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(54) **Improved formwork for the construction of floors, roofings and the like**

Verbessertes Schalungselement für die Herstellung von Decken, Dächern und dergleichen

Coffrage améliorée pour la réalisation de dalles, toitures, etc...

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(73) Proprietor: **DALIFORM S.r.l.**
33170 Pordenone (IT)

(72) Inventor: **Il Grande, Roberto**
33077 Sacile, Pordenone (IT)

(74) Representative: **Giugni, Valter et al**
PROPRIA S.r.l.,
Via Mazzini 13
33170 Pordenone (IT)

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Description

[0001] The present invention refers to an improved formwork adapted to contain a concrete casting for the construction of resting surfaces to lay floors, roofings and similar structures thereupon.

[0002] Building constructions usually require for hollow spaces to be provided underneath floors, roofing slabs and similar structures both to aeration purposes and to allow cables, pipings and the like to pass there-through. Such hollow interspaces are obtained with the use of appropriate formworks.

[0003] A first solution, which is described in US 2,602,323, consists in the use of dome-shaped elements that are simply set with their side edges close to each other and are joined to each other by means of clamping rings arranged at the base of the respective legs. Such a method of joining the elements to each other by clamping them together at the lower end portions thereof is rather irrational, since it fails to ensure a continuity of the top surface of the formwork and this in turn gives rise to the risk of the concrete casting seeping through between the same elements. In addition, this solution requires for special and separate clamping means to be used, which prove quite difficult to assemble owing to the position in which they must be located.

[0004] In more recent years, a more rational solution has gained ground in the art, which is represented by formworks made up by stool-shaped elements moulded out of rigid plastic material, which are joined together by letting the respective side edges thereof overlap. These elements generally feature a circularly shaped flat dome and are appropriately shaped to feature recessed side contours adapted to enable said elements to mutually couple and fit together. Elements of this kind are for instance described in the design application GB 2,035,725 filed by this same Applicant.

[0005] The hollow interspaces provided underneath the floors or roofing slabs, however, are generally required to be provided to different height dimensions, according to the different types of building in which they are being used. In order to cope with this requirement, the above cited formwork elements are in fact currently produced with legs of differing length. However, owing to limits of mechanical deformation strength under working and use conditions as well as limits in their ability of being stacked for greater convenience and cost-effectiveness in handling and transportation, the individual elements cannot be provided with legs with ea length in excess of a determined value (50 cm at most).

[0006] It therefore is a main purpose of the present invention to provide an improved formwork for the construction of floors, roofings or the like, which enables, with the use of elements that are easy to construct and assemble, hollow interspaces of different height underneath such floors or roofings laid upon reinforced-concrete slabs.

[0007] According to the present invention, this and

further aims are reached in a formwork embodying the characteristics recited in the appended claims and more thoroughly illustrated in the description that is given below with reference to the accompanying drawings, in which:

- Figure 1 is a partial perspective view of the elements of a formwork according to the present invention;
- Figure 2 is an enlarged partial perspective view of a detail of the formwork elements illustrated in Figure 1;
- Figure 3 is a side view of a portion of the formwork illustrated in Figure 1, with a partial enlarged cross-section; and
- Figure 4 is a plan view of a portion of the formwork illustrated in Figure 1.

[0008] With reference in particular to Figures 1 and 2, the formwork according to the present invention can be noticed to be made up by a plurality of stool-like elements 10, which are generally formed by a dome 11 that extends sidewise and downwards with four legs 12. The dome has a circular shape and the legs form four lateral arches whose edges are shaped so as to form an upwards open recess adapted to enable contiguous elements to be joined to each other by causing the edges thereof to mutually overlap and fit together.

[0009] According to the present invention, at the lower end portion of each such leg 12 of the elements 10 there is integrally provided a protruding member 16, in the form of a downwards open fork, which follows the contour of the leg. As a result, each leg is able to fit with its fork-shaped member 16 on to the edge of the upper end portion of a tubular element 17 that is arranged in a vertical position (Figure 3).

[0010] In a preferred manner, said tubular element has a circular cross-section and the upper end portion thereof is in the form of a bell 18. Furthermore, such a fitting of the fork 16 on to the tubular element 17 may in an advantageous manner be clamped firmly through the use of appropriate snap-on or screw fastening means of a generally known type (not shown in the Figures).

[0011] Figure 4 is a schematical plan view of a portion of formwork constructed with the use of the elements according to the present invention, which have been described above.

[0012] The fit-in connection of the stool-like elements 10 with the tubular elements 17, associated to the connection by overlapping edges of the contiguous stool-like elements, is such as to impart rigidity to the entire structure of the formwork both in the vertical direction and the horizontal one.

[0013] The lower end portion of the tubular elements 17 may rest directly on the ground, but can also be fitted

and held in position between the lower end portions of further stool-like elements 10 arranged in contact with the ground and mutually engaged with their overlapping side edges. In this case, the overall structure of the formwork is such as to offer a still greater solidity under the concrete casting.

[0014] The solution according to the present invention offers a number of advantages. First of all, it offers greater construction and assembly convenience, since it makes use of elements of a simple form that do not require any special means or tools for their connection. Furthermore, these elements are capable of being transported in a compact and low-cost manner. In fact, the stool-like elements 10 can be standardized, ie. unified dimensionally and manufactured with legs of a minimum length. As far as the tubular elements 17 are concerned, they can be normal elements of a commercial type having the required length dimensions.

[0015] It can then be readily appreciated that the formwork elements according to the present invention can also be used for the construction of inclined-plane floors by varying the height of the tubular elements 17 according to a row-by-row pattern. This solution is for instance adapted to construct sloping roofs resting in a spot-like manner on the framework located therebelow. Even considerable gradients of inclination can in this way be easily and economically obtained.

Claims

1. Formwork for containing a concrete casting, adapted to form a resting surface for a floor, roof or similar structure of a building, said formwork being constituted by elements moulded out of plastic material in the form of a stool, which are joined to each other by the overlapping of the respective side edges, **characterized in that** the formwork is further constituted by tubular elements (17) that are arranged vertically on the ground, in such a manner as to increase the height of the formwork, and **in that** at the lower end portions of each leg (12) of said stool-like elements (10) there is provided integrally a protruding member (16) in the form of a downward open fork, said fork-like protruding member (16) being adapted to fit onto the upper edge of one of the tubular elements (17).
2. Formwork according to claim 1, **characterized in that** the lower end portion of the tubular elements (17) is held in position between the lower end portions of further stool-like elements (10) provided in contact with the ground and mutually engaging with their side edges overlapping each other.

Patentansprüche

1. Formkasten zur Aufnahme von einem Betonguß, welcher zum Formen einer Auflagefläche für einen Fußboden, ein Dach oder ähnliche Strukturen von einem Gebäude geeignet ist, wobei der genannte Formkasten aus hockerförmigen Kunststoff-Formteilen besteht, die durch Überlappung der entsprechenden Seitenränder miteinander verbunden sind, **dadurch gekennzeichnet, daß** der Formkasten ferner aus rohrförmigen Teilen (17) besteht, die zur Vergrößerung der Formkastenhöhe für die senkrechte Aufstellung auf dem Boden vorgesehen sind, und daß ein am unteren Ende jedes einzelnen Fußes (12) der genannten hockerförmigen Kunststoff-Formteile (10) angeformter vorstehender Teil (16) in der Ausgestaltung einer nach unten offenen Gabel vorgesehen ist, wobei der genannte gabelförmig vorstehende Teil (16) über den oberen Rand von einem der genannten rohrförmigen Teile (17) übergreifbar ist.
2. Formkasten nach Anspruch 1, **dadurch gekennzeichnet, dass** das untere Ende der rohrförmigen Teile (17) zwischen den unteren Enden von weiteren hockerförmigen Kunststoff-Formteilen (10) fest in seiner Stellung gehalten ist, die sich auf den Boden stützen und durch Überlappung ihrer Seitenränder miteinander verbinden.

Revendications

1. Coffrage destiné à contenir du béton moulé, adapté pour former une surface d'appui pour un sol, une toiture ou une structure similaire d'un bâtiment, ledit coffrage étant constitué d'éléments moulés en matière plastique en forme de tabouret, qui sont joints les uns aux autres par le chevauchement de leurs bords latéraux respectifs, **caractérisé en ce que** le coffrage est constitué de plus par des éléments tubulaires (17), qui sont placés verticalement sur le sol afin d'augmenter la hauteur du coffrage, et **en ce qu'**au niveau des parties d'extrémité inférieure de chaque branche (12) desdits éléments (10) en forme de tabouret, il est prévu, de manière solidaire, un élément saillant (16) en forme de fourche ouverte vers le bas, ledit élément saillant (16) de type fourche étant adapté pour se monter sur le bord supérieur de l'un des éléments tubulaires (17).
2. Coffrage selon la revendication 1, **caractérisé en ce que** la partie d'extrémité inférieure des éléments tubulaires (17) est tenue en place entre les parties d'extrémité inférieure d'autres éléments (10) en forme de tabouret prévus en contact avec le sol et en prise mutuelle avec leurs bords latéraux se chevauchant mutuellement.

Fig. 1

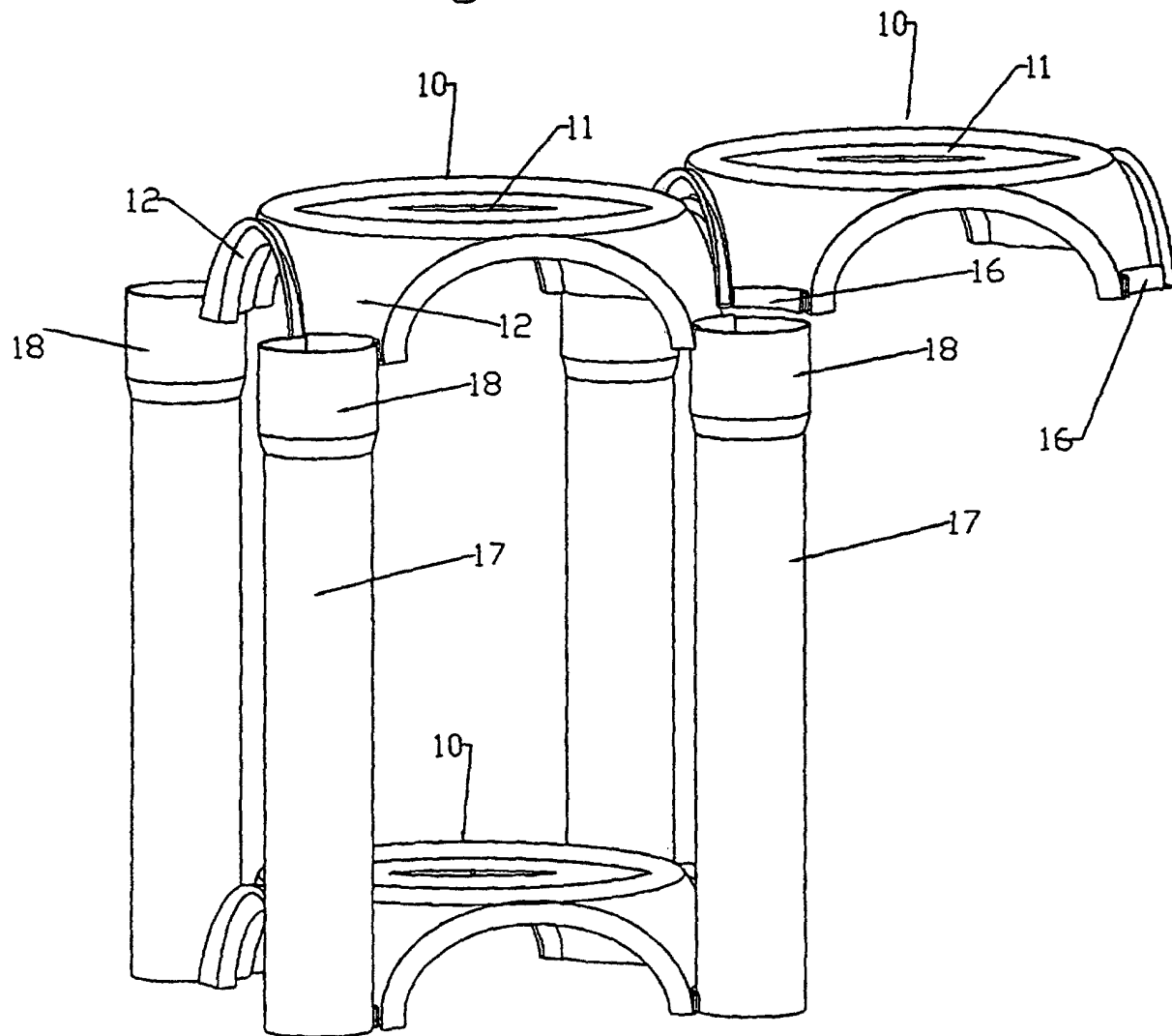
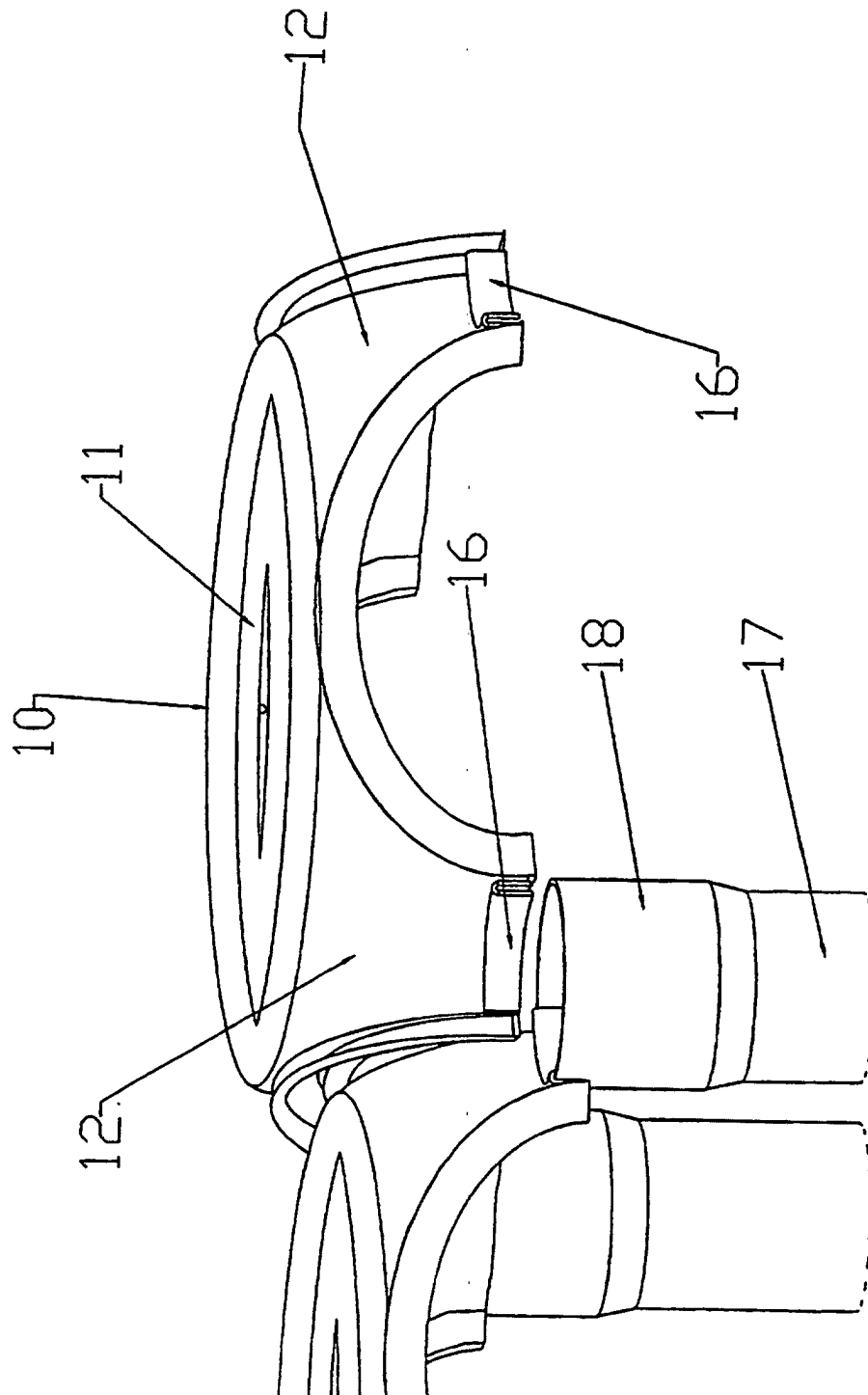


Fig. 2



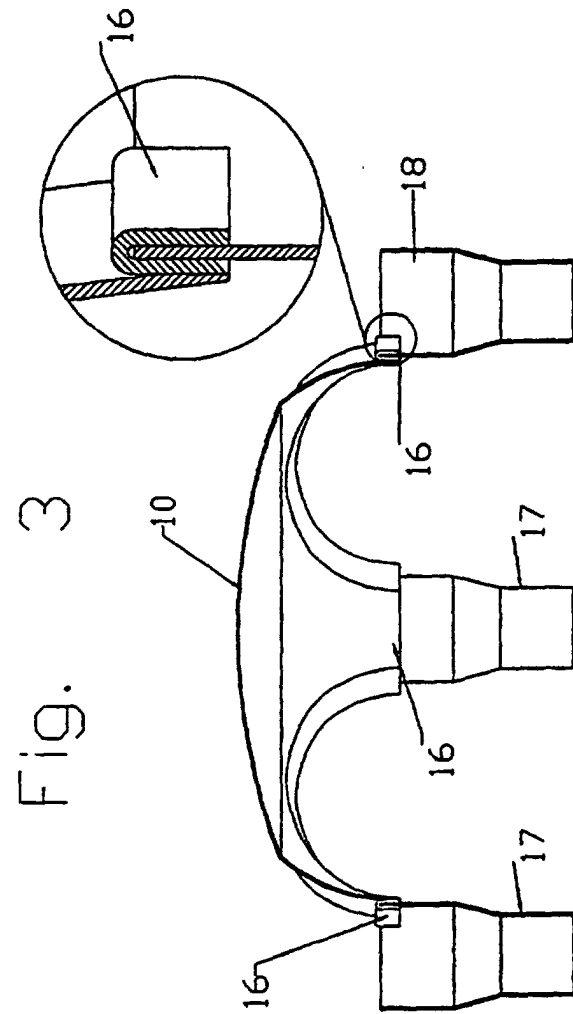


Fig. 4

