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(54) **MOLD ELEMENT**

FORMELEMENT

ÉLÉMENT DE MOULE

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(73) Proprietor: **Beotek Oy**
05800 Hyvinkää (FI)

(72) Inventor: **Jokinen, Reijo**
05800 Hyvinkää (FI)

(74) Representative: **Ollikainen, Rauno Johannes**
Leitzinger Oy
Tammasaarencatu 1
00180 Helsinki (FI)

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Description

[0001] The invention relates to a mold element for foundation molds of buildings, the mold element comprising a coarse-meshed steel bar mesh which is manufactured of steel bars, the steel bars being fixed to each other at cross-over points thereof, the steel bar mesh being designed as an elongated gutter which has a bottom and side walls and feet between the bottom and side walls, the feet being formed of bended steel bars of the steel bar mesh, and in addition, the side walls are provided with wall material which retains the concrete casting.

[0002] This kind of mold element is prior known from utility model DE-U1-29700133 from year 1997. In addition, from patent publication FI 125417 B is prior known a method for laminating plastic foils onto the walls of this kind of mold element. One problem with these mold elements is the need to support the walls against the pressure caused by the concrete casting. Without support, the walls slightly descend from each other, which causes unnecessary spending of concrete mass. Another problem is that the border areas of the foundation which is substantially wider than the base on the foundation, do not actually participate to bear the load coming on the base, whereby the concrete at said border areas is in waste use.

[0003] The invention aims to resolve these problems with improved construction of the mold element. This aim is reached according to the features of the attached claim 1. In dependent claims there are presented advantageous embodiments of the invention.

[0004] The invention is described in the following by reference to the enclosed drawings, wherein

Figure 1 shows a cross section of the mold element according to the first embodiment of the invention, and

Figure 2 shows a cross section of the mold element according to the second embodiment of the invention.

[0005] The mold element includes a coarse-meshed steel bar mesh which is made of crosswise steel rods 2 and lengthwise steel rods 3, the steel bars being fixed to each other at cross-over points thereof, the steel bar mesh being designed as an elongated gutter. The gutterlike steel rod mesh has a bottom 1 and side walls 5 and feet 4 between the bottom and side walls, the feet being formed of bended steel bars 2 of the steel bar mesh, and in addition, the side walls are provided with wall material which retains the concrete casting.

[0006] In the embodiment of figure 1 the concrete casting retaining wall material is made up of plastic foils 6, which have been laminated on both sides of the steel bar mesh. The plastic foils are attached to each other in the areas of steel bar mesh openings at the area of side walls 5 and feet 4, extending under the feet bottom. When the

plastic foils 6, laminated against each other, extend past the lowest point of the feet to the bottom side faces of the feet, the mold element becomes sturdier and sinking of feet into the soil is avoided, whereby the bottom steel rods of the mold element remain high enough and within the concrete casting. In addition, discharge of the concrete casting underneath the lower edge of the wall is prevented.

[0007] In the embodiment of figure 2 the concrete casting retaining wall material is made up of insulating boards 7 which are placed against inner surfaces of the side walls 5. This construction is used when heat insulation is needed.

[0008] The bottom of the mold element must be wide enough, in order to provide a load bearing support against the soil. The distance between the side walls is typically for instance 60 cm. The base to be placed on the foundation is, however, substantially narrower. Load from the constructions on the base is transmitted via the base to the foundation, where the load supporting counter forces are formed between the base and the bottom of the foundation. Significance of border areas in the upper portion of the foundation is so tiny that the concrete mass used therefore is in waste use. In the present invention this problem is avoided because the side walls 5 approach each other when going from feet 5 upwards towards upper edges of the side walls, the angle of approach being in the area of 3 - 45 degrees separately for each wall. Typically the said angle is 10 - 40 degrees. This inclination of side walls is made by bends of steel rods of the feet 4. These bends i.e. inclination of side walls can be made before attachment of the plastic foils or thereafter.

[0009] The weight of the concrete mass casted in the mold element is directed to the side walls 5 and tends to turn them outwards by bending the crosswise steel rods 2 particularly at the areas of the bending arches of the feet 4. Outwards bending of the walls have been prevented by supporting the walls from outside or by binding them together. If the supporting is not performed, then also unnecessary extra consumption of concrete mass is caused. In the present invention the bends of feet are slightly over-bended, in order that the side walls 5 approach each other slightly more than their desired final position after the concrete casting of the foundation. When going from feet 4 upwards towards upper edges of the side walls, this extra angle of approach is a few degrees separately for each wall. The bending angle of the side walls is in its maximum so large that the minimum distance between the upper edges of the side walls corresponds to the width of the base.

[0010] When the bottom 1 between the feet 4 is planar, then, for the above mentioned reasons, the angle of side walls relative to the normal of bottom plane is 3 - 45 degrees, in other words, in the angle of 87 - 45 degrees relative to the bottom plane. Typically, the said angle is 10 - 40 degrees (in other words, 80-50 degrees relative to the bottom plane). Typically, the stiffness of the used steel rods 2 is sufficient to resist the outwards bending

of the walls such that when the mold is filled by casting, the angle between the walls is widened only a few degrees in comparison to an empty mold element. Thereby supporting of walls and extra consumption of concrete mass can be avoided.

Claims

1. Mold element for foundation molds of buildings, the mold element comprising a coarse-meshed steel bar mesh which is manufactured of steel bars (2, 3), the steel bars (2, 3) being fixed to each other at cross-over points thereof, the steel bar mesh being designed as an elongated gutter which has a bottom (1) and side walls (5) and feet (4) between the bottom and side walls, the feet being formed of bended steel bars (2) of the steel bar mesh, and in addition, the side walls are provided with wall material which retains the concrete casting between the side walls (5) which are not supported to avoid the side walls (5) to move away from each other by the pressure caused by the concrete casting, **characterized in that** the unsupported side walls (5) approach each other when going in direction upwards from feet (4) towards upper edges of the side walls, the angle of approach being in the area of 3 - 45 degrees separately for each wall, and that the bends of feet are over-bended such that the unsupported side walls (5) approach each other more than their desired final position after concrete casting of the foundation.
2. Mold element according to claim 1, **characterized in that** the concrete casting retaining wall material is made up of plastic foils (6), which have been laminated on both sides of the steel bar mesh and are attached to each other in the areas of steel bar mesh openings at the area of side walls (5) and feet (4), extending under the feet bottom.
3. Mold element according to claim 1, **characterized in that** the concrete casting retaining wall material is made up of insulating boards (7) which are placed against inner surfaces of the side walls (5).
4. Mold element according to claim 1 or 2, **characterized in that** the bottom (1) between the feet (4) is planar and that the angle of side walls relative to the normal of bottom plane is 3 - 45 degrees.

Patentansprüche

1. Formelement für Fundamentformen von Gebäuden, wobei das Formelement ein grobmaschiges Stahlgitter umfasst, das aus Stahlstäben (2, 3) hergestellt ist, wobei die Stahlstäbe (2, 3) aneinander an Kreuzungspunkten derselben befestigt sind, wobei das

Stahlgitter als längliche Rinne ausgelegt ist, die einen Boden (1) und Seitenwände (5) und Füße (4) zwischen dem Boden und den Seitenwänden hat, wobei die Füße aus abgewinkelten Stahlstäben (2) des Stahlgitters geformt sind, und außerdem sind die Seitenwände mit Wandmaterial versehen, das den Betonguss zwischen den Seitenwänden (5) hält, die nicht abgestützt sind, um zu vermeiden, dass die Seitenwände (5) sich voneinander durch den Druck wegbewegen, der durch den Betonguss verursacht wird,

dadurch gekennzeichnet, dass die nicht abgestützten Seitenwände (5) sich einander annähern, wenn sie nach oben von den Füßen (4) zu den oberen Kanten der Seitenwände gehen, wobei der Näherungswinkel im Bereich von 3 - 45 Grad separat für jede Wand liegt, und dass die Biegungen der Füße übermäßig gebogen sind, derart dass die nicht abgestützten Seitenwände (5) sich stärker aneinander annähern, als ihre gewünschte Endposition nach dem Betonguss des Fundamentes.

2. Formelement nach Anspruch 1, **dadurch gekennzeichnet, dass** das Wandmaterial, das den Betonguss zurückhält, aus Plastikfolien (6) hergestellt ist, die auf beiden Seiten des Stahlgitters laminiert sind und aneinander in den Bereichen der Stahlgitteröffnungen im Bereich der Seitenwände (5) und Füße (4) befestigt sind, die sich unter dem Fußboden erstrecken.
3. Formelement nach Anspruch 1, **dadurch gekennzeichnet, dass** das Wandmaterial, das den Betonguss zurückhält, aus Isolierplatten (7) hergestellt ist, die gegen die Innenflächen der Seitenwände (5) gesetzt sind.
4. Formelement nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** der Boden (1) zwischen den Füßen (4) planar ist und dass der Winkel der Seitenwände relativ zur Normale der Bodenebene 3 - 45 Grad beträgt.

Revendications

1. Élément de moule pour des moules de fondations de bâtiments, l'élément de moule comprenant un treillis de barres d'acier à grosses mailles, lequel est constitué de barres d'acier (2, 3), les barres d'acier (2, 3) étant fixées les unes aux autres à des points d'intersection de celles-ci, le treillis de barres d'acier étant conçu comme une gouttière allongée comportant un fond (1) et des parois latérales (5) et des pieds (4) entre le fond et les parois latérales, les pieds étant constitués de barres d'acier courbées (2) du treillis de barres d'acier et, de plus, les parois latérales sont pourvues d'un matériau de paroi rete-

nant le coulage de béton entre les parois latérales (5) non supportées afin d'empêcher les parois latérales (5) de s'écarter les unes des autres sous l'effet de la pression causée par le coulage de béton,

caractérisé en ce que les parois latérales (5) non supportées se rapprochent les unes des autres en allant dans la direction ascendante à partir des pieds (4) vers des bords supérieurs des parois latérales, l'angle de rapprochement étant compris entre 3 et 45 degrés séparément pour chaque paroi, et **en ce que** les courbures des pieds sont recourbées de telle façon que les parois latérales (5) non supportées se rapprochent les unes des autres au-delà de leur position finale souhaitée après le coulage de béton de la fondation.

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2. Élément de moule selon la revendication 1, **caractérisé en ce que** le matériau de paroi retenant le coulage de béton est constitué de feuilles de plastique (6) stratifiées sur les deux côtés du treillis de barres d'acier et fixées les unes aux autres dans les zones d'ouvertures du treillis de barres d'acier au niveau de la zone des parois latérales (5) et des pieds (4), s'étendant sous le bas des pieds.

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3. Élément de moule selon la revendication 1, **caractérisé en ce que** le matériau de paroi retenant le coulage de béton est constitué de panneaux isolants (7) placés contre des surfaces intérieures des parois latérales (5).

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4. Élément de moule selon la revendication 1 ou 2, **caractérisé en ce que** le fond (1) entre les pieds (4) est planaire et **en ce que** l'angle des parois latérales par rapport à la normale du plan de fond est compris entre 3 et 45 degrés.

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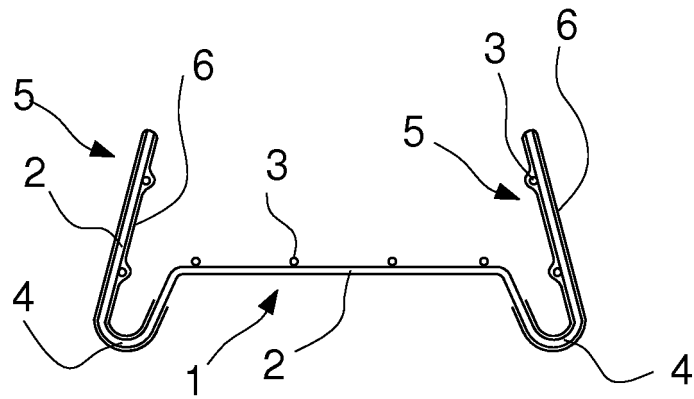


Fig. 1

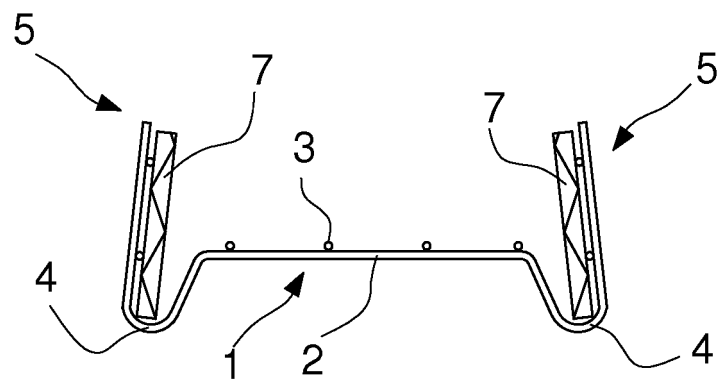


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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