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(54) **Waste collecting container**

Müllsammelbehälter

Réceptacle de collecte de déchets

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Description

[0001] The present invention relates to a container for collecting solid urban wastes according to the preamble of claim 1, with particular reference to a collecting container embedded in the ground with an outer discharging turret, into which the users introduce the wastes bags.

[0002] Such containers are housed in suitable seats embedded in the ground, so that the upper cover of the container is flush with the street surface.

[0003] The container is connected to lifting means, which extract it from the embedded seat, in order to empty it, discharging the wastes onto a suitably equipped truck.

[0004] Document EP-A-1 061 010 discloses such a container comprising a lid, a collecting turret connected to the lid and a separation cover situated below the turret.

[0005] The separation cover is normally closed, and when a user introduces the wastes bag, it lies on the cover.

[0006] When this operation is completed, after the turret door is closed, the cover is opened, in order to discharge the bag into the container below; after a short time, the cover is closed again.

[0007] The cover is supported laterally by supporting and guiding means, which allow the cover to translate horizontally, substantially parallel to the cover, between extreme positions of aperture and closure.

[0008] This solution ensures big strength, because the cover is always solidly supported.

[0009] However, due to the "not valuable" nature of the application and the necessity to contain the costs and the working conditions, the supporting and guiding means of known solutions are usually rather coarse from the mechanical point of view.

[0010] Consequently, the cover moves with difficulty and low precision, and use of motor means with high speed reduction ratio is unavoidable, so as to obtain strong pushes and slow movements, which is in contrast with the need to reduce the time of the cover being open.

[0011] Moreover, the gradual accumulation of dirt and waste on the above means, as well as the missing lubricating and maintenance, worsen the operation thereof and, at worst, block them.

[0012] The commercial components having sophisticated mechanisms, e.g. using balls, rolls or the like, guided on very precise paths with very reduced clearance, are not considered suitable, not only because of the costs, but also because they require constant cleaning and regular maintenance, which are both often lacking in this case.

[0013] Therefore, the object of the present invention is to propose a container for collecting waste having means for moving the cover which ensure high guiding precision and excellent sliding, so that the cover can be opened and closed rapidly.

[0014] Another object is to propose a container for collecting waste having moving means which are well protected against the wastes and dirt, and which can function

in an optimal way for long periods, also without lubricating and/or maintenance operations.

[0015] A further object is to propose a container for collecting waste having cover moving means which are simple to manufacture and particularly cheap, in accordance with the general standard of the whole construction.

[0016] The characteristic features of the invention will be described in detail in the following, in accordance with the contents of the claims and with the help of the enclosed figures, in which:

- Figure 1 is a partial vertical section view of a container with a relevant discharging turret;
- Figures 2A, 2B are views from the bottom, taken along the line II-II of Figure 1, of the cover of the container with a lid associated thereto, closed and open, respectively;
- Figure 3 is an enlarged section view, taken along III-III of Figure 2A;
- Figure 4 is a view according to the arrow X of Figure 3.

[0017] With reference to the above figures, the reference numeral 1 indicates an embedded waste collecting container of known type, for collection of solid urban wastes.

[0018] The upper lid 10 of the container 1 is set to be flush with the ground level T and has a collecting turret 2, likewise substantially known, which extends upward up to a prefixed height, so as to make it easy for a user to open a door 20 and to introduce a bag of wastes R into the turret 2.

[0019] The lid 10 can be either integral with the container 1 or hinged to a framework fastened to the ground, in accordance with one of the techniques mentioned in the introductory note.

[0020] A cover 3, of known type, is connected to the lower surface of the lid 10 and moves between two positions, A, C, respectively for opening and closing the lower aperture 21 of the turret 2, through which the inner space 2a of the latter communicates with the inner space 1a of the container 1.

[0021] According to the invention, the cover 3 is supported slidingly by means 5, which include a pair of straight guides 50, fastened, arranged horizontal and parallel to each other, to the outer sides of longitudinal bars 11, in a symmetrical position, at the sides of the lower aperture 21 of the turret 2.

[0022] The guides 50 are preferably made of a self-lubricating synthetic material having high hardness, low coefficient of friction, e.g. polyzene or the like.

[0023] The guides 50 have profile grooves 51, made therein longitudinally and open along one side of the relevant guide 50.

[0024] According to the symmetric mounting of the

guides 50, as shown in Figure 3, the open sides of the latter are turned outwards, with respect to the lower opening 21.

[0025] Each groove 51 contains, supports and guides a piece of chain 52, which has brackets 30, fastened at the side of the links, which remain outer with respect to the guide 50.

[0026] A corresponding side of the cover 3 is made integral with the brackets 30.

[0027] The means 5 for moving the cover 3 include also motor means 53, supported by the lid 10.

[0028] A pinion 54 is keyed onto the outlet shaft of the motor means 5.

[0029] The pinion 54 is positioned, with its axis horizontal, in a region corresponding to an opening 510 in the guide 50 and engages with the relative piece of chain 52.

[0030] Thus, rotation of the pinion 54 in either directions determines a corresponding horizontal translation of the cover 3 between the above mentioned close position C (Figure 2A) and open position A (Figure 2B) and vice-versa, when a bag of waste R is introduced into the turret 2, as already said in the introductory note.

[0031] In the described situation, the pinion 54 is situated beside the cover 3, but the regular movement of the latter is not damaged by the asymmetric application of the force, thanks to a considerable length of the pieces of chain 52, greater than the length of the cover 3.

[0032] Anyway, if it is needed, it is possible to use two pinions 54, connected by a transmission shaft and engaged with the relative pieces of chain 52.

[0033] One of the advantages of the proposed invention, resulting obvious from the above description, lies in the fact that it allows high guiding precision and excellent sliding of the cover movement, with simple and cheap elements.

[0034] It is to be pointed out that the proposed means are protected against wastes and dirt.

[0035] Actually, as it is well seen in Figure 3, the guides 50 are protected by the longitudinal members 11, with respect to the lower aperture 21 of the turret 2, and the open sides of the grooves 51 are turned outwards and most of them is closed by the links of the chain 52, therefore it is nearly impossible for undesired material to enter and block the regular sliding of the pieces of chain 52 in the respective grooves 51.

[0036] Another advantage results from the fact that the correct sliding, between the pieces of chain and the guides of synthetic material made of the above mentioned type, is ensured for long periods, also without lubricating.

[0037] The above advantages allow to open and close the cover rapidly, thus reducing the time, during which bad smells can go out from the inner space of the container.

Claims

1. Container for collecting waste comprising: a lid (10), a collecting turret (2) having an inner space (2a) connected to the lid (10);
a cover (3) situated below said turret (2) and moving between a closed position (C), in which the inner space (2a) of the turret (2) is separated from the inner space (1a) of said container (1) and an open position (A), in which the inner space (2a) of the turret (2) is in communication with the inner space (1a) of said container (1);
and means (5) for moving said cover (3),
characterized in that said means (5) for moving the cover (3) include:

at least one pair of straight guides (50), arranged horizontal and parallel to each other, connected to said lid (10), with each of said guides (50) having a profile groove (51), made therein longitudinally, which contains, supports and guides a piece of chain (52), said piece of chain (52) being fastened to said cover (3);
motor means (53) having at least one pinion (54), which engages with one of said pieces of chain (52) to cause horizontal motion of said cover (3) from said closed position (C) to the open position (A) and vice-versa.

2. Container, as claimed in claim 1, **characterized in that** said guides (50) are made of a self-lubricating material.
3. Container, as claimed in claim 1 or 2, **characterized in that** said guides (50) are made of a synthetic material.
4. Container, as claimed in claim 1, **characterized in that** said turret (2) is provided with a lower aperture (21) through which the inner space (2a) of said turret (2) communicates with the inner space (1a) of the container (1); and **in that** said guides (50) are fastened to the outer sides of longitudinal bars (11), made in said lid (10) in a symmetrical position, at the sides of said lower aperture (21).
5. Container, as claimed in claim 1, **characterized in that** said guides (50) are arranged symmetrical, so that the profile grooves (51) have their openings made in the sides of the respective guide (50), which are turned toward the outside of the cover (3).
6. Container, as claimed in claim 1, **characterized in that** said guides (50) have at least one opening (510); and **in that** said pinion (54) is positioned in a region corresponding to said opening (510) in said guides (50) where it engages with said piece of chain (52).

7. Container, as claimed in claim 1, **characterized in that** said motor means (53) include two pinions (54) connected by a transmission shaft, with each of the pinions engaging with one of said pieces of chain (52).
8. Container, as claimed in claim 1, **characterized in that** said piece of chain (52) has brackets (30) fastened at the side of the links which remain outer with respect to the guide (50); and **in that** a corresponding side of the cover (3) is made integral with the brackets (30).

Patentansprüche

1. Behälter zum Sammeln von Abfall, umfassend:

- eine Abdeckung (10),
- einen turmartigen Aufbau (2) zum Sammeln mit einem Innenraum (2a), wobei der turmartigen Aufbau (2) mit der Abdeckung (10) verbunden ist,
- eine unterhalb des turmartigen Aufbaus (2) angeordnete Deckplatte (3), die zwischen einer geschlossenen Position (C), in welcher der Innenraum (2a) des turmartigen Aufbaus (2) vom Innenraum (1a) des Behälters (1) getrennt ist, und einer offenen Position (A), in welcher der Innenraum (2a) des turmartigen Aufbaus (2) mit dem Innenraum (1a) des Behälters (1) in Verbindung steht, bewegt wird und
- Mittel (5) zum Bewegen der Deckplatte (3),

dadurch gekennzeichnet, dass die Mittel (5) zum Bewegen der Deckplatte (3) umfassen:

- mindestens ein Paar gerader Führungen (50), die horizontal und parallel zueinander angeordnet sind und mit der Abdeckung (10) verbunden sind, wobei jede der Führungen (50) eine in Längsrichtung eingebrachte Profilnut (51) aufweist, die ein Kettenstück (52) enthält, stützt und führt, wobei das Kettenstück (52) mit der Deckplatte (3) verbunden ist,
- Antriebsmittel (53) mit mindestens einem Ritzel (54), welches in eines der Kettenstücke (52) eingreift und so eine Horizontalbewegung der Deckplatte (3) aus der geschlossenen Position (C) in die offene Position (A) und umgekehrt hervorruft.

2. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** die Führungen (50) aus einem selbstschmierenden Material gefertigt sind.
3. Behälter nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Führungen (50) aus einem syn-

thetischen Material gefertigt sind.

4. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** der turmartige Aufbau (2) mit einem unteren Durchlass (21) versehen ist, durch den der Innenraum (2a) des turmartigen Aufbaus (2) mit dem Innenraum (1a) des Behälters (1) in Verbindung steht, und dass die Führungen (50) an den Außenseiten von Längsstegen (11) befestigt sind, die symmetrisch zu den Seiten des unteren Durchlasses (21) an der Abdeckung (10) angebracht sind.

5. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** die Führungen (50) in der Weise symmetrisch angeordnet sind, dass die Profilnuten (51) ihre Öffnungen jeweils an den Seiten der entsprechenden Führung (50) aufweisen, die zur Außenseite der Deckplatte (3) weisen.

6. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** die Führungen (50) mindestens eine Öffnung (510) aufweisen und dass das Ritzel (54) in einem Bereich korrespondierend zur Öffnung (510) in den Führungen (50) angeordnet ist, wo es in das Kettenstück (52) eingreift.

7. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** die Antriebsmittel (53) zwei über eine Antriebswelle verbundene Ritzel (54) umfassen, wobei jedes der Ritzel (54) in eines der Kettenstücke (52) eingreift.

8. Behälter nach Anspruch 1, **dadurch gekennzeichnet, dass** das Kettenstück (52) Halterungen (30) aufweist, die an der Seite der Verbindungen befestigt sind, die in Bezug auf die Führung (50) außen liegen, und dass eine korrespondierende Seite der Deckplatte (3) einstückig mit den Halterungen (30) verbunden ist.

Revendications

1. Conteneur de collecte de déchets comprenant :

- un capot (10),
- une tourelle de collecte (2) ayant un espace intérieur (2a) relié au capot (10) ;
- un couvercle (3) situé sous ladite tourelle (2) et se déplaçant entre une position fermée (C), dans laquelle l'espace intérieur (2a) de la tourelle (2) est séparé de l'espace intérieur (1a) dudit conteneur (1) et une position ouverte (A), dans laquelle l'espace intérieur (2a) de la tourelle (2) est en communication avec l'espace intérieur (1a) dudit conteneur (1) ;
- et des moyens (5) pour déplacer ledit couvercle (3),

caractérisé en ce que lesdits moyens (5) pour déplacer le couvercle (3) comprennent :

au moins une paire de guides linéaires (50), agencés horizontalement et parallèlement les uns aux autres, reliés audit capot (10), chacun desdits guides (50) ayant une rainure profilée (51), réalisée à l'intérieur de manière longitudinale, qui contient, supporte et guide une pièce de chaîne (52), ladite pièce de chaîne (52) étant fixée audit couvercle (3) ; et des moyens moteurs (53) ayant au moins un pignon (54), qui met en prise l'une desdites pièces de chaîne (52) pour causer le déplacement horizontal dudit couvercle (3) de ladite position fermée (C) à la position ouverte (A) et vice versa.

restent à l'extérieur par rapport au guide (50) ; et **en ce qu'un** côté correspondant du couvercle (3) est fait de manière solidaire avec les pattes de fixation (30).

2. Conteneur selon la revendication 1, **caractérisé en ce que** lesdits guides (50) sont faits d'un matériau autolubrifiant. 20
3. Conteneur selon la revendication 1 ou 2, **caractérisé en ce que** lesdits guides (50) sont faits d'un matériau synthétique. 25
4. Conteneur selon la revendication 1, **caractérisé en ce que** ladite tourelle (2) est munie d'une ouverture inférieure (21) à travers laquelle l'espace intérieur (2a) de ladite tourelle (2) communique avec l'espace intérieur (1a) du conteneur (1) ; et **en ce que** lesdits guides (50) sont fixés aux côtés extérieurs de barres longitudinales (11), faites dans ledit capot (10) dans une position symétrique, sur les côtés de ladite ouverture inférieure (21). 30
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5. Conteneur selon la revendication 1, **caractérisé en ce que** lesdits guides (50) sont agencés de manière symétrique, de sorte que les rainures profilées (51) aient leurs ouvertures faites sur les côtés du guide respectif (50), qui sont tournés vers le côté extérieur du couvercle (3). 40
6. Conteneur selon la revendication 1, **caractérisé en ce que** lesdits guides (50) ont au moins une ouverture (510) ; et **en ce que** ledit pignon (54) est positionné dans une région correspondante à ladite ouverture (510) dans lesdits guides (50) où il met en prise ladite pièce de chaîne (52). 45
7. Conteneur selon la revendication 1, **caractérisé en ce que** lesdits moyens moteurs (53) comprennent deux pignons (54) reliés par un arbre de transmission, chacun des pignons mettant en prise l'une desdites pièces de chaîne (52). 50
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8. Conteneur selon la revendication 1, **caractérisé en ce que** ladite pièce de chaîne (52) possède des pattes de fixation (30) fixées sur le côté des liens qui

FIG. 2A

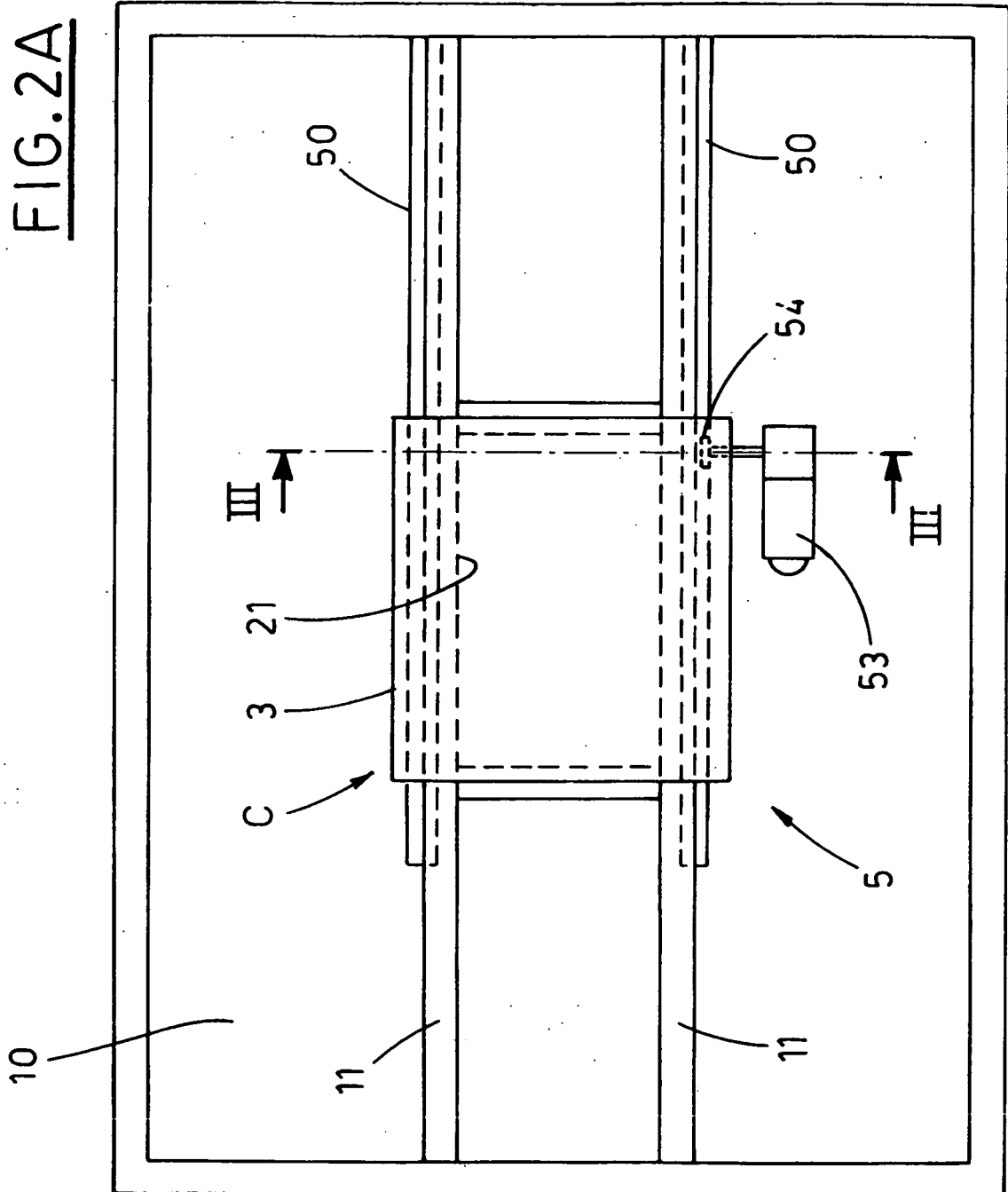
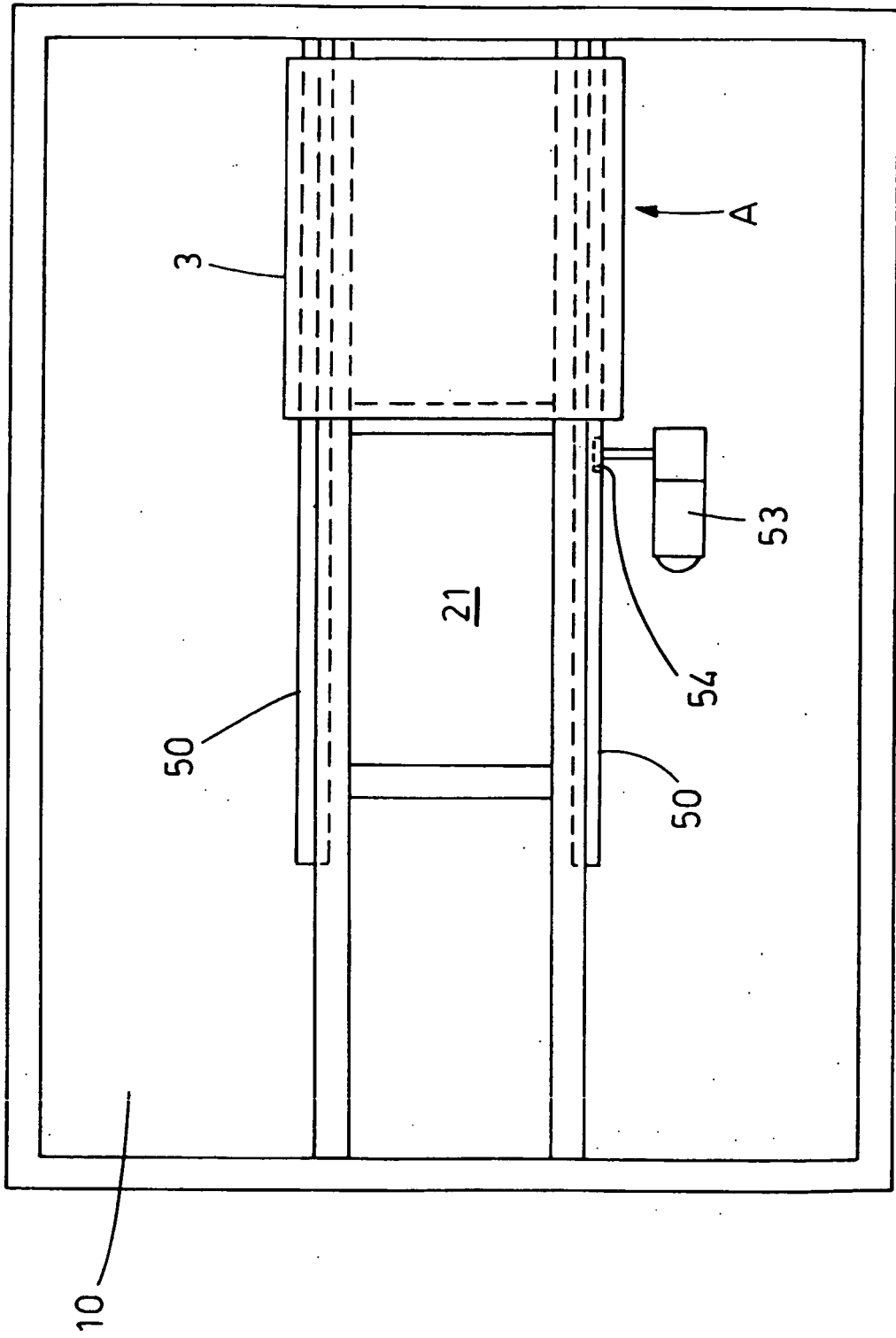
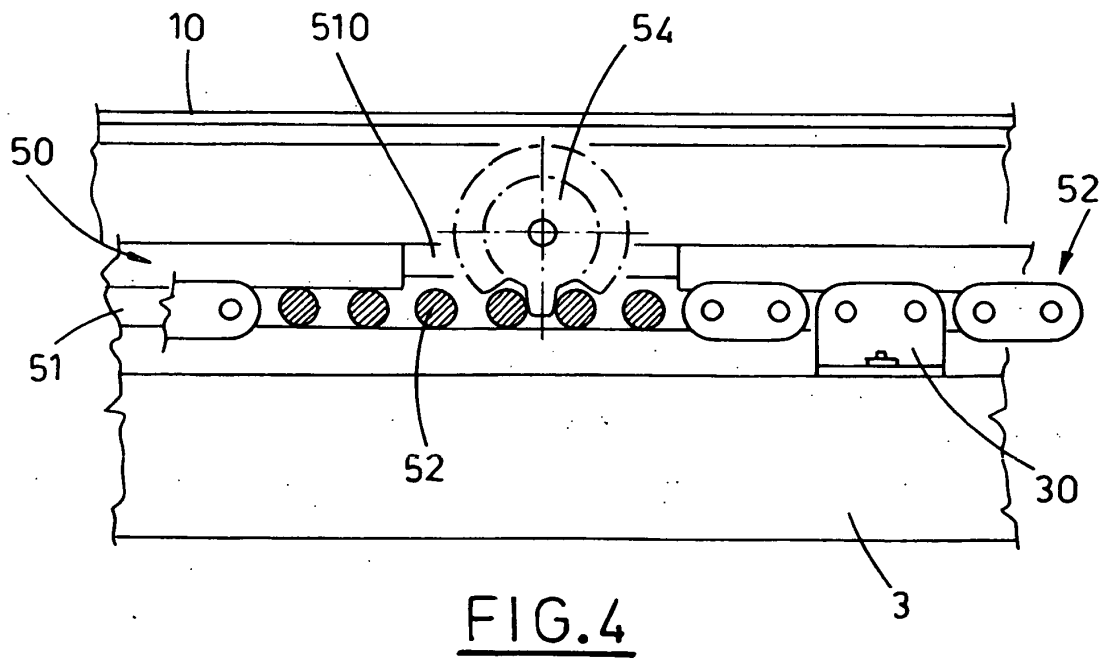
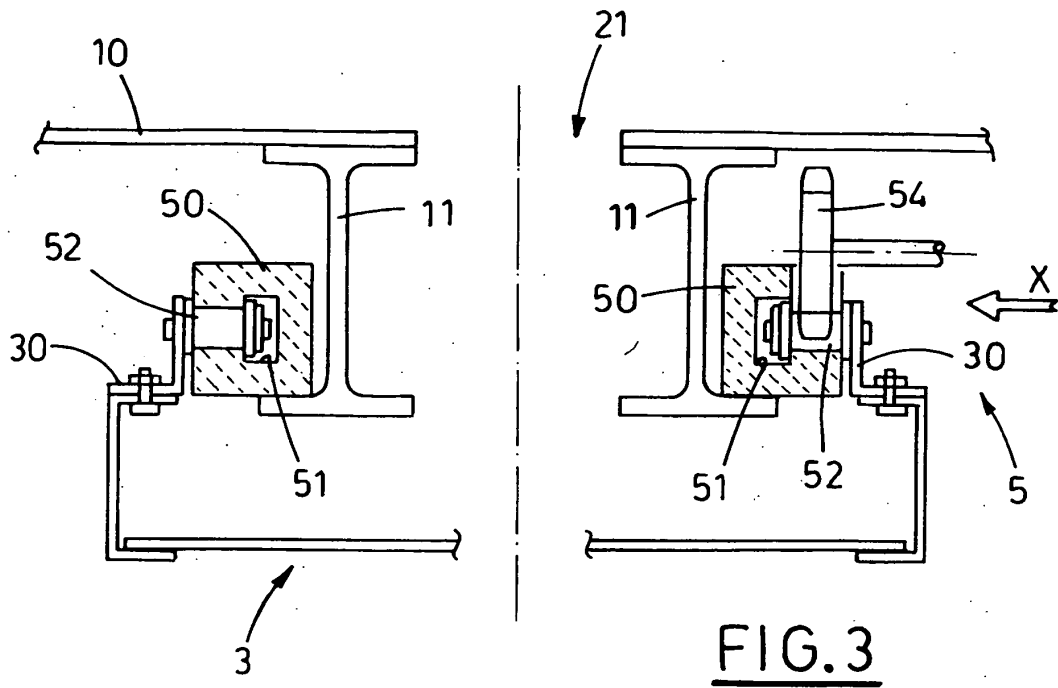


FIG. 2B





REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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