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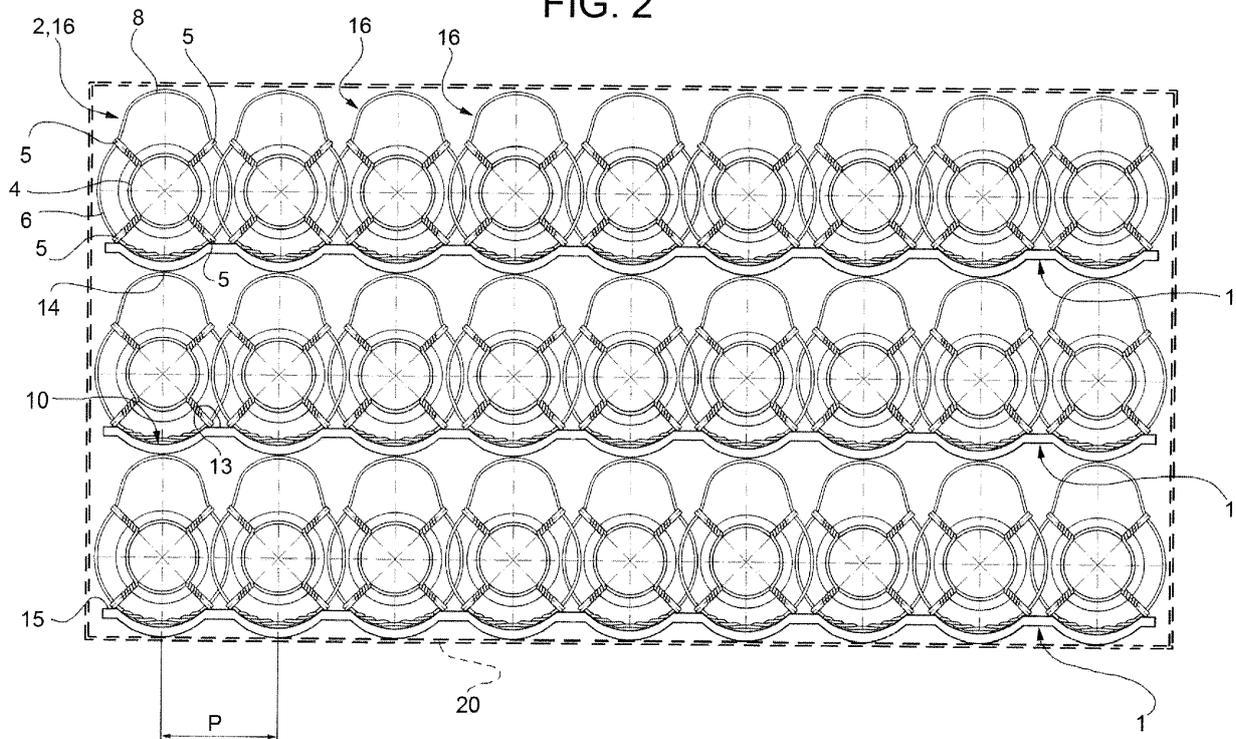
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(54) Support tray for packaging cork retaining cages and method therewith

(57) A tray (1) for packaging cork retaining cages (2), comprising a plurality of elongated seats (10) parallel to

each other and configured so as to house respective stacks (16) of cages (2) arranged along a horizontal axis and maintain the stacks (16) in a rectilinear configuration.

FIG. 2



EP 2 594 505 A1

Description

[0001] The present invention relates to a support tray for packaging cork retaining cages.

[0002] As is known, cork retaining cages are wire elements used in the bottling of sparkling wines and fizzy drinks in general (e.g. beer, cider, etc.), with the purpose of anchoring the cork to the neck of the bottle and preventing the cork from being ejected due to the pressure of the gases that are released within the bottle.

[0003] The cork retaining cages have a substantially truncated cone shape and comprise a body made of metal wire and a cap (optional, but generally provided) of thin sheet metal housed in the body. The body comprises an upper annular crown, configured to retain the cork, and an annular lower belt configured to be blocked on the neck of the bottle by twisting a loop especially provided. The crown and the belt are connected one to the other by a plurality of stems, generally four, each formed by two portions of wire twisted together and integrally made with the crown. In the event that the cage is made from a single cut portion of wire, the belt is integral to one of the stems, and is bound to the other three stems by way of terminal eyelets of the stems wherein the belt is inserted. Alternatively, the cage can be made from two cut portions of wire, one of which forming the crown and the stems, and the other forming the belt, which is inserted in the terminal eyelets of the stems.

[0004] The cap consists of a thin sheet metal cover inserted inside the stems and in axial contact with the crown, which is adapted to be interposed, in use, between the cage and the upper surface of the cork.

[0005] The cork retaining cages are manufactured by automatic machines at a high production rate. The finished cages exit the machine on an output channel, being arranged therein along a horizontal axis and stacked one in the other to form a continuous stack. The cages are then typically packed in cardboard boxes, which allow the storage and transportation thereof. Typically, within the boxes the cages are arranged in a plurality of layers, for example three, each layer being formed by a plurality of stacks of cages, the various stacks being arranged parallel and side by side to each other. Between one layer and the other a plane of cardboard is usually provided in order to achieve a flat support surface for the overlying layer of cages.

[0006] The loading and unloading of stacks of cages in and from the boxes is usually done by automatic manipulators. In particular, at the output of the cages from the production machine a first manipulator retrieves a stack of cages from the output channel and arranges them in the boxes as described above; at the bottling plant, a second manipulator retrieves the stacks of cages from the box and arranges them in a feeding channel of a bottling machine, where the cages are applied to the bottles.

[0007] The stacks of cages are dimensionally unstable, because the individual cages are deformable and

housed one in the other with a relative clearance; therefore, it must be ensured that each stack maintains a rectilinear configuration within the box. To do this, before packaging each stack is made stable by inserting a reinforced cardboard slat, which is axially inserted between the belt and cap of each cage.

[0008] An object of the present invention is to provide a support element for the packaging of cork retaining cages that will ensure a proper disposition of the cages inside the boxes and allow the elimination of the insert operation of the slat.

[0009] The above object is achieved by a support tray for packaging cork retaining cages according to claim 1.

[0010] Another object of the present invention is to provide an improved method of packaging cork retaining cages.

[0011] The above object is achieved by a method according to claim 7.

[0012] For a better understanding of the present invention, a preferred embodiment is described in the following, by way of non limitative example and with reference to the attached drawings in which:

Figure 1 is a perspective view of a support tray according to the present invention;

Figure 2 is a schematic view in section of a package of cork retaining cages made according to the method of the present invention; and

Figure 3 is a partial top plan view of the tray of Figure 1, in use, with a plurality of cork retaining cages.

[0013] With reference to the figures, indicated as a whole with 1 is a support tray for packaging cork retaining cages 2.

[0014] As is clearly visible in Figures 2 and 3 and as previously described, the cages 2 comprise a body 3 made of metal wire and consisting of an upper crown 4, four stems 5 integrally extending from the crown, and each formed by two cut portions of wire twisted together, and a belt 6 housed in terminal eyelets 7 of the stems and provided with a loop 8 configured to be twisted to secure the cage 2 to the neck of a bottle (not shown). The cages also comprise a thin sheet metal cap 9 housed in the body 3 in contact with the crown 4.

[0015] The tray 1 (Figure 1) has a generally rectangular shape, and is preferably made of polystyrene foam.

[0016] According to the present invention, the tray 1 has a plurality of elongated straight seats 10, configured to receive respective stacks 16 of cages 2 arranged along a horizontal axis. The seats 10 extend parallel to each other and to a side of the tray 1 (in the example shown the longest side), across the whole length of the tray. The seats 10 form on one face of the tray 1 cylindrical surface grooves 11, of a radius substantially equal to the outer radius of the belt 6 of the cages, and are separated by flat portions 13 of limited width.

[0017] The thickness of the tray 1 is preferably constant, so that in correspondence with the grooves 11 the

seats 10 define, on the opposite side of the tray 1, projections 14 of a corresponding shape. This allows manufacturing the tray by a wire cutting process minimizing material waste.

[0018] At the opposite sides of the seats 10, the tray 1 ends with flat edges 15 substantially equal in width to half the width of the flat portions 13.

[0019] The seats 10 are configured for receiving respective stacks 16 of cages 2. The stacks 16 are made of cages 2 arranged along a horizontal axis and stacked one in another (Figure 3). The cages 2 are resting in grooves 11 with the belt area 6 opposite to the loop 8, which therefore extends upwardly (Figure 2).

[0020] The transverse pitch P between the seats 10 (Figures 2 and 3) is conveniently smaller than the transverse diameter of the belts 6 of the cages 2, so that adjacent stacks 16 slightly interpenetrate each other in a radial direction, with the cages 2 of a stack 16 axially offset with respect to the cages 2 of the adjacent stacks.

[0021] In Figure 2 is shown a packaging of cages 2, which comprises a box 20 (shown schematically), within which are arranged three layers of the cages 2, each of which rests on a tray 1. As can be seen, the tray 1 of the bottom rests on the bottom of the box 20; the trays 1 of the intermediate layer and of the upper layer rests on the layer of cages 2 below, with projections 14 placed in contact with the loops 8 of the cages 2.

[0022] The packaging method according to the invention therefore provides the steps of arranging a tray 1 inside the box 20, arranging a plurality of stacks 16 of cages 2 on the tray 1, each stack 16 occupying a respective seat 10; and repeating the previous steps until filling up the box.

[0023] In this way, the stacks 16 of cages 2 are kept permanently in a straight configuration, without the need for a reinforcement slat. This allows simplifying the cycles of loading/unloading of the cages 2 in/out of the boxes, reducing cycle time and simplifying the manipulators performing said operations.

[0024] Finally, it appears clear that changes and variations can be made to the described tray 1 that do not go beyond the protective scope of the claims.

[0025] In particular, the tray 1 can be made of different materials (e.g. cardboard or other paper material), and may have different geometries. For example, the tray may have a flat bottom surface, and the seats may be limited in length so as to not extend for the entire length of the tray. In addition, the seats can be made parallel to the short side, rather than the long side, of the tray.

Claims

1. A tray for packaging cork retaining cages (2), **characterized by** comprising a plurality of elongated seats (10) parallel to each other and configured so as to house respective stacks (16) of cages (2) arranged along a horizontal axis and maintain said

stacks (16) in a rectilinear configuration.

2. The tray according to claim 1, **characterized in that** said seats (10) define respective straight elongated grooves (11) delimited by cylindrical bottom surfaces (12).

3. The tray according to claim 2, **characterized in that** said grooves (11) extend across the length of the tray.

4. The tray according to any of the preceding claims, **characterized by** having a substantially constant thickness.

5. The tray according to one of the preceding claims, **characterized by** comprising flat portions (13) interposed between each pair of seats (10).

6. The tray according to one of the preceding claims, **characterized by** being made of polystyrene foam.

7. A method of packaging cork retaining cages, **characterized by** comprising the steps of:

inserting a tray (1) according to any of the preceding claims in a box (20);
arranging a plurality of stacks (16) of cork retaining cages (2) upon respective seats (10) of said tray (1); and
repeating the above steps until filling the box (20).

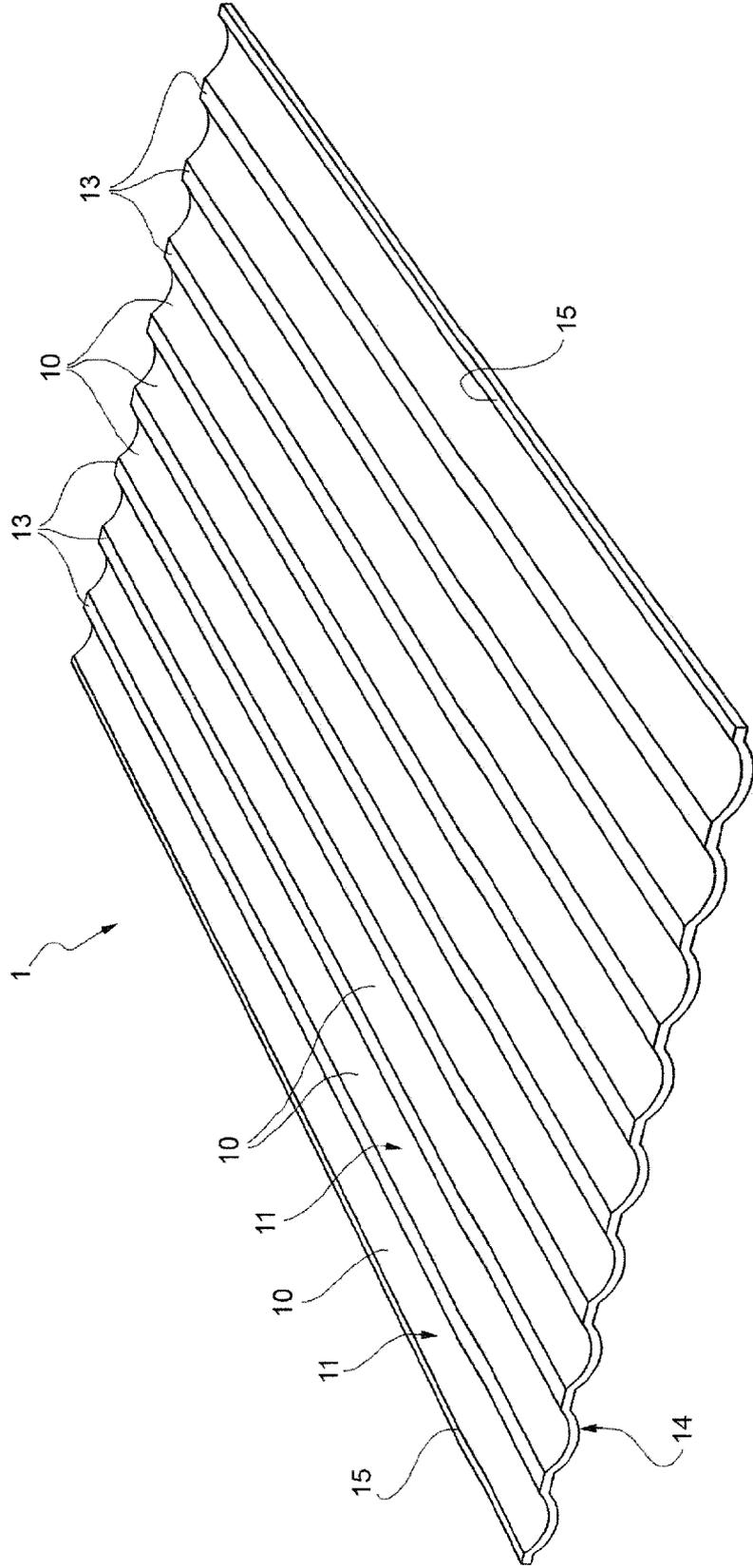


FIG. 1

FIG. 2

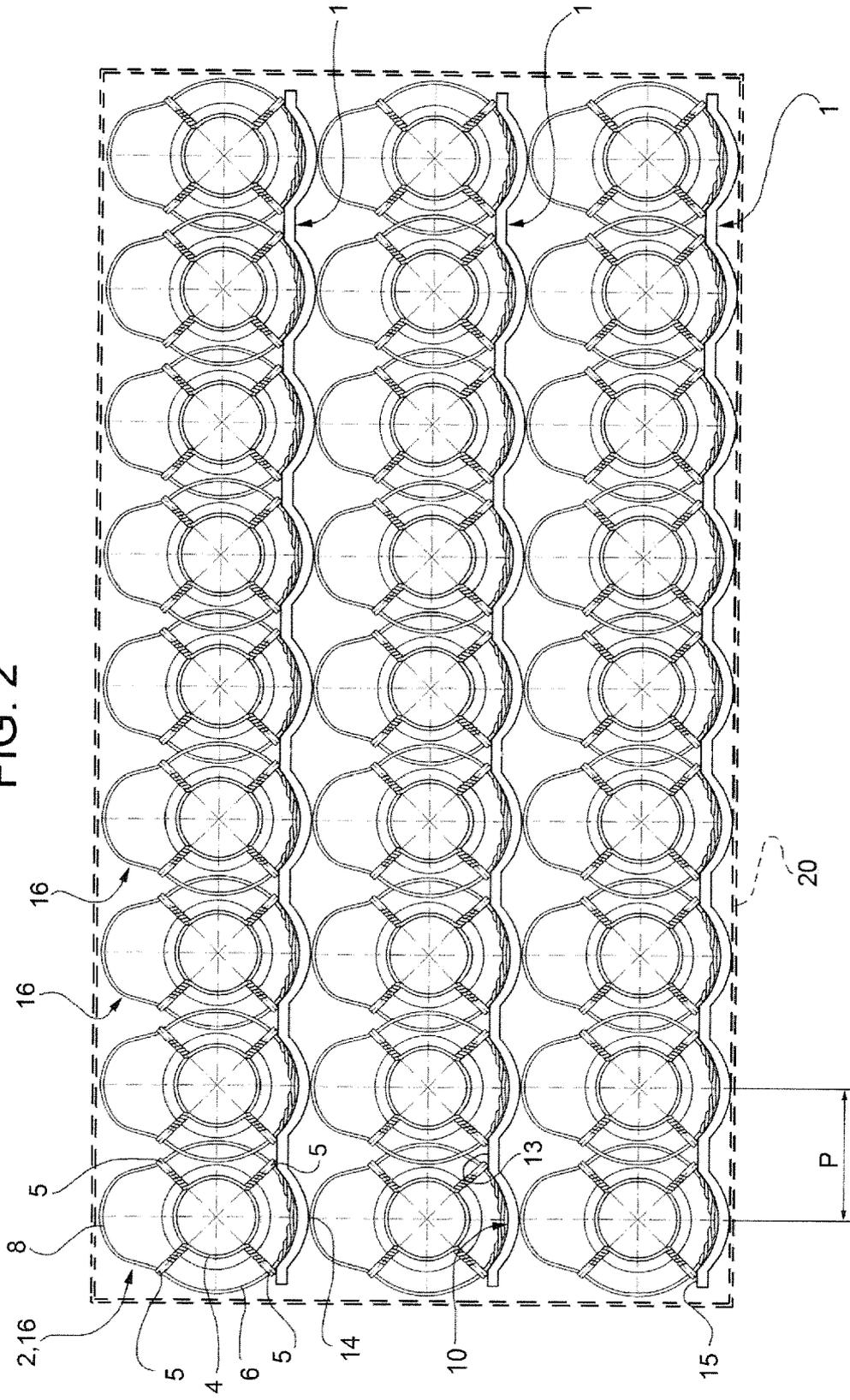
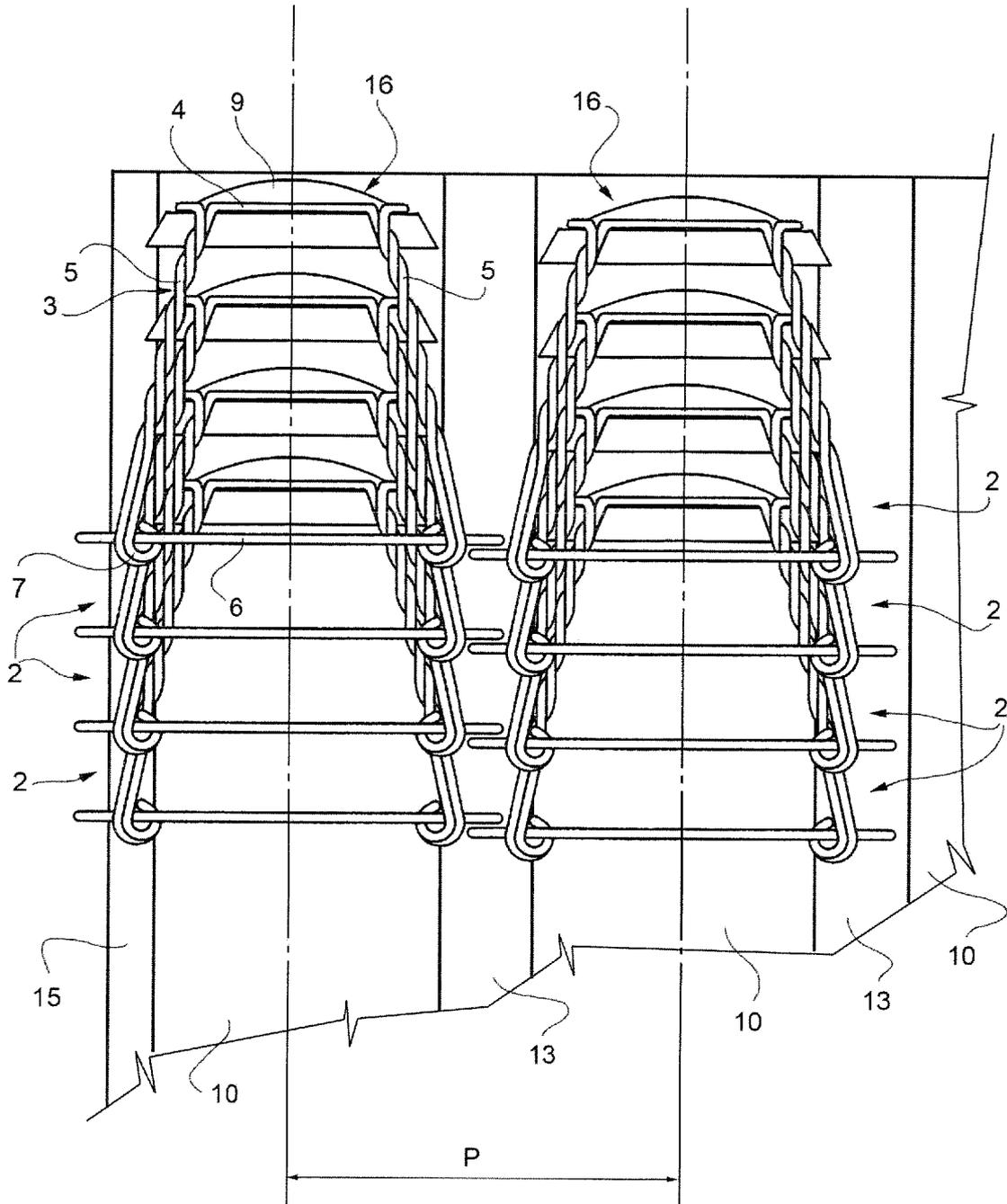


FIG. 3





EUROPEAN SEARCH REPORT

Application Number
EP 11 19 0025

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 10 April 2012	Examiner Piolat, Olivier
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

2
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ANNEX TO THE EUROPEAN SEARCH REPORT
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