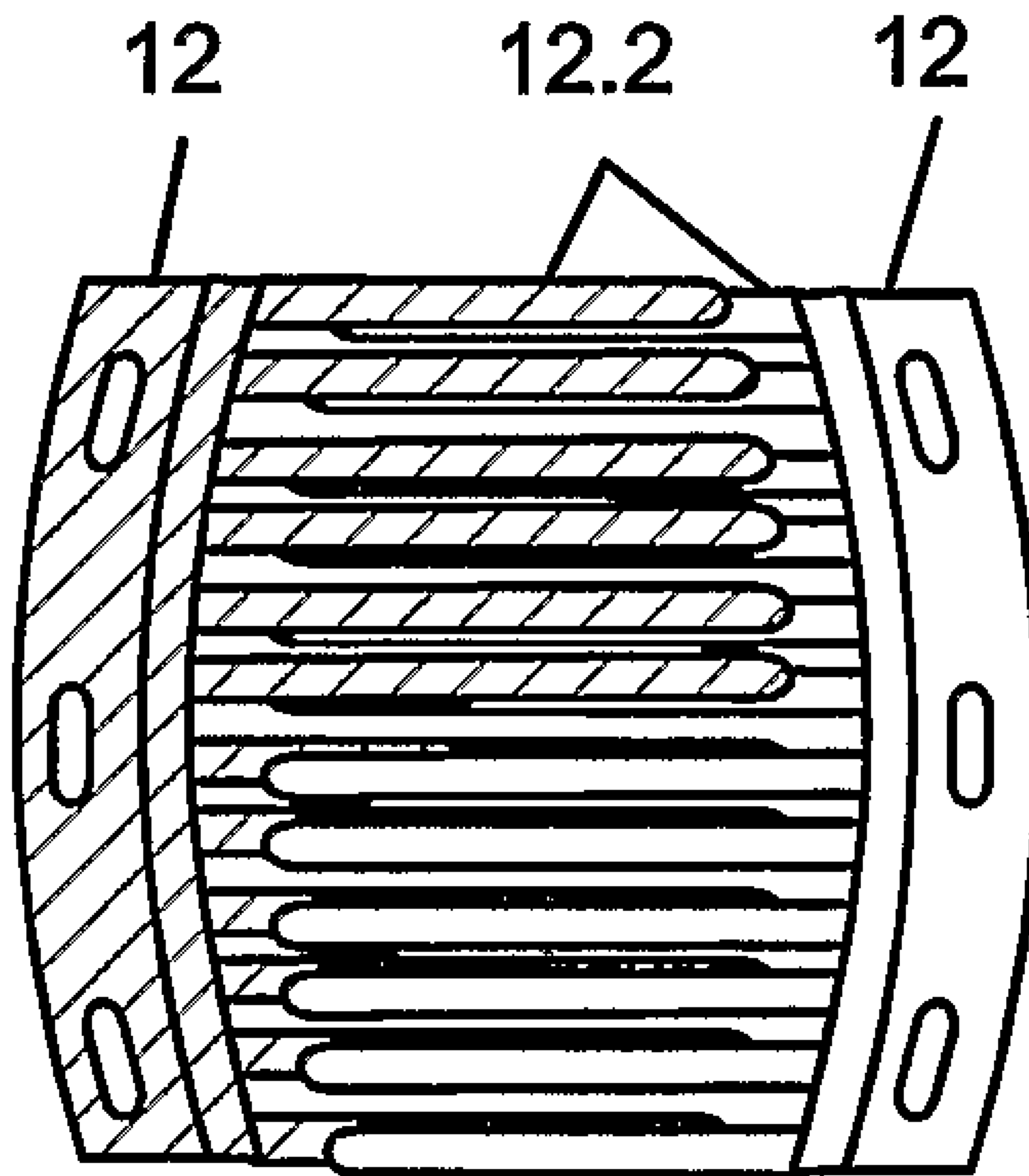




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 (72) Inventeurs/Inventors:  
 GLADWIN, THEA, ZA;  
 GLADWIN, RICHARD GEORGE, ZA  
 (73) Propriétaires/Owners:  
 GLADWIN, THEA, ZA;  
 GLADWIN, RICHARD GEORGE, ZA  
 (74) Agent: OYEN WIGGS GREEN & MUTALA LLP

(54) Titre : PINCE A CHEVEUX A PEIGNES ENTRECROISES  
 (54) Title: HAIR CLIP WITH INTERLOCKING COMBS



(57) Abrégé/Abstract:

The hair clip comprises two combs (12) and at least one elastic member (14) to bias the teeth (12.2) of the combs towards each other in overlapping relationship. The teeth of the combs are similar and are at least slightly wider than the spaces (18) between the teeth. In use, the combs may be twisted relatively to each other while inserting them into engagement, such that some of the teeth of one comb overlay and others underlay the teeth of the other comb so as to clamp hair between the two combs. Preferably the teeth are oval or elliptical in cross-section, such that they interfit partially with the teeth with which they are engaged.

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(71) Applicants and

(72) Inventors: GLADWIN, Thea [ZA/ZA]; 119 Hans Strydom Drive, Robin Hills, 2194 Randburg (ZA).  
GLADWIN, Richard, George [ZA/ZA]; 119 Hans Strydom Drive, Robin Hills, 2194 Randburg (ZA).

(74) Agent: FISHER, Les T; Les Fisher & Co, P.O. Box 391864, 2018 Bramley (ZA).

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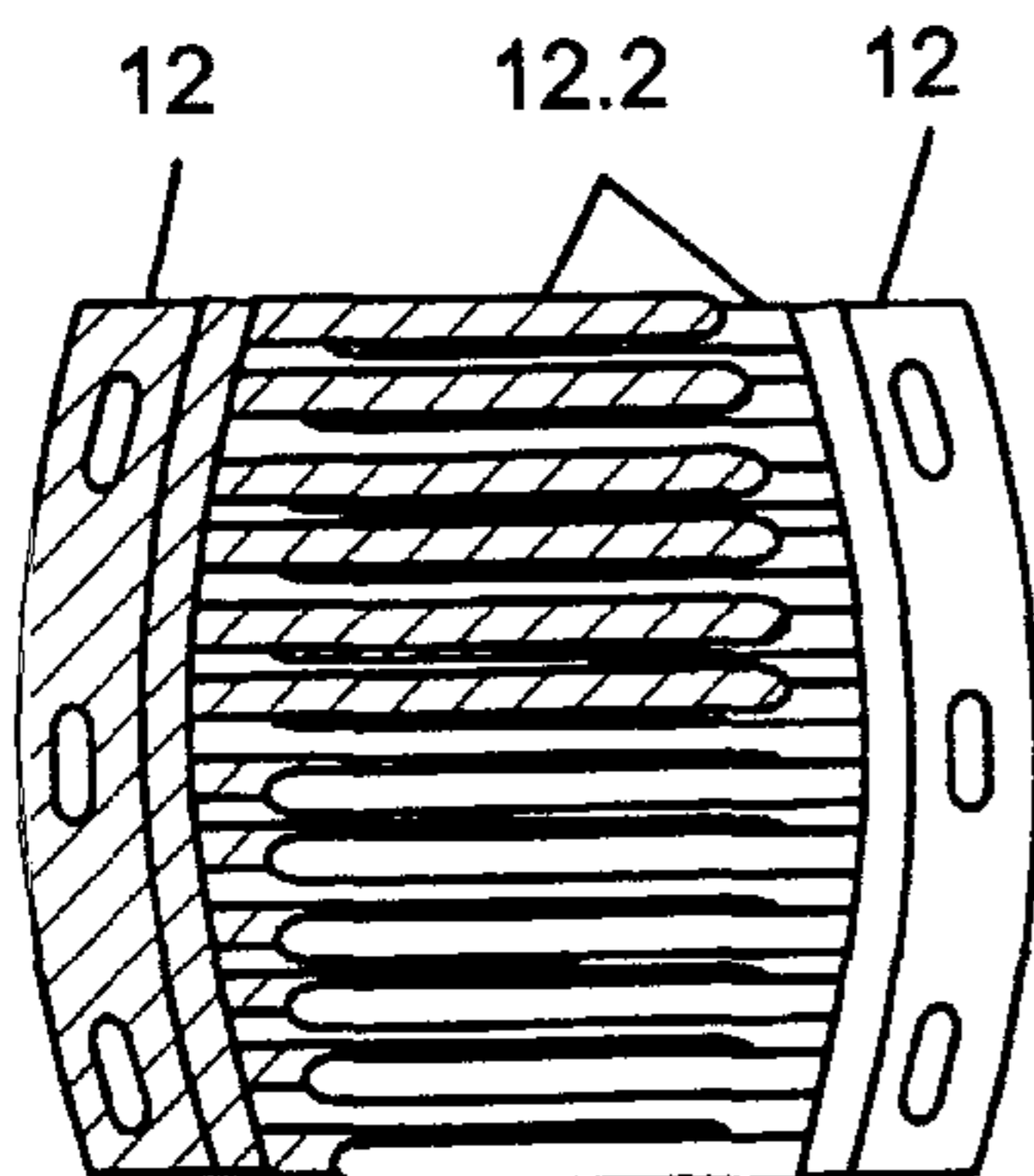
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(54) Title: HAIR CLIP WITH INTERLOCKING COMBS



(57) Abstract: The hair clip comprises two combs (12) and at least one elastic member (14) to bias the teeth (12.2) of the combs towards each other in overlapping relationship. The teeth of the combs are similar and are at least slightly wider than the spaces (18) between the teeth. In use, the combs may be twisted relatively to each other while inserting them into engagement, such that some of the teeth of one comb overlay and others underlay the teeth of the other comb so as to clamp hair between the two combs. Preferably the teeth are oval or elliptical in cross-section, such that they interfit partially with the teeth with which they are engaged.

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## HAIR CLIP WITH INTERLOCKING COMBS

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### TECHNICAL FIELD:

This invention relates to hair clips or fasteners comprising two combs and  
10 at least one elastic member resiliently to bias the teeth of the combs into  
an interleaved arrangement with one another. The invention is concerned  
primarily, though not exclusively, with hair clips having combs that are  
movable independently of each other.

### 15 BACKGROUND ART:

Known hair clips with two combs, of all types, rely on the resilient bias  
of the elastic member and the configuration of the clips (or clips and  
elastic member) to hold the clip in engagement with the user's hair. Thus  
such clips do not reliably engage sparse, short or small clumps of hair as  
20 there is limited, if any, engagement of the teeth with individual hairs or  
clumps of hair.

This invention seeks to provide a hair clip for reliably engaging all  
types, lengths and quantities of hair.

25

### DISCLOSURE OF THE INVENTION:

One aspect of the invention provides a hair clip comprising two combs and  
at least one elastic member resiliently to bias the teeth of the combs into  
an interleaved arrangement with one another, wherein at least selected  
30 teeth are wider than the spaces between teeth with which such selected  
teeth are to be interleaved in use and the teeth of each comb are shaped to  
fit at least partially into the spaces between the teeth of the other comb.

This construction causes interleaved teeth to overlap one another and clamp  
35 hair between one another.

The teeth of each comb may be similar to one another, in which event  
preferably all of the teeth are wider than the spaces between the teeth.

Preferably the width of the teeth is about 0.5 to 2 mm wider than the width of the spaces. This causes an overlap in the range of 0.5 to 2 mm.

The combs may be of a resiliently flexible material, such as an appropriate  
5 plastics.

Another aspect of the invention provides a method of clipping hair using a hair clip comprising two combs and at least one elastic member to bias the teeth of the combs towards one another, the combs being movable  
10 independently of each other and selected teeth being wider than the spaces between teeth with which such selected teeth are to be interleaved in use, including the steps of:

- inserting one of the combs into the hair in a first direction;
- stretching the elastic member;
- 15 -- inserting the other comb into the hair in a second direction substantially opposed to the first direction; and
- twisting or bending at least some of the teeth while inserting the combs into engagement with each other to cause some of the teeth of one comb to overlay and others to underlay the teeth of the other comb and  
20 thereby resiliently clamp hair between the two combs.

The combs may rotated relatively to each other or some of the teeth of one or each comb may be bent away from the general plane of the other teeth of that comb.

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Further features, variants and/or advantages of the invention will emerge from the following non-limiting description of examples of the invention made with reference to the accompanying schematic drawings and from the claims, which are to be regarded as an integral part of this description.

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#### **BRIEF DESCRIPTION OF THE DRAWINGS:**

- Figure 1 shows a plan view of a comb for a hair clip of the invention;
- Figure 2 shows an end view of the comb of Figure 1;
- Figure 3 shows a side view of the comb of Figure 1;
- 35 Figure 4 shows a plan view of a hair clip of the invention including to combs as shown in Figure 1;
- Figure 5 shows an underplan view of the hair clip of Figure 4, the combs being arranged ready for use;

- Figure 6 shows a side view of the clip of Figure 5;
- Figure 7 shows the combs of the clip of Figure 5 engaged with each other in a first configuration;
- Figure 8 shows a sectioned view along VIII - VIII of the combs of Figure 7;
- Figure 9 shows the combs of the clip of Figure 5 engaged with each other in a second configuration;
- Figure 10 shows a sectioned view along IX - IX an end view of the combs of Figure 9; and
- Figure 11 shows, on an enlarged scale, a cross-section of teeth of interleaved combs of the invention illustrating how hair is clamped in use.

### DESCRIPTION OF ILLUSTRATED EMBODIMENTS:

- In the drawings the same or similar parts have the same reference numbers, certain parts having sub-numbers to identify them as part of a component or as substantially equivalent parts in different embodiments.

Figures 1 to 3 of the drawings show a hair clip 10 comprising two combs 12 and three elastic members 14 connecting the combs to each other. Each comb 12 has a back 12.1 formed with three through holes 16.1, each recessed in a slot 16.2, for attaching one end of an elastic member 14 and a plurality of similar teeth 12.2 that are separated from one another by spaces 18. The comb is curved in three dimensions, i.e. in plan, side and end views, so that it can follow the curvature of the head of a user. Each comb is injection moulded of a resiliently flexible Nylon. As best seen in Figure 11, each tooth is elliptical in cross-section and has a width that is slightly greater than the spaces 18 between the teeth.

- Two of the elastic members 14.1 comprises a loop of elasticised strip material within a material sleeve 15 that has a length much greater than the loop when unstretched so that it bunches around the loop. The central elastic member 14.2 comprises a plurality of beads 17 threaded onto on elasticised loop.

35

In the illustrated embodiment the teeth have a width of about 4 mm and the spaces are each about 3.5 mm wide. The teeth may be much thinner, such as 2 mm wide, with correspondingly narrower spaces. In any event, the width of the teeth is slightly greater than that of the spaces by 0.5 to 2 mm.

Figure 4 shows the clip 10 in its relaxed position with the teeth of the two combs facing away from one another. Figures 5 and 6 show the clip with the teeth facing each other ready for use.

5 In use, one of the clips is inserted into the user's hair, the elastic members 14 are stretched and the other comb is inserted into the hair in a direction towards the first comb. The combs are then pushed together, with hair to be fastened contained within the space between the combs and the elastic members. The combs are drawn together by the elasticity of the  
10 elastic members. The combs are also locked into the hair to some extent in the conventional manner by the teeth interengaging the hair into which it is pushed.

In accordance with the invention, the comb inserted second is twisted, ie.  
15 rotated, by about  $15^\circ$  prior to insertion into engagement with the comb that has already been inserted into the hair. This results in the configurations shown in Figures 7 and 8 in which one part of each comb overlays a part of the other comb. Consequently strands of hair are clamped between the two combs, because the teeth are wider than the spaces and engage one another  
20 as shown in Figure 11. This clamping action ensures clamping of sparse, thin, short and small clumps or strands of hair.

Figures 9 and 10 show an alternative use of the clip 10, in which one of the combs is flattened in a direction normal to the back 12.1 when the  
25 combs are pushed into engagement with each other. Thus, when engaged, the teeth of two spaced portions of one comb overlay the other comb. This creates a tighter clamping action than the arrangement of Figures 7 and 8, because the elasticity of the material of the combs themselves is also applied to urge the teeth of one comb towards those of the other comb.

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The elastic members are not shown in Figures 7 to 10 for clarity of illustration. For the same reason hatching is applied to one of the combs to assist in distinguishing the teeth of the respective combs.

35 The invention is not limited to the precise details described above and shown in the drawings. Modifications may be made and other embodiments developed without departing from the scope of the invention as defined in the claims. For example, any suitable resiliently flexible plastics, such as polypropylene, polyethylene, ABS plastics may also be used. The comb

may be of any desired size, length and width as desired. The elastic members can be used in any desired combination, such as all material covered or all beaded, none covered, different combinations and arrangements of beads, and so on.

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## WHAT IS CLAIMED IS:

1. A hair clip comprising two combs (12) and at least one elastic member (14) resiliently to bias teeth (12.2) of the combs into an interleaved arrangement with one another, each comb having opposed first and second surfaces, wherein:
  - the widths of the teeth (12.2) of each comb are slightly wider than the widths of spaces (18) adjacent the teeth; and
  - the teeth (12.2) of each comb are shaped with tapering sides on both the first and second surfaces in order to inter-fit with the teeth of the other comb, such that at least portions of at least selected teeth of each comb fit partially into the spaces of the other comb;
  - whereby, when the teeth of the combs are interleaved from opposite directions, with some of the teeth of one comb overlaying and others underlaying the teeth of the other comb and such teeth being biased towards one another, at least some of such overlaying and underlaying teeth interact with one another to form clamps for clamping hair between the two combs in use.
2. The hair clip of claim 1, wherein at least the selected teeth (12.2) are substantially elliptical in cross-section to provide arcuate tapers substantially along their length.
3. The hair clip of either of claims 1 or 2, wherein all of the teeth (12.2) are wider than the spaces between the teeth and all are of substantially the same width.

4. The hair clip of any of one of claims 1 to 3, wherein the width of the teeth is about 0.5 to 2mm wider than the width of the spaces between the teeth of the comb with which such teeth are to be interleaved in use.
- 5
5. The hair clip of any one of claims 1 to 4, wherein the combs are of a resiliently flexible material.
6. The hair clip of any one of claims 1 to 5, wherein at least one of the elastic members (14.2) comprises a length of elastic material and a plurality of beads threaded onto the length of elastic material.
- 10
7. A method of fastening hair using a hair clip (10) comprising two combs (12) and at least one elastic member (14) to bias teeth (12.2) of the combs towards each other, the combs (12) being movable independently of each other and selected teeth (12.2) being wider than spaces (18) between teeth with which such selected teeth are to be interleaved in use, including the steps of:
- 15
- 20 a) inserting one of the combs (12) into the hair in a first direction;
- b) stretching the elastic member (14);
- c) inserting the other comb (12) into the hair in a second direction substantially opposed to the first direction; and
- 25
- d) twisting the combs (12) relatively to each other while inserting them into engagement, such that some of the teeth of one comb

overlay and others underlay the teeth of the other comb so as to clamp hair between the two combs.

- 5
8. The method of claim 7, wherein the twisting is performed by rotating one comb relatively to the other.
  9. The method of claim 7, wherein the twisting is performed by distorting at least one comb about an axis substantially parallel to the length of the teeth of the comb.

10

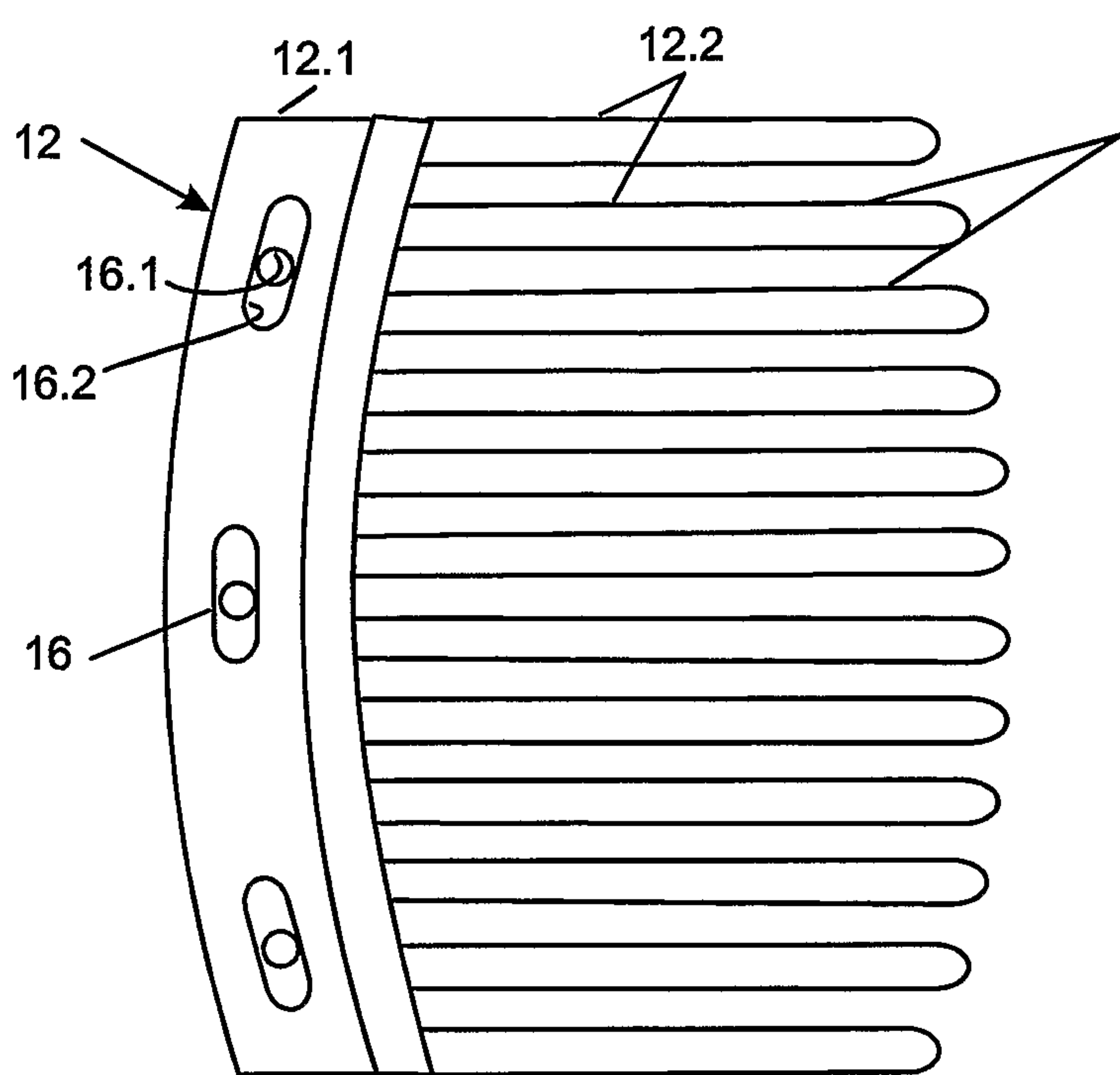


Figure 1

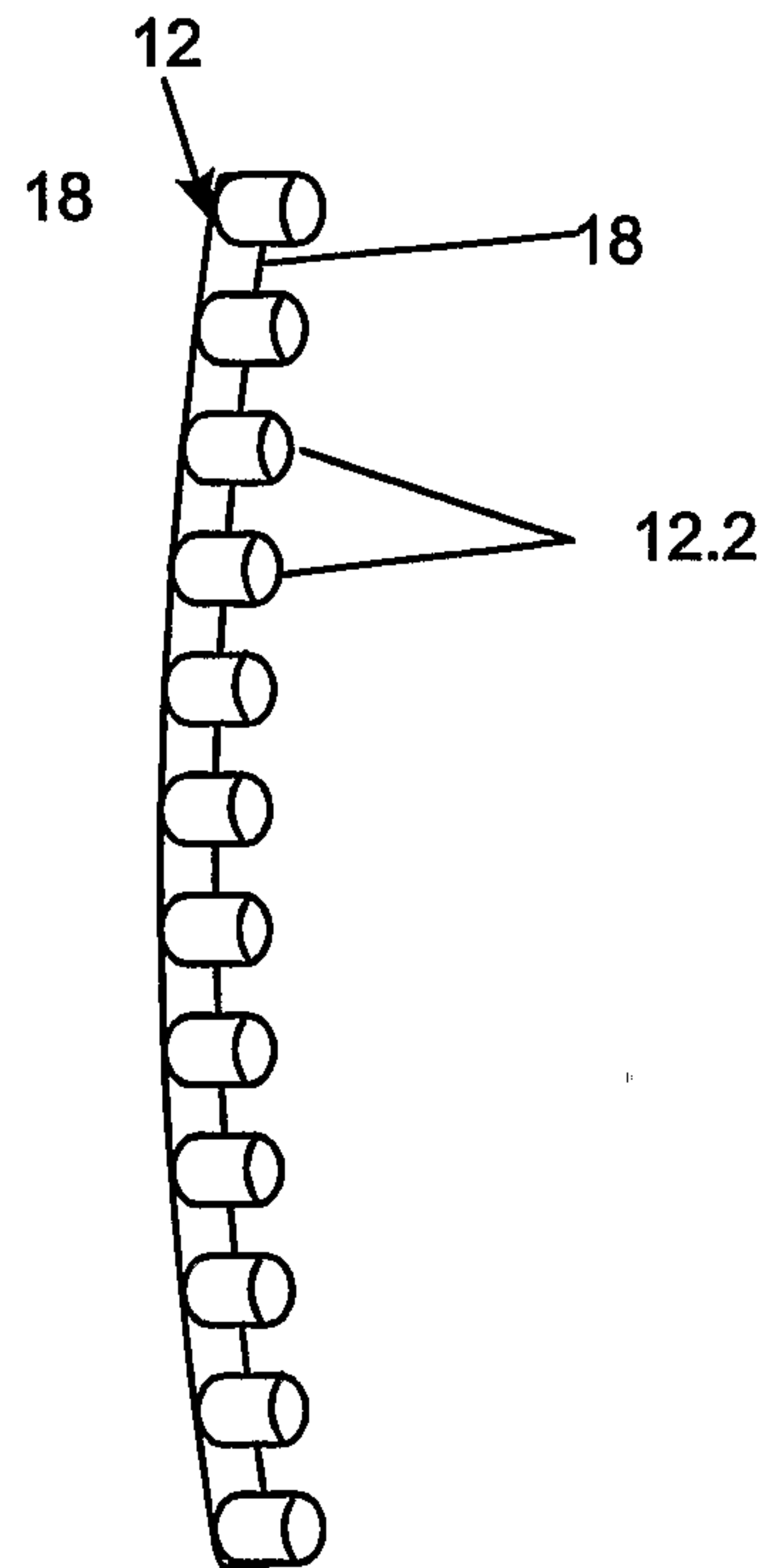


Figure 2

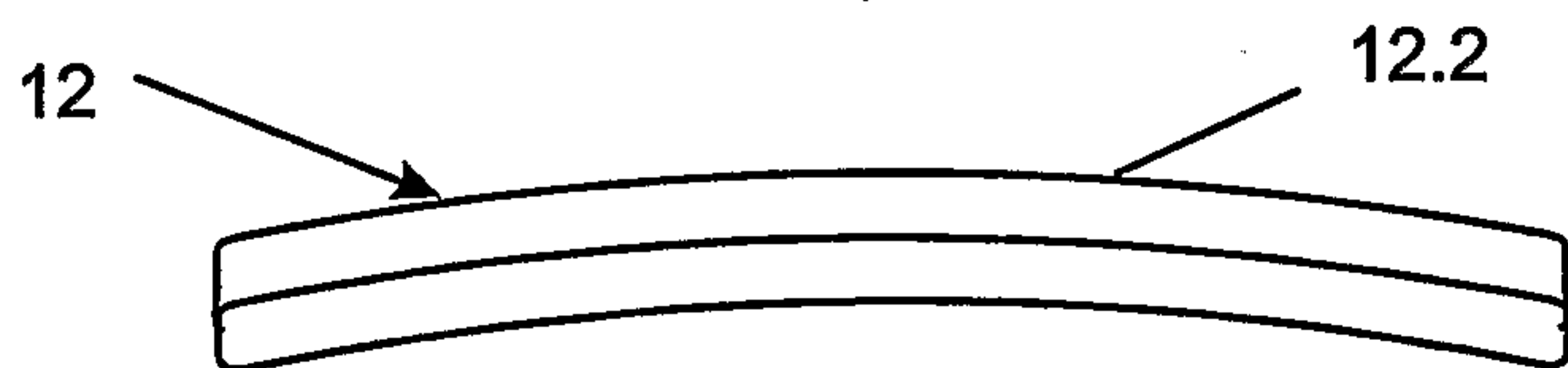


Figure 3

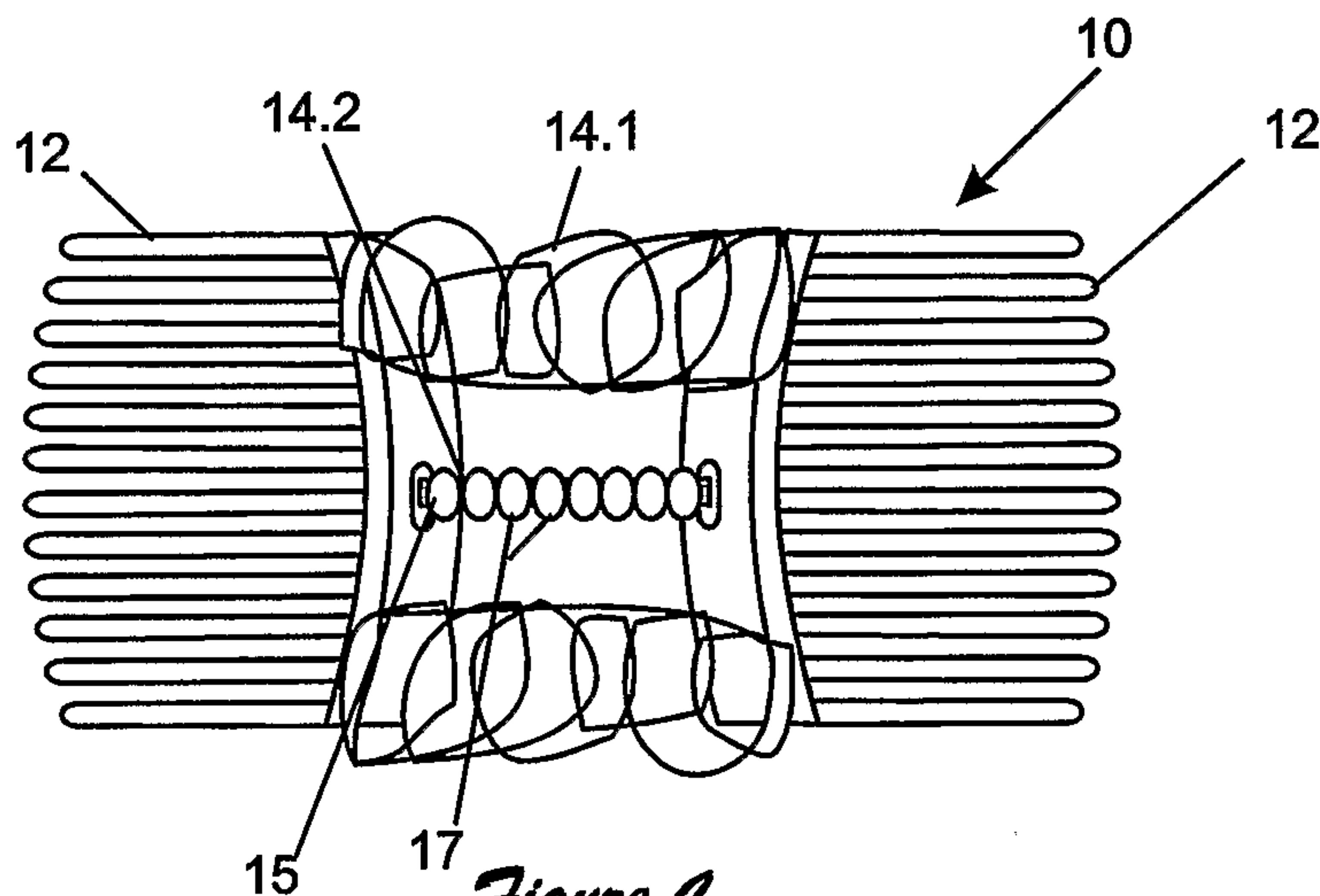


Figure 4

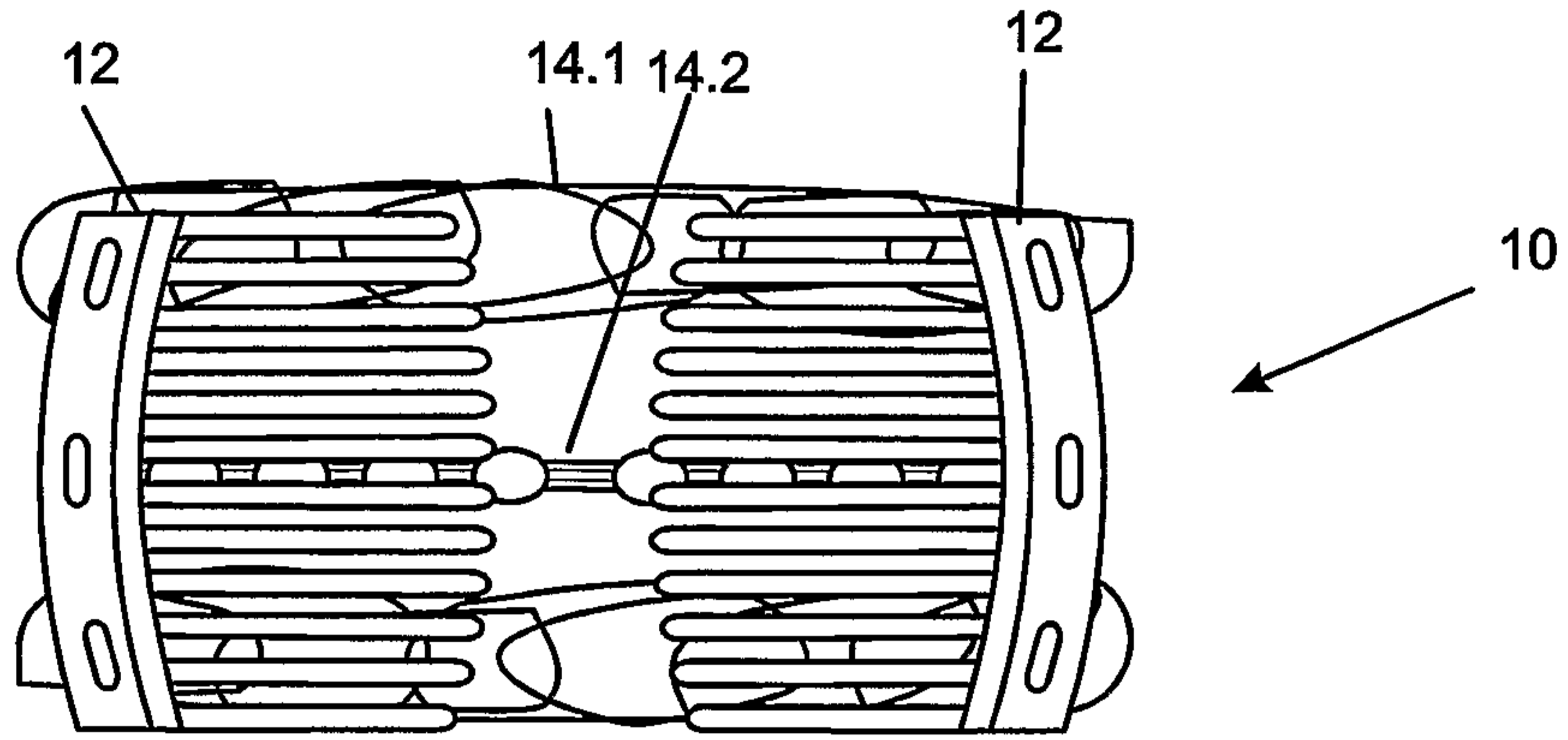


Figure 5

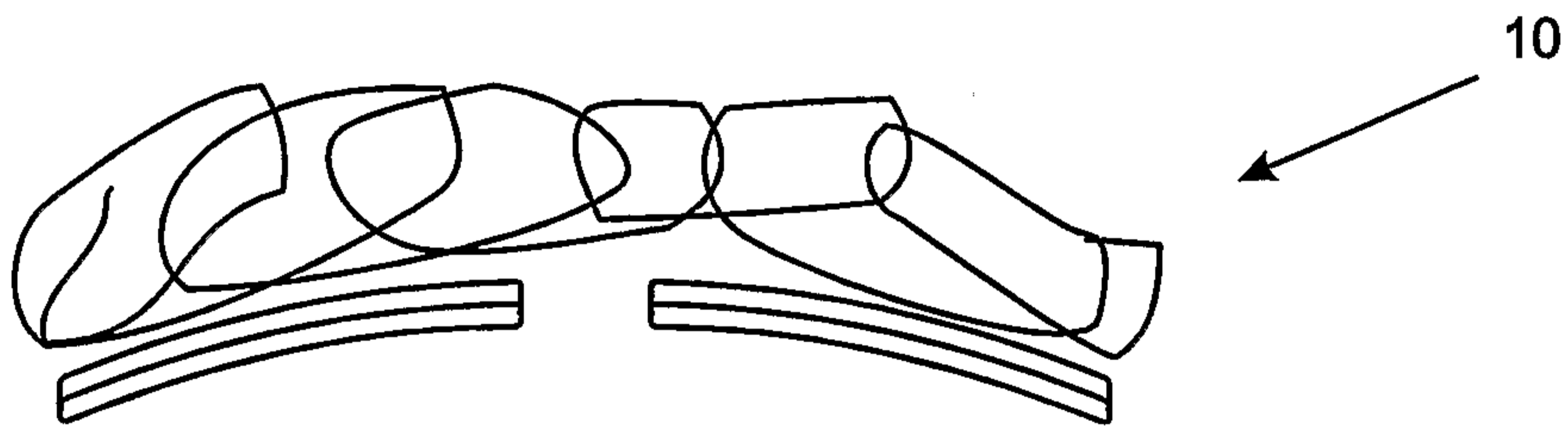


Figure 6

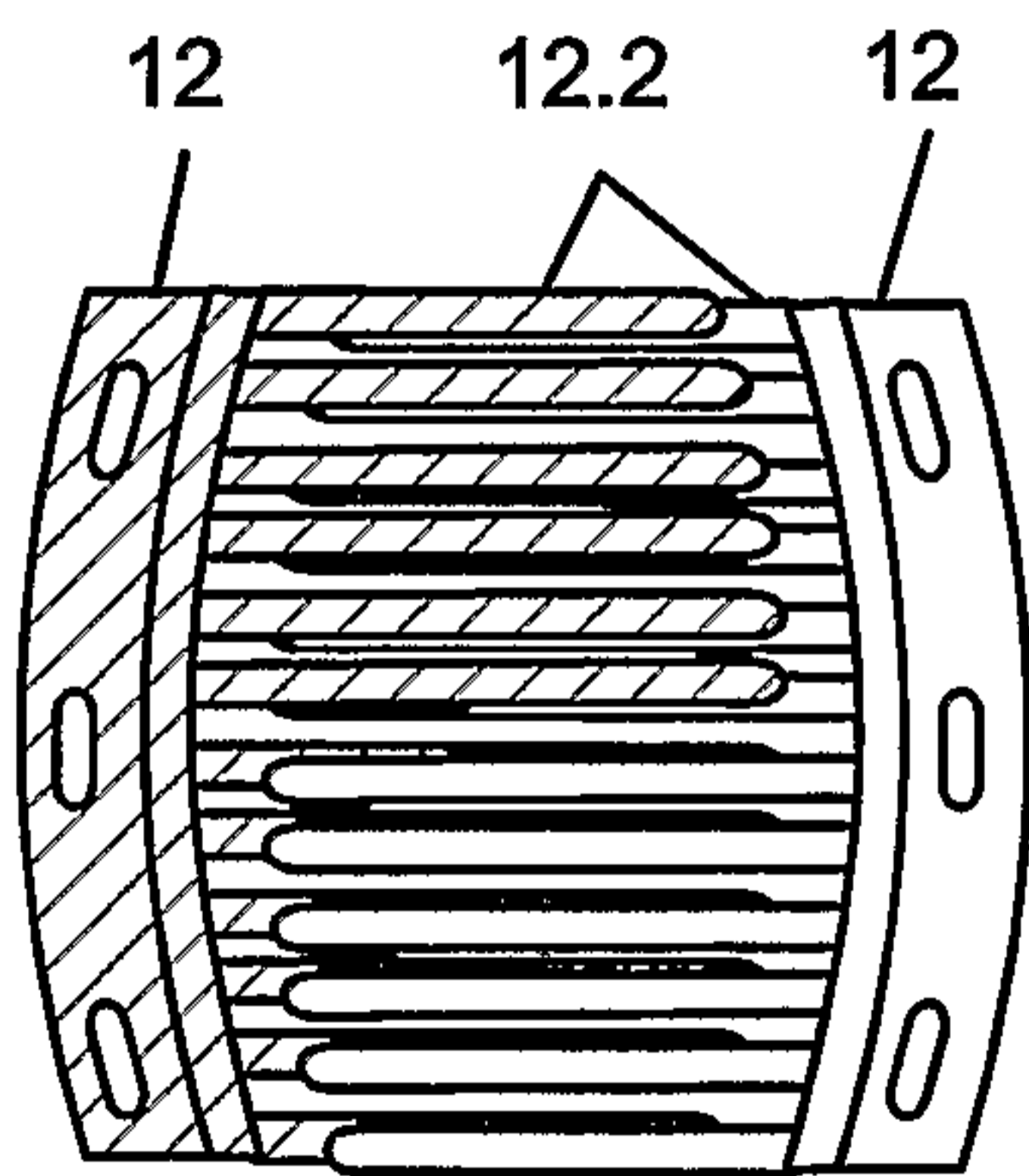


Figure 7

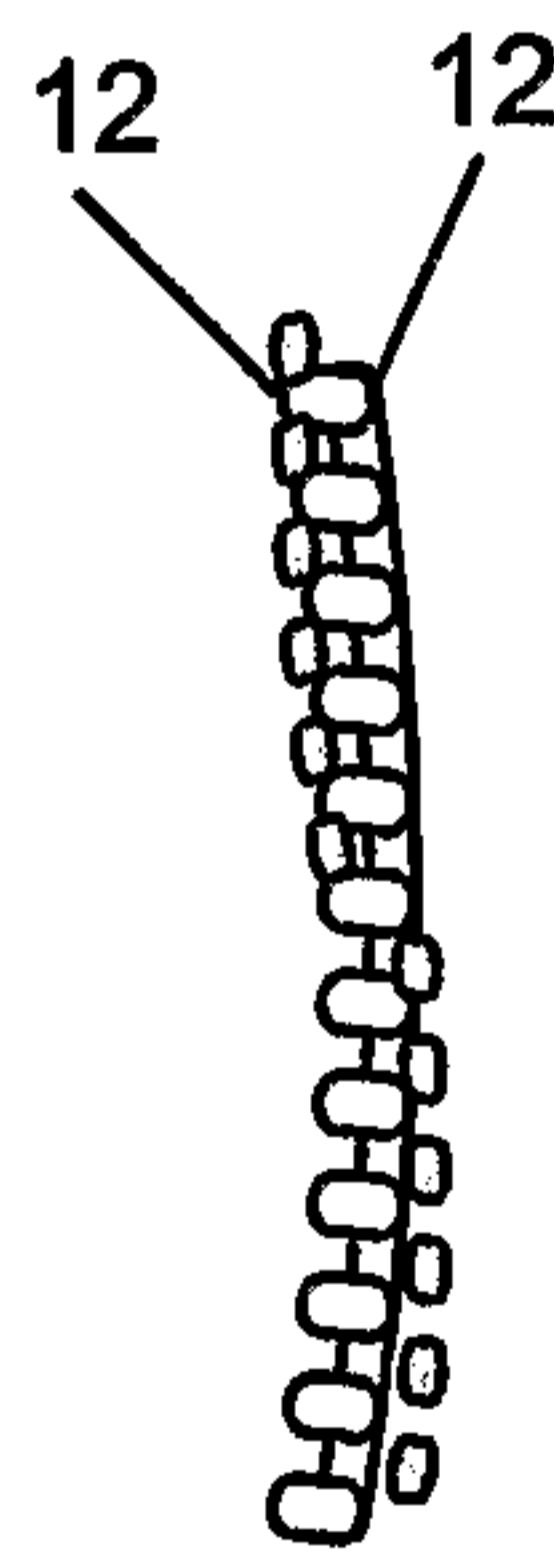


Figure 8

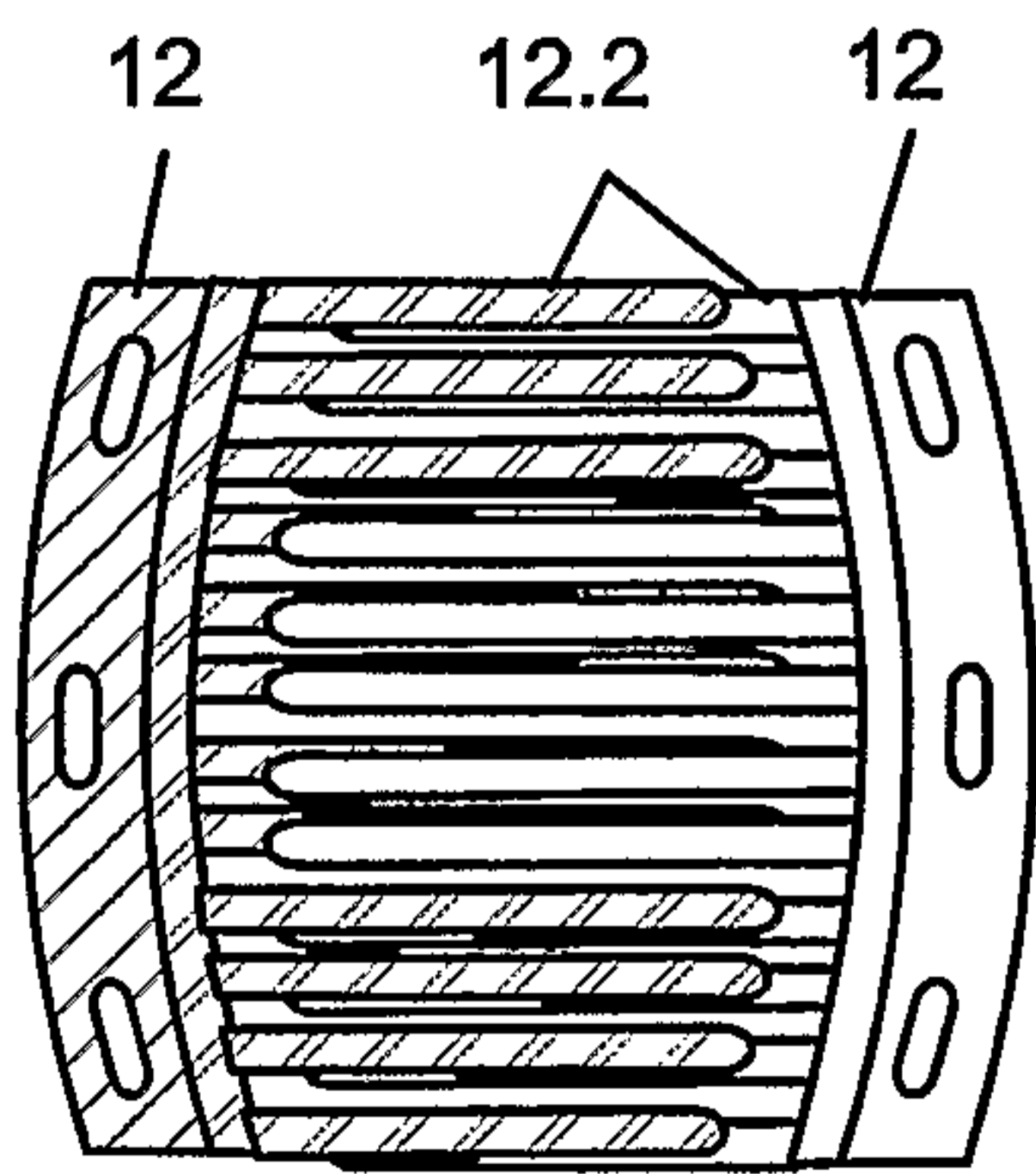


Figure 9

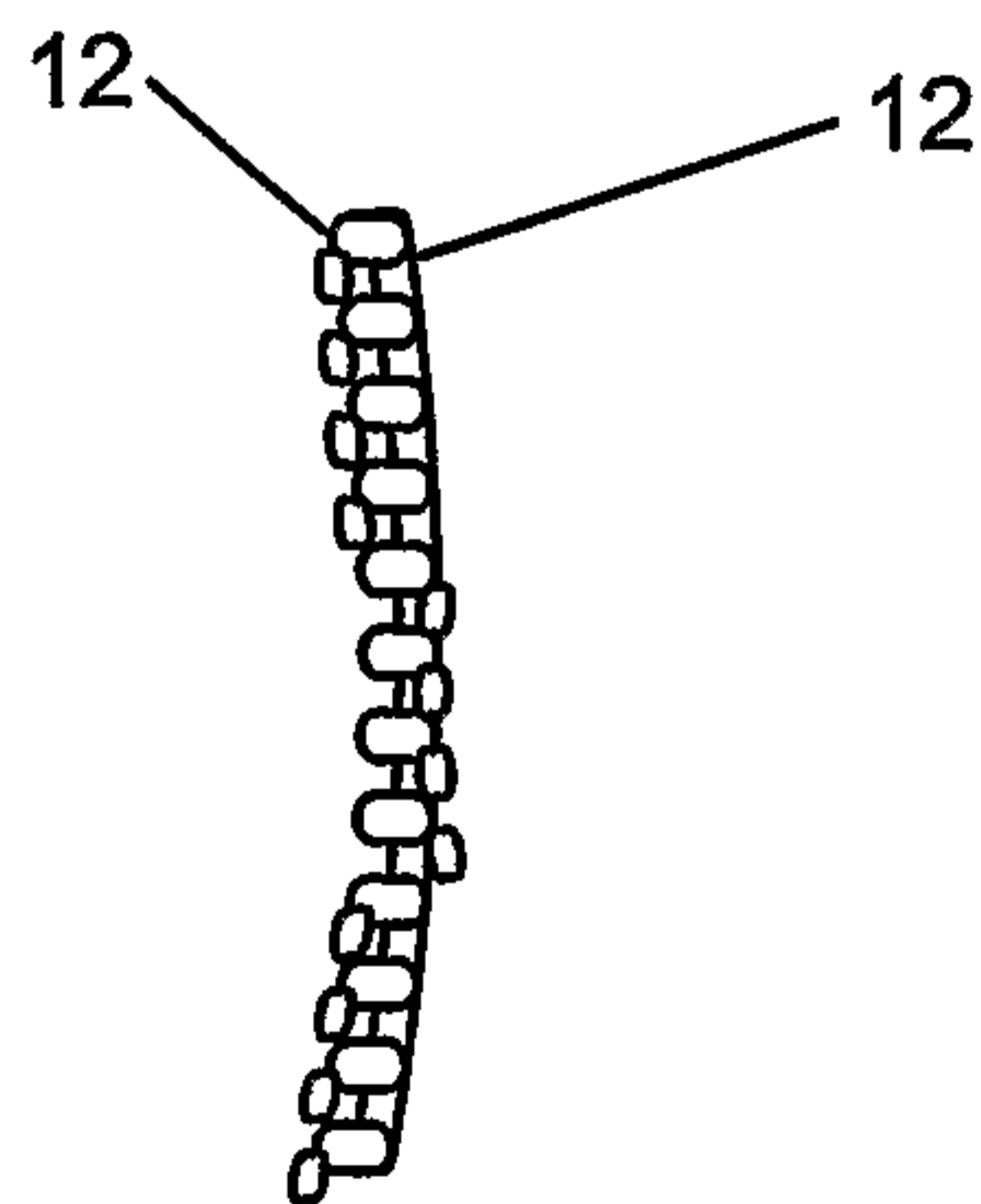
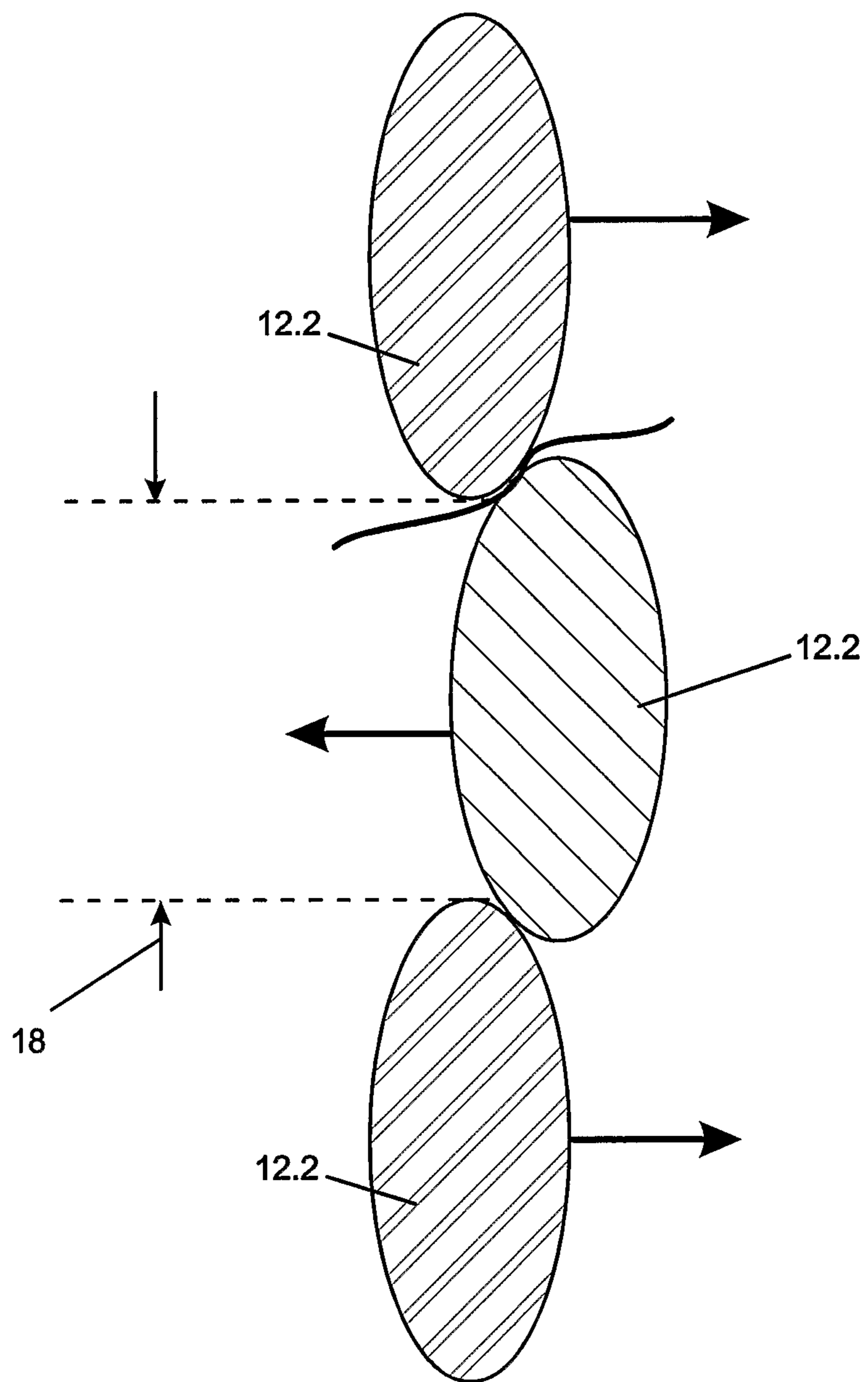


Figure 10



*Figure 11*

12

12.2

12

