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(54) **Covering element particularly for pits of workshops and the like**

(57) Covering element, particularly for pits of workshops and the like, comprising a shutter-like covering (1) constituted by a plurality of bars (10) which can slide with respect to the longitudinal edges of a pit (2) and the like and which be placed in an accumulation region (40), the covering (1) further comprising a plurality of sliding rollers

(30) which are associated with some of the bars (10) and, at regular intervals, supporting rollers (31) which are associated with the remaining bars (10), at the accumulation region (40), further supporting guides (35) being provided which can be engaged exclusively by the supporting rollers (31) with the bars provided with the sliding rollers (30) arrangeable in side-by-side folds.

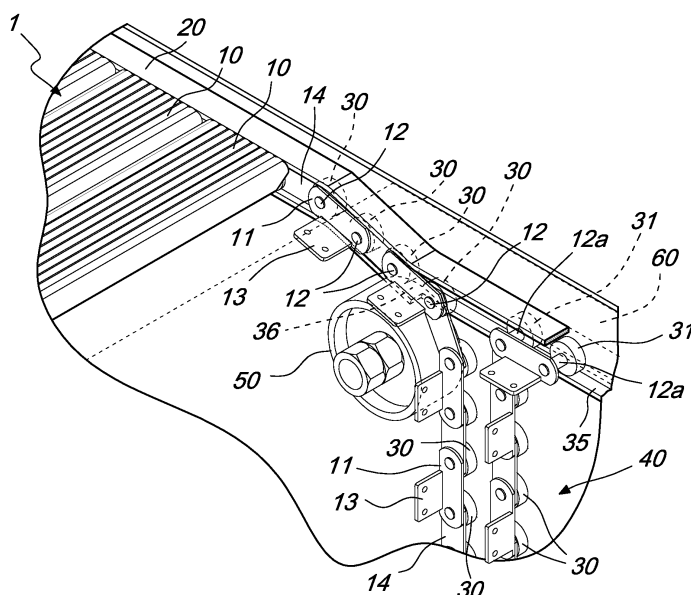


Fig. 5

Description

[0001] The present invention relates to a covering element, particularly for pits of workshops and the like.

[0002] Nowadays safety regulations require that, in pits of workshops and the like, a covering element be provided that is substantially constituted by a plurality of bars arranged side by side that are made to slide by drive means that perform their movement.

[0003] In prior EPA 07007697.1 by the same applicant, which is considered to be included herein for the purposes of reference, a solution is disclosed that makes use of a shutter-like covering that is actuated by way of drive means that move the shutter proper, which is constituted by a plurality of bars that slide inside guides that must be placed on the longitudinal edges.

[0004] At pre-established intervals, some of the bars have engagement rollers that couple with auxiliary guides in such a way as to enable the shutter to accumulate, with the pit in the open position, by arranging the bars in side-by-side folds.

[0005] This embodiment, which has been shown to be highly effective from a number of different aspects, is particularly adapted to be used with a newly-constructed pit, but its installation on existing pits is more complex.

[0006] The aim that the invention is to solve the aforementioned problems, by providing a covering element, particularly for pits of workshops and the like, that makes it possible to perform the movement of the shutter-like covering without the need to resort to drive means, but simply by exercising manual force.

[0007] Within this aim, an object of the invention is to provide a covering element that is particularly adapted to be installed on existing pits, requiring a limited supply of additional elements which in practice are constituted solely by sliding guides to be placed on the longitudinal edges of the pit.

[0008] Another aim of the present invention is to provide a covering element that, thanks to its characteristic implementation features, is capable of offering the widest guarantees of reliability and safety in use.

[0009] A further object of the present invention is to provide a covering element, particularly for pits of workshops and the like, that can be easily made from elements and materials that are easily sourced on the market and which, moreover, is competitive also from a merely economic viewpoint.

[0010] The aim and these and other objects that will become better apparent hereinafter, are achieved by a covering element for pits of workshops and the like, comprising a shutter-like covering constituted by a plurality of bars, which can slide with respect to the longitudinal edges of a pit and the like and which can be placed in an accumulation region, **characterized in that** it comprises a plurality of sliding rollers which are associated with some of said bars and, at regular intervals, supporting rollers which are associated with the remaining said bars, at such accumulation region there being further support-

ing guides which can be engaged exclusively by said supporting rollers with the bars provided with said sliding rollers arrangeable in side-by-side folds.

[0011] Further characteristics and advantages of the invention will become better apparent from the description of a preferred, but not exclusive, embodiment of the covering element, particularly for pits of machine shops and the like, illustrated by way of a non-limiting example in the accompanying drawings wherein:

Figure 1 is a schematic perspective view of the covering element applied to a pit and seen in the open position;

Figure 2 shows the accumulation region of the covering element, seen in a sectional view taken along a plane that is substantially vertical;

Figure 3 schematically shows, in a plan view, a portion of the covering element;

Figure 4 shows, in a perspective view, the first portion of the accumulation region with the supporting guides of the supporting rollers;

Figure 5 shows a detail of figure 4 with the positioning of the bars in folds;

Figure 6 shows, in a sectional view taken along a vertical plane, the initial phase of the covering element in the accumulation region;

Figure 7 shows an element formed in a fold.

[0012] With reference to the figures, the covering element, particularly for pits of workshops and the like, which is indicated globally with the reference numeral 1, can be used for covering a pit and the like, indicated generally with 2, which is typically used in workshops and the like.

[0013] The covering element 1 is constituted by a shutter-like cover provided by a plurality of bars 10 that are arranged side by side with each other and which are joined by chain links 11 that support pivots 12 and which have a shelf 13 to support the bars 10. Complementary links 14 are further provided to join the pivots 12.

[0014] The covering element 1 is guided by sliding in longitudinal guides 20 which are placed at the longitudinal edges of the pit.

[0015] To facilitate the sliding, sliding rollers 30, which slide in the guides 20, are connected to the pivots 12 of some of such bars.

[0016] A distinctive feature is constituted by the fact that elongated pivots, indicated with 12a, are connected to the bars at regular intervals. Such elongated pivots support supporting rollers 31, which can also slide in the longitudinal guides 20.

[0017] To perform the accumulation of the shutter-like covering, in the accumulation region 40 of the pit 2, at the end of the longitudinal guides 20 facing towards the accumulation region 40, support guides are provided, indicated with 35, which can engage exclusively with the sliding rollers 30.

[0018] In practice, the support guides 35 have a width that is smaller than that of the longitudinal guides 20 i.e.

the distance between the free edges of the mutually opposite supporting guides 35 is greater than the distance between the free edges of the mutually opposite sliding guides 20, and therefore they do not provide a support to the sliding rollers 30, thereby the associated bars fall downward and are assisted in such operation by the presence of a guiding roller 50 that is placed at the exit of a connecting guide 36 that is inclined slightly downward, so as to allow the accumulation of the shutter-like covering below the closing surface 60 that covers the accumulation region.

[0019] Substantially, by having supporting rollers 31 at regular intervals which each support the associated bar, when the shutter-like covering is pushed toward the accumulation region, only some of the bars remain held in the support guides arranged above, while the other bars fall freely owing to gravity, arranging themselves in folds side-by-side, thus enabling a smooth accumulation of shutter-like coverings, even if of considerable length, without having to exert particular effort.

[0020] Substantially, the particular structure that provides supporting rollers that are placed with a width that is greater than that of the sliding rollers ensures that, by providing support guides that engage exclusively with the supporting rollers, the bars fitted with sliding rollers automatically and freely descend into the accumulation region.

[0021] The guiding roller 50, which is idle, merely functions to provide a connection that facilitates the positioning of the bars both in the accumulation phase and in the extraction phase.

[0022] From the foregoing it can be seen how the invention achieves the intended aim and objects, and in particular attention is drawn to the fact that a covering element is provided that, in addition to being particularly functional and practical, is also capable of being actuated manually without requiring the exertion of considerable effort, because all the bars are supported by rollers and the bars provided with supporting rollers engage with support guides that are substantially on the extension of the longitudinal bars, and therefore extreme curvatures are not created which could produce contrast in the movement phase.

[0023] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0024] Moreover, all the details may be substituted by other, technically equivalent elements.

[0025] In practice the materials employed, provided they are compatible with the specific use, as well as the dimensions and the contingent shapes, may be any according to requirements.

[0026] The disclosures in Italian Patent Application No. MI2009A001843 from which this application claims priority are incorporated herein by reference.

[0027] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increas-

ing 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 for pits of workshops and the like, comprising a shutter-like covering (1) constituted by a plurality of bars (10), which can slide with respect to the longitudinal edges of a pit (2) and the like and can be placed in an accumulation region (40), **characterized in that** it comprises a plurality of sliding rollers (30), which are associated with some of said bars (10) and, at regular intervals, supporting rollers (31) which are associated with the remaining said bars (10), at said accumulation region (40) there being further supporting guides (35) which can be engaged exclusively by said supporting rollers (31) with the bars (10) provided with said sliding rollers (30) arrangeable in side-by-side folds.
2. The covering element according to claim 1, **characterized in that** it comprises pivots (12) and elongated pivots (12a), which are connected to said bars (10) and respectively support said sliding rollers (30) and said supporting rollers (31).
3. The covering element according to the preceding claims, **characterized in that** it comprises longitudinal guides (20), which can be fixed at the longitudinal edges of said pit (2) and the like.
4. The covering element according to one or more of the preceding claims, **characterized in that** the distance between the free edges of said mutually opposite supporting guides (35) is greater than the distance of the free edges of said mutually opposite longitudinal guides (20).
5. The covering element according to one or more of the preceding claims, **characterized in that** it comprises a portion of a connecting guide (36), which is interposed between said sliding guides (20) and said supporting guides (35).
6. The covering element according to one or more of the preceding claims, **characterized in that** it comprises, at the free end of each one of said connecting guides (36), a guiding roller (50) which can engage said sliding rollers (30).
7. The covering element according to one or more of the preceding claims, **characterized in that** said supporting rollers (31) are arranged at regular intervals.

8. The covering element according to one or more of the preceding claims, **characterized in that** it comprises links (11) and complementary links (14) which mutually join said pivots (12) and said elongated pivots (12a) for a chain-like connection.

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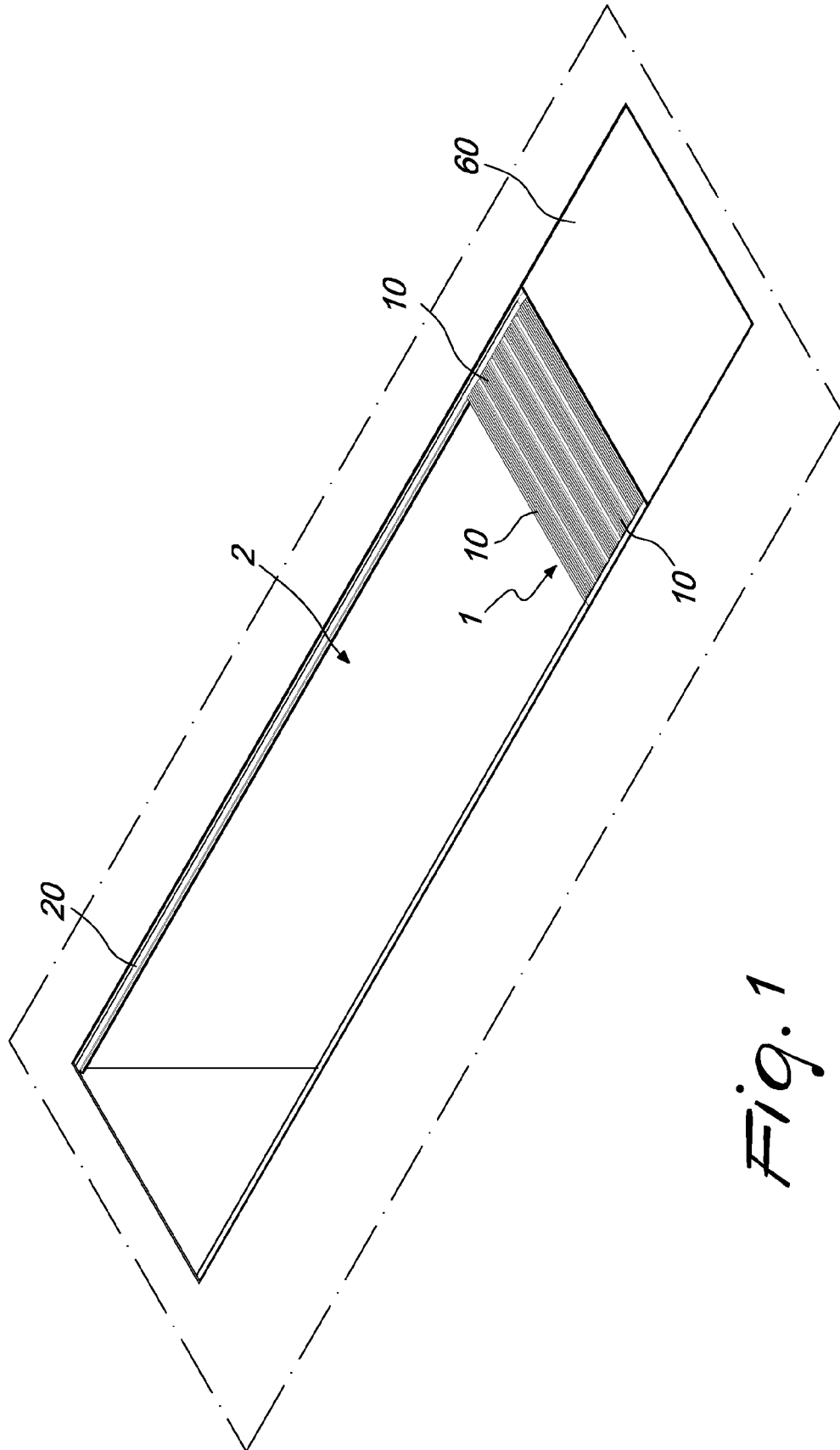


Fig. 1

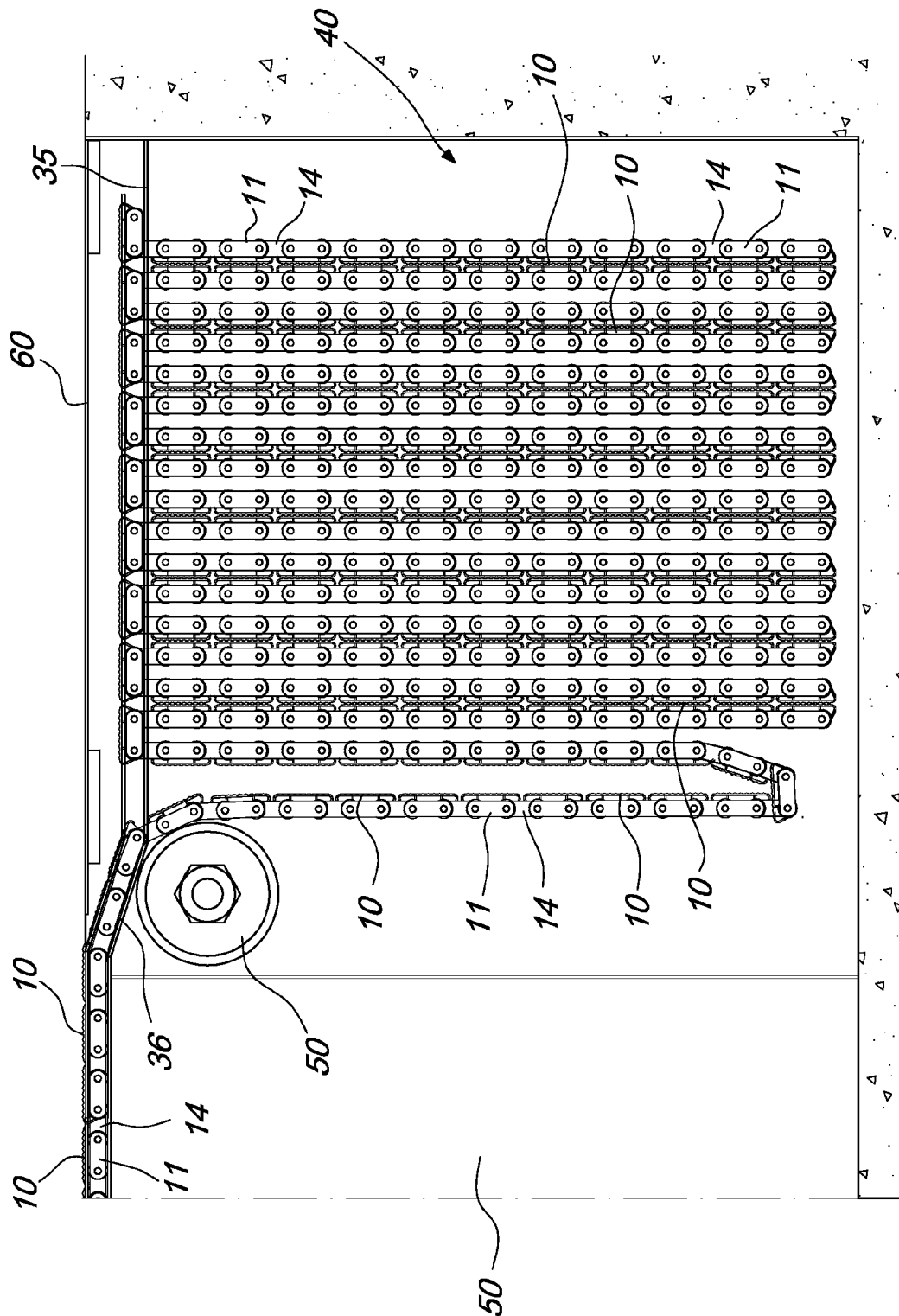


Fig. 2

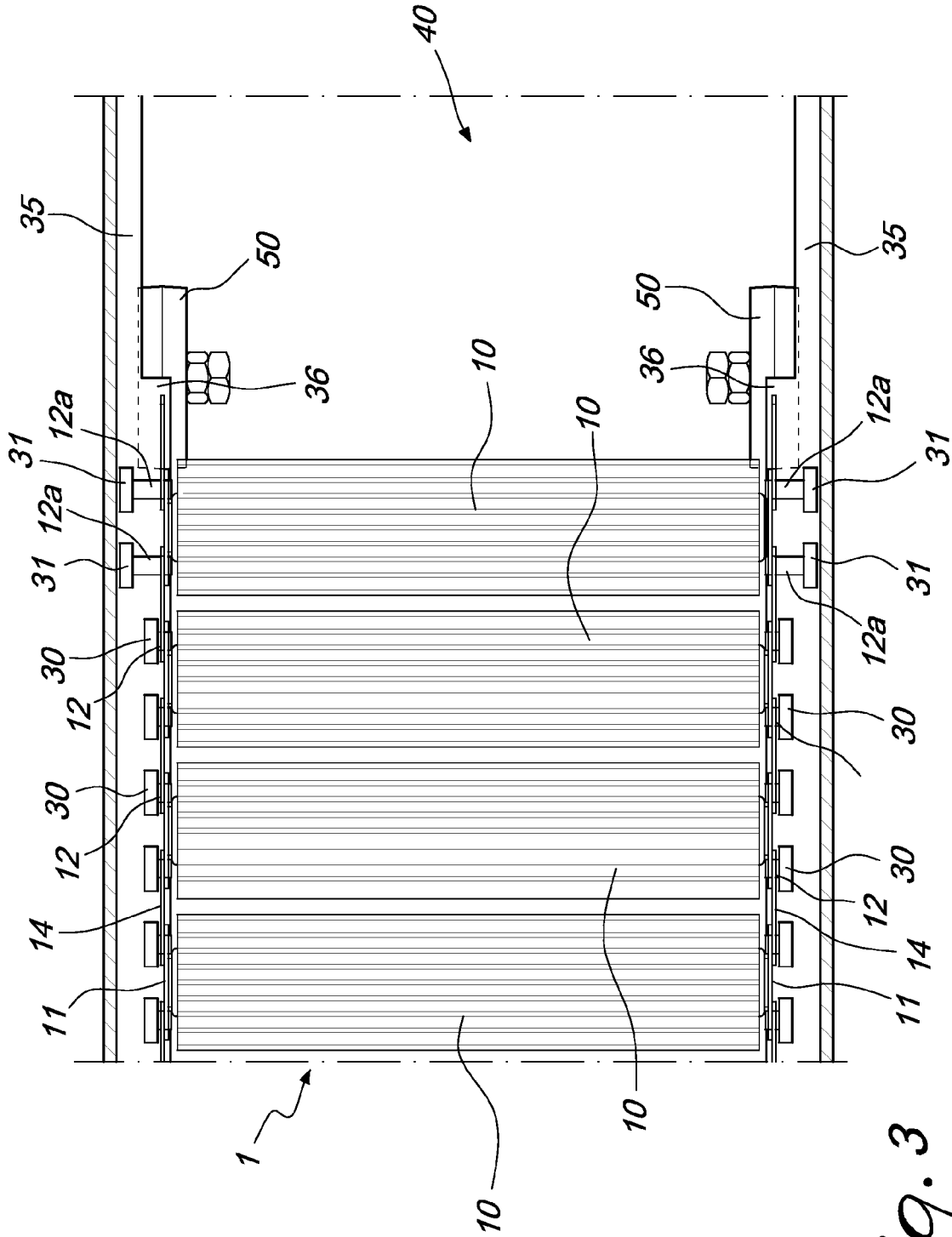


Fig. 3

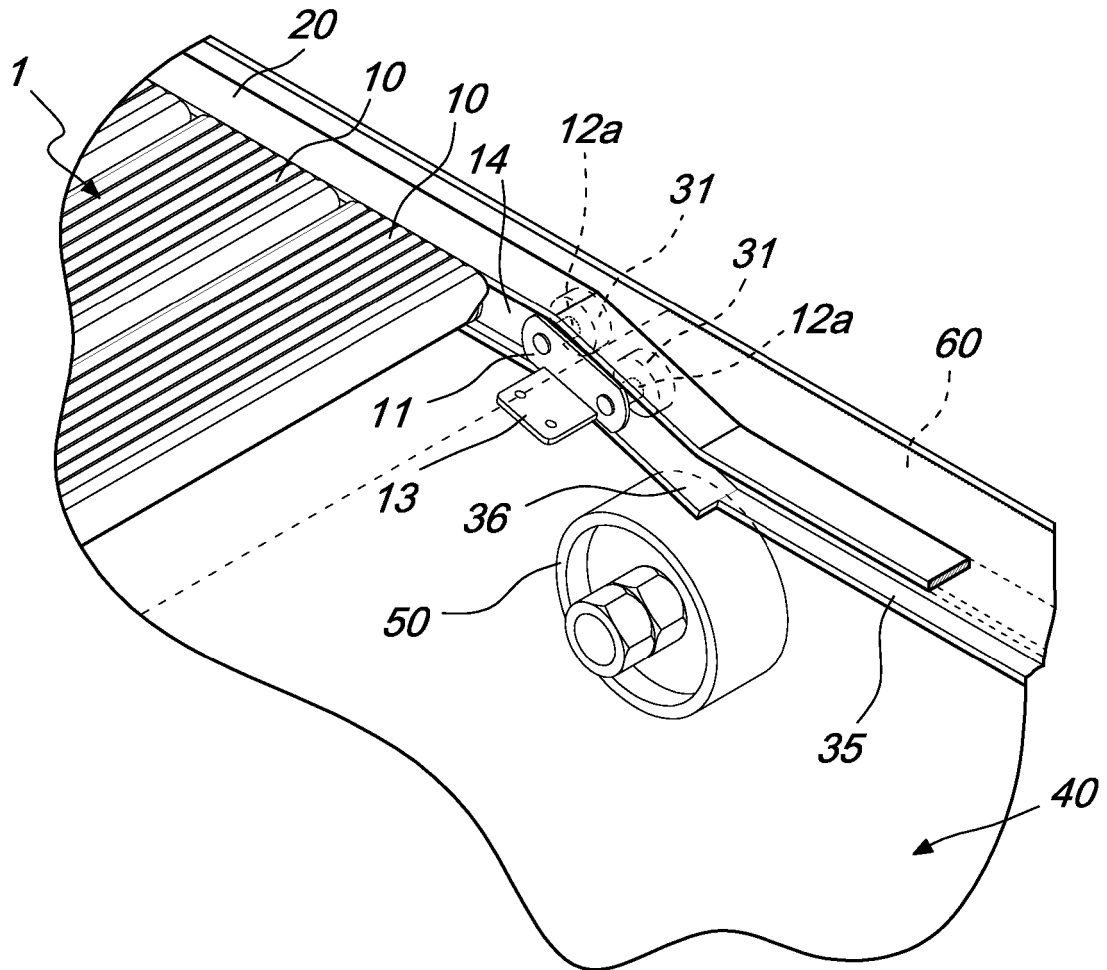


Fig. 4

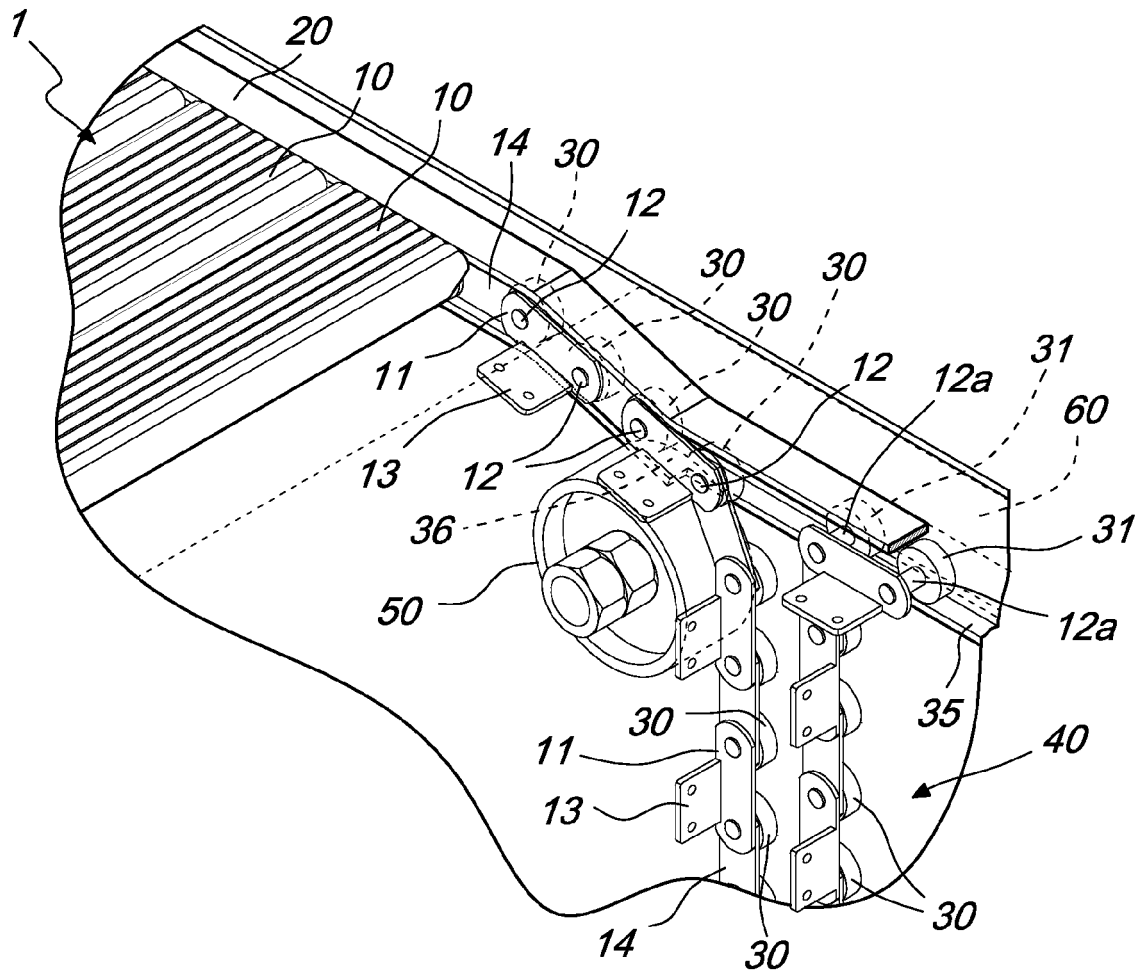


Fig. 5

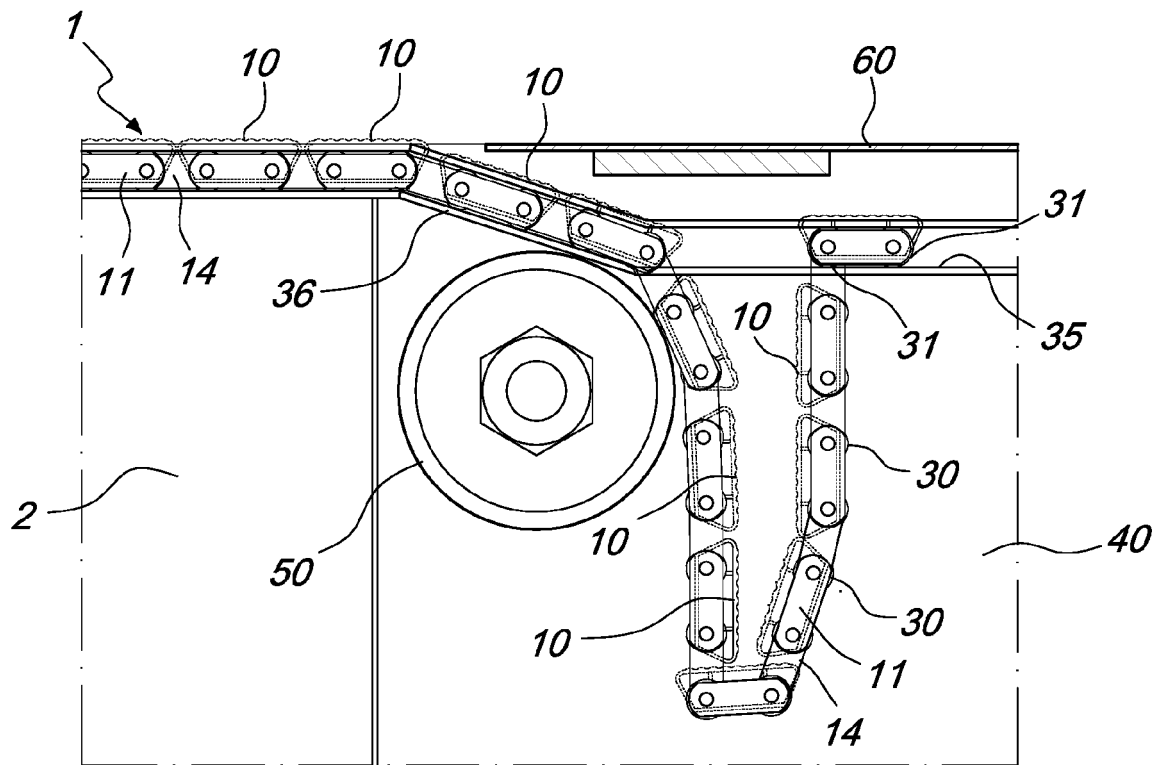


Fig. 6

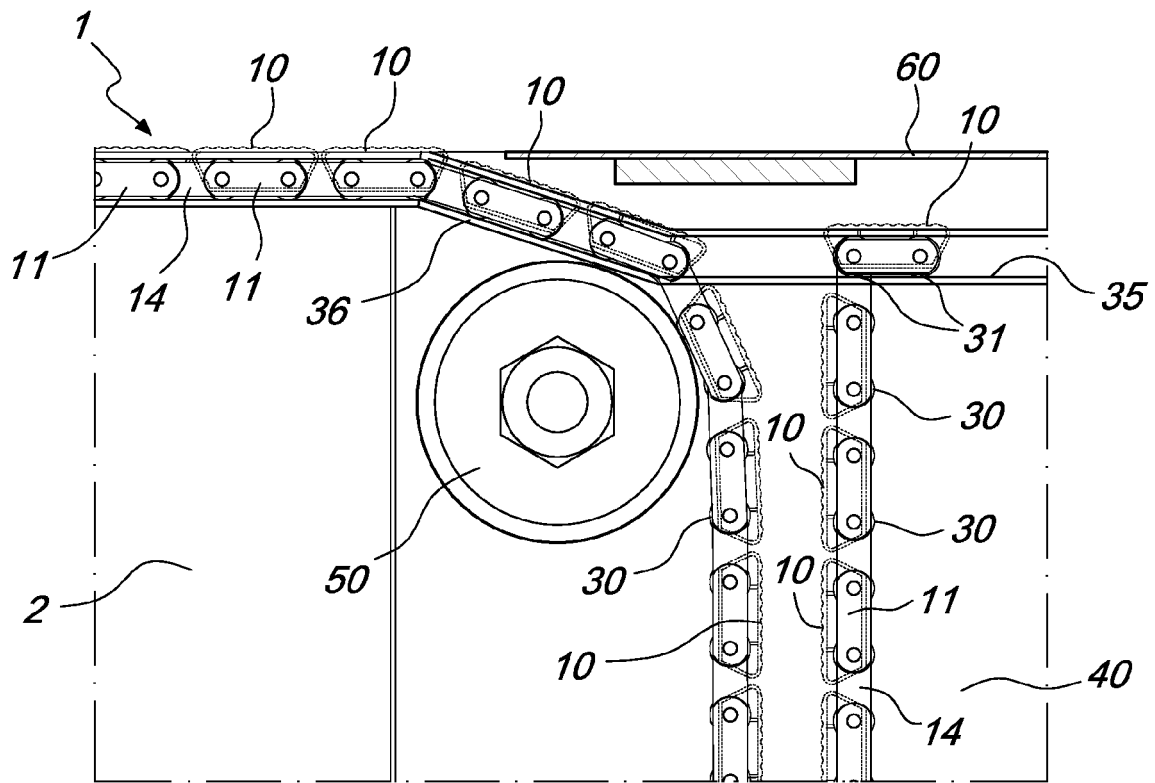


Fig. 7

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 07007697 A [0003]
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