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(54) **Manhole cover arrangement**

Schachtrahmen für Wartungsschacht

Cadre pour un regard de chaussée

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## Description

### Field of the Invention

[0001] The present invention concerns a manhole cover arrangement of the kind indicated in the preamble of claim 1.

### Background of the Invention

[0002] In cases where a collecting or cleaning well is provided in a surface covering, e.g. of paving stones of concrete, it is most frequently required to use a relatively expensive well curb of cast steel with associated manhole cover, such that the surface covering is provided a stable side limitation.

[0003] The surface covering will relatively soon be marred by a rusty manhole cover which generally does not visibly fit well at all with current surface coverings of concrete paving stones.

### Object of the Invention

[0004] The invention has the purpose of indicating a manhole cover arrangement of the kind specified in the introduction and which in a very simple way enables avoiding the use of an unsightly and relatively expensive well curb of cast steel with associated manhole cover in an adjacent surface covering of paving stones of concrete.

[0005] Such arrangement as shown in the preamble of claim 1 is known from US-561 3806 A.

### Description of the Invention

[0006] The arrangement according to the invention is characterised in that a ring made of steel plate is disposed at an outer side of the well curb so that a relatively thin-walled plate curb is formed which is intended to enclose a manhole cover preferably of concrete, and to constitute a stable side limitation for a surface covering, e.g. consisting of paving stones of concrete, and which fits closely to the well curb. In a very simple way it thus becomes possible to avoid using an unsightly and relatively expensive well curb of cast steel with associated manhole cover in an adjacent surface covering of concrete paving stones.

[0007] The arrangement according to the invention is suitably designed such that the height of the ring is adapted so that its top side edge is disposed slightly below the top side of the manhole cover and the top side of a surrounding surface covering, respectively.

[0008] The top side edge of the support ring may in principle naturally have the same height as the top side of the manhole cover, but in practice, in order to avoid accidents, e.g. caused by a shoe or foot striking a top side edge of the support ring, it will be preferred to locate the top side edge of the support ring slightly below the

top side of the surface covering and the top side of the manhole cover, respectively.

[0009] The arrangement according to the invention is preferably designed so that the ring has predominantly circular annular shape and is provided with radially inwards projecting plate shaped support studs intended for interaction with a top side edge of the well curb which also has shape like a predominantly cylindric rotary body.

[0010] Alternatively, the arrangement according to the invention may be designed so that the ring has polygonal annular shape, preferably square annular shape, and is provided with inwards projecting, plate-shaped support studs intended for interaction with a top side edge of the well curb which also has an annular shape like a polygonal body with preferably mutually predominantly parallel outer sides.

[0011] With the intention of enabling further simplification of the arrangement according to the invention - by dispensing with the outwards projecting support studs - the arrangement may be designed so that an outer side of the well curb is designed with punctiform projections upon which a bottom side edge of the ring may be supported.

[0012] Alternatively, with the same intention the arrangement according to the invention may be designed such that an outer side of the well curb is designed with an annular projection upon which a bottom side edge of the ring may be supported.

[0013] According to a further alternative embodiment, the arrangement according to the invention may be designed so that the wall thickness of the well curb increases downwards such that the ring may be wedged at the sloping outer side of the well curb.

[0014] Another alternative option would be that the arrangement according to the invention was designed such that the ring surrounding the manhole cover is made of carbon fibre reinforced plastic.

### Description of the Drawing

[0015] The invention is explained more closely in the following with reference to the drawing, on which:

- Fig. 1 shows a perspective view of a well curb of concrete with associated concrete manhole cover;
- Fig. 2 shows a perspective view of the concrete manhole cover shown in Fig. 1, where the manhole cover has been removed and where an embodiment of an arrangement according to the invention is under construction, as a support ring has been placed around the well curb;
- Fig. 3 shows a view from above of the matter shown in Fig. 2;
- Fig. 4 shows a perspective view of the matter shown in Fig. 2, but where a concrete manhole cover has been placed upon the well curb, inside the support ring;
- Fig. 5 shows a perspective view for illustrating that the

top side edge of the support ring is disposed slightly below the top side of the manhole cover; and

Fig. 6 shows a perspective view of an alternative embodiment of an arrangement according to the invention, where well curb, manhole cover and support ring are square in shape.

### Detailed Description of the Invention

[0016] Figs. 1-5 show an embodiment of the arrangement according to the invention, wherein a cylindric well curb 2 is situated on a bed of sand. In the situation of use, the well curb 2 will normally be disposed such that it surrounds a common drain shaft of strong plastic with corrugated surface and a diameter of e.g. 315 mm.

[0017] In Fig. 1, the well curb 2 is provided with a circular manhole cover 4, which has been removed in Figs. 2 and 3. A support ring 6 made by rolling of steel plate and subsequent galvanising is disposed at the top of the well curb 2. The support ring 6 is internally provided with three radially inwards projecting support studs 8 that bear on a top side edge 10 of the well curb 2, so that the support ring 6 is laterally supported by the well curb 2 and surrounds the upper part of the latter and the manhole cover 4 (Fig. 4).

[0018] The vertical spacing between support studs 8 and a top side edge 12 of the support ring 6 is adapted so that the top side of the manhole cover 4 is slightly higher than the top side edge 12, a fact most clearly appearing from Fig. 5.

[0019] Fig. 6 shows an alternative embodiment of an arrangement according to the invention, wherein a well curb 14, a manhole cover 16 and a surrounding support ring 18 have predominantly square or quadratic annular shape. The support ring 18 may be provided with internal radial support studs or be adapted to be connected with the well curb 14 in another suitable way. A top side edge 20 of the support ring is also by this embodiment disposed slightly below the top side of the manhole cover 16.

[0020] In general, it applies that the support ring 6 or the support ring 18 are suited as side abutment for a surface covering, e.g. in the shape of concrete paving stones adjoining and surrounding the well curb 2 or 14.

[0021] Finally, it is to be mentioned that it will be within the main aspect of the invention that the support ring can be made of another suited material, e.g. carbon fibre reinforced plastic.

### Claims

1. An arrangement by a manhole cover including a well curb (2) preferably made of concrete, **characterised in that** a ring (6) made of steel plate is disposed at an outer side of the well curb (2) so that a relatively thin-walled plate curb is formed which is intended to enclose a manhole cover (4), preferably of concrete,

and to constitute a stable side limitation for a surface covering, e.g. consisting of paving stones of concrete, and which fits closely to the well curb.

2. Arrangement according to claim 1, **characterised in that** the height of the ring is adapted so that its top side edge is disposed slightly below the top side of the manhole cover and the top side of a surrounding surface covering, respectively.
3. Arrangement according to claim 1, **characterised in that** the ring has predominantly circular annular shape and is provided with radially inwards projecting plate shaped support studs intended for interaction with a top side edge of the well curb which also has shape like a predominantly cylindric rotary body.
4. Arrangement according to claim 1, **characterised in that** the ring has polygonal annular shape, preferably square annular shape, and is provided with inwards projecting, plate-shaped support studs intended for interaction with a top side edge of the well curb which also has an annular shape like a polygonal body with preferably mutually predominantly parallel outer sides.
5. Arrangement according to claim 1, **characterised in that** an outer side of the well curb is designed with punctiform projections upon which a bottom side edge of the ring may be supported.
6. Arrangement according to claim 1, **characterised in that** an outer side of the well curb is designed with an annular projection upon which a bottom side edge of the ring may be supported.
7. Arrangement according to claim 1, **characterised in that** the wall thickness of the well curb is increasing downwards such that the ring may be wedged at the sloping outer side of the well curb.
8. Arrangement according to claim 1, **characterised in that** the ring surrounding the well curb is made of carbon fibre reinforced plastic.

### Patentansprüche

1. Vorrichtung bei einem Schachtdeckel umfassend einen Brunnenrand (2) vorzugsweise in Beton hergestellt, **dadurch gekennzeichnet, dass** ein aus Stahlblech hergestellter Ring an einer Aussenseite des Brunnenrandes (2) angebracht ist, so dass ein verhältnismässig dünnwandiger Blechrand gebildet wird, der dafür vorgesehen ist, einen Schachtdeckel (4) umzuschliessen, vorzugsweise in Beton, und eine stabile Seitenbegrenzung für einen Oberflächenbelag darzustellen, der beispielsweise aus Be-

gungssteinen aus Beton besteht, und der am Brunnenrand dicht anliegt.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Höhe des Rings so angepasst ist, dass seine Oberseitenkante ein bisschen unter der Oberseite des Schachtdeckels beziehungsweise der Oberseite des umschliessenden Oberflächenbelags angebracht ist.
3. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Ring eine überwiegend kreisförmige Umkreisform hat und mit radial nach innen gerageten plattenförmigen Tragzapfen vorgesehen ist, die dafür vorgesehen sind, mit einer Oberseitenkante des Brunnenrandes zusammenzuarbeiten, der auch die Form wie einen überwiegend zylindrischen Drehkörper hat.
4. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Ring eine polygonale Umkreisform hat, vorzugsweise quadratische Umkreisform, und mit nach innen gerageten plattenförmigen Tragzapfen vorgesehen ist, die dafür vorgesehen sind, mit einer Oberseitenkante des Brunnenrandes zusammenzuarbeiten, der ebenfalls eine Form wie einen polygonalen Körper mit vorzugsweise unter sich überwiegend parallelen Aussenseiten hat.
5. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** eine Aussenseite des Brunnenrandes mit punktförmigen Vorsprüngen ausgeformt ist, worauf eine Unterseitenkante des Rings unterstützt werden kann.
6. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** eine Aussenseite des Brunnenrandes mit einem kreisförmigen Vorsprung ausgeformt ist, worauf eine Unterseitenkante des Rings unterstützt werden kann.
7. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Wandstärke des Brunnenrandes nach unten zunimmt, so dass der Ring sich in die schräge Aussenseite des Brunnenrandes verkeilen kann.
8. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der den Brunnenwand umschliessender Ring aus kohlfaserarmiertem Plast hergestellt ist.

## Revendications

1. Dispositif près d'un regard de chaussée comportant un rebord de puits (2) de préférence fait en béton, **caractérisé en ce qu'un anneau (6) fait en tôle**

d'acier est arrangé à un côté extérieur du rebord de puits (2) de sorte qu'un rebord de plaque à paroi relativement mince est formé qui est destiné à entourer un regard de chaussée (4) de préférence en béton, et à constituer une limitation latérale stable pour un recouvrement de surface, à titre d'exemples des pavés en béton, et qui s'adapte étroitement au rebord de puits.

2. Dispositif selon la revendication 1, **caractérisé en ce que** la hauteur de l'anneau est adapté de sorte que son bord du côté supérieur est placé légèrement sous le côté supérieur du regard de chaussée respectivement le côté supérieur d'un recouvrement de surface entourant.
3. Dispositif selon la revendication 1, **caractérisé en ce que** l'anneau possède la forme de circonférence surtout circulaire et est muni de tenons de support en forme de plaque faisant saillie radialement vers l'intérieur, qui sont destinés à coopérer avec un bord du côté supérieur du rebord de puits qui aussi possède la forme comme un corps de rotation surtout cylindrique.
4. Dispositif selon la revendication 1, **caractérisé en ce que** l'anneau possède la forme de circonférence polygonale, de préférence circonférence carrée, et est muni de tenons de support en forme de plaque faisant saillie vers l'intérieur, qui sont destinés à coopérer avec un bord du côté supérieur du rebord de puits qui aussi possède une circonférence comme un corps polygonal avec des côtés extérieurs essentiellement parallèles entre eux.
5. Dispositif selon la revendication 1, **caractérisé en ce que** le côté extérieur du rebord de puits est formé avec des saillies ponctuelles sur lesquelles un bord de face inférieure dudit anneau peut être supporté.
6. Dispositif selon la revendication 1, **caractérisé en ce que** le côté extérieur du rebord de puits est formé avec une saillie annulaire sur laquelle un bord de face inférieure dudit anneau peut être supporté.
7. Dispositif selon la revendication 1, **caractérisé en ce que** l'épaisseur de paroi du rebord de puits s'agrandit vers le bas de sorte que l'anneau peut se coincer sur le côté extérieur incliné du rebord de puits.
8. Dispositif selon la revendication 1, **caractérisé en ce que** l'anneau entourant le rebord de puits est fait en plastique armé en fibre de carbone.

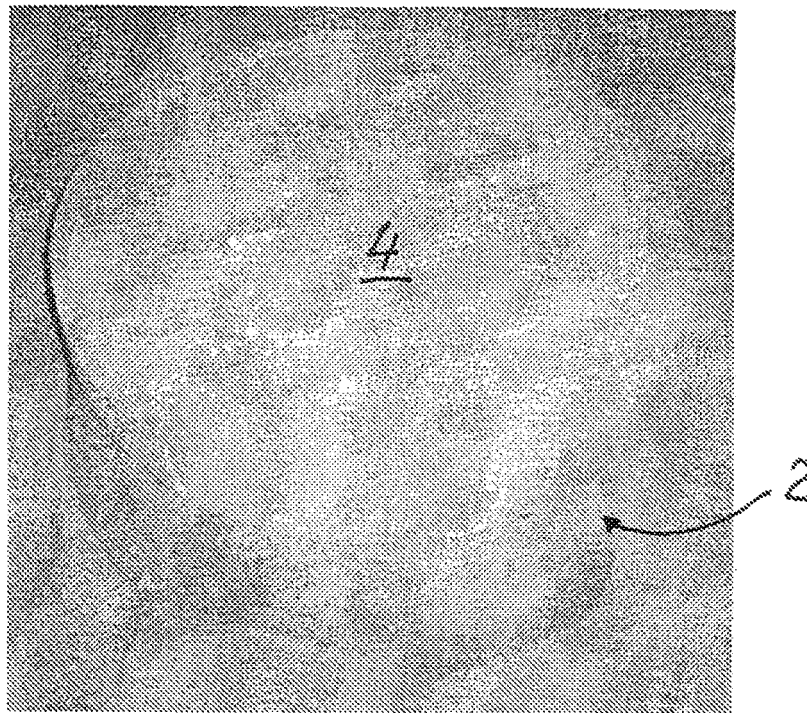


Fig. 1

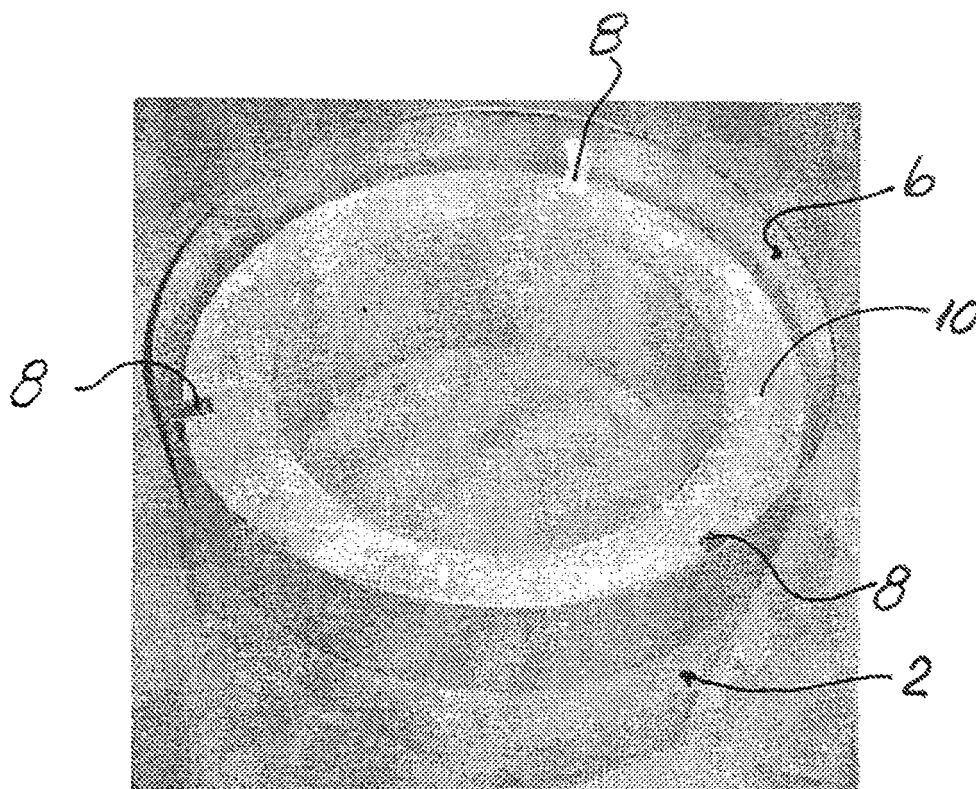


Fig. 2

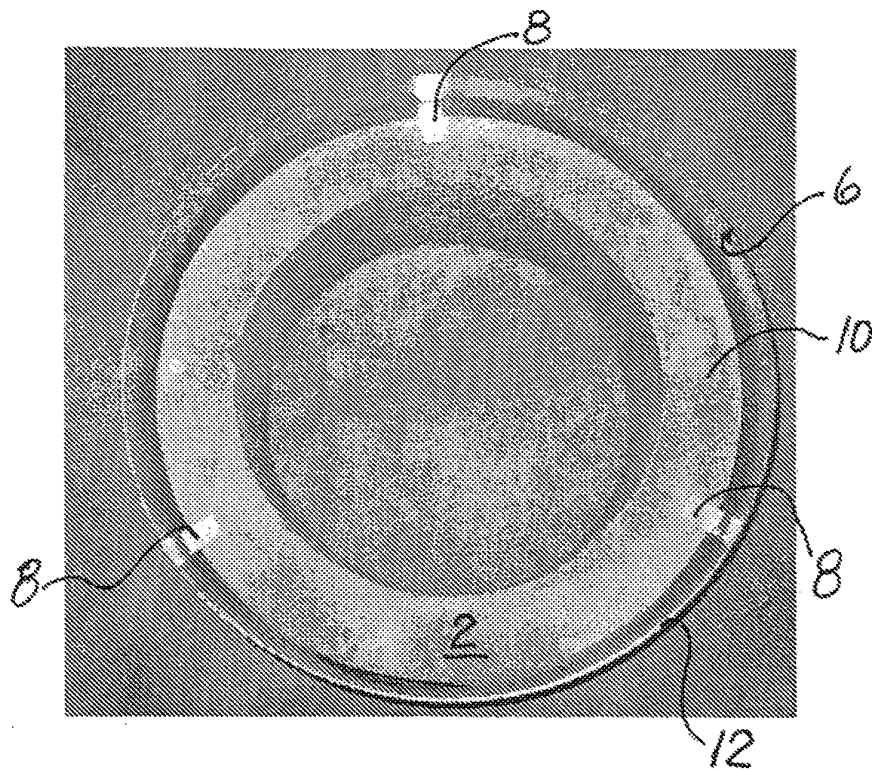


Fig. 3

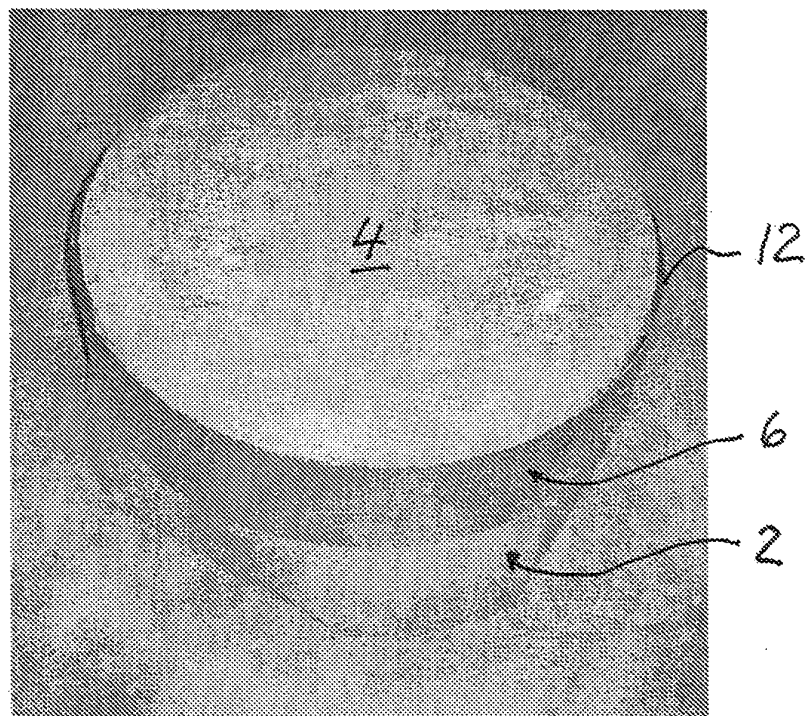
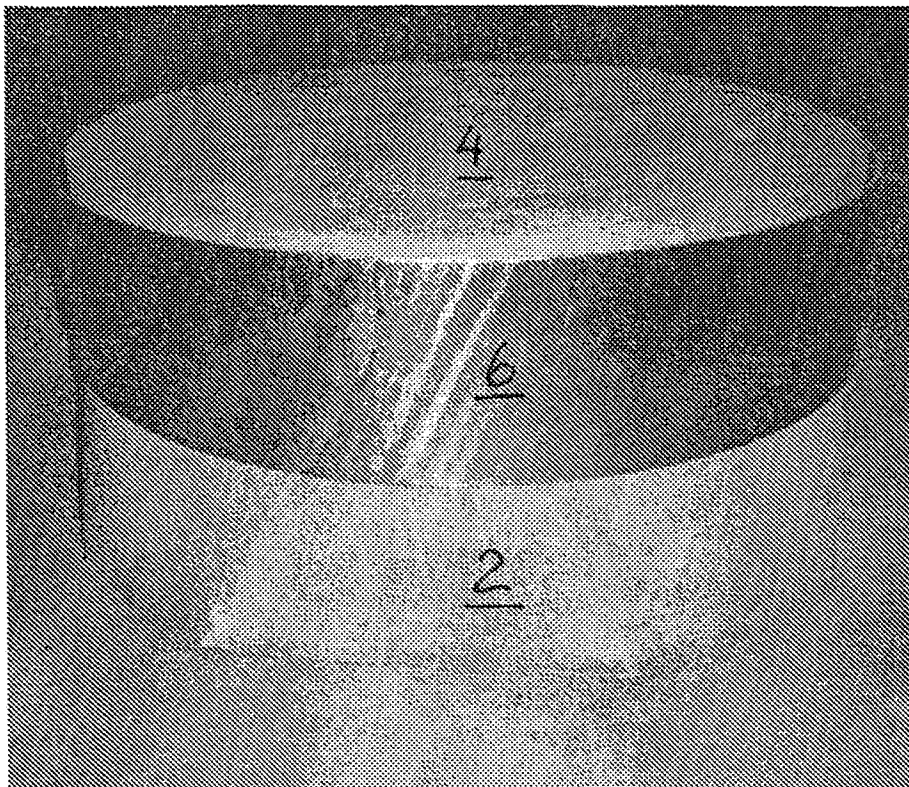
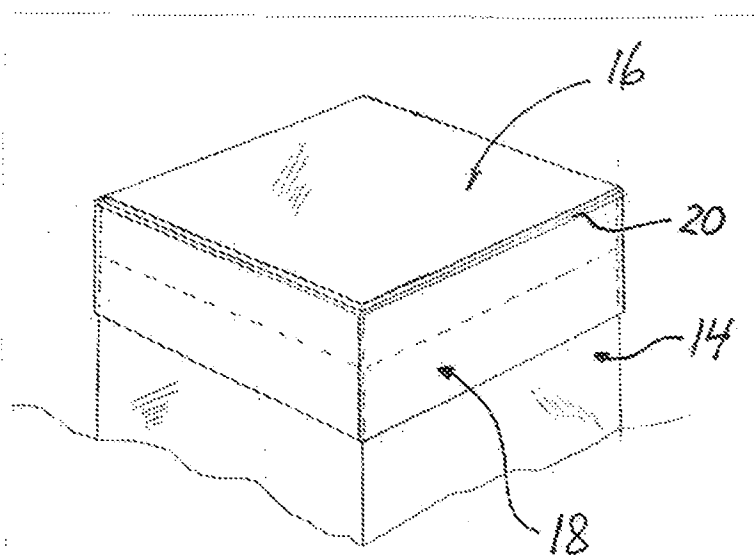


Fig. 4



**Fig. 5**



**Fig. 6**

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

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