

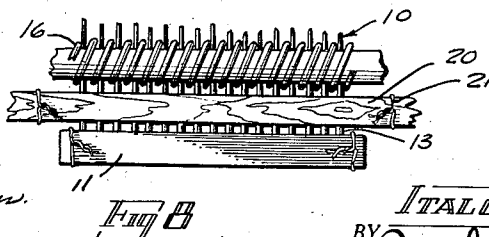
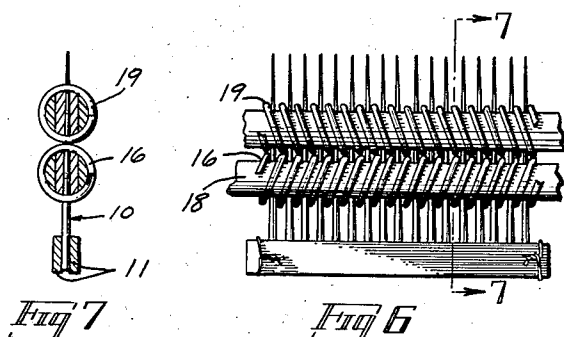
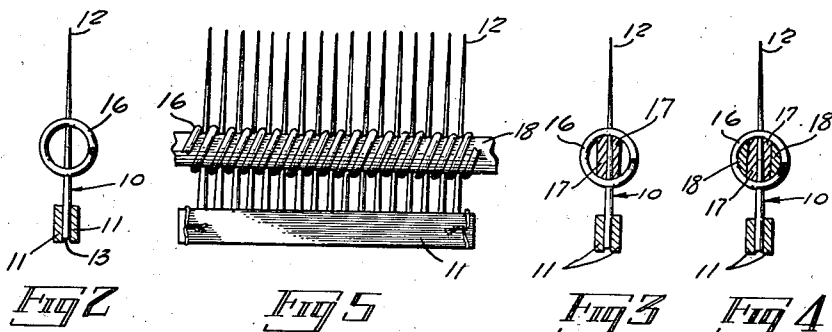
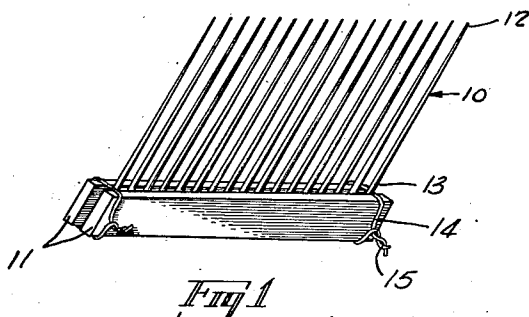
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METHOD OF MAKING TEXTILE COMBS

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METHOD OF MAKING TEXTILE COMBS

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8 Claims. (Cl. 140—100)

This invention relates to the art of comb making, and deals more particularly with the making of these combs which are commonly employed in the textile industry for mending purposes, and for the removal of weaving knots and wrong ends from the cloth.

A comb of this type ordinarily comprises a comb head, usually of steel or other metal, from which extend the pins constituting the teeth of the comb, the teeth being relatively close together, it being common practice to employ a comb having about twenty teeth to the inch. At the present time these combs are made by a process which involves the use of a helical wire spring as a means for properly spacing the teeth. Due to the fact that any diametrically opposite points of a single turn of the helical spring lie in a plane which is not perpendicular to the axis of the spring the pins are not positioned correctly in the comb head and with respect to one another. Very often it becomes necessary to exert tension on the spring to correct this difficulty, and this results in a more or less uneven positioning of the pins. Inasmuch as the pins are ordinarily anchored in the head of the comb by soldering process, certain disadvantageous features reside in the present day methods employed.

With the foregoing in mind, this invention has in view as its primary object the provision of a process for making combs of the character described, which includes a step of positively correcting any distortion in the positioning of the pins, which may arise due to the helical formation of the spring.

A more detailed objective is the provision of a process which includes the step of positioning a second helical spring that is wound in a direction opposite to that of the first spring over the pins to correct distortion in the positioning effects attending the use of the first spring.

A further object of the invention is to provide in a process of the character noted the step of accurately aligning the helical spring which is used for spacing purposes. This invention contemplates the use of filling members which are inserted in the spring on each side of the pins to render rigid the spring construction.

Another object of the invention is the provision of a process for making textile combs which includes the step of soldering the pins in the comb head without distemping to any material extent the steel pins.

With the above objects in view the present invention comprises a process for making textile combs which consists in first placing the large ends of the comb pins between two bars designed to constitute the head of the comb, and clamping the parts together. This spring is aligned by inserting two flat wires therein, one on each side

of the pins, and then inserting two half round wires, one on each side of the flat wires. These flat and half-round wires, together with the pins, substantially fill the spring.

A second spring complementary to the first and wound in a direction opposite to that in which the first spring is wound, is now forced over the small ends of the pins, and this latter spring may also be aligned by the insertion of the wires. A wooden clamp is now positioned on the pins intermediate the head of the comb and the first positioned spring. The wooden clamp is now treated with soap and lime and later dipped in lime water and then inserted in a solder bath. The comb is now finished in the usual manner and cut into any desired lengths.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawing wherein:

Figure 1 is a perspective view bringing out the arrangement of the pins in the two bars of the comb head at the beginning of the process,

Figure 2 is a section through the comb head, showing the pins with the spacing spring positioned thereover,

Figure 3 is a view similar to Figure 2, but showing further the insertion of the flat wires, while

Figure 4 is another view similar to Figures 2 and 3, showing all the flattened and half-round bars inserted,

Figure 5 is a front elevation of a portion of the comb with the first spacing spring positioned over the pins and aligned by the wires,

Figure 6 is a view similar to Figure 5 showing both spacing springs in operative position,

Figure 7 is a section through the comb assembly shown at Figure 6; this view is taken about on the line 7—7 of Figure 6, and

Figure 8 is a front elevational illustration of the application of the wooden clamp.

Referring now to the drawing, wherein like reference characters denote corresponding parts, a process carried out in accordance with this invention may be described as including the step of first positioning a plurality of pins between a pair of bars 11 which are designed to constitute the head of the comb when the work is finished. The pins 10 are preferably of a high grade steel, having the points designated 12 and the large ends denoted at 13. In the illustrated embodiment the bars 11 are of steel, and are held together by any suitable clamping means, such as the wire 14, having its ends twisted together as at 15.

The step of first positioning the pins 10 between the bars 11 with the large ends 13 therebetween is carried out by hand, no attempt being made at this point to accurately space the

pins apart. A helical spring designated 16 is now forced over the pointed ends 12 of the pins 10, there being one turn of the helix between adjacent pins.

5 The spring 16 is now aligned by inserting, first, substantially flat wires 17 in the spring on each side of the pins 10, as clearly shown in Figure 3. Half-round wires 18 are then inserted on each side of the flat wires 17. It is noted that 10 the curvature of the round faces of the half-round wires is substantially that of the inner contour of the spring 16, the latter, together with the wires 17 and 18, now making up a substantially rigid construction which insures the 15 accurate alignment of the spring 16.

In this condition it is notable that the pins 10 are not positioned exactly perpendicular to the axis of the spring 16 due to the fact that no two diametrically opposite points of any one bend of the helix may lie in a plane perpendicular to this axis. In order to correct this condition and to insure an accurate spacing and alignment of the pins 10, I now force a second spring 19 over the small ends 12 of the pins 10. 20 This spring 19 is complementary to the spring 16, that is, it is helical, but wound in a direction opposite to that in which the spring 16 is wound. This spring 19 may be forced on the pins 10 until it contacts the spring 16, and it 30 may be aligned in the same manner as was the spring 16.

The pins 10 are now spaced not by the spring 16 alone, but by the springs 16 and 19 together, as is clearly brought out in Figures 6 and 7, and 35 the pins will lie substantially perpendicular to the axes of the springs 16 and 19.

Referring now to Figure 8, a wooden clamp 20 is now positioned about the large ends 13 of the pins 10 between the spring 16 and the bars 40 11. The clamp may be of a simple construction, such as two pieces of wood held together by the wires shown at 21.

The work is now ready to be soldered together in its finished state. Accordingly, that portion 45 of the wooden clamp 20 which may be inserted in solder is treated with soap and lime so that it will not be affected by the solder, and it is allowed to become almost dry. The entire work, including the pins, clamp, head, etc., is now 50 dipped in lime water and is then dipped in a solder bath, with the large ends 13 of the pins, head 11, and a portion of the wooden clamp 20, being immersed therein. Just before this dipping in the solder bath, a final finishing of the 55 pins to insure their accurate alignment may be carried out by the use of a fine brass tool. This is done to insure the evenness of the points 12 of the pins. By immersing only those parts of the pins which are to be affected by the solder, 60 namely, the large ends in the manner noted, distortion of the steel of the pins is prevented.

After soldering, the final finishing steps, such as rubbing with a pumice stone dipped in kerosene, and polishing with lime chalk, may be carried out. The steel head 11 may be cut at any 65 desired place to provide combs of any desired length.

While a preferred specific embodiment of the 70 invention is hereinbefore set forth, it is to be understood that I am not to be limited to the exact steps illustrated and described because various modifications of these details may be pro-

vided in putting the invention in practice with- in the purview of the appended claims.

I claim:—

1. A process of making a textile comb, which includes the step of spacing the pins of the comb 5 by the use of a helical spring, and the step of correcting distortion caused by the helical winding of the spring.

2. A process for making combs of the character described, which includes the step of spacing 10 the pins of the comb by the use of a helical spring, and the step of using a helical spring complementary to the first helical spring to correct distortion of the pins.

3. A process of the character described, which includes the step of spacing the pins of a comb by forcing a helical spring thereover, and the step of forcing a second helical spring over the pins, the second helical spring being wound op- 20 positively to the first spring.

4. The process of making textile combs which consists in positioning pins in the head of a comb, spacing them apart by placing a helical spring thereover with the bends of the spring between adjacent pins, and then forcing a second 25 helical spring over the pins, said second helical spring being wound in a direction opposite to that in which the first spring is wound.

5. A process of the character described which consists in clamping the large ends of pins be- 30 tween bars designed to constitute the head of a comb, forcing a helical spring over the comb to space the pins apart, and forcing a second helical spring which is complementary to the first spring to correct distortion in the position- 35 ing of the pins which is caused by the helix of the first spring.

6. A process of the character described which consists in clamping the large ends of pins be- 40 tween bars designed to constitute the head of a comb, forcing a helical spring over the comb to space the pins apart, forcing a second helical spring which is complementary to the first spring to correct distortion in the positioning of the pins which is caused by the helix of the first 45 spring, clamping the work together, and then soldering the large ends of the pins in the comb head.

7. A process of the character described which consists in clamping the large ends of pins be- 50 tween bars designed to constitute the head of a comb, forcing a helical spring over the comb to space the pins apart, forcing a second helical spring which is complementary to the first spring to correct distortion in the positioning of the pins which is caused by the helix of the first 55 spring, clamping the work together, placing a wooden clamp about the large ends of the pins intermediate the first mentioned spring and the comb head, treating the wooden clamp to pre- 60 vent the adhesion of solder thereto, and then dipping in a solder bath.

8. A process of the character described, which consists of spacing a plurality of pins in a comb 65 head by the use of complementary springs, clamping the work together with a wooden clamp placed on the pins adjacent to the head, treating the wooden clamp with soap and lime, dipping the entire work in lime water, and then dipping 70 the large ends of the pins and the head in a solder bath.

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