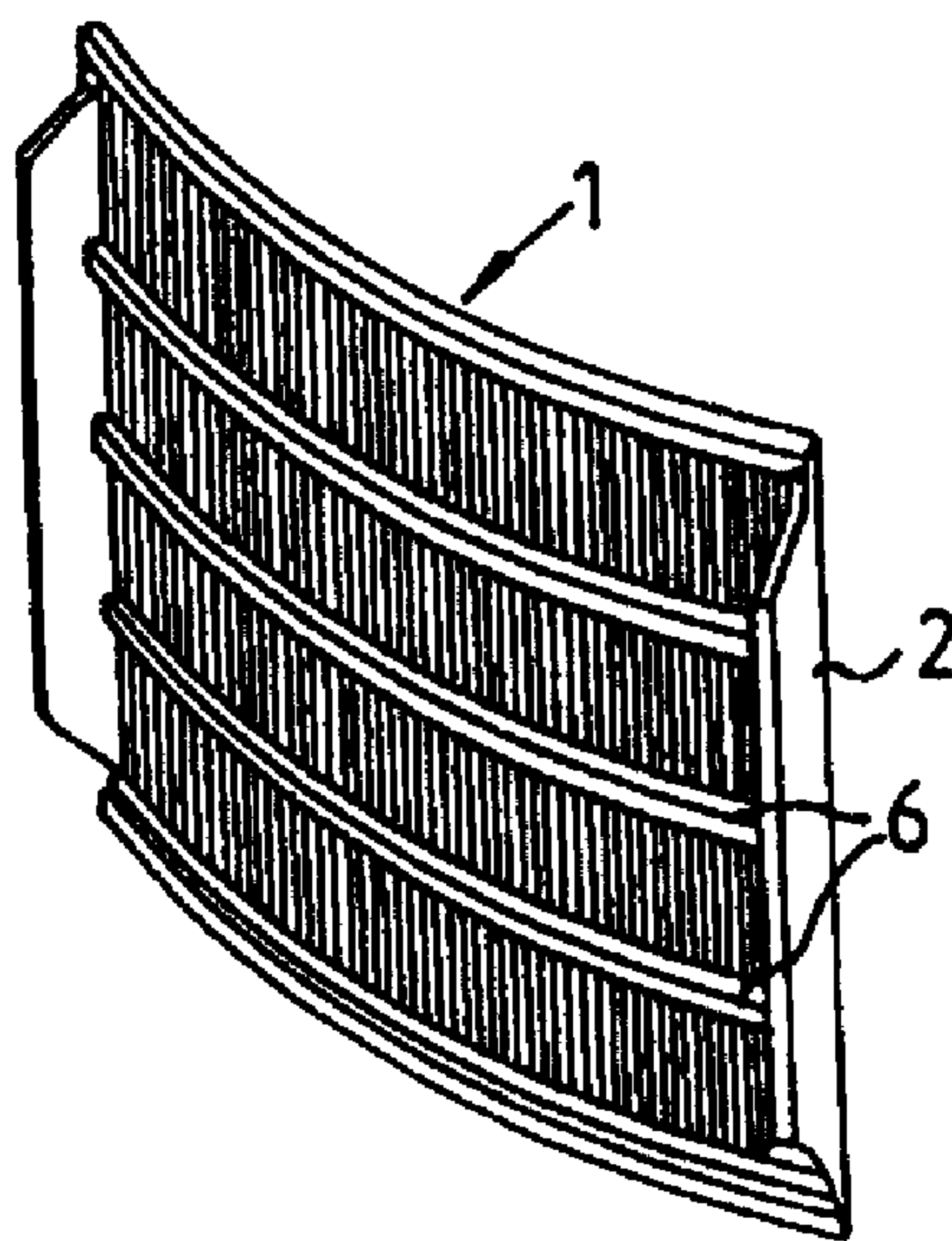




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(54) **PLATINE D'EPURATION**
(54) **SCREEN PANEL**



(57) L'invention concerne une platine d'épuration supposée constituer une partie de la surface enveloppe d'un cylindre d'épuration servant à épurer des matières fibreuses. La platine (1) d'épuration est formée d'une pièce de matière non soudable résistante à l'usure. Des rainures sensiblement axiales (4) sont pratiquées sur un côté et des orifices (7) d'épuration en forme de fente sont ménagés dans les rainures (4). La platine est munie d'anneaux (6) de support qui font partie intégrante de la platine (1) et s'étendent de manière périphérique sur le même côté que les rainures (4).

(57) A screen panel intended to constitute a portion of the jacket surface of a screening cylinder for screening fiber material. The screen panel (1) is formed in one piece of a wear-resistant non-weldable material. It is on one side provided with substantially axial grooves (4), and slit-shaped screening orifices (7) are arranged in the grooves (4). It is further provided with support rings (6), which constitute an integral part of the panel (1) and extend in the circumferential direction on the same side as the grooves (4).

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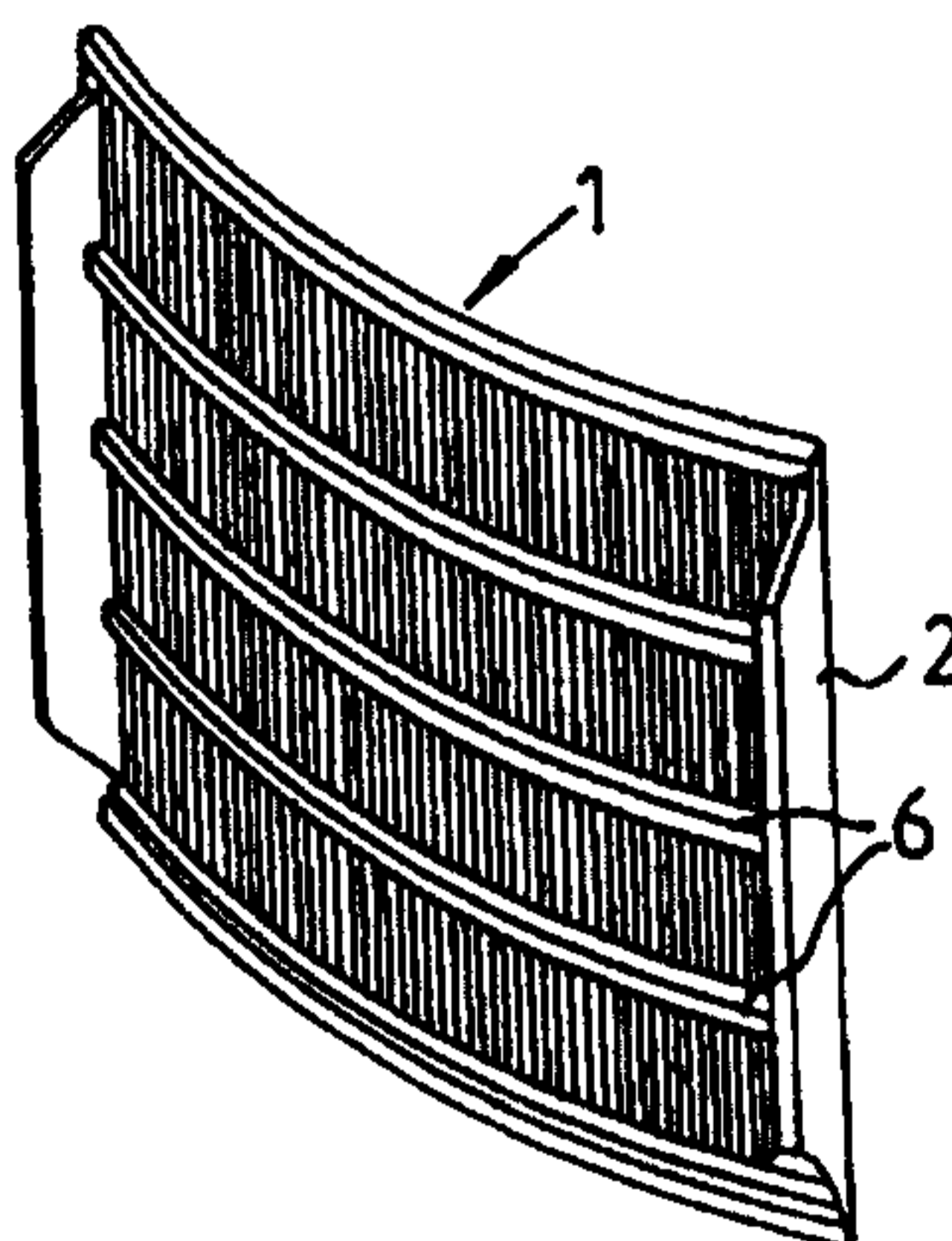
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(54) Title: SCREEN PANEL

**(57) Abstract**

A screen panel intended to constitute a portion of the jacket surface of a screening cylinder for screening fiber material. The screen panel (1) is formed in one piece of a wear-resistant non-weldable material. It is on one side provided with substantially axial grooves (4), and slit-shaped screening orifices (7) are arranged in the grooves (4). It is further provided with support rings (6), which constitute an integral part of the panel (1) and extend in the circumferential direction on the same side as the grooves (4).

Screen panel

This invention relates to a screen for screening fiber material. The invention, more precisely, is directed to a screen panel for such a screen.

At the screening of fiber material, such as fiber suspensions of cellulosic material, the object is to separate coarse particles in the form of shives, fiber bundles or other impurities from the fiber material. The screening usually is carried out in a screen with a screening cylinder, which can be stationary or rotary. The screening cylinder is provided with holes or slits, through which the fiber, but not the impurities, can pass.

Screening cylinders of this kind usually are manufactured by drilling holes or milling slits in a metal sheet, which then is formed to a cylinder. In order to obtain an open area, i.e. that portion of the cylinder surface which is perforated as large as possible, the holes or slits must be arranged in a tight relationship. At the same time the strength of the cylinder must be maintained. This requires high precision work.

Especially at the manufacture of slitted cylinders, which in certain cases are more advantageous than cylinders with drilled holes, difficulties concerning the strength arise, because the material between the slits will become thin. The slits, therefore, must be made short and arranged at a certain spaced relationship from each other. This implies restriction of the open area.

One way of solving this problem is to form the cylinder of a great number of bars, which are kept in place by annular strips. This, however, is a complicated and expensive way of manufacturing a screening cylinder. It is, furthermore, difficult to give the slits uniform width across the entire cylinder.

**CONFIRMATION
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According to the present invention, this problem is solved by forming the screen of a number of screen panels, which together form a screening cylinder, i.e. each screen panel constitutes one portion of the circumference of the screening cylinder. One screen panel can possibly extend around the entire circumference of the screening cylinder. The screen panels are manufactured individually by being formed in one piece, whereafter the screen orifices are made in the panels. Several panels are thereafter assembled to a screening cylinder. The characterizing features of the invention are apparent from the attached claims.

The forming of the panels can be carried out by casting, compression moulding or the like of a material, which is a suitable very wear-resistant metal alloy or ceramic material, for example alumina. Such material is not weldable. The screen panels, thus, must be attached without welding.

Each panel is formed with a curvature radius, which substantially corresponds to the radius of the screening cylinder. The panel further is to be formed with a great number of substantially axial grooves and a number of support rings, which extend substantially in the circumferential direction. These support rings are formed as an integral part of the panel. Said rings shall be located on the same side as the grooves. On the opposite side of the panel preferably recesses are formed, which are located directly in front of the grooves. The panel shall be formed with edge flanges, by means of which several panels can be assembled in the circumferential direction. Fastening means can be formed along the curved edges for attaching the panels axially to one another.

After their forming, the panels are provided with screening orifices, which are cut in the form of substantially axial slits. This is preferably carried out by precision grinding,

at which a slit width of 0,1-1 mm can be obtained. The slits are placed in connection to the grooves, preferably at the bottom thereof. The screening orifices are cut out from the opposite side in relation to the grooves and support rings, so that the slits extend through the panel to the bottom of the grooves, but not through the support rings. Thereby a maximum open area is obtained, and at the same time the strength of the screen panel is maintained.

The invention is described in greater detail in the following, with reference to the accompanying Figures illustrating an embodiment of the screen panel according to the invention.

Fig. 1 is a perspective view of a screen panel according to the invention;

Fig. 2 is a plane view of the screen panel;

Fig. 3 is a section according to III-III in Fig. 2;

Fig. 4 is a section according to IV-IV in Fig. 2.

The screen panel 1 shown in Fig. 1 constitutes a portion of the jacket surface of a screening cylinder, counted in the circumferential direction. The whole of the screening cylinder is formed by the assembling of a plurality of screen panels. Each screen panel, therefore, is formed with edge flanges 2 for attachment by bolts or in another way, but not by welding. For assembling them axially, the panels are provided with fastening means 3 also along the curved edges for being attached without welding.

Each panel preferably is formed by casting according to the shell moulding method, precision casting or centrifugal casting. The casting mould has the shape desired for the

finished panel. In Fig. 4 the profile of the screen surface is shown with deep axial grooves 4 on one side and recesses 5 on the other side. The panel further has a number of support rings 6, which extend substantially in the circumferential direction. The support rings are formed in one piece with the panel and extend along the entire surface of the panel on the same side as the grooves 4.

After the casting a certain adjustment of the shape of the panel can be made by bending. The panel is provided with screening orifices in the form of slits 7 at the bottom of the grooves 4. The slits 7 are cut by precision grinding, electronic cutting or another precision method whereby a slit width of 0,1-1 mm can be obtained. The surfaces of the screening orifices can be improved and the slit width be adjusted by polishing. The slit width can also be adjusted by after-bending the panel.

The invention implies that a slitted screening cylinder can be manufactured with great dimensional accuracy and a great open area without deteriorating the strength. The screen panels are assembled to a cylinder in a suitable manner, for example by means of screw unions, holding-together rings or in another way.

A screening cylinder manufactured of screen panels according to the invention can be given high precision and great strength. It is easy to mount and can be formed of highly wear-resistant material ensuring long service life. Due to the high precision of the screening orifices, the screening result can be improved.

The support rings 6 yield a substantial increase in strength of the screen panel and offer the possibility of high dimen-

sional accuracy of the slits 7, and at the same time the open area can be maximized. The support rings also imply that the grooves 4 and slits 7 can be given a direction deviating from the axial one without deteriorating the strength.

The wear-resistance of the screen panel can be improved by surface treatment of the edge flanges 2 and fastening means 3 in a suitable way, for example by nitration or hardening.

The invention, of course, is not restricted to the embodiment shown and described, but can be varied within the scope of the claims.

AMENDED CLAIMS

[received by the International Bureau on 18 March 1999 (18.03.99);
original claims 1-4 replaced by new claims 1-4 (1 page)]

Claims

1. A screen panel intended to constitute a portion of the jacket surface of a screening cylinder for screening fiber material, characterized in that the screen panel (1) is formed in one piece of a wear-resistant material and on one side provided with substantially axial grooves (4), that slit-shaped screening orifices (7) are arranged in the grooves (4), that support rings (6) constituting an integral part of the panel (1) extend in the circumferential direction on the same side as the grooves (4), and that the screen panel is designed for assembling without welding.
2. A screen panel as defined in claim 1, characterized in that it is provided with recesses (5) directly in front of the grooves (4) on the opposite side of the panel.
3. A screen panel as defined in any of the preceding claims, characterized in that the screening orifices (7) have a slit width of 0.1-1 mm.
4. A screen panel as defined in any of the preceding claims, characterized in that the the edges of the panel are formed with extra wear-resistant edge flanges (2) and, respectively, means (3) for fastening axially along the curved edges.

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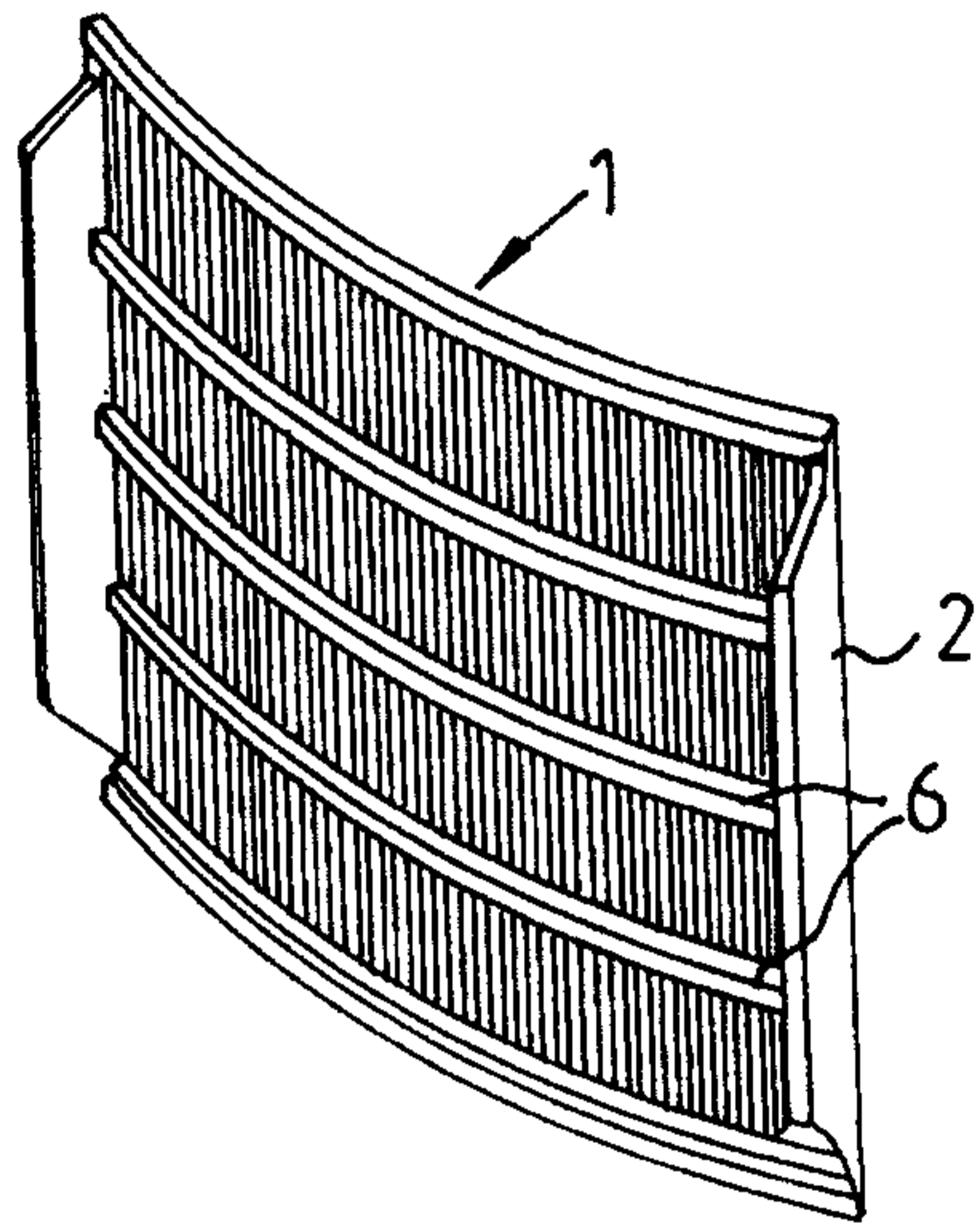


FIG. 1

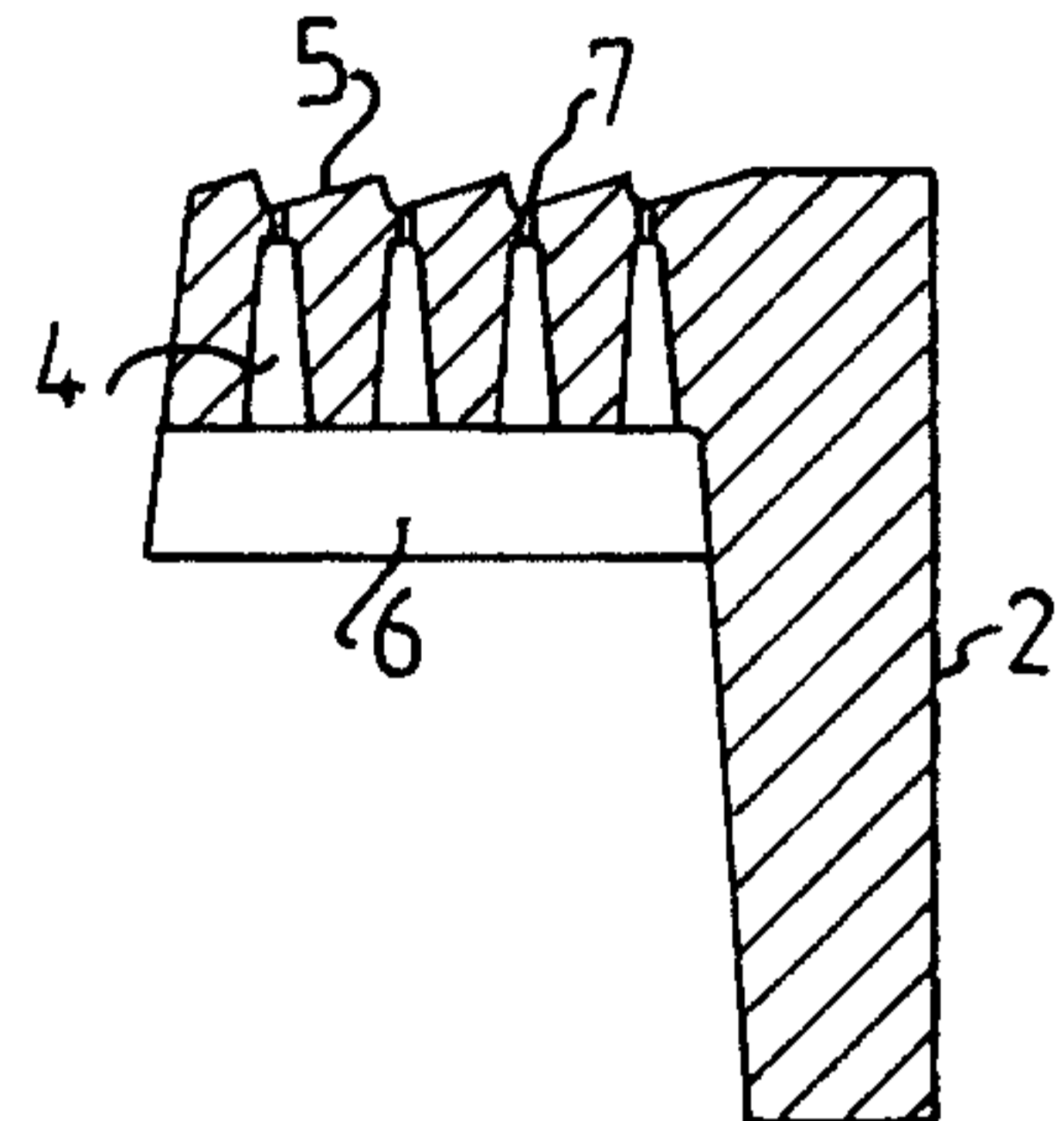


FIG. 4

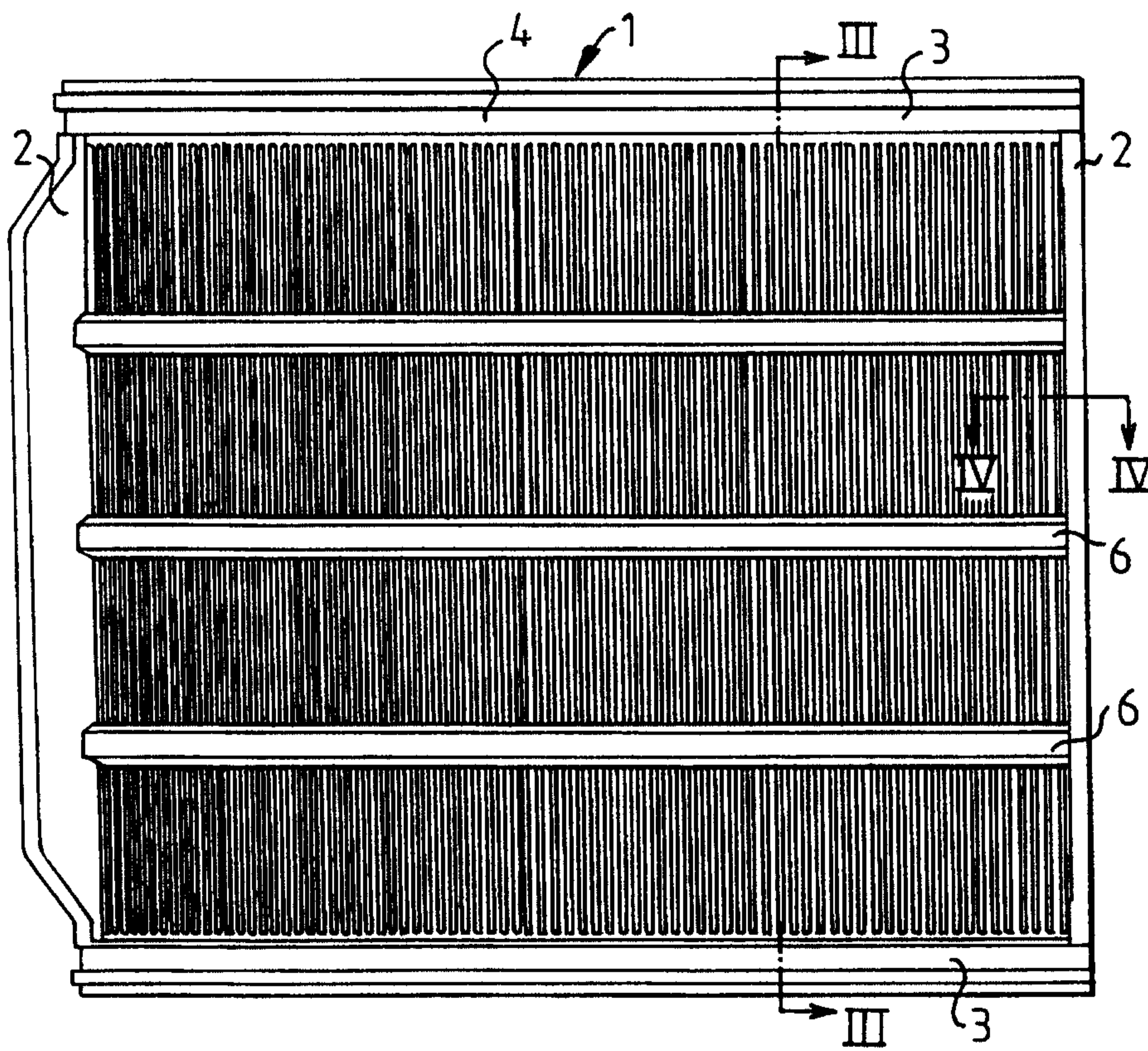


FIG. 2

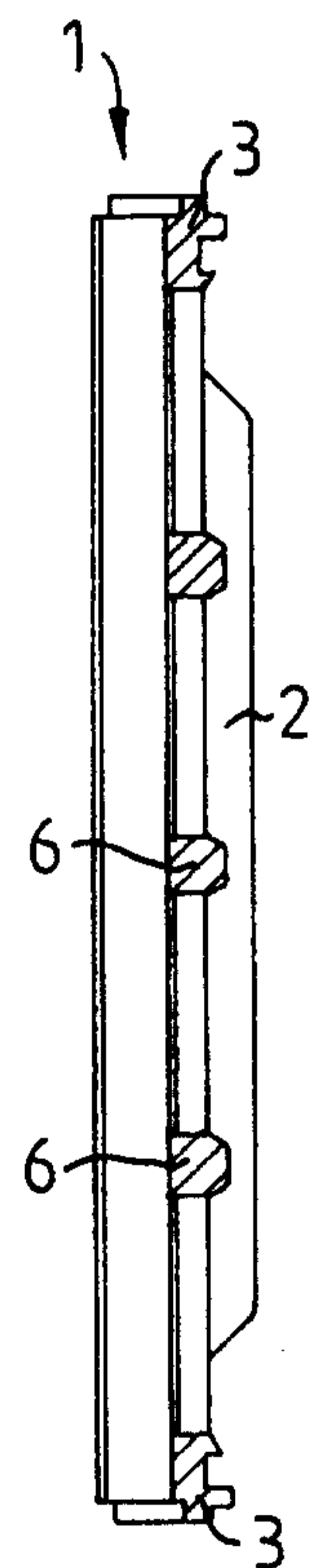


FIG. 3