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(54) **Covering element for pits of automotive workshops or the like**

Abdeckelement für Gruben in Autowerkstätten oder dergleichen

Élément de recouvrement pour puits d'ateliers d'automobile ou analogues

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(73) Proprietor: **Truck Training Center Italy S.R.L.
25018 Montichiari (BS) (IT)**

(72) Inventors:
• **Pesci, Giuseppe
25135 Brescia (IT)**
• **Scolari, Giovanni Battista
25045 Castegnato BS (IT)**

(74) Representative: **Modiano, Micaela Nadia et al
Modiano & Partners
Via Meravigli, 16
20123 Milano (IT)**

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Description

[0001] The present invention relates to a covering element for pits of automotive workshops or the like.

[0002] As is known, safety regulations require that, at pits of automotive workshops or the like, a covering element be provided which is constituted substantially by a plurality of bars that are arranged mutually side by side and are made to slide by way of motor means that execute the movement thereof.

[0003] EP1849935 discloses a solution that involves using a shutter covering that is actuated by way of motor means that move the shutter, which is constituted by a plurality of bars that slide within guides that must be positioned on the longitudinal edges.

[0004] At preset intervals, some of the bars have engagement rollers that couple with auxiliary guides so as to enable the gathering of the shutter, with the pit in the open position, thus arranging the bars in laterally adjacent swags as in the preamble of claim 1.

[0005] This implementation solution, which has been shown to be valid under various aspects, has been particularly suitable for use with newly-constructed pits, but its installation has been found to be more complex at existing pits.

[0006] EPA 2258913 discloses a covering element for pits of automotive workshops or the like which comprises a shutter covering made from a plurality of bars that are arranged mutually side by side and are joined by chain links that support pins and have a bracket for supporting the bars; the chain links are further mutually connected by way of link plates.

[0007] In this case too the covering element is slideably guided in longitudinal guides that are arranged at the longitudinal edges of the pit.

[0008] At regular intervals, elongated pins are connected to the bars which support respective supporting rollers, which can also slide in the longitudinal guides.

[0009] In order to execute the gathering of the shutter covering in the gathering region of the pit, at the end of the longitudinal guides which is facing toward the gathering region, there are supporting guides that are capable of engaging only with the sliding rollers.

[0010] In essence, the supporting guides have a narrower width than the longitudinal guides so that they do not offer support for the sliding rollers, and thus they allow the respective bars to fall downwardly so as to allow the gathering of the shutter covering below the closing surface that covers the gathering region.

[0011] Such implementation solution has been found to be extremely practical and effective to use and install on existing pits.

[0012] However, the method of storing the shutter in swags reduces, in some cases excessively, the useful length of the pit.

[0013] The aim of the present invention is to solve the above mentioned problems, by providing a covering element for pits of automotive workshops or the like which

can be easily installed on existing pits.

[0014] Within this aim, an object of the invention is to provide a covering element that requires a limited provision of additional elements that in practice are constituted solely by sliding guides to be positioned at the longitudinal edges of the pit.

[0015] Another object of the present invention is to provide a covering element that, owing to its distinctive implementation characteristics, is capable of offering the widest guarantees of reliability and safety in use.

[0016] Another object of the invention is to make available a covering element that makes it possible for the pit, in the condition for use, to have an increased useful longitudinal extension.

[0017] This aim and these and other objects which will become better apparent hereinafter are achieved by a covering element for pits of automotive workshops or the like according to claim 1.

[0018] Further characteristics and advantages of the invention will become better apparent from the detailed description of a preferred, but not exclusive, embodiment of a covering element for pits of automotive workshops or the like, which is illustrated for the purpose of non-limiting example in the accompanying drawings wherein:

Figure 1 is a perspective view of a pit;

Figure 2 is a cross-sectional view of the pit, taken along a horizontal plane;

Figure 3 and Figure 4 are two perspective views, from two different viewpoints, of the covering element at the gathering region;

Figures 5 to 7 are cross-sectional views of the gathering region during the re-entry sequence of the shutter covering.

[0019] With reference to the figures, the present invention relates to a covering element, generally indicated with the reference numeral 1, for pits 5 of automotive workshops or the like.

[0020] The covering element 1 comprises a shutter covering, generally indicated with the reference numeral 2, which can be arranged in a gathering region 10.

[0021] The shutter covering 2 has a plurality of transverse bars or slats 3 which can slide, conveniently at their ends, along a pair of lateral sliding guides 4.

[0022] The lateral sliding guides 4 are, specifically, arranged at the longitudinal edges of a pit 5.

[0023] At the gathering region 10 and proximate to the ends 4a of the lateral sliding guides 4 respective guide portions 6 are provided that are substantially vertical and open downwardly 6a.

[0024] According to the present invention, the closure element 1 has a pair of gathering guides 7, which are arranged at the lateral sides of the gathering region 10 below the open ends 6a of the substantially vertical guide portions.

[0025] The gathering guides 7 extend substantially parallel to the longitudinal ends of the lateral sliding

guides 4.

[0026] The shutter covering 2 further comprises a plurality of gathering bodies 8, which are associated with some of the sliding bars 3 and are mutually spaced apart along the longitudinal extension of the shutter covering 2.

[0027] The gathering guides 7 engage only with the gathering bodies 8, with the bars 3 that are not associated with gathering bodies 8 being arrangeable in laterally adjacent swags.

[0028] The bars 3 that are not associated with gathering bodies 8 have supporting bodies 9 for sliding along the lateral sliding guides 4.

[0029] At the ends 7a of the gathering guides 7 which are facing toward the respective vertical guide portion 6, there is a section of guiding portion folded upwardly in order to engage with the gathering bodies 8 during the step of entry of the shutter covering 2.

[0030] The bars 3 are connected, at the respective ends, to pins 9a and to elongated pins 8a, which support, respectively, the sliding bodies 9 and the gathering bodies 8.

[0031] The sliding bodies 9 and the gathering bodies 8 comprise, respectively, sliding rollers and gathering rollers.

[0032] With reference to the embodiment shown in the figures, the covering element 1 comprises motor means 12 for the movement of the shutter covering 2.

[0033] Conveniently, as shown in Figures 5-7, each gathering guide 7 has a sub-horizontal progression with the lowest level at the opposite end from the vertical guide portion 6.

[0034] Preferably, the longitudinal ends of the bars 3 are connected to chain link elements.

[0035] By way of example, the motor means 12 comprise a motor that actuates a pair of pinions 11 that mesh between the rollers of the chain links.

[0036] According to a particularly important aspect of the present invention, the distance between the free edges of the mutually opposite lateral sliding guides 4 is less than the distance between the free edges of the mutually opposite gathering guides 7.

[0037] Conveniently, the gathering bodies 8 are positioned at regular intervals.

[0038] The shutter covering 2 comprises chain links and link plates that mutually join the pins 9a and the elongated pins 8a for a connection in the manner of a chain.

[0039] In essence, the gathering guides 7 have a narrower width than that of the longitudinal sliding guides 4, such that they do not offer support to the sliding rollers 9, such that the respective bars 3 fall downwardly when they are brought to the gathering region 10 and, in particular, at the gathering guides 7.

[0040] The gathering toward the end of the gathering guides 7 arranged at the opposite end with respect to the substantially vertical portion 6 is facilitated by the inclination of the gathering guides 7 themselves.

[0041] In substance, by having gathering rollers 8 at regular intervals which support the respective bar 3, then

when the shutter covering 2 is pushed toward the gathering region 10, only some of the bars 3 remain held in the gathering guides 7 while the other bars 3 fall freely by gravity, arranging themselves in swags which are arranged mutually side by side, allowing an easy gathering of shutter covers 2 including those of considerable length.

[0042] In substance, therefore, the particular structure with gathering rollers 8 that are positioned with a broader width than that of the sliding rollers 9 ensures that arranging the gathering guides 7 at a lower height than the extension of the longitudinal sliding guides 4 which engage only with the gathering rollers 8 automatically leads to the free descent of the bars 3 that are provided with sliding rollers 9 at the gathering region 10.

[0043] From the foregoing explanation, it can be seen that the invention fully achieves the set aim and objects.

[0044] In particular, specifying that the gathering guides 7 are arranged below the end portions of one of the supporting guides 4 has made it possible to increase the useful length of the pit 5 thus making it possible, among other things, to have the motor means 12 positioned above the gathering guides 7.

[0045] The embodiment that is the subject matter of the present invention further makes it possible to provide the individual components such as the sliding guides 4, the gathering guides 7, the substantially vertical portions 6 and the assembly that supports the motor means 12 and the toothed racks 11 in a modular manner, associating them, without any difficulty, with pits 5, including existing pits, of dimensions, both transverse and longitudinal, that are mutually different.

[0046] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0047] Moreover, all the details may be substituted by other, technically equivalent according to the scope of the appended claims.

[0048] In practice the materials employed, provided they are compatible with the specific use, and the contingent dimensions and shapes, may be any according to requirements.

[0049] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A covering element (1) for pits of automotive workshops or the like, which comprises a shutter covering (2) that can be arranged in a gathering region (10) and which has a plurality of bars (3) that can slide along a pair of lateral sliding guides (4) that are arranged at the longitudinal edges of a pit (5), at said

gathering region (10) and proximate to the ends (4a) of said lateral sliding guides (4) there being respective guide portions (6) that are substantially vertical and open downwardly, further comprising a pair of gathering guides (7) that are arranged at the lateral sides of said gathering region (10) below the open ends (6a) of said substantially vertical guides (6) and which extend substantially parallel to the longitudinal ends of said lateral sliding guides (4), there being a plurality of gathering bodies (8) that are associated with some of said sliding bars (3) which are mutually spaced apart along the longitudinal extension of said shutter covering (2), said gathering guides (7) being capable of being engaged only by said gathering bodies (8), with the bars (3) that are not associated with said gathering bodies (8) being arrangeable in laterally adjacent swags, the bars (3) that are not associated with said gathering bodies (8) having sliding bodies (9) for the sliding of said bars (3) along said lateral sliding guides (4), at the ends (7a) of said gathering guides (7) which are facing toward the respective vertical guide portion (6), there being a section of guiding portion folded upwardly in order to engage with said gathering bodies (8) during the step of entry of the shutter covering (2), **characterized in that** the cover element further comprising, connected to said bars (3), pins (9a) and elongated pins (8a) which support, respectively, said sliding bodies (9) and said gathering bodies (8), said sliding bodies (9) and said gathering bodies (8) comprising, respectively, sliding rollers and gathering rollers, the distance between the free edges of said mutually opposite lateral sliding guides (4) being less than the distance between the free edges of said mutually opposite gathering guides (7), and further comprising chain links and link plates that mutually join said pins (9a) and said elongated pins (8a) for a connection in the manner of a chain.

2. The covering element (1) according to claim 1, **characterized in that** it comprises motor means (12) for moving said shutter covering (2).
3. The covering element (1) according to one or more of the preceding claims, **characterized in that** said gathering guide (7) has a sub-horizontal progression with the lowest level at the opposite end from said vertical guide portion (6).
4. The covering element (1) according to claim 2, **characterized in that** said motor means (12) comprise a motor that actuates a pair of pinions (11) that enmesh between the rollers of said chain links.
5. The covering element (1) according to one or more of the preceding claims, **characterized in that** said gathering bodies (8) are positioned at regular intervals.

Patentansprüche

1. Ein Abdeckelement (1) für Gruben von Autowerkstätten oder dergleichen, das eine Rolladenabdeckung (2) umfasst, die in einem Sammelbereich (10) angeordnet werden kann und die eine Vielzahl von Leisten (3) hat, welche entlang einem Paar seitlicher Gleitführungen (4) gleiten können, die an den Längskanten einer Grube (5) angeordnet sind, wobei sich in dem Sammelbereich (10) und nahe den Enden (4a) der seitlichen Gleitführungen (4) entsprechende Führungsabschnitte (6) befinden, die im Wesentlichen vertikal und nach unten offen sind, weiter ein Paar von Sammelführungen (7) umfassend, die an den lateralen Seiten des Sammelbereichs (10) unterhalb der offenen Enden (6a) der im Wesentlichen vertikalen Führungen (6) angeordnet sind und sich im Wesentlichen parallel zu den Längsenden der seitlichen Gleitführungen (4) erstrecken, wobei eine Vielzahl von Sammelkörpern (8) vorhanden ist, die mit einigen der gleitenden Leisten (3) verbunden sind, welche entlang der Längsausdehnung der Rolladenabdeckung (2) voneinander beabstandet sind, wobei die Sammelführungen (7) nur von den Sammelkörpern (8) in Eingriff gebracht werden können, wobei die Leisten (3), die nicht mit den Sammelkörpern (8) verbunden sind, in seitlich angrenzenden Gesenken angeordnet werden können und die Leisten (3), die nicht mit den Sammelkörpern (8) verbunden sind, Gleitkörper (9) zum Gleiten der Leisten (3) entlang den seitlichen Gleitführungen (4) haben, wobei sich an den Enden (7a) der Sammelführungen (7), die dem entsprechenden vertikalen Führungsabschnitt (6) zugewandt sind, ein Abschnitt eines Führungsabschnitts befindet, der nach oben geknickt ist, um während des Schritts des Eintritts der Rolladenabdeckung (2) in die Sammelkörper (8) einzugreifen, **dadurch gekennzeichnet, dass** das Abdeckelement weiter, verbunden mit den Leisten (3), Stifte (9a) und verlängerte Stifte (8a) umfasst, welche die Gleitkörper (9) und die Sammelkörper (8) tragen, wobei die Gleitkörper (9) und die Sammelkörper (8) Gleitrollen beziehungsweise Sammelrollen umfassen und der Abstand zwischen den freien Kanten der einander gegenüberliegenden seitlichen Gleitführungen (4) kleiner ist als der Abstand zwischen den freien Kanten der einander gegenüberliegenden Sammelführungen (7); und wobei sie weiter Kettenglieder und Kettenlaschen umfassen, welche die Stifte (9a) und die verlängerten Stifte (8a) zum Zwecke einer kettenartigen Verbindung miteinander verknüpfen.
2. Das Abdeckelement (1) gemäß Anspruch 1, **dadurch gekennzeichnet, dass** es Motormittel (12) zum Bewegen der Rolladenabdeckung (2) umfasst.
3. Das Abdeckelement (1) gemäß einem oder mehre-

ren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die Sammelführung (7) eine subhorizontale Erstreckung hat mit einem untersten Niveau an dem gegenüberliegenden Ende des vertikalen Führungsabschnitts (6).

4. Das Abdeckelement (1) gemäß Anspruch 2, **dadurch gekennzeichnet, dass** die Motormittel (12) einen Motor umfassen, der ein Paar von Ritzeln (11) antreibt, welche zwischen den Rollen der Kettenglieder eingreifen.
5. Das Abdeckelement (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die Sammelkörper (8) in regelmäßigen Abständen positioniert sind.

Revendications

1. Élément de couverture (1) pour fosses d'ateliers automobiles, ou analogues, qui comprend une couverture d'obturation (2) qui peut être disposée dans une région de ramassage (10) et qui comporte une pluralité de barres (3) qui peuvent coulisser le long d'une paire de guides de coulissement latéraux (4) qui sont disposés au niveau des bords longitudinaux d'une fosse (5), au niveau de ladite région de ramassage (10) et à proximité des extrémités (4a) desdits guides de coulissement latéraux (4), se trouvant des parties de guide respectives (6) qui sont sensiblement verticales et ouvertes vers le bas, comprenant de plus une paire de guides de ramassage (7) qui sont disposés sur les côtés latéraux de ladite région de ramassage (10) en dessous des extrémités ouvertes (6a) desdits guides sensiblement verticaux (6) et qui s'étendent sensiblement parallèlement aux extrémités longitudinales desdits guides de coulissement latéraux (4), et se trouvant une pluralité de corps de ramassage (8) qui sont associés à certaines desdites barres coulissantes (3) qui sont mutuellement espacées le long de l'étendue longitudinale de ladite couverture d'obturation (2), lesdits guides de ramassage (7) étant susceptibles de venir en prise uniquement avec lesdits corps de ramassage (8), les barres (3) qui ne sont pas associées auxdits corps de ramassage (8) pouvant être disposées dans des arcs latéralement adjacents, les barres (3) qui ne sont pas associées auxdits corps de ramassage (8) comportant des corps de coulissement (9) pour le coulissement desdites barres (3) le long desdits guides de coulissement latéraux (4), et, aux extrémités (7a) desdits guides de ramassage (7) qui sont dirigées vers la partie de guide verticale respective (6), se trouvant une section de partie de guidage pliée vers de haut de façon à venir en prise avec lesdits corps de ramassage (8) lors de l'étape d'entrée de la couverture d'obturation (2), **caracté-**

risé en ce que l'élément de couverture comprend de plus, reliées auxdites barres (3), des broches (9a) et des broches allongées (8a) qui supportent, respectivement, lesdits corps de coulissement (9) et lesdits corps de ramassage (8), lesdits corps de coulissement (9) et lesdits corps de ramassage (8) comprenant, respectivement, des rouleaux de coulissement et des rouleaux de ramassage, la distance entre les bords libres desdits guides de coulissement latéraux mutuellement opposés (4) étant inférieure à la distance entre les bords libres desdits guides de ramassage mutuellement opposés (7), et comprenant de plus des maillons de chaîne et des plaques de maillon qui sont mutuellement reliés auxdites broches (9a) et auxdites broches allongées (8a) pour une liaison à la manière d'une chaîne.

2. Élément de couverture (1) selon la revendication 1, **caractérisé en ce qu'il** comprend des moyens formant moteur (12) pour déplacer ladite couverture d'obturation (2).
3. Élément de couverture (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit guide de ramassage (7) a une progression sous-horizontale avec le niveau le plus bas à l'extrémité opposée vis-à-vis de ladite partie de guide verticale (6).
4. Élément de couverture (1) selon la revendication 2, **caractérisé en ce que** lesdits moyens formant moteur (12) comprennent un moteur qui actionne une paire de pignons (11) qui s'engrènent entre les rouleaux desdits maillons de chaîne.
5. Élément de couverture (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** lesdits corps de ramassage (8) sont positionnés à intervalles réguliers.

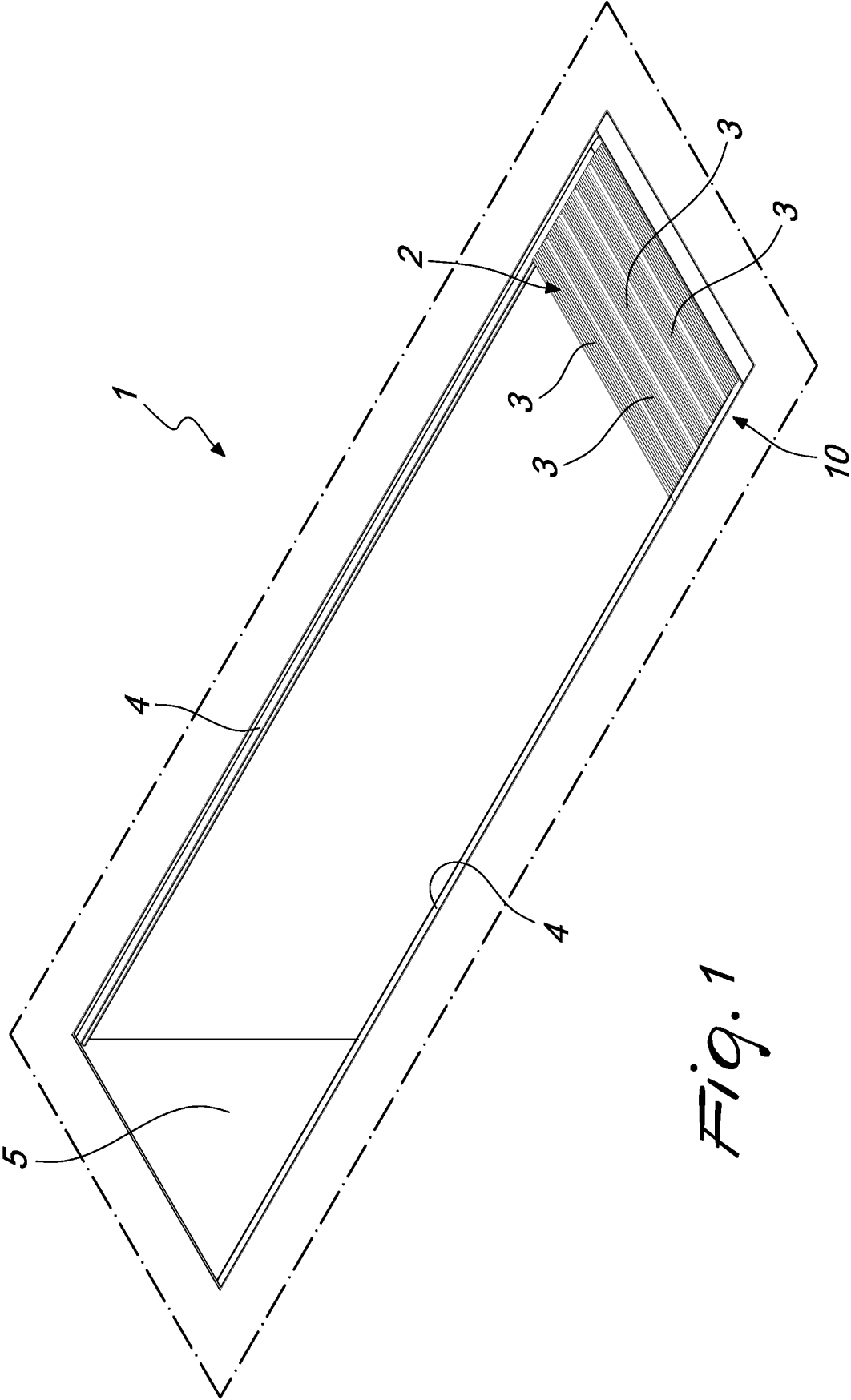
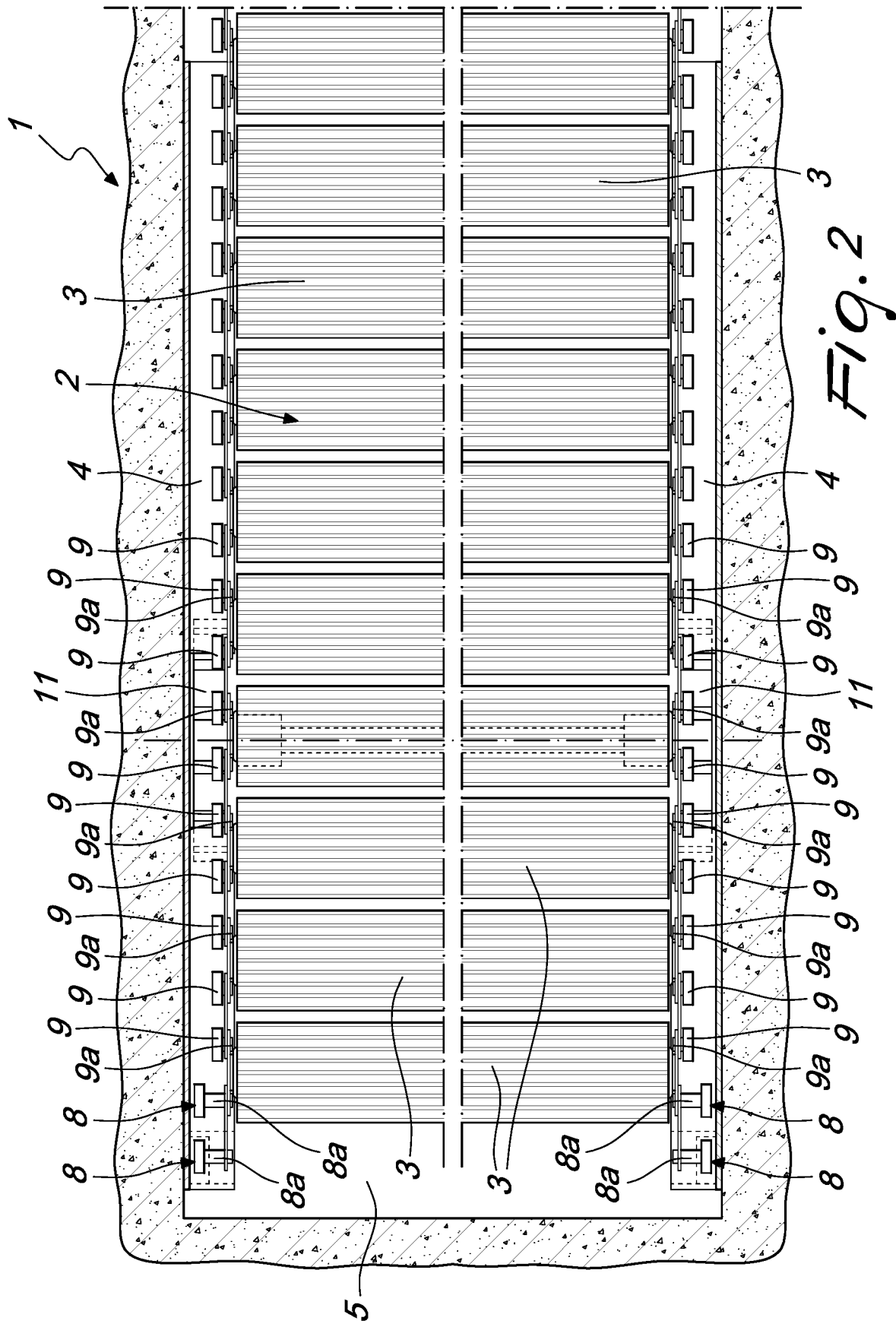


Fig. 1



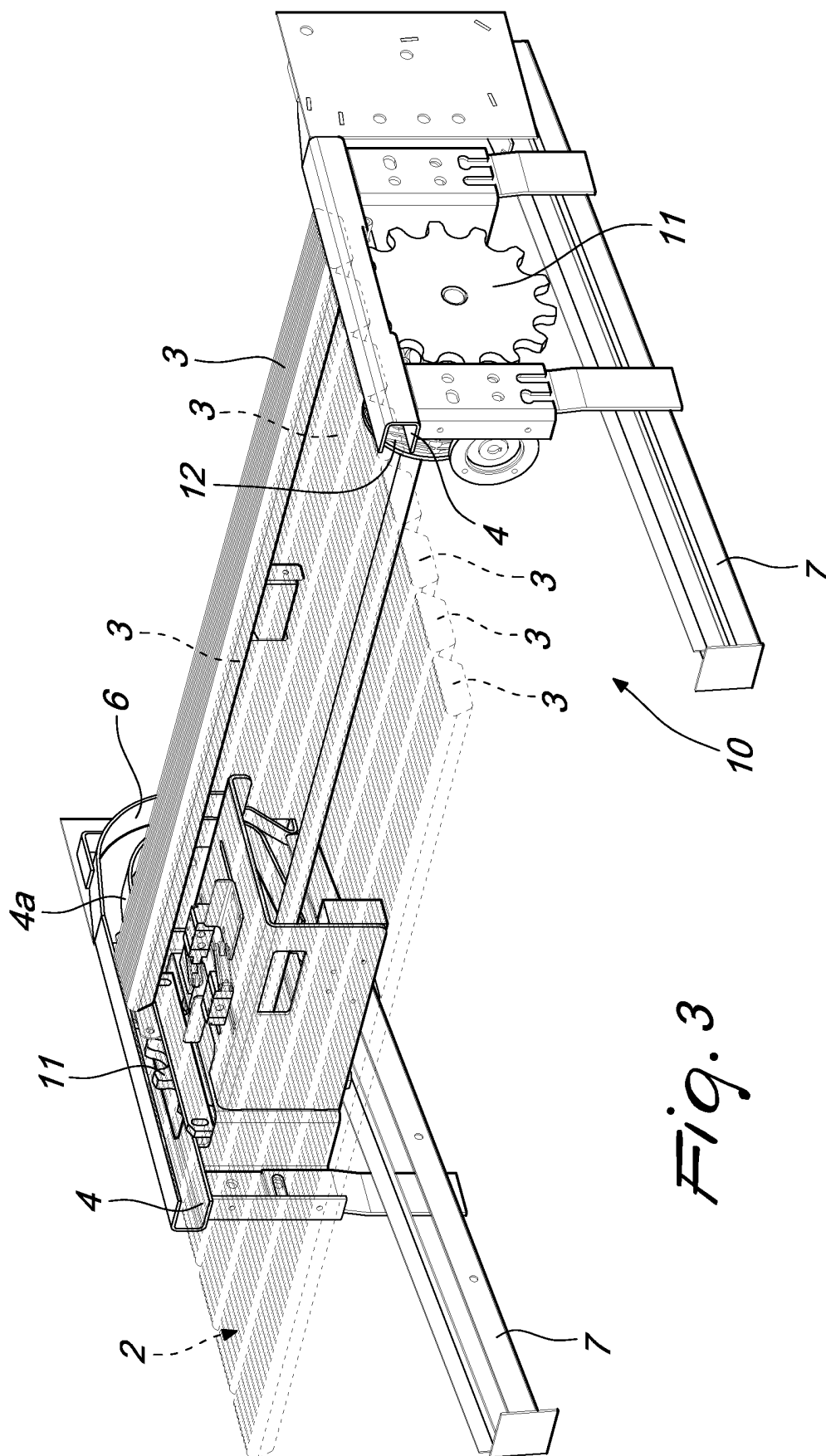


Fig. 3

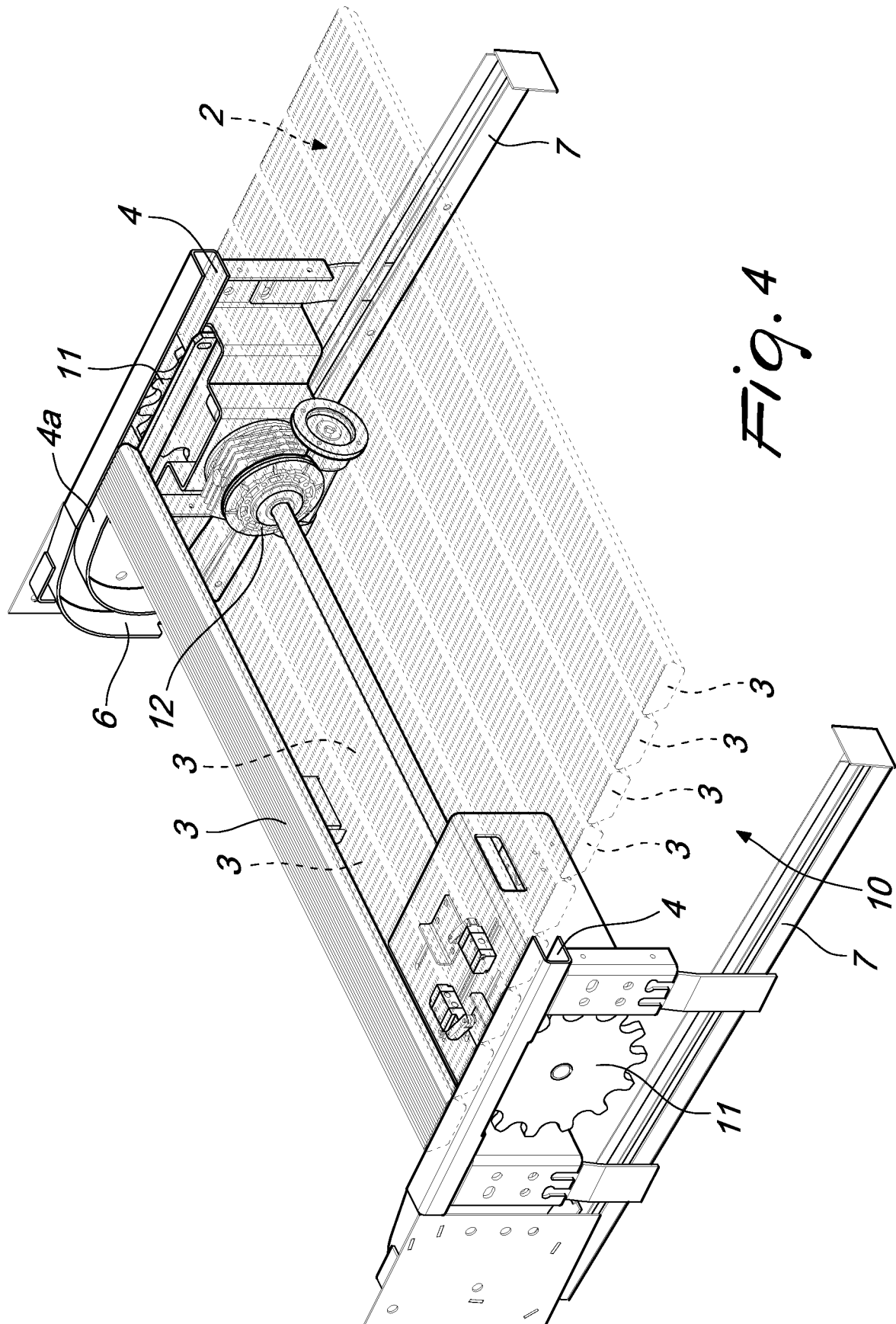


Fig. 4

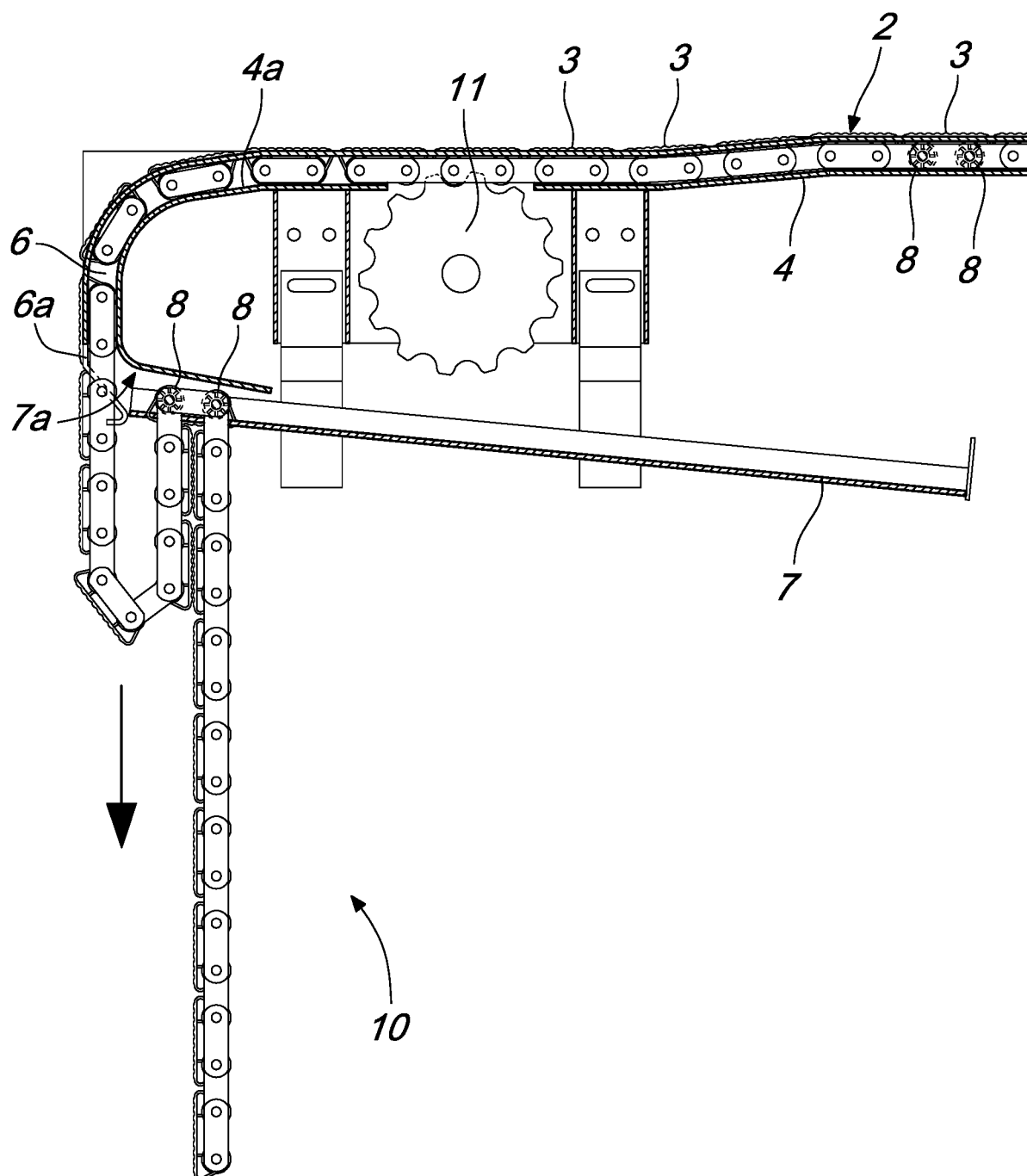


Fig. 5

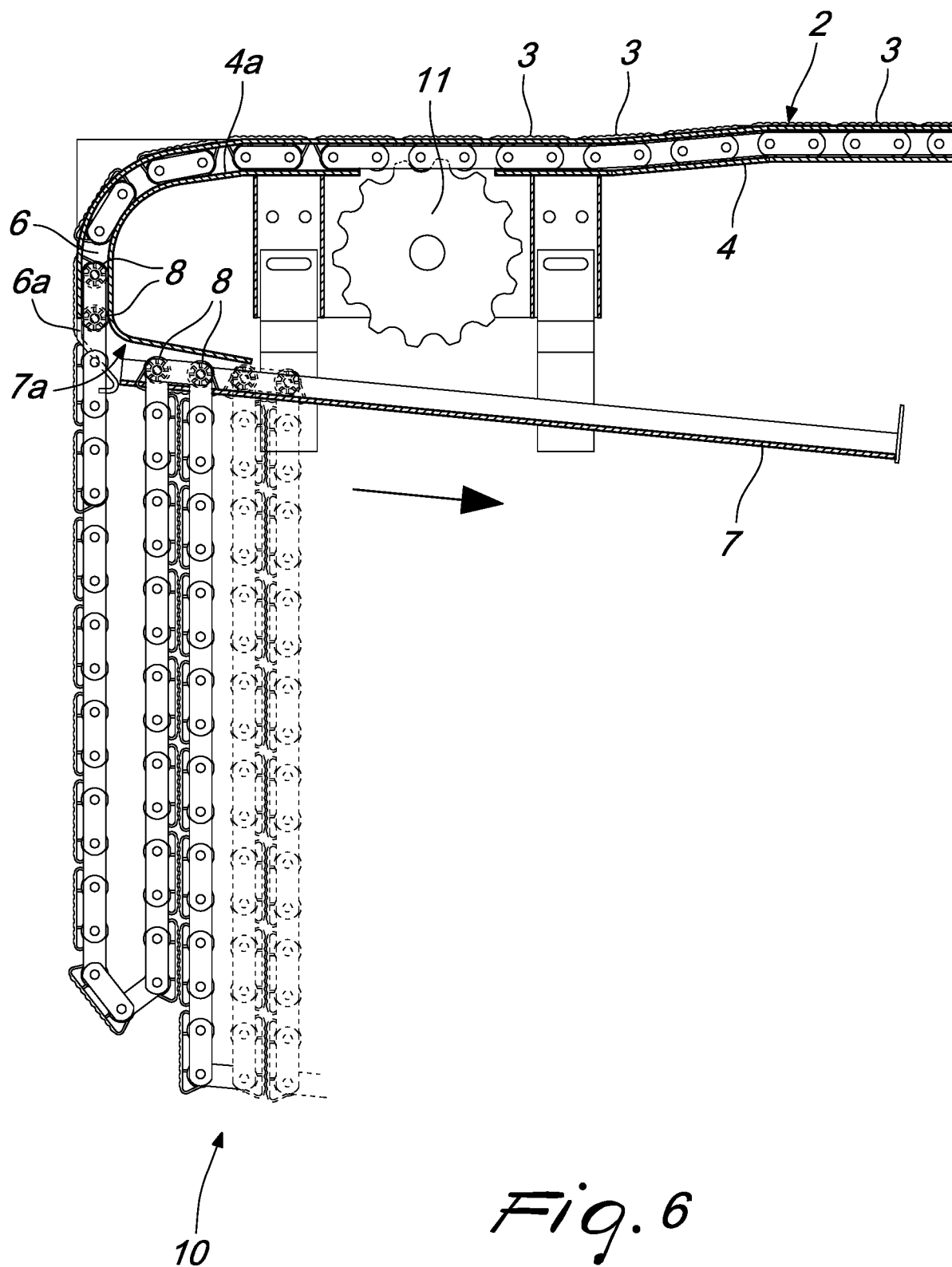


Fig. 6

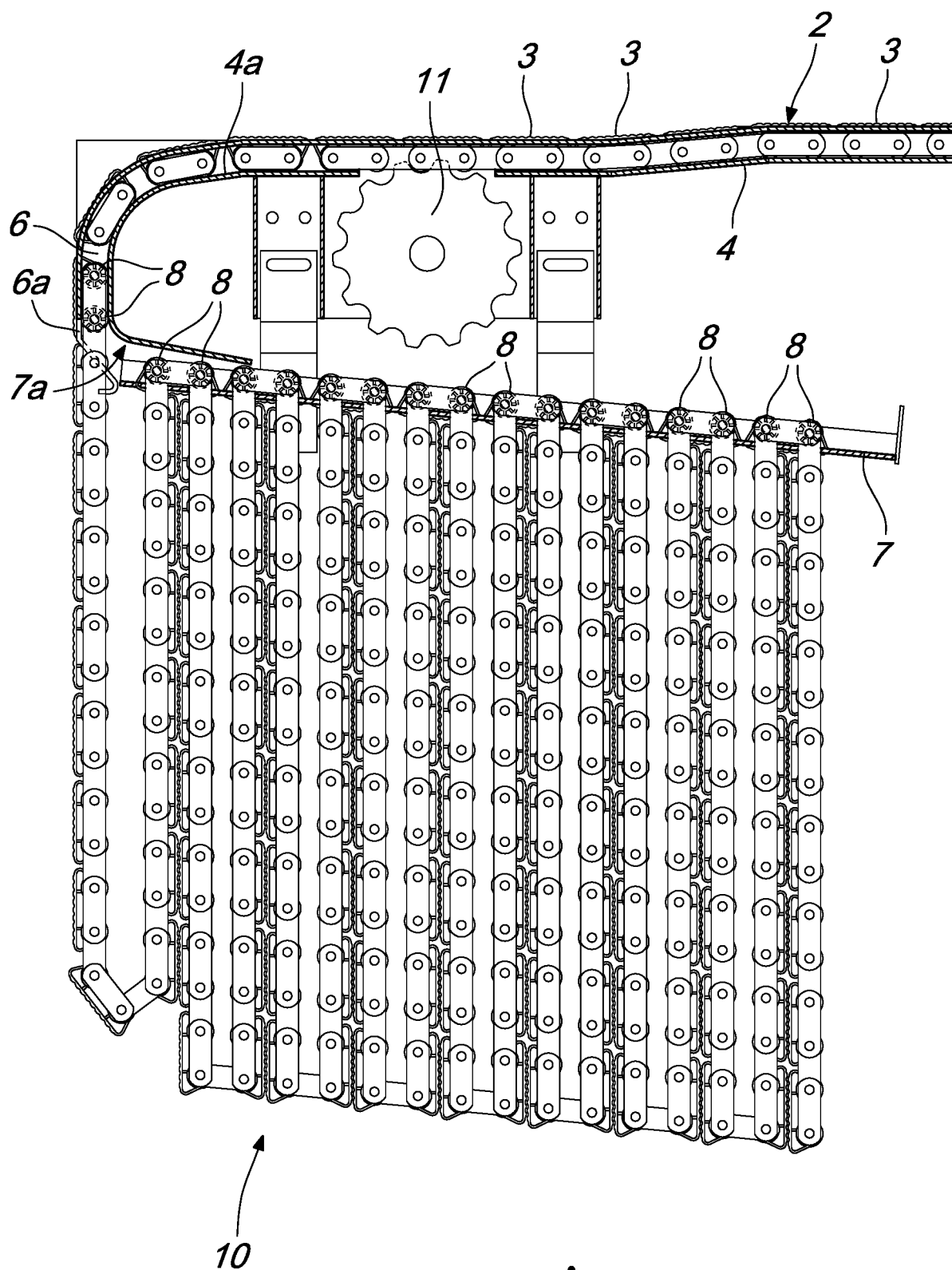


Fig. 7

REFERENCES CITED IN THE DESCRIPTION

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