these holding plates, B, may
 10 be varied to suit the different classes of work. While in some cases it may be necessary to have a single pair of plates at each end of the bar, it may in other cases be advisable to employ a holding plate to pass into the space
 15 between each two coils of the spiral. While the spiral is thus held in the bar, A, the back piece D is placed over the rounded or flattened ends of the several coils which form the base of the teeth of the comb and are
 20 soldered in position therein. As an additional fastening the teeth may be more securely held in place by the insertion of an additional rod or trough shaped bar D' as illustrated in Fig. 3^b, the rod being soldered
 25 or otherwise secured in position.

In place of the base of the several teeth being soldered into the back as above described they may be held between the coils of a second and smaller spiral coil, as illustrated in
 30 Figs. 5, 6, 7, and 8. In these figures the spiral, E, forms the teeth of the comb and the smaller spiral, F, forms the back of the same. The spiral, F, is first stretched out until its various coils are separated and then the spiral, E, is also stretched and the base end of
 35 each coil or tooth is inserted between the coils of the spiral, F, the coils of each spiral alternating as shown in Fig. 6, or when the teeth of the comb are to be spaced to any considerable extent, two or more coils or turns of the
 40 spiral, F, may intervene between adjoining teeth of the spiral, E, as shown in Fig. 7. The coils thus adjusted are allowed to spring together and close in and the two coils are
 45 held together by inserting a metal rod through the two coils, or in any other suitable manner, and if necessary an additional back piece may also be employed as in the comb illustrated in Fig. 3^b.

50 In place of forming the comb teeth from the coils of a spiral as above described, I may form them from wire bent into zig-zag form as illustrated in Fig. 9, or I may make this form of comb by stamping the whole from
 55 sheet metal and then bending it into proper position. Each tooth may be formed by bending separately a short piece of wire into a form similar to that of a single turn of any

of the spirals shown in the drawings, or the teeth may be formed by stamping the same
 60 separately from a sheet of metal of suitable thickness, the various teeth being secured at suitable intervals in a back piece in any suitable manner.

Curved combs known as side combs may
 65 be formed in either of the above described ways with the back curved in the manner shown in Figs. 10 and 11 and double sided combs may also be constructed from a single spiral fixed at the middle as shown in
 70 Figs. 12 and 12^a or by having two spirals fixed to opposite sides of the same backing piece as shown in Fig. 13, or as illustrated in Figs. 14 and 15 two spirals may be secured to a
 75 single central rod, the coils or turns of the two spirals extending alternately in opposite directions to form teeth facing in both directions.

As before stated, it is not essential that all of the teeth of a comb formed from a flattened
 80 spiral in one continuous length should be secured to the back, but they may be held only at intervals or at the two ends so that there may be a certain amount of elasticity between the teeth to permit them to spring apart or
 85 separate from each other.

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

1. A metallic hair comb formed of a narrow
 90 base piece, a single series of open wire teeth secured to said base piece in a parallel line, each tooth formed in an elongated open loop shape tapering toward the outer end, said
 95 loop being disposed in the plane at substantially a right angle to the longitudinal axis of the base piece, substantially as described.

2. In a metallic hair comb, the combination with a narrow trough-shaped base piece, D, of a single series of open wire teeth C, secured to said base piece, D, in a parallel line,
 100 each tooth formed in an elongated open loop shape tapering toward the outer end, said loop being disposed in the plane at substantially a right angle to the longitudinal axis
 105 of the base piece and a securing bar, D', extending through the upper portion of the loop-shaped piece and acting to confine the same in position within the trough-shaped backing, D, substantially as described.

In testimony whereof I have hereunto set my hand this 7th day of March, 1894.

NATHAN RHEINBERG.

Witnesses:

GEO. HARRISON,
 FREDERICK WILLIAM LE TALL.