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(54) Apparatus for the manufacture of concrete columns

Vorrichtung zum Herstellen von Betonsäulen

Dispositif pour la fabrication de colonnes en béton

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(73) Proprietor: **PARTEK CONCRETE OY AB**
SF-00501 Helsinki (FI)

(72) Inventor: **Virtanen, Olli**
SF-21600 Parainen (FI)

(74) Representative: **Örtenblad, Bertil Tore**
Noréns Patentbyra AB
Box 27034
S-102 51 Stockholm (SE)

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Description

The present invention relates to an apparatus for the manufacture of concrete columns, the apparatus having a concrete-gunning unit and a column-grinding unit, the gunning unit having a gun moving along a vertical boom and a grinding disc, by means of which a concrete column is manufactured by gunning a concrete mix against a specific blank turning about its axis, whereafter the hardened column is transferred to the grinding unit, where the surface of the concrete column is ground and polished by means of a second grinding device moving on a vertical boom (see e.g. EP-A-0 440 591).

The apparatus is used for manufacturing concrete columns by a concrete-gunning method known per se, described in a number of previous patent applications. After the gunning the fresh concrete is cut and ground straight by means of a rotating tool. Concreting completed, the fresh element is transferred, supported by its jig, to the hardening site. When the element has hardened, it is detached from the jig or is lifted into a grinding apparatus, in which it fits without centering, since the apparatus has the same rotating and supporting devices. The surface of the element is ground down by about 2-4 mm, for example with a diamond tool, whereby the aggregate is exposed, whereafter the element is ground smooth by using polishing tools. All the methods described above are known per se. The manufacturing apparatus according to the invention is characterized in that both the gunning unit and the grinding unit have tilting devices by means of which the vertical booms can be tilted relative to the axis of the concrete column so that conical columns are produced. By tilting the vertical booms of the fresh-working and dry-working tools, a conical column can be produced as easily as can a straight one. The saving in forms is emphasized in the conical column, since the making of a conical form is expensive, and all that is needed in the apparatus according to the invention is control of the travel direction of the moving devices. The actual gun has distance control which enables the distance of the nozzles from the element to be maintained unchanged even though the element narrows towards the upper end. The inner block of the concrete column is of thin metal sheet and the steel reinforcement is conical. The invention is described below in the form of an example, with reference to the accompanying drawing, in which Figure 1 depicts the gunning unit in the apparatus for manufacturing concrete columns, and
Figure 2 depicts the grinding unit in the manufacturing apparatus.

The apparatus for manufacturing concrete columns has a concrete-gunning unit 1 and a column-grinding unit 2. The gunning unit has a gun 4, moving along a vertical boom 3, and a grinding disc 5. The gun 4 and the grinding disc 5 are located adjacently and can be moved in the lateral direction for the steps required. The concrete mix is sprayed through the nozzle of the gun against a blank rotating about its axis 6, whereby a concrete column narrowing conically upwards is produced. Thereafter, the surface of the column is smoothed by means of the grinding disc 5. When the concrete column has hardened, it is transferred to the grinding unit, where the surface of the concrete column is ground and polished by means of a second grinding device 8 moving along a vertical boom 7 in the grinding unit. Both the gunning unit 1 and the grinding unit 2 have tilting devices 9, 10, by means of which the vertical booms can be tilted relative to the axis 11 of the concrete column so that conical columns are produced. The tilts are indicated with dot-dashed lines. Concrete columns manufactured in an apparatus according to the invention can be used for construction purposes as various vertical columns or even by combining cones to each other to produce angular components of a desired shape.

Claims

1. An apparatus for manufacturing concrete columns, having a concrete-gunning unit (1) and a column-grinding unit (2), the concrete-gunning unit having a gun (4) moving along a vertical boom (3) and a grinding disc (5), by means of which a concrete column is manufactured by gunning a concrete mix against a specific blank rotating about its axis (6), whereafter the hardened column is transferred to the column-grinding unit (2), where the surface of the concrete column is ground and polished by means of a second grinding device (8), moving along a vertical boom (7), **characterized** in that both the concrete-gunning unit and the column-grinding unit have tilting devices (9, 10) by means of which the vertical booms (3, 7) can be tilted relative to the axis (11) of the concrete column so that conical columns are produced.

Patentansprüche

1. Vorrichtung zum Herstellen von Betonsäulen mit einer Beton-Kanonen-Einheit (1) und einer Säulen-Schleif-Einheit (2), wobei die Beton-Kanonen-Einheit eine Kanone (4) aufweist, die sich entlang eines vertikalen Baumes (3) bewegt, und eine Schleifscheibe (5), womit eine Betonsäule dadurch hergestellt wird, daß ein Betongemisch gegen einen speziellen Rohling gespritzt wird, der um seine Achse (6) umläuft, worauf die ausgehärtete Säule zur Säulenschleifeinheit (2) überfuhrt wird, wo die Oberfläche der Betonsäule mittels einer zweiten Schleifvorrichtung (8) geschliffen und poliert wird, die sich ihrerseits entlang eines vertikalen Baumes (7) bewegt, dadurch gekennzeichnet, daß die Beton-Kanonen-Einheit und die Säulen-Schleif-Einheit Kippvorrichtungen (9, 10) aufweisen, mittels welcher die vertikalen Bäume (3, 7) relativ zur Achse (11) der Betonsäule geneigt werden können, so daß konische Säulen erzeugt werden.

Revendications

1. Appareil de fabrication de colonnes de béton, comportant une unité (1) de projection de béton et une unité (2) de meulage de colonne, l'unité de projection de béton comportant un organe de projection (4) se déplacant le long d'un mât vertical (3) et un disque de meulage (5), au moyen duquel une colonne de béton est fabriquée en projetant un mélange de béton contre une pièce brute spécifique tournant autour de son axe (6), après quoi la colonne durcie est transférée à l'unité (2) de meulage de colonne, où la surface de la colonne de béton est meulée et polie au moyen d'un second dispositif de meulage (8), se déplaçant le long d'un mât vertical (7), caractérisé par le fait que l'unité de projection de béton et l'unité de meulage de colonne possèdent toutes les deux des dispositifs d'inclinaison (9, 10) au moyen desquels les mâts verticaux (3, 7) peuvent être inclinés par rapport à l'axe (11) de la colonne de béton, de telle sorte que des colonnes coniques soient obtenues.

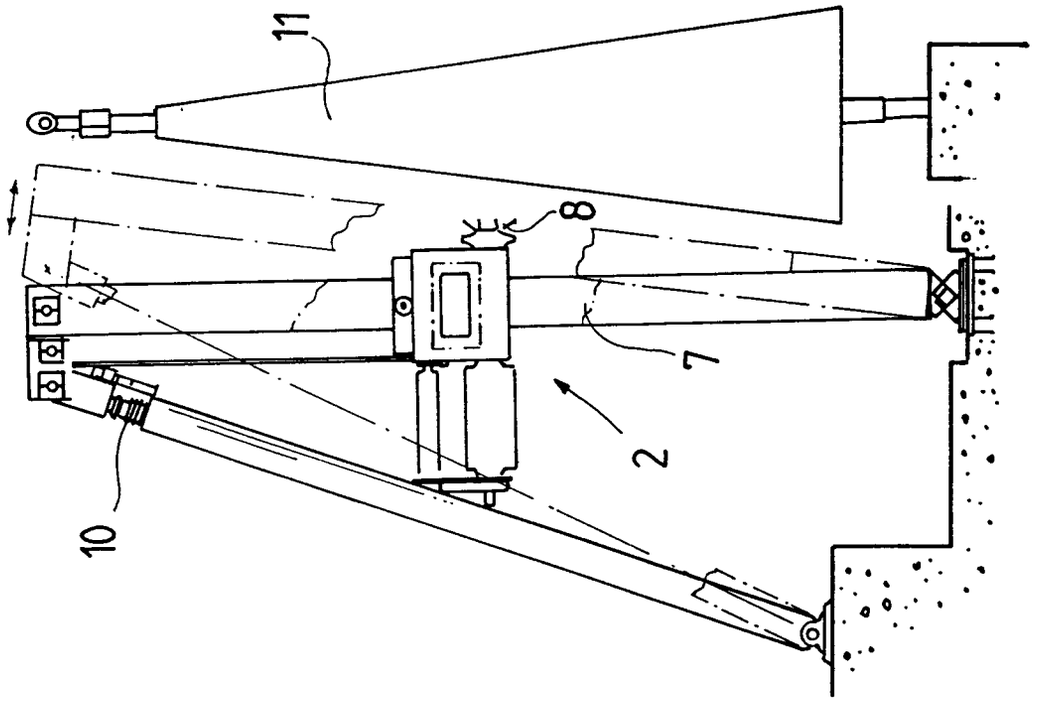


Fig.2

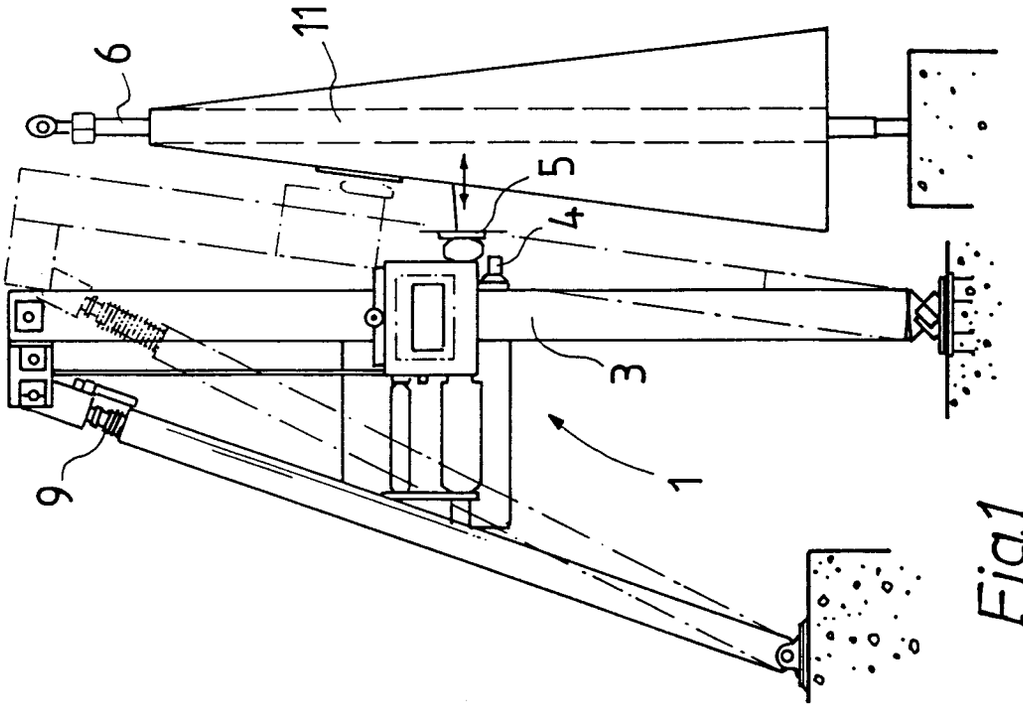


Fig.1