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(54) **Device for clamping iron trestles or struts to be arranged in concrete floor slabs or walls**

Vorrichtung zum Klemmen von Bewehrungskörben oder Streben zur Anordnung in Betonbodenplatten oder -wänden

Dispositif pour serrer des cages d'armature ou des contre-fiches en acier destiné à être placé dans les dalles de plancher ou des murs en béton

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DE-A1- 2 526 370 DE-A1- 3 318 431
DE-A1- 3 410 484 DE-U1- 9 010 331
FR-A1- 2 208 037 FR-A1- 2 419 372
GB-A- 1 529 483**

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a device for clamping iron trestles or struts to be arranged in or inserted into concrete floor slabs or walls.

[0002] Strutted or trestled slabs for making concrete floors and walls are already known.

[0003] In particular, said strutted slabs are made starting from a concrete slab, reinforced by electrowelded iron struts or trestles and other reinforcing iron elements, with overlaying polystyrene blocks, which are clamped to the slab.

[0004] The thickness of said slabs conventionally varies from 4 to 6 cm and usually said slabs have a width of 120 cm and a length from 1 to 12 m, according to the building spans and floors to be made.

[0005] The polystyrene blocks have a height which can vary from 15 to 50 cm.

[0006] In making said floors and walls in a building yard, an additional reinforcing iron element is optionally added, an electrowelded net is arranged on the polystyrene blocks, and the concrete is cast so as to fill the gaps between the blocks, to form a covering layer above said blocks with a thickness of about 5 cm.

[0007] A clamping device according to the preamble of claim 1 is described in FR-A-2 208 037, DE-A-2 434 851 and FR-A-2 419 372.

[0008] In prior approaches and methods, great problems are encountered in properly locating the struts or trestles which must be held in a proper position during the casting or pouring operations, both to prevent any floating phenomenon and to allow the concrete to fully and evenly embed therein the reinforcing iron elements and rebars.

SUMMARY OF THE INVENTION

[0009] Thus, the aim of the present invention is to solve the above mentioned problem, by providing a device for clamping iron trestles or struts to be arranged in concrete floors and walls, allowing to accurately and quickly locate the trestles and reinforcing iron elements, while holding them in their preset positions defined during the concrete casting operations.

[0010] Within the scope of the above mentioned aim, a main object of the invention is to provide such a clamping device which allows to greatly simplify all the slab making operations, thereby providing optimum results.

[0011] A further object of the present invention is to provide such a clamping device which, owing to its specifically designed constructional features, is very reliable and safe in operation.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Further characteristics and advantages of the

clamping device according to the present invention will become more apparent hereinafter from the following detailed disclosure of a preferred embodiment thereof, which is illustrated, by way of an indicative, but not limitative example, in the accompanying drawings, where:

Figure 1 is a schematic perspective view showing a clamping device or element applied to a reinforcing iron rod or rebar;

Figure 2 shows a cross iron rod or rebar with applied the clamping devices or elements according to the present invention;

Figure 3 shows, on an enlarged scale, a starting connection operation for connecting a base iron element to a block forming the clamping device or element; Figure 4 shows an end operation or step for connecting the trestle or strut; and

Figure 5 shows the trestle or strut arrangement as embedded in the poured or cast concrete material.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0013] With reference to the number references of the above mentioned figures, the clamping device or element for clamping iron trestles or struts to be arranged in concrete floor slabs and walls, according to the invention, which has been generally indicated by the reference number 1, comprises a plurality of blocks 2 which are clamped to a cross rod element or rebar 3.

[0014] Typically, with rod elements or rebars having a width of 118 cm to be used for making slabs of 120 cm, two side blocks and a central block would be provided.

[0015] The block 2 comprises an elongated central body 4 coating the rebar 3 and which, at its end portions, is coupled to coupling or latching bodies 10 which, on a side thereof, comprise a plurality of foot elements 11, including respective tooth pattern, defining housing seats which are arranged substantially perpendicular to the rebar 3.

[0016] At the bottom, on a side opposite to the foot elements 11, are provided a plurality of bearing feet 12 for bearing on the caisson while holding the rebar 3 in a raised condition.

[0017] Between the latching bodies 10 a plurality of seats are arranged for housing therein longitudinal iron elements 15, said seats comprising respective recesses 14 made in a single body with the central body 4.

[0018] With the above disclosed arrangement, a set number of cross rod elements or rebars 3 are preliminarily arranged in the caisson, each said rebar having three blocks 2 bearing by their feet 12 on the caisson bottom.

[0019] After having properly located the cross rebars, the trestles or struts 20 are engaged, in particular by coupling the first base iron element 20A in the seats defined by said feet 11 and laterally arranged, as schematically shown, in figure 3.

[0020] Then, the longitudinal rod elements or rebars 15 are located, to be properly arranged on the recesses

14 and then, by a rotary operation, the second base iron element 20B is coupled in the latching body 10, while locking the trestle or strut 20 which will be thus restrained by a stable coupling of the base iron elements 20A and 20B.

[0021] The above disclosed toothed feet 11 will provide a plurality of seats allowing to use trestles or struts having widths within a given width range.

[0022] With the above disclosed arrangement, the clamping devices or elements, formed by the block 2, allows to hold in a raised condition the trestles or struts with respect to the casting bench, thereby allowing the concrete material to fully encompass and cover the two iron elements arranged at the bottom of the trestle.

[0023] Moreover, said trestles or struts are held in a spaced condition from one another at accurate and even distances.

[0024] Likewise are held in their preset positions the longitudinal iron elements to be arranged inside the trestles, since they are located on the recesses 14 allowing them to be spaced by an accurate and even spacing, to provide in turn an accurate and even thickness of concrete covering the iron elements.

[0025] From the above disclosure it should be apparent that the invention fully achieves the intended aim and objects.

[0026] In fact, the invention provides a clamping device or element for clamping iron trestles or struts to be arranged in concrete floors or walls, thereby providing an optimum location of said trestles, while simplifying all the casting operations and providing a high quality end product.

[0027] The invention, as disclosed, is susceptible to several modifications and variations, all of which will come within the scope of the invention as defined by the appended claims.

Claims

1. A clamping device (1) for clamping iron trestles or struts (20) to be arranged in concrete floor slabs or walls, said clamping device (1) comprising at least a block (2), said block (2) defining a plurality of latching bodies (10) which can be removably coupled to base iron elements (20A, 20B) of the trestles (20), on said block (2) at least a seat for housing at least a longitudinal rod element (15) being provided, **characterized in that** said block (2) is configured to be rigidly associated with a cross rebar (3).
2. A clamping device (1), according to the preceding claim, **characterized in that** a central block (2) is configured to be arranged on each cross rebar (3), and two further blocks are configured to be arranged at end portions of said cross rebar (3).
3. A clamping device (1), according to claim 1, **characterized in that** said block (2) comprises an elongated central body (4) intercoupling said latching bodies (10) arranged at the ends of said block (2).

4. A clamping device (1), according to claim 1, **characterized in that** said latching bodies (10) define, on a top thereof, a plurality of toothed foot elements (11) for defining corresponding coupling seats for the trestle base iron elements (20A, 20B), arranged substantially perpendicular to said cross rebar (3), said latching bodies (10) defining, at bottom end portions thereof, a plurality of bearing feet (12) for providing a set spacing from the bottom of a caisson.
5. A clamping device (1), according to claim 1, **characterized in that** said block (2) comprises a plurality of recesses (14) defining a plurality of corresponding housing seats for housing longitudinal rod elements (15).
6. A method of clamping iron trestles or struts (20), **characterized in that** a base iron element (20A) is preliminarily clamped in one latching body (10) of the clamping device according to claim 1 and, after having engaged longitudinal rod elements (15) in said seats, the other base iron element (20B) is coupled in the other latching body (10).

Patentansprüche

1. Klemmvorrichtung (1) zum Klemmen von Bewehrungskörben oder Streben (20) zur Anordnung in Betonbodenplatten oder -wänden, wobei die Klemmvorrichtung (1) zumindest einen Block (2) umfasst, wobei der Block (2) mehrere Klinkenkörper (10) definiert, die abnehmbar an die Basiseisenelemente (20A, 20B) der Bewehrungskörbe (20) gekuppelt sind, wobei auf dem Block (2) zumindest ein Sitz zum Unterbringen von zumindest einem längs verlaufenden Stangenelement (15) vorgesehen ist, **dadurch gekennzeichnet, dass** der Block (2) zur starren Zuordnung zu einem Querbewehrungsstab (3) gestaltet ist.
2. Klemmvorrichtung (1) nach dem vorhergehenden Anspruch, **dadurch gekennzeichnet, dass** ein zentraler Block (2) zur Anordnung auf jedem Querbewehrungsstab (3) gestaltet ist und zwei weitere Blöcke zur Anordnung an Endabschnitten des Querbewehrungsstabs (3) gestaltet sind.
3. Klemmvorrichtung (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** der Block (2) einen gestreckten zentralen Körper (4) umfasst, der die Klinkenkörper (10) miteinander verkuppelt, die an den Enden des Blocks (2) angeordnet sind.

4. Klemmvorrichtung (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Klinkenkörper (10) auf einer Oberseite davon mehrere gezahnte Fußelemente (11) zum Definieren von entsprechenden Kupplungssitzen für die Bewehrungskorbbasiselemente (20A, 20B) definieren, die im Wesentlichen senkrecht zu dem Querbewehrungsstab (3) angeordnet sind, wobei die Klinkenkörper (10) an unteren Endabschnitten davon mehrere Lagerfüße (12) zum Vorsehen einer eingestellten Beabstandung von der Unterseite eines Senkkastens definieren.
5. Klemmvorrichtung (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** der Block (2) mehrere Aussparungen (14) umfasst, die mehrere entsprechende Unterbringungssitze zum Unterbringen von längs verlaufenden Stangenelementen (15) definieren.
6. Verfahren zum Klemmen von Bewehrungskörnern oder Streben (20), **dadurch gekennzeichnet, dass** ein Basiseisenelement (20A) zunächst in einen Klinkenkörper (10) der Klemmvorrichtung nach Anspruch 1 geklemmt wird und, nachdem längs verlaufende Stangenelemente (15) in den Sitzen in Eingriff gebracht wurden, das andere Basiseisenelement (20B) in den anderen Klinkenkörper (10) gekuppelt wird.
4. Dispositif de serrage (1) selon la revendication 1, **caractérisé en ce que** lesdits corps de verrouillage (10) définissent, sur le dessus-de ceux-ci, une pluralité d'éléments de piétement dentés (11) permettant de définir des sièges de couplage correspondants pour les éléments en fer de base des supports (20A, 20B), agencés sensiblement perpendiculairement à ladite barre d'armature (3), lesdits corps de verrouillage (10) définissant au niveau des portions d'extrémité inférieures de ceux-ci, une pluralité de pieds de support (12) permettant de fournir un espacement défini à partir du fond d'un caisson.
5. Dispositif de serrage (1) selon la revendication 1, **caractérisé en ce que** ledit bloc (2) comprend une pluralité d'évidements (14) définissant une pluralité de sièges de logement correspondants, pour recevoir les éléments de tige longitudinaux (15).
6. Procédé de serrage de supports ou d'étriers en fer (20), **caractérisé en ce qu'un** élément en fer de base (20A) est serré, de manière préliminaire, dans un corps de verrouillage (10) du dispositif de serrage (1) selon la revendication 1, après avoir engagé les éléments de tige longitudinaux (15) dans lesdits sièges, et **en ce que** l'autre élément en fer de base (20B) est couplé dans l'autre corps de verrouillage (10).

Revendications

1. Dispositif de serrage (1) permettant de serrer des supports ou des étriers (20) qui doivent être agencés dans des dalles de plancher ou des parois en béton, ledit dispositif de serrage (1) comprenant au moins un bloc (2), ledit bloc (2) définissant une pluralité de corps de verrouillage (10) qui peuvent être couplés, de manière détachable, aux éléments en fer de base (20A, 20B) des supports (20), sur ledit bloc (2) au moins un siège pour loger au moins un élément de tige longitudinale (15) étant fourni, **caractérisé en ce que** ledit bloc (2) est configuré pour être associé, de manière rigide, à une barre d'armature (3).
2. Dispositif de serrage (1) selon la revendication précédente, **caractérisé en ce qu'un** bloc central (2) est configuré pour être agencé sur chaque barre d'armature (3), et deux autres blocs sont configurés pour être agencés au niveau de portions d'extrémité de ladite barre d'armature (3).
3. Dispositif de serrage (1) selon la revendication 1, **caractérisé en ce que** ledit bloc (2) comprend un corps central allongé (4) couplant entre eux lesdits corps de verrouillage (10) agencés au niveau des extrémités dudit bloc (2).

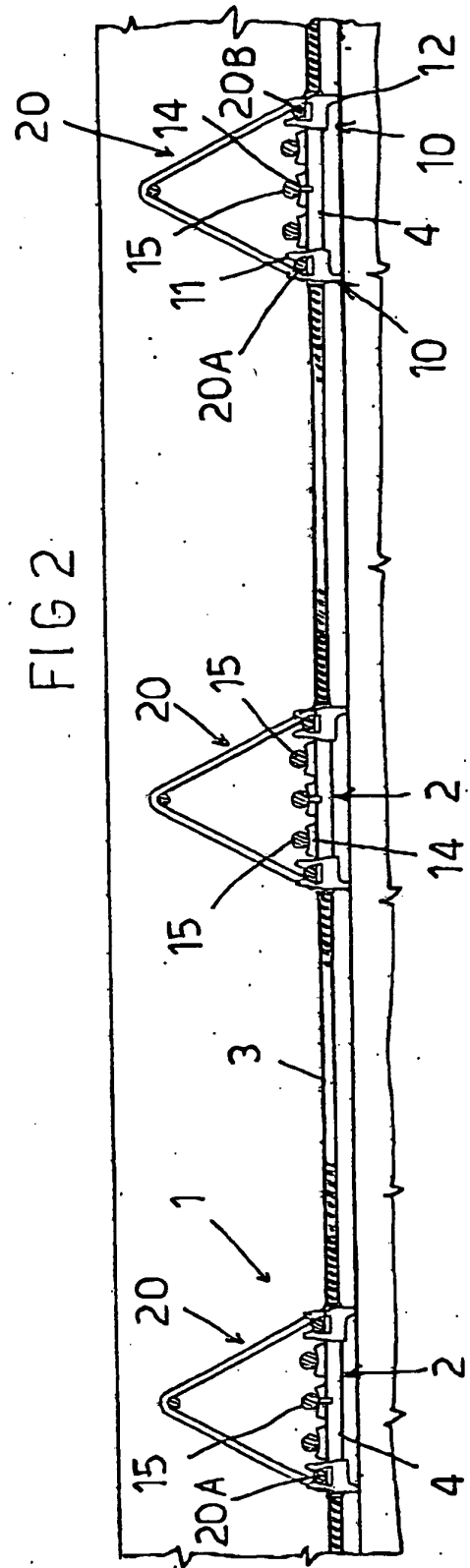
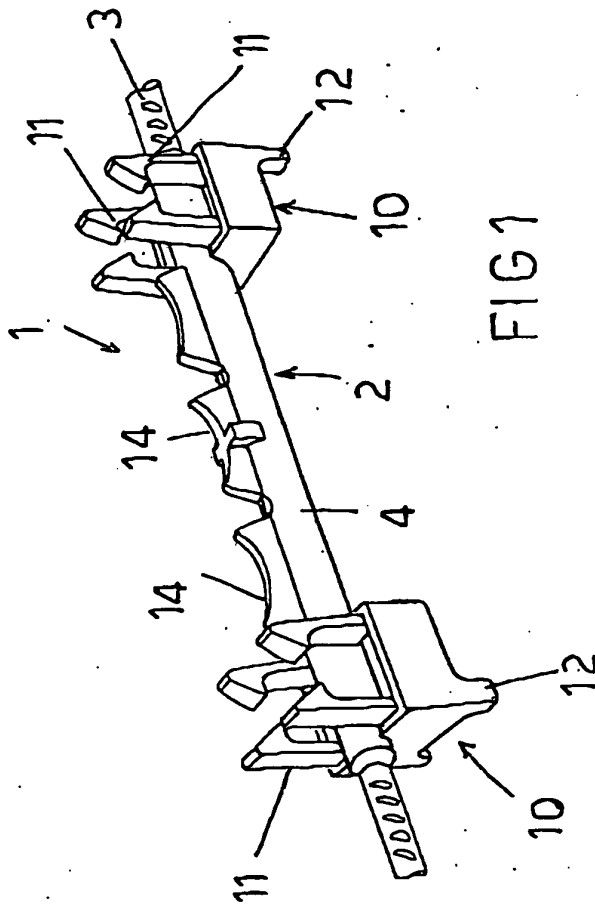


FIG 3

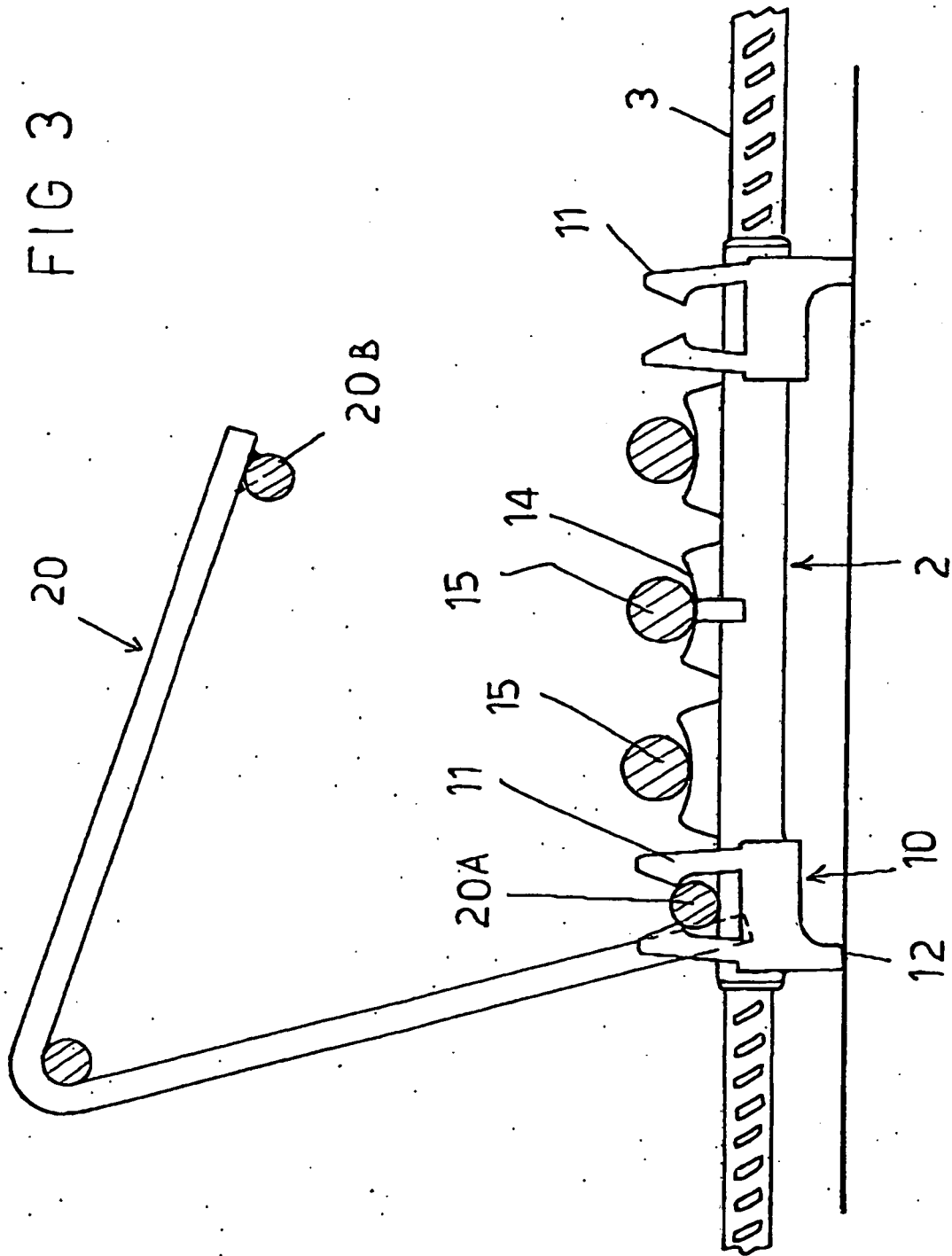
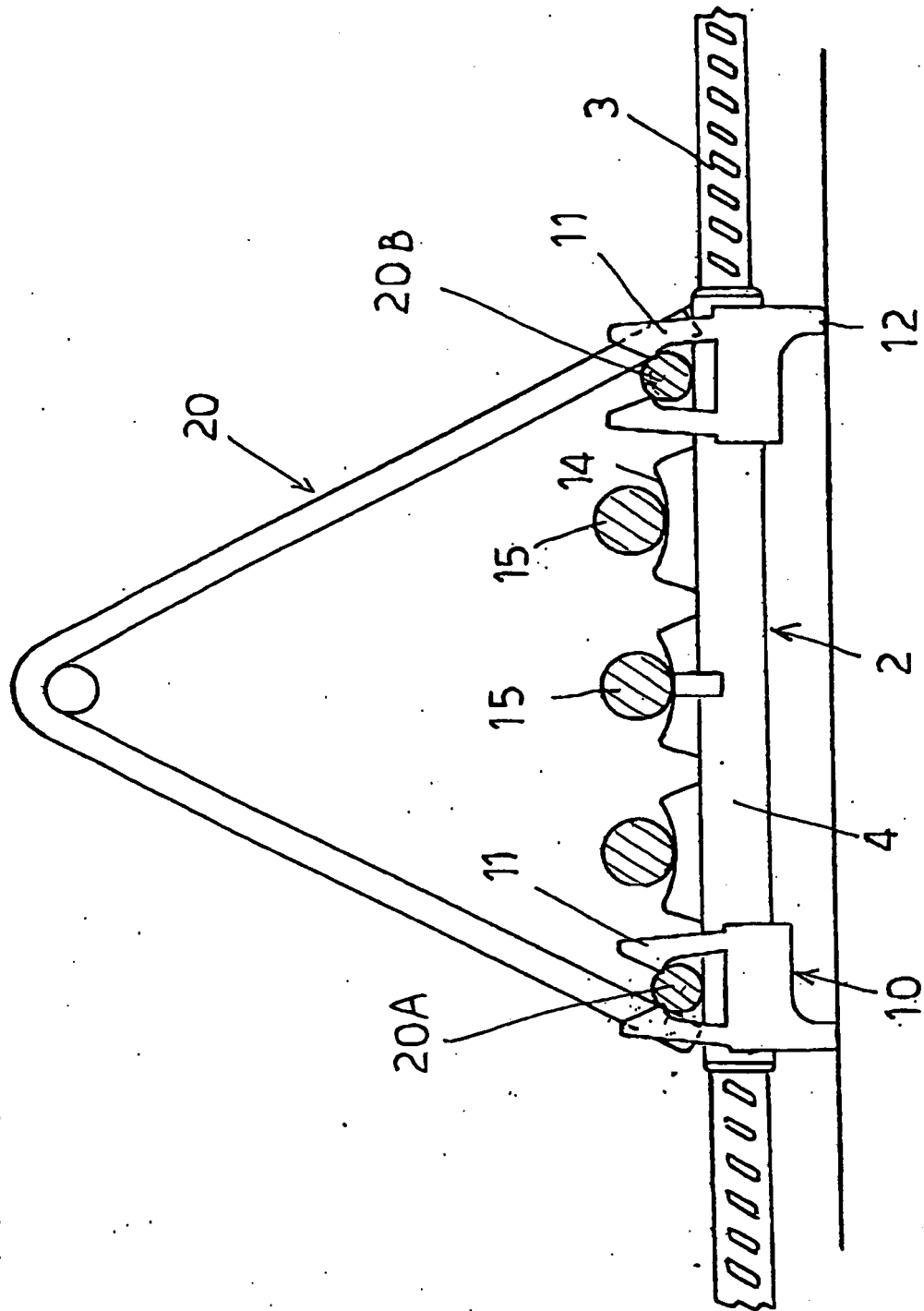
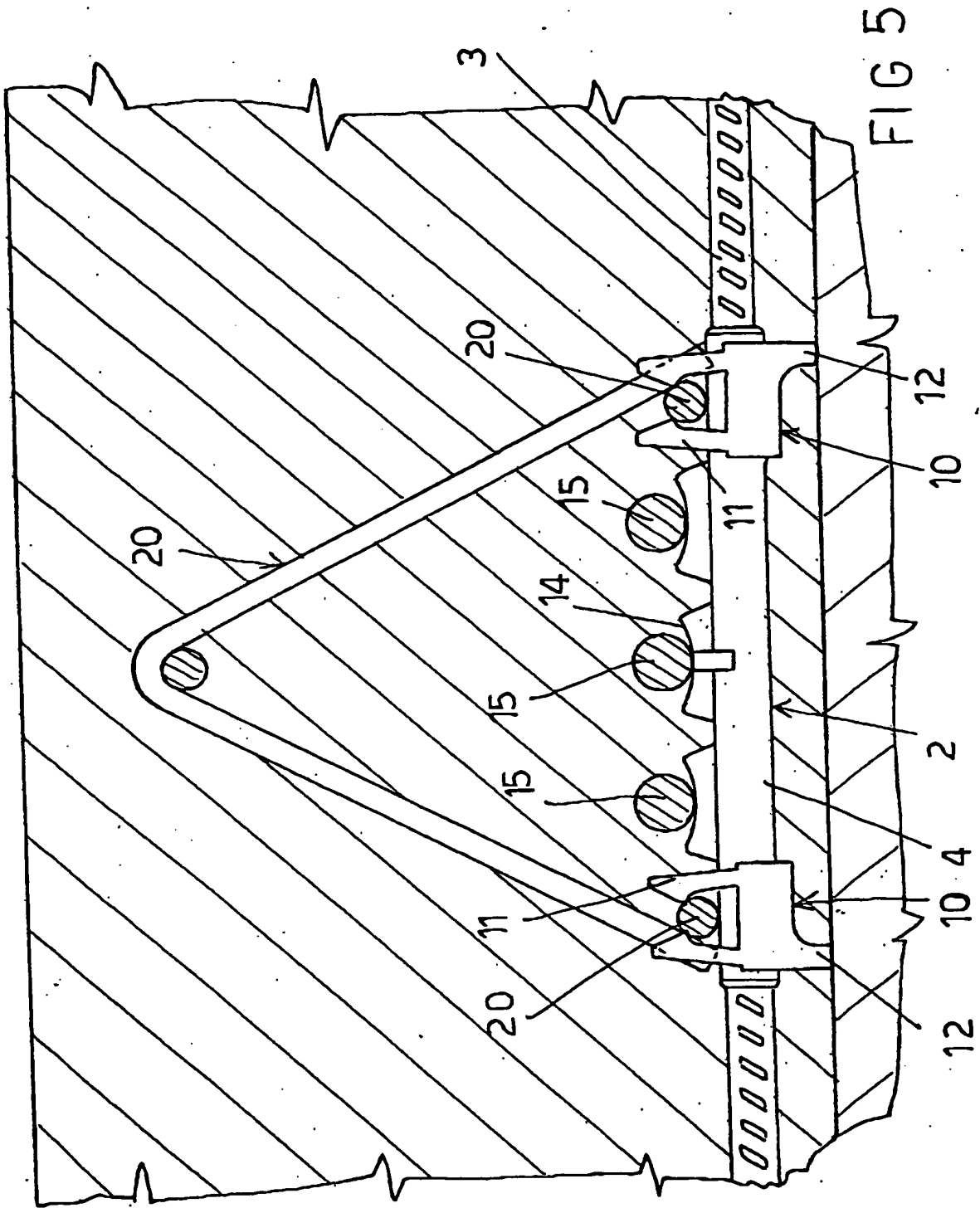


FIG 4





REFERENCES CITED IN THE DESCRIPTION

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