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54 **ARRANGEMENT FOR THE PRODUCTION OF LONGITUDINAL SCREED SLABS CONSISTING OF CONCRETE.**

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## Description

### Technical field

The present invention relates to an arrangement for casting in a mould of so called battery design longitudinal concrete bodies with a high degree of linearity, said battery comprising a series of beams running in parallel to each other and constituting the lower boundary surface of the mould, and on the top of adjacent beams longitudinally extending pipes constituting the lateral boundary sides.

The object of the present invention is to obtain a possibility of producing longitudinal concrete bodies with a high degree of linearity in an economical and rational way.

### Background of the invention

The Swedish patent application no 8001663-7 describes a method for producing concrete floors of high quality as regards planeness and rational construction, using slide tracks for the vibrating beams employed in the process of producing the floor by way of permanently remaining moulds. By providing the slide tracks, screed slabs, with either holes or both holes and brackets, continuous reinforcement can be achieved, which means that shrinkage cracks do not arise in the floor along these slabs.

In producing slabs a number of problems have been encountered, all of which have been solved with the aid of generally known technology (e.g. grades of concrete suitable for hard wear). One problem however, has proved to be of considerably greater complexity. It relates to the fact that when casting slabs in so-called battery moulds, it is difficult to obtain linearity, which the slabs must show. The difficulty consists partly in the fact that it is difficult to produce moulds of sufficient linearity and that after repeated use, the moulds develop a non-linear shape due to handling.

Moulds can be produced from thin metal sheeting bent to the required cross-sectional shape. The sections are then connected by point-welding. This gives rise to heat stresses causing deformation of the sheets with disastrous consequences for the use of the resulting slabs. Also injection-moulded aluminium has been tried but after handling, the condition of this product becomes quite bad. Once this is the case, it is less possible to produce correct slabs. In addition aluminium is, after all, subject to the disadvantage that it is attacked by concrete, so that the surface of the product becomes corroded and thereby rough.

Thus there is a demand for a solution producing concrete bodies, particularly screed slabs with a high degree of linearity.

### Description of the present invention

It has now surprisingly been found possible to be able to solve this problem by means of the present invention, which is characterized in that the pipes have a substantially circular cross-

section with a flattened underside, each pipe on its flattened underside being provided with a rail, which has a cross-section of an upside-down T, said rail being broken at a number of points at mutually equal distances; that the beams are arranged with some gap therebetween; that said pipes are placed on top of adjacent beams so that said rail is arranged in said gap; that plates each having a Y-shaped recess are placed between the top edges of adjacent beams, and at the same distances from each other as the interruptions in the rails, said recesses being arranged to receive the leg of the T-rail.

Battery moulding referred to above and in the following means that several bodies are produced simultaneously in a large mould. As a result moulding costs and labour can be reduced.

By means of the present invention concrete bodies, particularly screed slabs can be produced having a high degree of linearity.

The present invention will now be described more in detail with reference to the accompanying drawing, wherein

FIG. 1 shows a vertical view through a part of a battery mould of the invention, and

FIG. 2 shows a detail of a means used therein, and

FIG. 3 is a perspective view of the arrangement.

1 denotes a beam, a number of such beams having been placed in a frame (not shown) consisting of strong beams. The length of the frame, which normally constitutes the length of the beams, is 5—10 m, and the width of the frame is 1—2 m. The beams are placed at a distance from each other and extend parallel to the longitudinal sides of the frame. The frame with its beams 1 form a bed of beams 1, which forms a lower boundary surface in the mould. The choice of material, length, and width of the frame with its beams 1 may be made entirely according to the capacity of the lifting devices used for handling the arrangement during production. On the top of the beams 1 longitudinally extending pipes 2 are placed. The pipes 2 have a substantially circular cross-section, and have been levelled off somewhat, thereby showing a flat, longitudinally extending surface 3. This surface 3 covers 30 to 90 degrees of the central angle. At the centre of this surface 3 a rail 4 having the shape of an upside down T is secured, i.e. the leg of the T-rail 4 is attached along a longitudinally extending line in the centre of the surface 3. The rail 4 is broken by gaps at equal distances. These breaks, or gaps, occur e.g. at a rate of one per meter, and with a length of e.g. 5 cm. These measures can be varied within wide limits, and the dimensions herein given is only to facilitate the understanding of the following. The width of the T corresponds substantially to the distance between two beams 1, as shown in Fig. 1.

Between each beam 1 in the bed of beams a number of top plates 5 are arranged. These top plates 5 are placed at equal distances from each other corresponding to the distances between the breaks in the rail 4. The length of the top plates 5

does not exceed the length of the breaks. The top edges of the top plates 5 are further placed edge to edge to the top edges of the beams 1. The top plates 5 have a Y-shaped recess, generally denoted 6 therein. The recess 6 being Y-shaped has an outer part 8 and an inner part 7, the latter fitting the leg of the T-shaped rail 4. The outer expanding part 8 of the recess 6 is used for guiding the said leg of the T-rail 4, in the case where non-linearities in the pipe 2 may prevent a simple insertion, as follows.

Using the arrangement the pipes are placed on top of the beams 1 with their levelled surfaces 3 facing the beams 1. The gaps in the rail 4 are placed above the top plates 5, whereupon the pipes 2 and the rail 4 are put down into the gaps between the beams 1. Then the pipes 2 are locked by pushing them axially, whereby the rails 4 fit into the recesses 6, and particularly the parts 7, and lock therein. The pipes 2 now form the lateral sides of the mould.

It is of course most important that the bed of beams 1 is made of strong beams and that the planeness is accurately adjusted. The entire bed of beams is then placed on three or several bearing brackets which in turn are provided with vibration-generating devices, all with a view to ensuring satisfactory casting using concrete.

#### Claim

An arrangement for casting in a mould of so called battery design longitudinal concrete bodies with a high degree of linearity, said battery comprising a series of beams (1) running in parallel to each other and constituting the lower boundary surface of the mould, and on the top of adjacent beams (1) longitudinally extending pipes (2) constituting the lateral boundary sides characterized in that the pipes (2) have a substantially circular cross-section with flattened underside (3), each said pipe (2) on its flattened underside (3) being provided with a rail (4), which has a cross-section of an upside-down T, said rail being broken at a number of points at mutually equal distances; that the beams (1) are arranged with some gap therebetween; that said pipes (2) are placed on top of adjacent beams (1) so that said rail (4) is arranged in said gap; and that plates (5) each having a Y-shaped recess (6, 7, 8) are placed between the top edges of adjacent beams (1) and at the same distances from each other as the interruptions in the rails (4), said recess (6, 7, 8) being arranged to receive the leg of the T-rail (4).

#### Patentanspruch

Einrichtung zum Gießen länglicher Betonkörper

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mit einem hohen Grad an Linearität in einer Form von sogenannter Batteriegestalt, wobei diese Batterie eine Reihe parallel zueinander verlaufender, die untere Grenzfläche der Form bildender Balken (1) und über einander benachbarten Balken (1) in Längsrichtung sich erstreckende, die Seitenbegrenzungen bildende Röhren (2) aufweist, dadurch gekennzeichnet, daß die Röhren (2) einen im wesentlichen kreisförmigen Querschnitt mit einer abgeflachten Unterseite (3) haben, wobei jede dieser Röhren (2) auf ihrer abgeflachten Unterseite (3) mit einer Schiene (4) versehen ist, die einen Querschnitt eines umgekehrten T hat, wobei die Schiene bei einer Reihe von Punkten in wechselseitig gleichen Abständen unterbrochen ist, daß die Balken (1) mit einem Spalt dazwischen angeordnet sind, daß die Röhren (2) über benachbarten Balken (1) derart angeordnet sind, daß die Schiene (4) in diesem Spalt angeordnet ist, und daß Platten (5), die jeweils eine Y-förmige Ausnehmung (6, 7, 8) haben, zwischen den Oberkanten benachbarter Balken (1) und in gleichen Abständen voneinander wie die Unterbrechungen in den Schienen (4) angeordnet sind, wobei die Ausnehmung (6, 7, 8) so angeordnet ist, daß sie den Fuß der T-Schiene (4) aufnimmt.

#### Revendication

Agencement pour la coulée, dans un moule d'une conception dite en batterie, de masses longitudinales en béton, présentant un degré élevé de linéarité, cette batterie comprenant une série de poutres (1) disposées parallèlement entre elles et constituant la surface de délimitation inférieure du moule, et sur le haut de poutres (1) adjacentes, des conduits longitudinaux (2) constituant les parois de délimitation latérales, caractérisé en ce que les conduits (2) ont une section droite essentiellement circulaire, avec une base aplatie (3), chaque conduit (2) étant pourvu, sur sa base aplatie (3), d'un rail (4) qui a une section droite en forme de T renversé, ce rail étant interrompu en un certain nombre de points sur des distances égales; en ce que les poutres (1) sont disposées en prévoyant un certain intervalle entre elles; en ce que les conduits (2) sont placés sur le haut de poutres adjacentes (1) de manière que le rail (4) susdit soit disposé dans cet intervalle; et en ce que des plaques (5) présentant chacune une cavité en forme de Y (6, 7, 8) sont placées entre les bords supérieurs des poutres adjacentes (1) et à la même distance entre elles que les interruptions prévues dans les rails (4), cette cavité (6, 7, 8) étant agencée pour recevoir la branche verticale du rail en T (4).

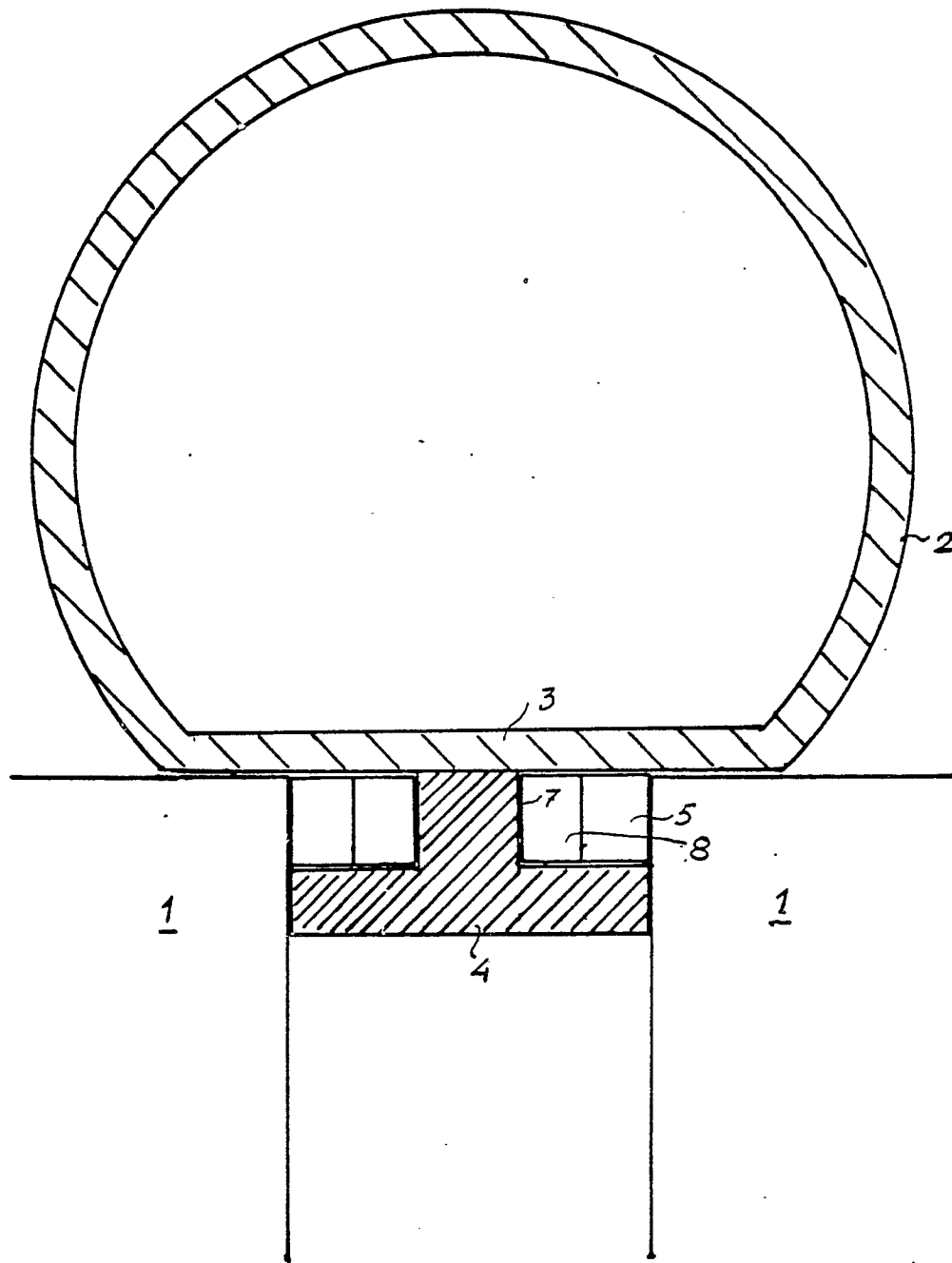


FIG. 1

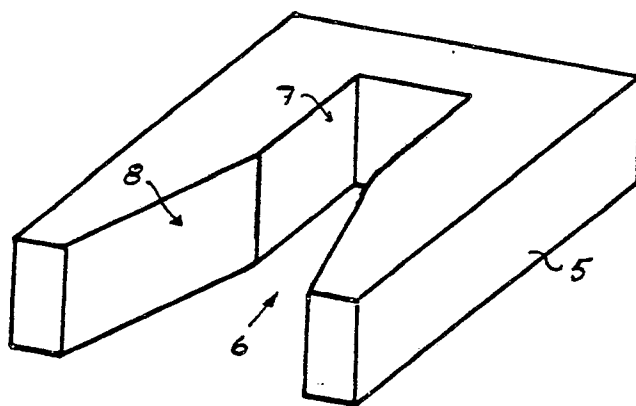


Fig 2.

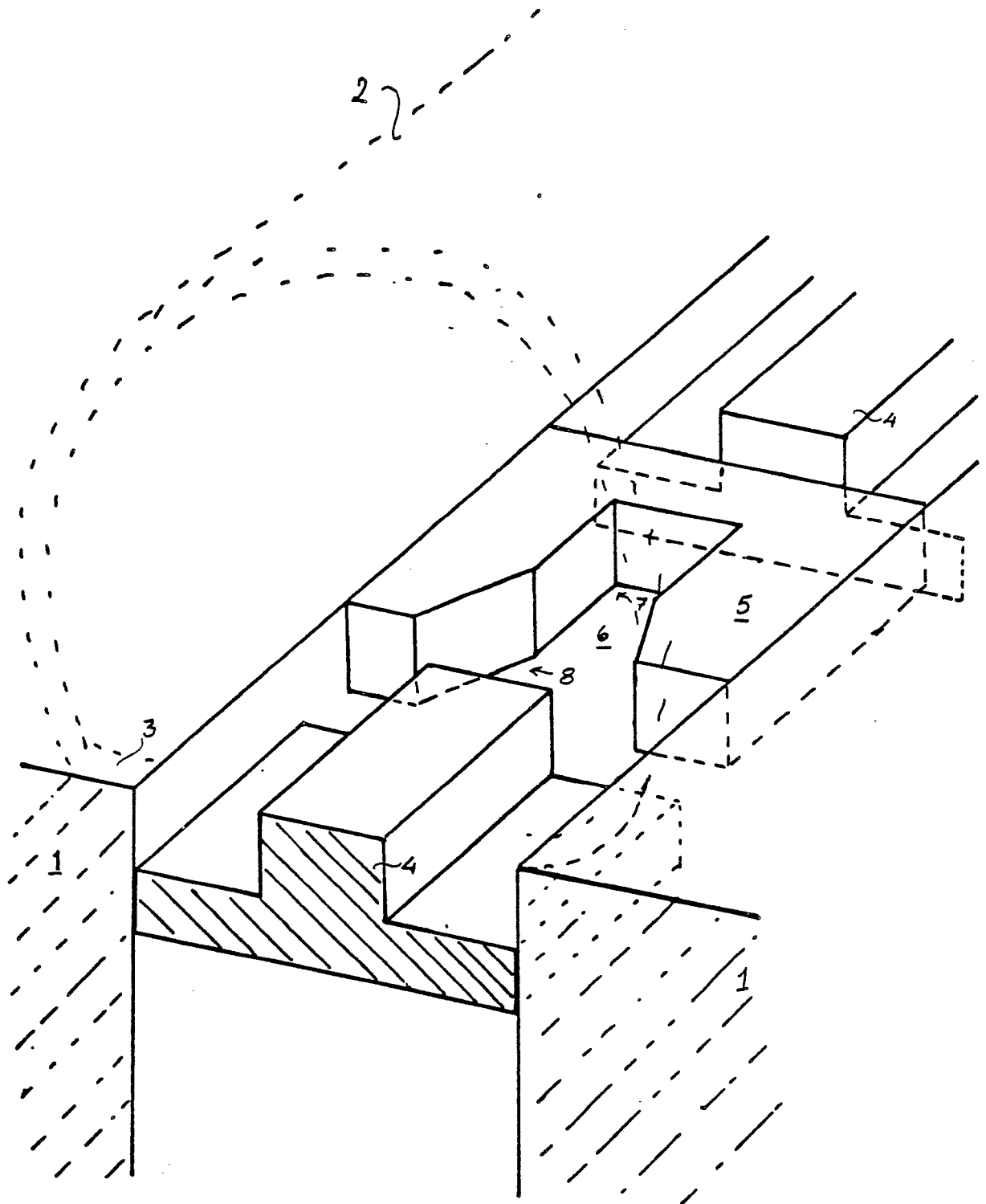


Fig 3