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## (54) Clip to hold tiles at roof battens

(57) A clip (1) to hold tiles (2) at battens (3) on a roof (4).
A clip (1) is formed of a unit that is arranged to he threaded onto the respective tile (2) from its upper short end (6). The clip (1) is comprised of paired branches (7,8) and an intermediate clamping finger (9) as well as that a common uniting part (10,11) for the branches (7,8) and the clamping finger (9) is resilient to adapt the distance (A) between said clamping finger (9) and branches (7,8), as seen along the common direction, in order to, upon compression of said uniting part, get the clip (1) in place and, upon springing back (13), hold the clip (1) and the tile (2) in place, respectively.

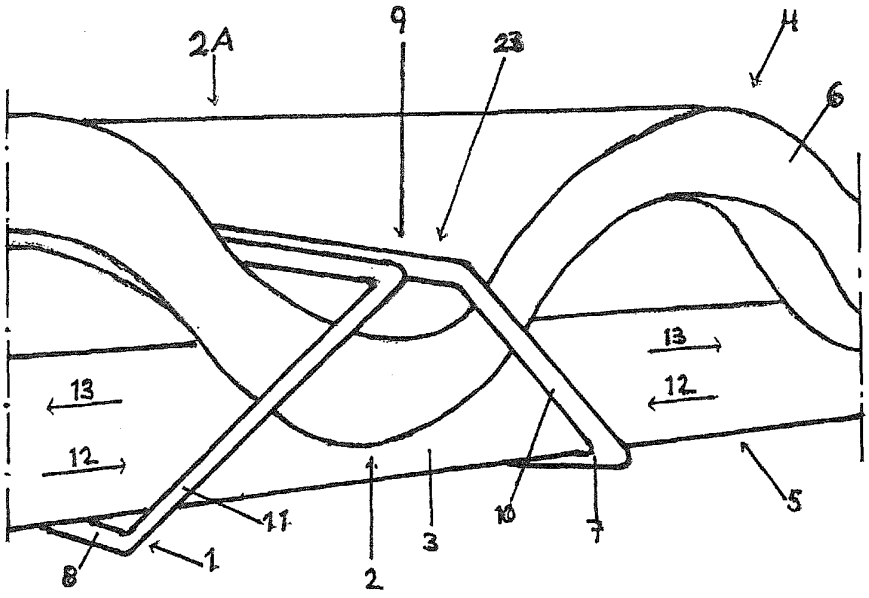


Fig. 1

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## Description

**[0001]** The present invention relates to a clip to hold curved tiles at roof battens.

**[0002]** A wide variety of clips for said purpose are known. Among others, US 4,422,278 A; DE 20116814 U1; US 2,106,948 A; US 1,974,372 A; GB 1,514,723 A; DE 69929563 T2; DE 1,954,869 and AU-B-64261186 disclose clips intended to hold tiles. However, there are a number of disadvantages with these and also with other known tile clips. For instance, there have to be recesses in the tiles that are intended to be locked, or that they hold the tiles from the side or that the clips are unusually designed in a complicated way or cumbersome to handle and place in intended holding positions. For certain clips, there have to be lead-through holes in the tiles in order for the clips to work. Certain clips are only intended to clamp tiles along their long sides and other clips are not suitable to be used for battens but are intended for special rafters and for corrugated sheets. Still others are cumbersome to attach to the battens on the roof.

**[0003]** Therefore, the main object of the present invention is primarily to provide a clip that, among other things, solves the above-mentioned problems efficiently and reliably.

**[0004]** Said object is achieved by means of a clip according to the present invention that essentially is **characterized in that** a unit bent of spring steel is comprised of paired branches and an intermediate clamping finger, and that is arranged to be threaded onto the respective tile from its upper short end as well as that a uniting part common to the branches and the clamping finger is resilient to adapt the distance between said clamping finger and branches, as seen along the common direction, in order to, upon compression of said uniting part, get the clip in place and, upon springing back, hold the clip in place on the tile and the batten, respectively, thereby also holding the tile in place, whereby the clamping finger is arranged to be received on the upperside of the respective tile or in the valley, and that the two branches of the clip are arranged to be received on the underside of the batten.

**[0005]** The invention is described below with reference to the appended drawings, in which

Fig. 1 shows a perspective view of a clip holding a curved tile on a wooden batten as seen obliquely from the front,

Fig. 2 shows the clip, the tile and the batten from below,

Fig. 3 shows a clamping clip on a tile as seen obliquely from above,

Figs. 4-5 show the clip lying and standing freely, respectively,

Fig. 6 shows a variant of the clip and the tile,

Fig. 7 shows a cross-sectional view of the tip of the clip and the top surface of the tile,

Figs. 8-9 show a variant of a clip provided with a snow slide guard and where Fig. 8 shows the clip clamped on a tile and as seen obliquely from above, and

Fig. 9 shows a perspective view of the clip as seen obliquely from behind.

**[0006]** According to the present invention, a clip 1 to hold preferably curved tiles 2 at battens 3 on a roof 4 is formed of a unit bent of spring steel and arranged to be threaded onto the respective tile 2 in the direction 5 from its upper short end 6. A said clip 1 is comprised of paired branches 7, 8 and an intermediate clamping finger 9, as well as that a uniting part 10, 11 common to the branches 7, 8 and the clamping finger 9 is resilient to be able to adapt the distance A between said clamping finger 9 and the branches 7, 8, as seen along the common direction 14, in order to, upon compression 12 of said uniting part 10, 11, get the clip 1 in place and, upon springing back 13, hold the clip 1 in the desired place on the tile 2 and the batten 3, respectively.

**[0007]** Said clamping finger 9 is formed of a wire loop that is perpendicularly bent from the uniting part 10, 11 and in turn formed of paired parallel wires 9A, 9B with a connecting joint 9C in the free ends of the same.

**[0008]** The free end 9D of the finger may in turn be in the form of a straight hook, as is shown in the drawings in Figs. 4 and 5 at a corrugated tile but having a smooth top surface in the valleys, or the free end 109D of the finger 109 may also be in the form of a connecting and downwardly angled hook 50 or another thickened grip part of the clip 101 and that may be arranged to be received and engage a depression 51 of the tile 102 intended therefor.

**[0009]** Said uniting part 10, 11 is formed of two wires, one wire 10 of which extends slopingly from one branch 7 of the clip 1 to said clamping finger 9. The other wire 11 extends slopingly from the clamping finger 9 to the other branch 8. The mutual slope angle x between said two wires 10, 11 is approx. 120°, but also another angle is possible. The two branches 7, 8 are formed of straight wires that extend perpendicularly out from the ends 10A, 11A of the uniting part 10, 11. At the respective free ends 7A, 8A of the branches 7, 8, a perpendicularly bent part 15, 16 is arranged.

**[0010]** Said respective bent part 15, 16 has an angled tip 17, 18 at its respective outer portion 15A, 16A and that extends perpendicularly out from said bent part 15, 16. Said tip 17, 18 is arranged counter-directed to the extension of said branches 7, 8 and clamping finger 9 in the direction from 19, 22 said uniting part 10, 11.

**[0011]** The nature of said clip 1 should have been understood from what has been said above and with the aid of what has been shown in the drawings. The function of the invention should also have been understood, but briefly it may be mentioned that the two resilient uniting parts 10, 11 are pressed together toward each other 20, 21 so that the distance A between the paired branches 7, 8 and the clamping finger 9, as seen in the common

direction 14, increases and allows application of the clip 1 in place at a batten 3 and a tile 2. In case of curved tiles 2, the clamping finger 9 becomes situated in the valley 23 of a curve on the upper part 2A of the tile and at the upper short end 6 thereof, respectively, as is shown in Fig. 1. In case of flat tiles, the clamping finger 9 becomes situated on the flat upperside of the respective tile instead of in the valley as for curved tiles. In other respects, it is the same. In Fig. 2, it is shown how the two branches 7, 8 of the clip are received on the underside 3A of the batten 3, while the outer bent parts 15, 16 of the clip 1 are situated along the lower face 3B of the batten and the tips 17, 18 thereof project into the batten 3 or at least abut against the same.

**[0012]** The batten 3 is supported in a known way per se by counter battens (not shown), so that there is free space between the batten and the proper roof of the building, except at the area of said counter battens. At next set of tiles, said clip 1 is covered by the lower edge portion of an applied tile.

**[0013]** When detachment of the tiles is desired, the clips 1 are squeezed together again and removed in the opposite order and the direction as mentioned above.

**[0014]** Effective holding by simple and cost-effective means is possible to achieve thanks to the invention.

**[0015]** According to further embodiment examples of the invention, a clip, which preferably is intended for holding curved tiles but also for flat ones at roof battens, however not shown in the drawings, may be made of a unit formed of sheet-metal plate or plastic and arranged to be threaded onto the respective tile from its upper short end. The clip is comprised of paired branches and an intermediate clamping finger, as well as that a uniting part common to the branches and the clamping finger is resilient to adapt the distance between said clamping finger and branches, as seen along the common direction, in order to, upon compression of said uniting part, get the clip in place and, upon springing back, hold the clip and thereby also the tile in place, respectively, with the paired branches and the intermediate clamping finger, respectively, situated on the underside and the upperside, respectively, of the batten and the tile, respectively.

**[0016]** The embodiment shown in Figs. 8 and 9 of a a tile-holding clip 201 differs from the clips previously described and shown in the drawings.

**[0017]** The clip 201, which preferably consists of spring steel wire, differs from the clips described above by the fact that the clamping finger 209, which is arranged to closely abut against the upperside 2A of a tile, preferably in the valley 23 of the curve on the tile 2 if the same are of the kind that they are curved.

**[0018]** The clamping finger 209 supports a snow slide guard 200 extending in the upward direction and said clamping finger 209 has an extended length L. Said snow slide guard 200, which is intended to be placed on exposed spots on the roof where snow slide could be feared to injure and damage persons and objects underneath the roof in said areas, is situated and connected with the clip 201 at the outer end 202 of said clamping finger 209. Preferably, the snow slide guard is formed of a perpendicularly $\alpha$ bent up double end portion made of spring steel wire.

**[0019]** Said snow slide guard 200 is situated at said clamping finger 209 at such a distance from the upper portion of a tile that it occurs within an area that is lying between the centre area of the tile and the lower end portion of the tile.

**[0020]** Snow and ice are stopped efficiently by said upwardly projecting snow slide guard 200 and are prevented from freely sliding down along the roof, but instead efficiently be retained on the roof.

**[0021]** Clips 201 formed in such a manner are placed along the intended area where snow slide is feared to occur in the same way as the ordinary clips that lack snow slide guard are fitted to tiles.

**[0022]** Naturally, the invention is not limited to the embodiments described above and shown in the accompanying drawings. Modifications are feasible, particularly as for the nature of the different parts, or by using an equivalent technique, without departing from the protection area of the invention, such as it is defined in the claims.

## Claims

1. Clip (1) to hold tiles (2) at battens (3) on a roof (4), **characterized in that** a unit bent of spring steel is comprised of paired branches (7, 8) and an intermediate clamping finger (9), and that is arranged to be threaded onto the respective tile (2) from its upper short end (6), as well as that a uniting part (10, 11) common to the branches (7, 8) and the clamping finger (9) is resilient to adapt the distance (A) between said clamping finger (9) and branches (7, 8), as seen along the common direction, in order to, upon compression of said uniting part, get the clip (1) in place and, upon springing back (13), hold the clip (1) in place on the tile (2) and the batten (3), respectively, thereby also holding the tile (2) in place, whereby the clamping finger (9) is arranged to be received on the upperside of the respective tile (2) or in the valley (23), and that the two branches (7, 8) of the clip are arranged to be received on the underside (3A) of the batten (3).

2. Clip according to claim 1, **characterized in that** the clamping finger (9) is formed of a wire loop perpendicularly bent from the uniting part (10, 11) and formed of paired parallel wires (9A, 9B) connected in the free ends.

3. Clip according to claim 2, **characterized in that** the end of the clamping finger (9) is in the form of a downwardly angled hook (50).

4. Clip according to any one of the preceding claims, **characterized in that** said uniting part (10, 11) is formed of two wires, one (10) of which extends from one branch (7) to the clamping finger (9) and the other one (11) extends from the clamping finger (9) to the other branch (8).

5. Clip according to claim 4, **characterized in that** the two wires (10, 11) slope at a common angle (X) of approx. 120°.

6. Clip according to any one of the preceding claims, **characterized in that** the branches (7, 8) are formed of perpendicular wires that extend from the uniting part (10, 11), and that the branches (7, 8) have a bent part (15, 10) each at their respective free end (7A, 8A), said bent part (15, 16) extending perpendicularly from the respective branch (7, 8).

7. Clip according to claim 6, **characterized in that** said bent part (15, 16) has an angled tip (17, 18) at its outer portion (15A, 16A) and that extends perpendicularly from said bent part (15, 16) counter-directed to the extension of said branches (7, 8) and clamping finger (9) from said uniting part (10, 11).

8. Clip (1) to hold preferably curved tiles (2) at battens (3) on a roof (4), **characterized in that** a init formed of sheet-metal plate or plastic and arranged to be threaded onto the respective tile (2) from its upper short end (6) is comprised of paired branches (7, 8) and an intermediate clamping finger (9), as well as that a uniting part (10, 11) common to the branches (7, 8) and the clamping finger (9) is resilient to adapt the distance (A) between said clamping finger (9) and branches (7, 8), as seen along the common direction, in order to, upon compression of said uniting part, get the clip (1) in place and, upon springing back (13), hold the clip (1) and thereby also the tile (2) in place, respectively, with the paired branches (7, 8) and the intermediate clamping finger (9), respectively, situated on the underside and the upperside, respectively, of the batten (3) and the tile, respectively, whereby the clamping finger (9) is arranged to be received on the upperside of the respective tile 12) or in the valley (23), and that the two branches (7, 8) of the clip are arranged to be received on the underside (3A) of the batten (3).

9. Clip (201) according to any one of the preceding claims, **characterized in that** the clamping finger (209) supports a snow slide guard (200) extending in the upward direction.

10. Clip (201) according to claim 9, **characterized in that** the clamping finger (209) has an extended length (L), and that the snow slide guard (200) is situated at the outer end (202) of said clamping finger (209), preferably formed of the end lcop (203) of a perpendicularly ($\alpha$) bent up end portion made of spring steel wire.

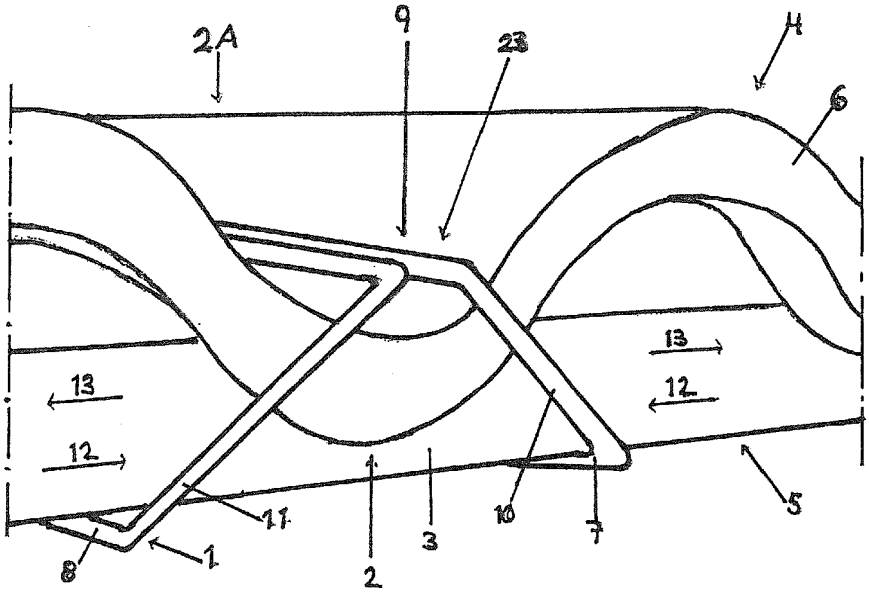
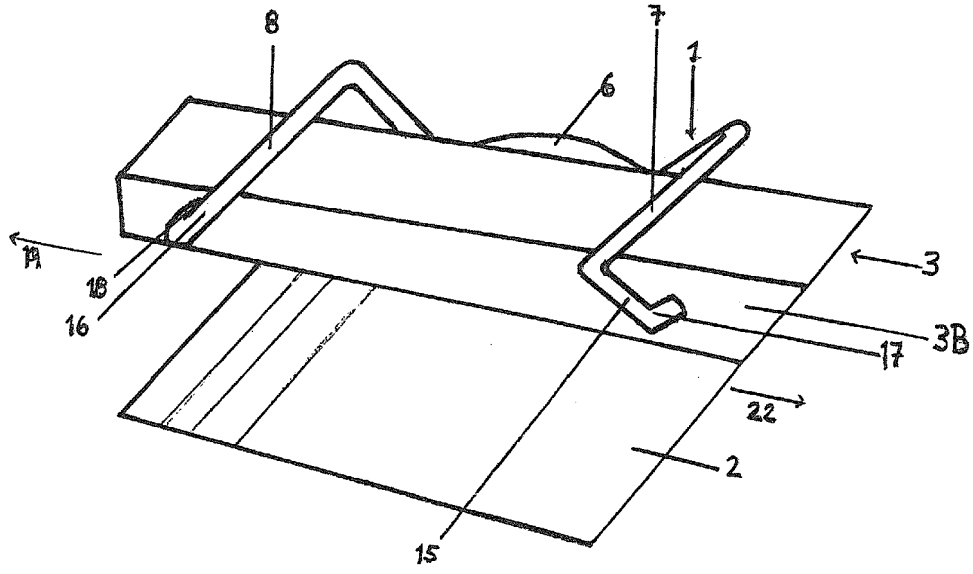



Fig. 1

Fig. 2



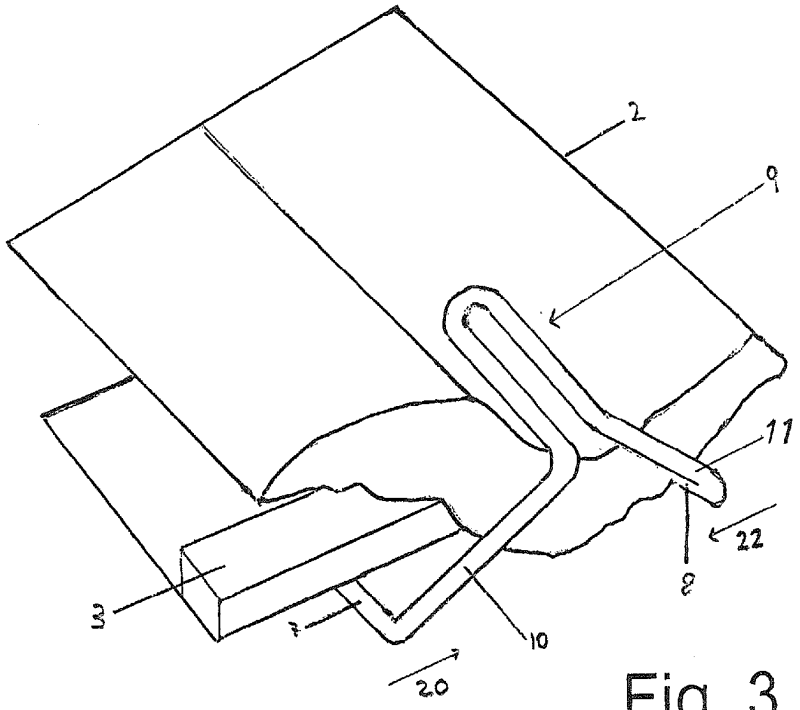



Fig. 3

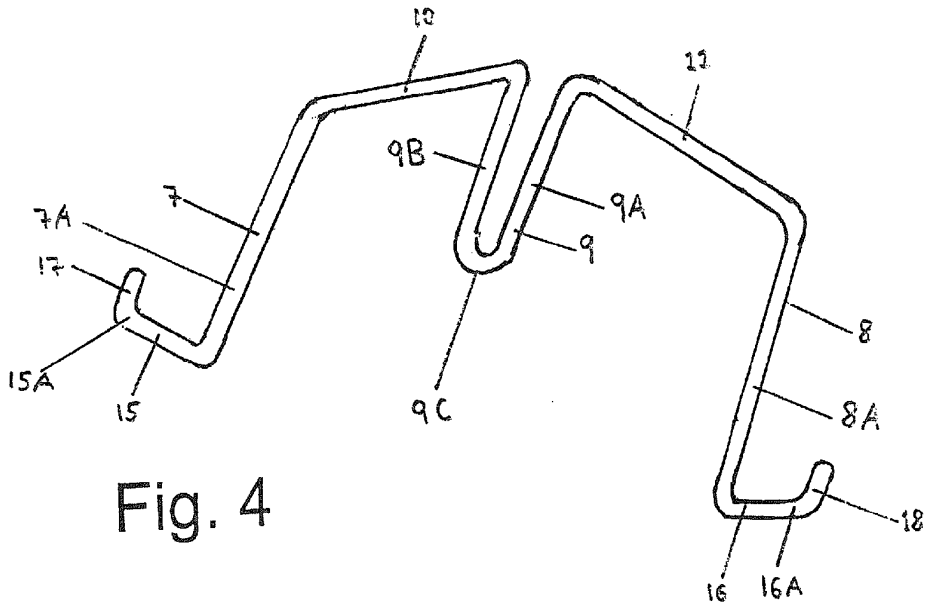
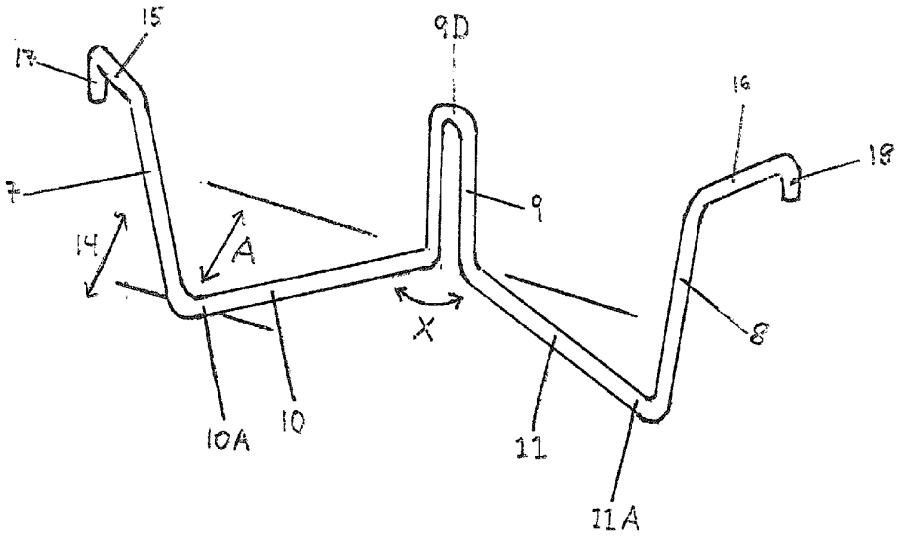



Fig. 4

Fig. 5



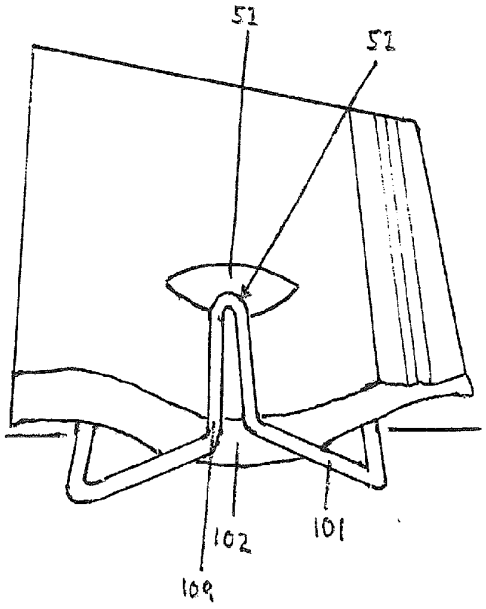




Fig. 6

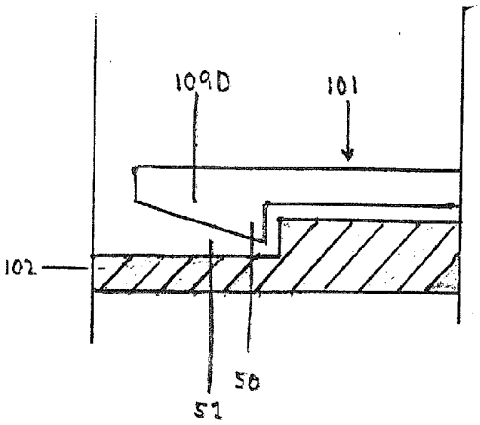



Fig. 7

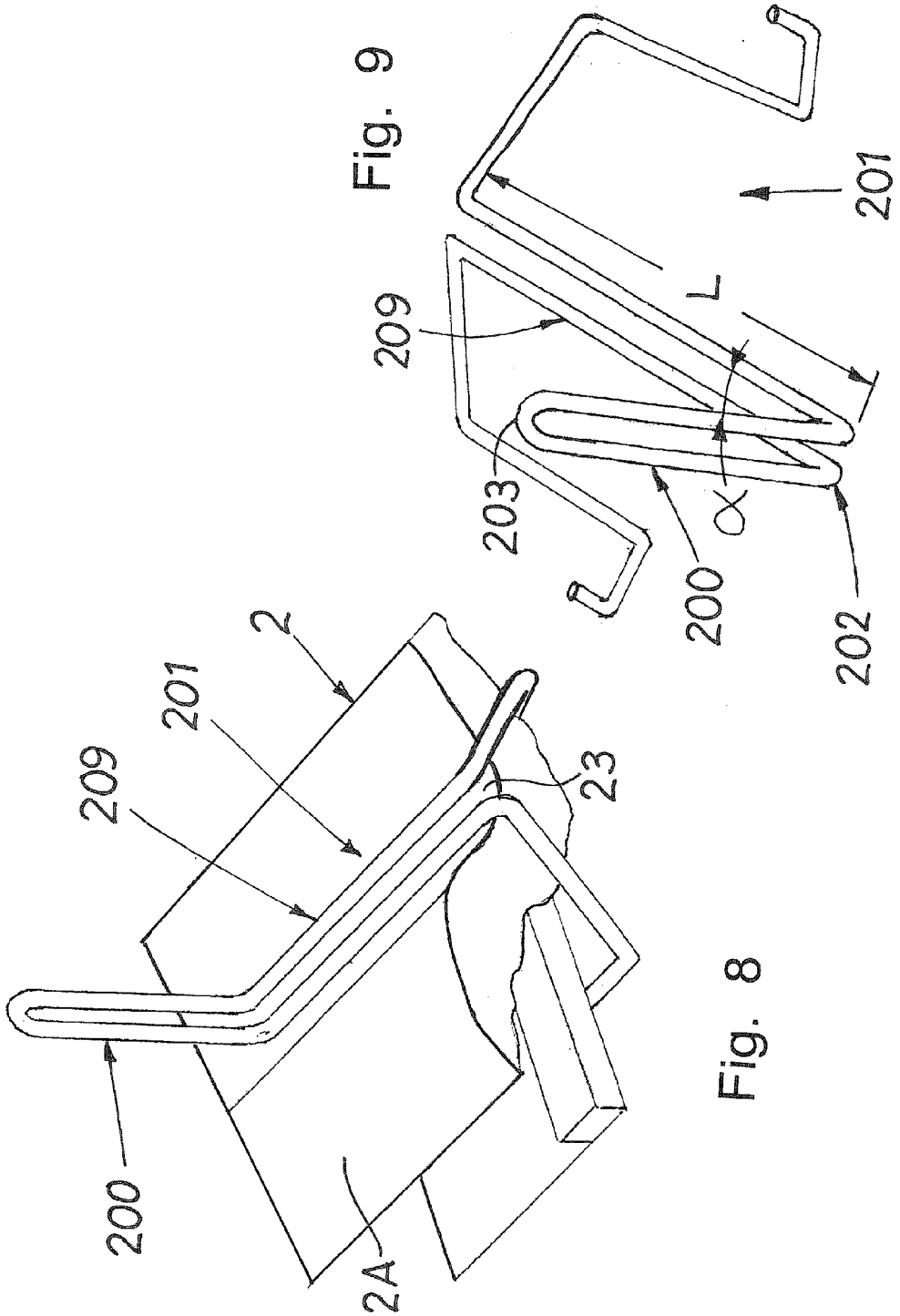



Fig. 8




Fig. 9

## REFERENCES CITED IN THE DESCRIPTION

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