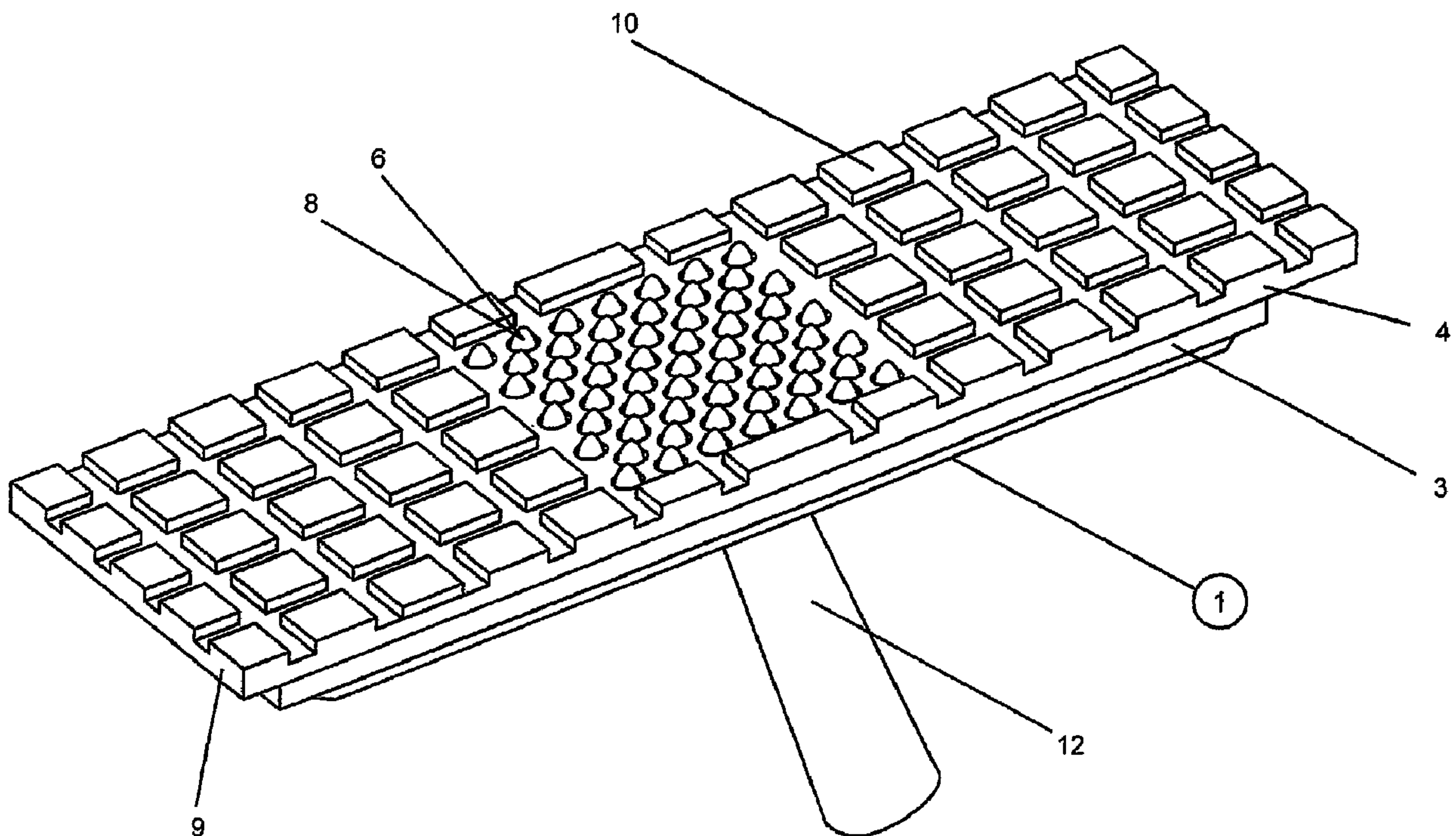




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(54) Titre : PLAQUE D'ESSUYAGE
(54) Title: WIPING PLATE



(57) Abrégé/Abstract:

Disclosed is a wiping plate (1) for accommodating a replaceable wiping cloth (2). Said wiping plate (1) comprises an essentially plate-shaped support plate (3) with an elastically resilient foam member (4) that can be fixed to the bottom face thereof. The foam member (4) is provided with at least one recess (5) inside which at least one non-elastic plug (6) is arranged. Said at least one plug (6) is connected to the support plate (3) and has a length that is smaller than the height of the foam member (4) in the unstressed state. The plug (6) can at least be brought in contact with the side of the wiping cloth (2), which faces away from the wiping surface, by applying pressure to the support plate (3) and the compressed foam member (4).

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WIPING PLATE

Description

Technical Field

The invention relates to a wiping plate according to the preamble of claim 1.

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State of the Art

Dust mops with a wiping plate covered with a wiping cloth, for example made of a non-woven material, are known. They represent an alternative to the known wet mops with wiping cover and are especially intended for the fast in-between cleaning, especially for the removal of dust and fibrous dirt. The surface of these wiping cloths is constructed so that it is suitable for the take-up of dust and small particles as well as fibrous dirt. Besides the dry wiping cloths, damp cloths are often used which are impregnated with a special cleaning liquid or can be wetted by a suitable arrangement. For use, the wiping cloths are placed onto the underside of the wiping plate facing the surface to be cleaned and fastened thereto by way of suitable fastening structures. Dust, small particles and fibers adhere to the wiping cloth during passage thereof across the surface to be cleaned. Since the wiping cloths are very thin compared to the thick and absorbent wet wiping covers, it is known to provide the underside of the wiping plate with a synthetic foam layer for improvement of the wiping performance. This synthetic foam layer improves the pickup of particulate dirt on the wiping cloth surface and thereby reduces the potential for scratching during the wiping process.

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Strongly adhered, localized dirt requires a large effort to be loosened and taken up with these wiping apparatus.

A sponge with a multi-functional structure is known from FR 2 733 895. The known sponge includes on the side facing the surface to be cleaned portions of a sponge material and portions with an abrasively acting surface. The surface of the abrasively acting portions is recessed relative to the sponge portions so that the abrasive portions do not contact the surface to be cleaned when no pressure is exerted onto the sponge. By exerting pressure onto the sponge, the sponge portions are compressed and the abrasively acting portions engage the surface to be cleaned.

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The abrasive portions consist of a solid and rough material. The cleaning action of the sponge results from the loosening of dirt by way of the abrasive portions and the

take-up of the loosened dirt particles by the sponge portions. The functional principle of the abrasive material consists of the scrubbing effect of the rough surface.

The principle function of the above described sponge makes it unsuitable for use in connection with cleaning cloths, since on the one hand the cleaning cloths quickly wear out due to the scrubbing portions and on the other hand the abrasively active, scrubbing layer becomes ineffective because of the cleaning cloths, since the abrasive surface can no longer engage the surface to be cleaned. The sponge portions cannot take up any dirt particles when cleaning cloths are used, since they also do not directly contact the surface to be cleaned.

Description of the Invention

The invention is based on the object to further develop the above described wiping plate so that strongly adhered dirt can be loosened and taken up.

To achieve this object, the invention provides a wiping plate with a foam body that includes at least one cutout in which at least one non-elastic ram connected with the carrier plate is provided. The ram has a length equal to or smaller than the height of the foam body in the unloaded condition. Upon the exertion of pressure onto the carrier plate, the foam body is compressed and the ram can be at least brought into contact with the side of the wiping cloth directed away from the wiping surface, which increases the contact force between the wiping cloth at the surface to be cleaned in the region of the rams.

The rams of the carrier plate have no scrubbing effect, but improve the wiping results with strong soiling, solely by the higher contact force of the wiping cloth with the surface to be cleaned, because of a small active surface of the rams. It is therefore not necessary to provide the abrasive surface with a scrubbing surface, which would make it impossible to use the wiping plate in combination with wiping cloths. For the above mentioned reason, the wiping cloths need also not be provided with a scrubbing surface. The use of wiping cloths with at least a partial scrubbing surface is however not excluded.

The rams can be 0 to 10 mm shorter than the height of the foam body in the unloaded condition. At such spacing, the use of the abrasively acting rams can be controlled with little effort.

The ratio of the sum of all cross-sectional surfaces of the rams to the total surface of the wiping plate can be between 1:10 and 1:100. At such ratios, the effect of the rams is especially good and simultaneously a large supporting surface of the foam body in the unloaded condition is achieved.

5 In a preferred embodiment, the ratio is 1:50. A ratio of 1:50 corresponds to the ratio of the sum of the cross-sectional surfaces of all bristles to the total cleaning surface of a classical scrubber, which means that upon activation of the structured functional surface, about the same contact pressure with the surface to be cleaned is achieved as with the use of a scrubber.

10 The rams can be made of the same material as and in one piece with the carrier plate. The manufacture of the wiping apparatus is thereby simple and economical, since the number of manufacturing steps is reduced.

The rams can be form-fittingly or material-fittingly connected with the carrier plates. The geometry of the rams can be changed by manufacturing the rams and the carrier plates separately, without requiring a change in the manufacturing tool for the
15 wiping plate. It is possible during the manufacture and even later to mount rams of different shapes.

In a preferred embodiment of the invention, the rams can be constructed as ribs which extend in longitudinal direction of the carrier plates.

20 A linear contact with the surface to be cleaned is achieved with these ribs.

The ribs can extend over the whole width of the carrier plate. The whole longitudinal extent of the carrier plate can thereby be used for abrasive effect.

The ribs can extend over more than 50% of the longitudinal extent of the carrier plate. With a smaller effective surface of the ribs, the abrasive effect can be achieved by
25 a higher contact force.

The ribs can be positioned at an angle, preferably of about 45°, to the lateral edges of the wiping plate. A cleaning result can thereby be achieved which is largely independent of the direction of movement of the wiping plate.

In a further preferred embodiment of the invention, the rams can be constructed
30 as pins which can be distributed evenly over the whole underside or only in the region of the handle of the carrier plates. A point form contact with the surface to be cleaned is achieved with these pin-shaped projections, which is advantageous especially for tough dirt on small surfaces.

In an embodiment of the invention, the foam body can consist of a polymeric organic material. Foams of polymeric organic material do not take up humidity, whereby their properties are the same for wet and dry cleaning.

The foam body can be formed by an open porous foam. The foam body can
5 thereby store cleaning liquid which can be given off to the wiping cloth upon compression of the foam body.

On the surface facing the surface to be cleaned, the foam body can be provided at least in one zone with protruding ribs which in direction of their extent have regions of differing height. Larger contact forces are also produced by the higher portions,
10 whereby the abrasive effect of the wiping plate is again increased. With these ribs of the foam body, a wiping plate with two zones of different cleaning action can be realized, on the one hand the rams and on the other hand the raised portions of the foam ribs.

The surface of the wiping plate facing the surface to be cleaned can be convexly curved. The convex curvature enables dirt pick-up over the whole surface by way of the
15 rolling movement of the wiping plate generated during forward and backward movement.

The carrier plate can be made of polymeric material. Elements made of polymeric materials are easily manufactured and polymeric materials are available at low cost.

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Brief Description of the Drawings

Several exemplary embodiments of the wiping plate in accordance with the invention are further described in the following by way of the figures. It shows, respectively in schematic illustration:

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Fig. 1 - a wiping plate with rib-shaped rams in cross-section;

Fig. 2 - a wiping plate illustrated in half section and side view with pin-shaped rams;

Fig. 3 - a wiping plate in partial cross-section and front view;

Fig. 4 - a bottom view of a wiping plate;

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Fig. 5 - a perspective illustration of a wiper plate with structured wiping surface; and

Fig. 6 - a perspective view of a floor mop with a wiping plate in accordance with the invention.

Embodiment of the Invention

Figure 1 illustrates an exemplary embodiment of the wiping plate 1 in accordance with the invention. The wiping plate 1 includes a carrier plate 3 with rams 6 integral therewith and made of the same material, which rams are in this exemplary embodiment constructed as ribs 7. A foam body 4 is fastened onto the carrier plate 3 on the side facing the surface to be cleaned. The foam body 4 has cutouts 5 into which the ribs 7 extend. The ribs 7 in this embodiment are shorter than the height of the foam body 4 so that the rams 6 in the unloaded condition of the foam body 4 do not contact the surface to be cleaned. The ribs 7 extend over 90% of the width of the foam body 4 and are located in the region of the handle.

Figure 2 shows a wiping plate 1 wherein the carrier plate 3 and the foam body 4 on the side facing the surface to be cleaned are convexly curved. The curvature extends as seen in the wiping direction between the rearward and forward edges of the carrier plate 3. The rams 6 are in this exemplary embodiment constructed as pins 8. The pins 8 are integrally connected with the carrier plate and made of the same material. In the region of connection with the carrier plate 3, the pins 8 are cylindrical and are conically tapered towards the side facing the surface to be cleaned.

Figure 3 shows a front view of the wiping plate 1 of the embodiment according to Figure 2. The rams 6 are constructed as pins 8 and in the region of the handle 12 are positioned symmetrically to the center line.

Figure 4 shows a bottom view of the wiping plate 1 of the embodiment according to Figure 2. The rams 6 constructed as pins 8 are positioned about the center point of the wiping surface 14. For the achievement of an optimal cleaning result, the pins 8 are staggered relative to one another. The ratio of the sum of all surfaces on the pins 8 facing the surface to be cleaned to the total surface of the wiping surface 14 is 1:20.

Figure 5 shows a wiping plate 1 with a carrier plate 3 and a foam body 4. The foam body is made of an open porous foam 9. The surface of the foam 9 facing the surface to be cleaned is provided over its whole surface with protruding ribs 10 which in direction of their extent have regions of differing heights. The rams 6 are in this embodiment constructed as pins 8 which are positioned in the region of the handle 12.

Figure 6 shows a floor mop 11 with a handle 12 and a wiping plate 1 in

accordance with the invention with carrier plate 3 and foam body 4. The wiping plate 1 is covered with a wiping cloth 2 which is fixed onto the wiping plate 1 by soft clips 15.

Claims:

1. Wiping plate for carrying an exchangeable wiping cloth, comprising a carrier plate and an elastically deformable foam body fastenable to an underside of the carrier plate, characterized in that the foam body has at least one cutout in which at least one non-elastic ram is positioned, the ram being connected with the carrier plate and having a height equal to or less than a height of the foam body in an unloaded condition, whereby upon compression of the foam body by exertion of pressure onto the carrier plate the ram comes into contact with a side of the wiping cloth directed away from a surface to be cleaned, for providing an increased contact force between the wiping cloth and the surface to be cleaned.
2. Wiping plate according to claim 1, characterized in that the rams are 0 to 10 mm shorter than the height of the foam body in the unloaded condition.
3. Wiping plate according to claim 1 or 2, wherein the ratio of a cross-sectional surface of the rams to a total surface of the wiping plate is between 1:10 and 1:100.
4. Wiping plate according to claim 3, wherein the ratio is 1:50.
5. Wiping plate according to any one of claims 1 to 4, wherein the rams are made of the same material as an integral with the carrier plate.
6. Wiping plate according to any one of claims 1 to 4, wherein the rams are form-fittingly or material-fittingly connected with the carrier plate.
7. Wiping plate according to any one of claims 1 to 6, wherein the rams have ribs which extend in longitudinal direction of the carrier plate.
8. Wiping plate according to any one of claims 1 to 7, wherein the ribs extend over a whole width of the carrier plate.

9. Wiping plate according to any one of claims 1 to 7, wherein the ribs extend over more than 50% of a longitudinal extent of the carrier plate.
10. Wiping plate according to any one of claims 1 to 9, wherein the ribs are oriented at an angle, to lateral edges of the wiping plate.
11. Wiping plate according to any one of claims 1 to 6, wherein the ram includes pins.
12. Wiping plate according to any one of claims 1 to 11, wherein the foam body is made of a polymeric organic material.
13. Wiping plate according to any one of claims 1 to 12, wherein the foam body is made of an open porous foam.
14. Wiping plate according to any one of claims 1 to 13, wherein the surface of the foam body directed towards the surface to be cleaned is provided in at least one zone with protruding ribs which in the direction of their extent have regions of differing height.
15. Wiping plate according to any one of claims 1 to 14, wherein the surface of the wiping plate directed towards the surface to be cleaned is convexly curved.
16. Wiping plate according to any one of claims 1 to 15, wherein the carrier plate is made of polymeric material.
17. Floor mop with a wiping plate for carrying an exchangeable wiping cloth, whereby the wiping plate is connectable to a handle, characterized in that the wiping plate is a wiping plate according to any one of claims 1 to 16.
18. Wiping plate according to claim 10, wherein the angle is 45 degrees.

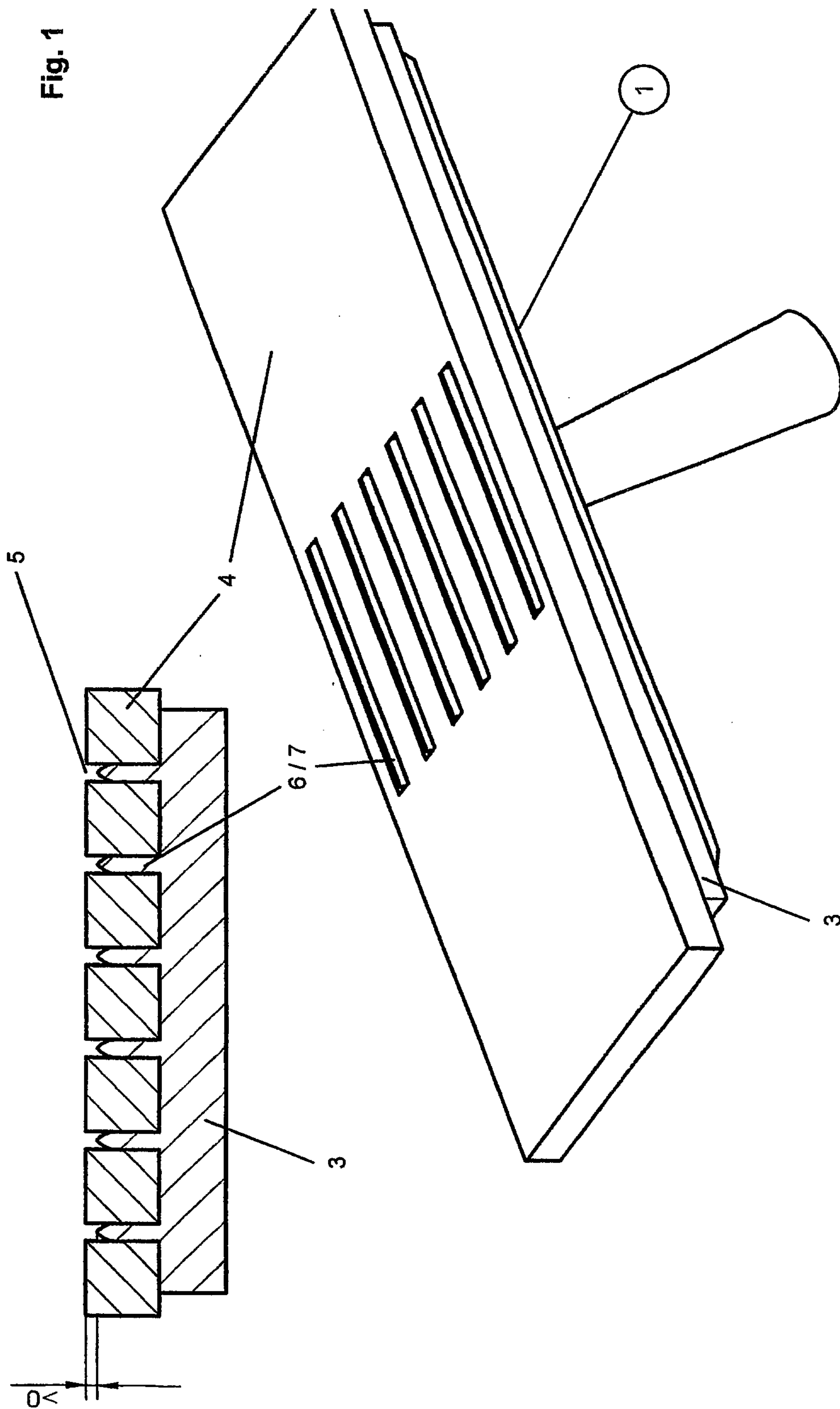
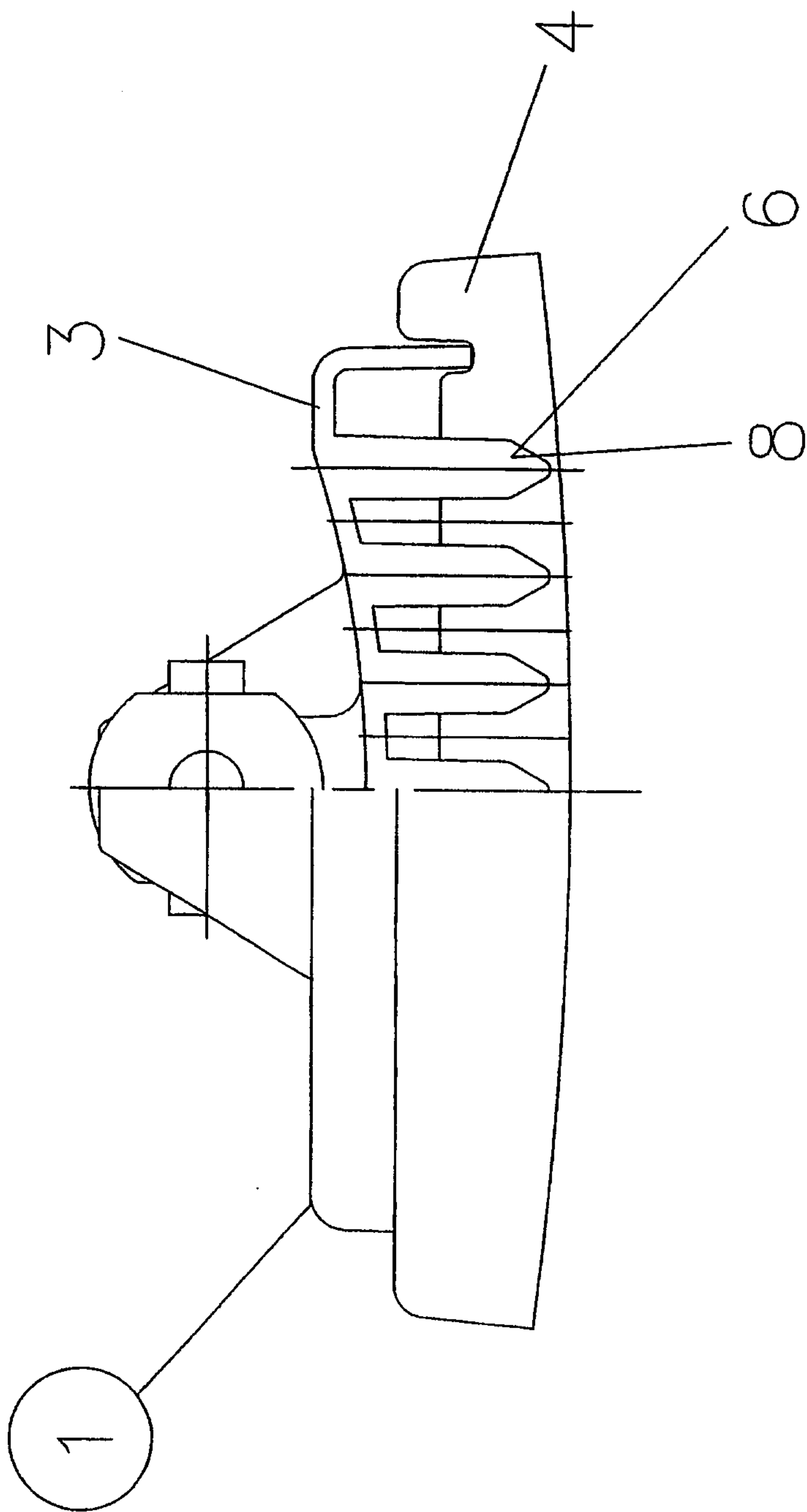


Fig. 2



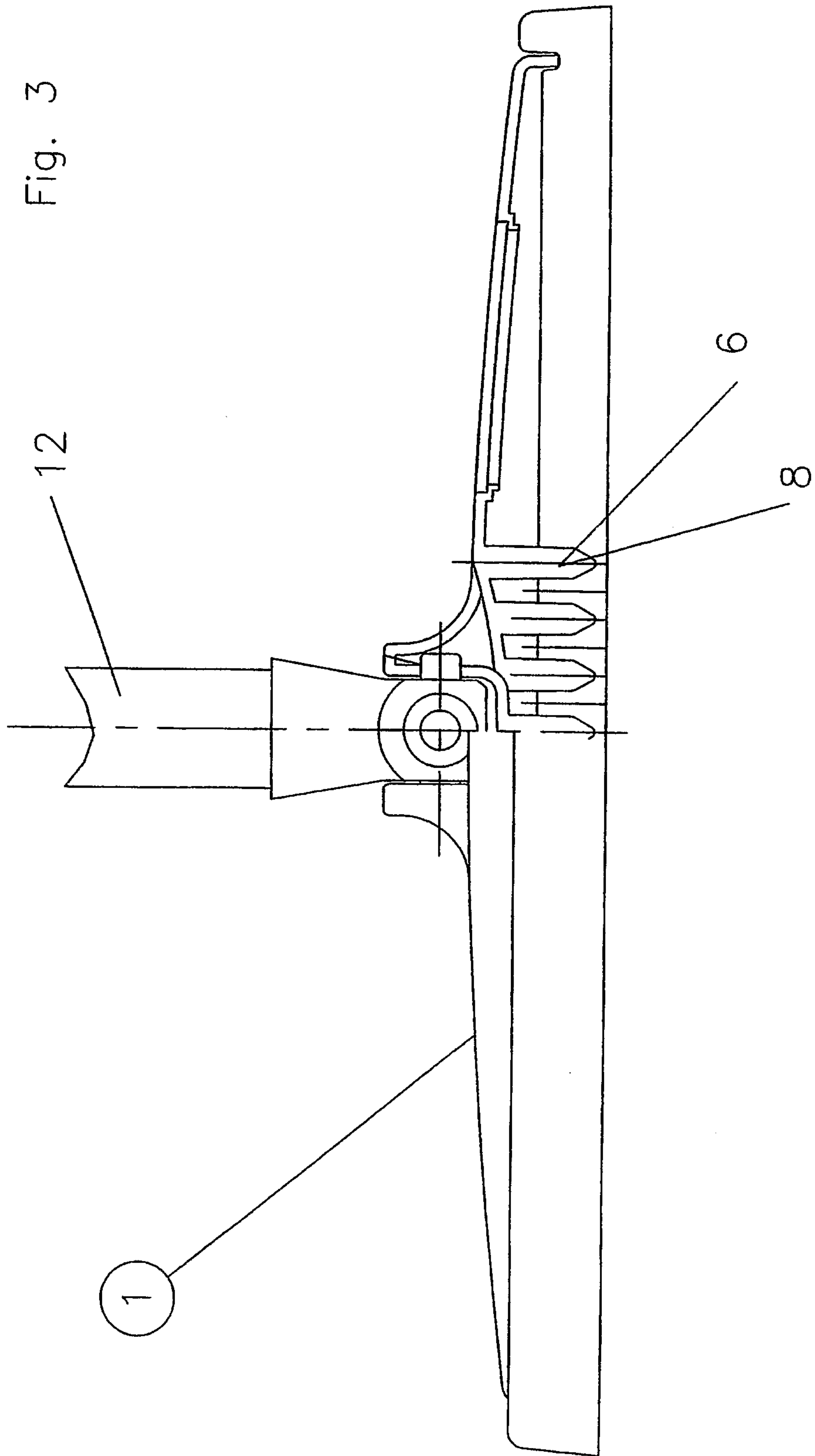


Fig. 4

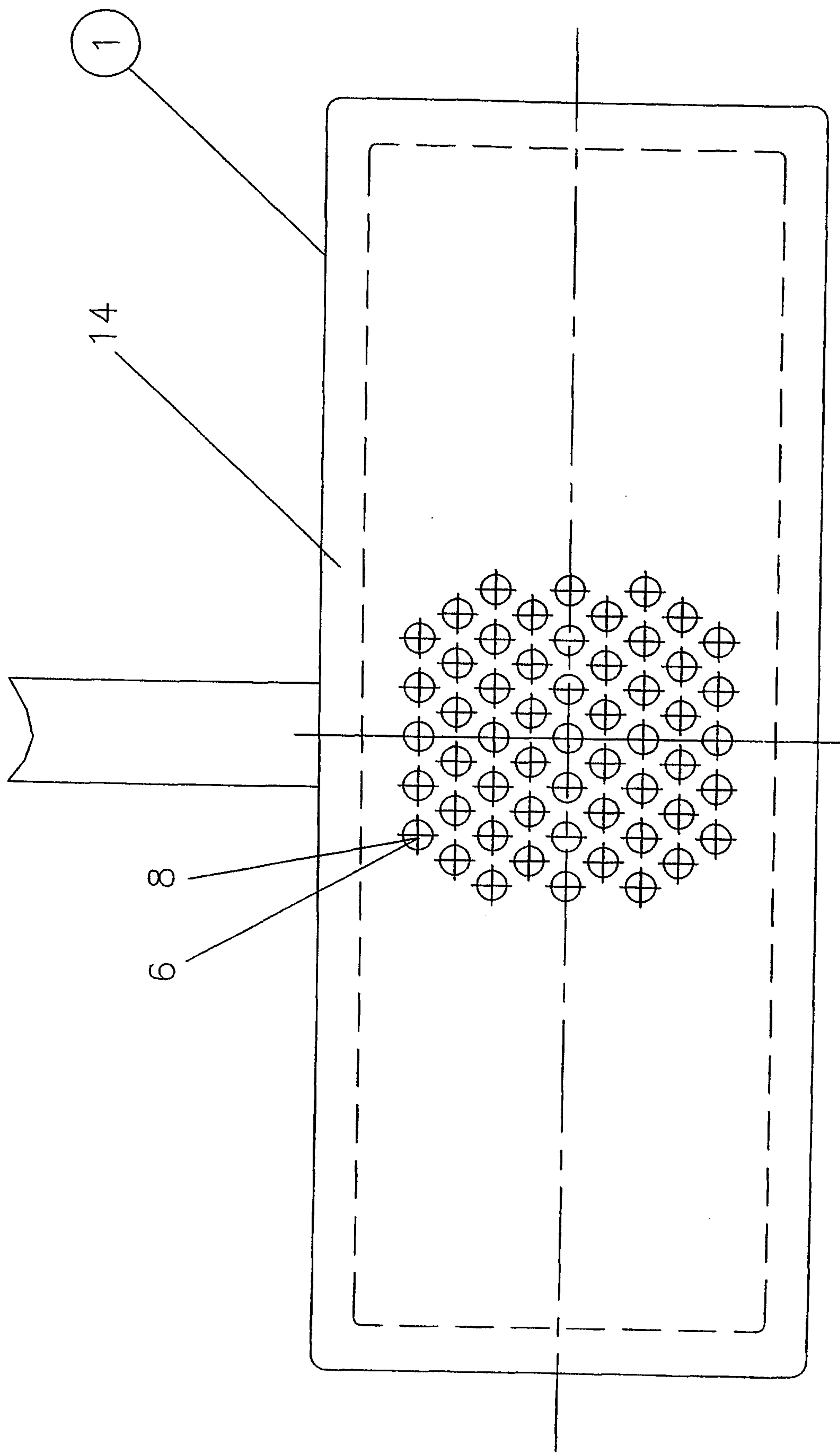


Fig. 5

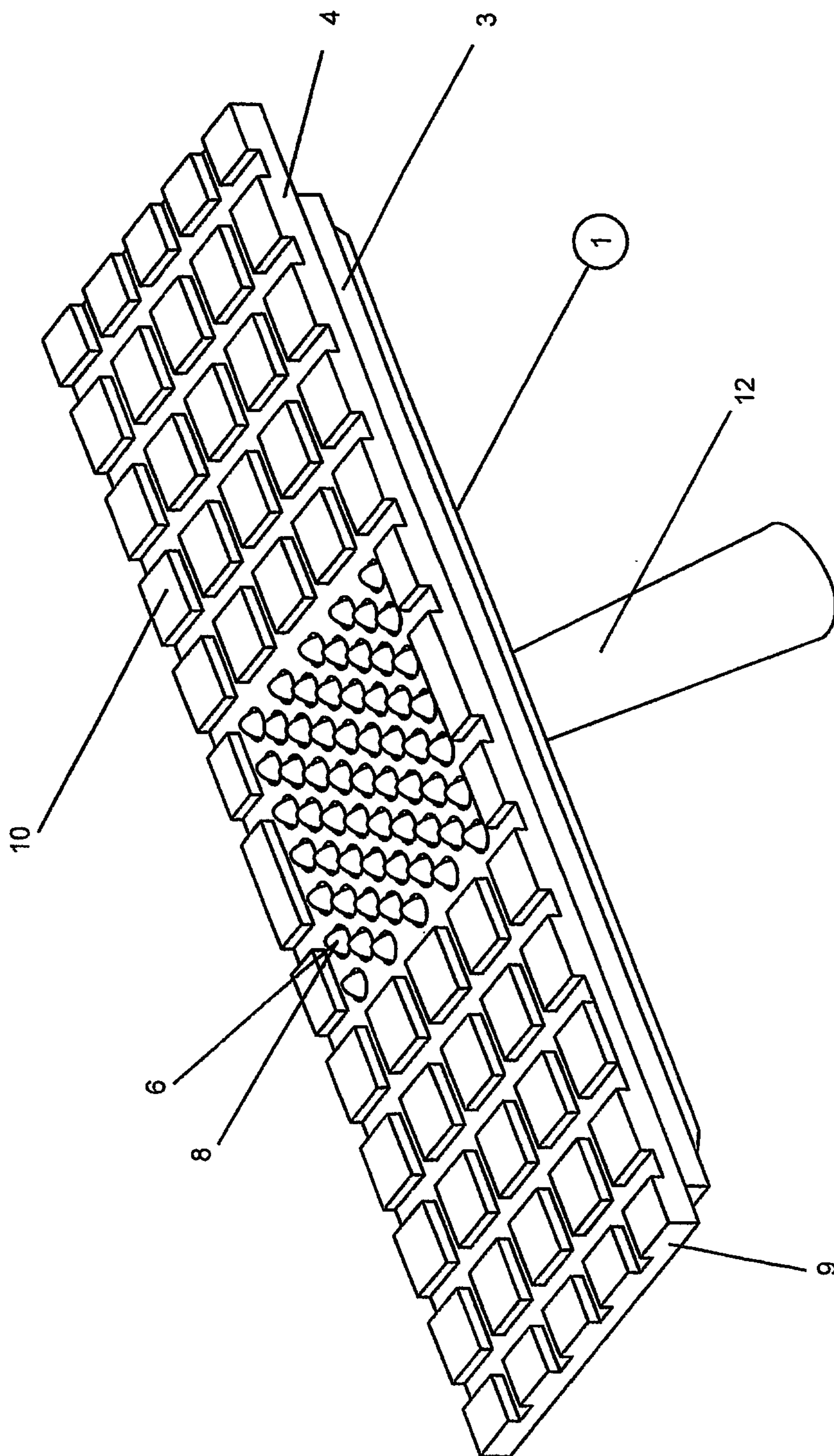


Fig. 6

