



HU000029829T2

(19) **HU****MAGYARORSZÁG****Szellemi Tulajdon Nemzeti Hivatala**(11) Lajstromszám: **E 029 829**(13) **T2**

EURÓPAI SZABADALOM SZÖVEGÉNEK FORDÍTÁSA

(21) Magyar ügyszám: **E 14 707967**(22) A bejelentés napja: **2014. 02. 24.**(51) Int. Cl.: **B62D 53/00** (2006.01)

(96) Az európai bejelentés bejelentési száma:

EP 20140707967

(86) A nemzetközi (PCT) bejelentési szám:

PCT/EP 14/053513

(97) Az európai bejelentés közzétételi adatai:

EP 2885199 A1 **2014. 11. 27.**

(87) A nemzetközi közzétételi szám:

WO 14187581

(97) Az európai szabadalom megadásának meghirdetési adatai:

EP 2885199 B1 **2016. 09. 21.**

(30) Elsőbbségi adatok:

202013102199 U **2013. 05. 21.****DE**

(73) Jogosult(ak):

**LR Intralogistik GmbH, 84109 Wörth a. d. Isar
(DE)**

(72) Feltaláló(k):

Berghammer, Fritz, 84036 Landshut (DE)

(74) Képviselő:

**Danubia Szabadalmi és Jogi Iroda Kft.,
Budapest**

(54)

Trélervonat utánfutó

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.



Trailer

Description

The invention relates to a road train trailer having a load-receiving supporting frame which is guided on running gear according to the preamble of Claim 1.

Trailers of this kind are being used more and more frequently in the automated series manufacture of products, for example for motor vehicle manufacture, where the individual work stations are supplied with the necessary components via road trains. In a road train, a tractor vehicle moves a plurality of road train trailers on which the necessary individual parts are transported. These are usually placed on pallets or in skeleton containers, which are in turn moved over short distances on trolleys.

A road train trailer configured according to the preamble of Claim 1 is known from EP 620 183 A2 (DE 694 16 440 T2). Said road train trailer has an E-shaped supporting frame in top view, on the central member whereof a hook-shaped gripping unit is movable, which gripping unit must be tilted downwards in order for a trolley to be grasped by a tilting mechanism. In order for it to be gripped, the trolley must be positioned right above the two hooks of the gripping unit. Once the trolley has been retracted, it rolls during transportation on its casters along with the wheels of the road train trailer along the ground.

EP 2 487 067 A2 describes and depicts a road train trailer, the C-shaped frame whereof rests at a non-variable height on casters and a lifting device with load forks is mounted so as to be height-adjustable in the longitudinal member thereof. Fork prongs are movably mounted on the load forks, each of them being assigned a propulsion drive.

In addition, road train trailers with a supporting frame are also known in the art, said road train trailers being capable of height adjustment relative to the running gear via built-in lifting devices, in order to prevent the casters of the trolleys from rolling away on the ground during transportation within the works and having a negative effect on handling. Examples of this state of the art are European patent EP 2 161 182 B1 with an E-shaped supporting frame in top view and also the utility model DE 20 2009 001 933 U1 with a C-shaped supporting frame in top view.

EP 2 311 673 B1 discloses a trailer with an E-frame for a road train, in which at the end of the cross member, which is connected to the lateral longitudinal member, a slide is arranged. The function of said slide is to initiate an ejector movement. The slide is not capable of ejecting the load completely or of returning the load into the supporting frame.

The problem addressed by the invention is that of facilitating rapid loading and unloading for both systems (E-frame and C-frame) using a simple mechanism which does not require physical strength and largely relieves the operator.

In order to solve this problem, a road train trailer having the features of Claim 1 is used, according to which the gripping unit consists of at least one endlessly revolving chain from which trailing fingers protrude which grasp the load to be received or delivered. For this purpose, the chain revolves in a housing which is movable on the central member at right angles to the longitudinal member. It is advantageous in this case for the housing to be fastened to a guide rail, forming a carriage therewith

which is telescopically retractable and extendable on a supporting rail connected to the central member. Once the road train has stopped at a station that is to be used alongside a trolley or a delivery station for a skeleton container, the gripping unit moves to the side and in so doing engages under the trolley or skeleton container with two of its trailing fingers, in order to pull these onto the two cross members of the supporting frame when said supporting frame is lowered. This process takes place automatically without an operator having to intervene or a previous, accurate positioning of the load to be received being necessary.

The process takes place in the opposite direction at an unloading station in which the trolley or the skeleton container is ejected from the road train trailer by means of the gripping unit.

According to an advantageous embodiment of the invention, the gripping unit is mounted on a saddle which is placed onto the central member and is fastened thereto. This solution is particularly suitable for supporting frames which are E-shaped in top view according to EP 2 161 182, in which a running gear with two wheels mounted on each side of an axle and the lifting device are arranged under the central member, which lifting device may comprise at least one hydraulic cylinder supported between the axle and the central member.

Alternatively, it is possible for the cross member to be formed by two parallel lifting prongs which are movably mounted at their ends opposite the loading opening of the supporting frame, which is C-shaped in top view, onto the upper edge of the longitudinal member, which is depicted and explained in great detail in DE 20 2009 001 933 U1. The saddle can be fastened to the two lifting prongs which are pushed together on the longitudinal member and in this way act as a cross member.

If the load to be received and delivered which is transported by the road train trailer does not consist of a trolley, but a skeleton container, it is advantageous for a roller conveyor to be mounted on each of the two cross members which receives the load from a roller conveyor at the same height in the delivery station or delivers to said roller conveyor.

The invention is explained below with the help of two exemplary embodiments which are depicted in the drawing. In the figures:

Figure 1 shows the perspective view of a first exemplary embodiment of the invention with a telescopically extendable gripping unit for gripping a trolley,

Figures 2 to 6 show views corresponding to Figure 1 of further positions of the gripping unit ending with the trolley being completely received into the supporting frame,

Figure 7 shows the schematic side view of a gripping unit with an endlessly revolving chain during the ejection of a trolley,

Figure 8 shows a representation corresponding to Figure 7 during the retraction of the trolley into the supporting frame,

Figure 9 shows the view of a variant of the invention in which the two cross members exhibit a roller conveyor for receiving a skeleton container or a pallet, wherein the gripping unit is telescopically extended,

Figure 10 shows the view of the unit in Figure 9 with the gripping unit retracted,

Figure 11 shows a view of the position shown in Figure 10 with the skeleton container prior to ejection.

by the gripping unit.

Figures 12 to 14 show the subsequent steps during delivery of the skeleton container to a fixed delivery station at the same height.

In a first sample application, Figures 1 to 6 and 7 and 8 show a road train trailer 10 with a supporting frame 12 which is E-shaped in top view gripping and receiving a trolley 14. The supporting frame 12 is configured as in EP 2 161 182 B1 or EP 2 311 673 B1 and consists of a lateral longitudinal member 16 and two cross members 18 which protrude at right angles from the two ends of said longitudinal member. Both the longitudinal member 16 and also the two cross members 18 have an L-shaped profile in cross section with a revolving, horizontal peripheral flange 20, on which the load rests, in this case the trolley 14 in the completely received position according to Figure 6.

Between the two cross members 18, a central member 22 is fastened on the longitudinal member 16 parallel thereto, beneath which central member a running gear 24 with two wheels 28 mounted on each side of a rigid axle 26 is arranged. As has already been explained in EP 2 311 673 B1 and will not be represented here again, a lifting device is provided between the central member 22 and the rigid axle 26 of the running gear 24 which can raise and lower the supporting frame 12 relative to the rigid axle 26 of the running gear 24.

In Figures 1 to 6 the supporting frame 12 of the road train trailer 10 is located in its lowered position, in which it can receive the trolley 14. For this purpose, a gripping unit 34 is mounted on both sides of a saddle 30 which is fastened to the central member 22 with the help of screws 32. Said gripping unit has a supporting rail 36 fastened to the side of the saddle 30 on which supporting rail a guide rail 38 is telescopically movable. The drive unit required for this purpose may be jointly installed for both gripping units 34 under the saddle 30, which is not further represented.

A housing 62 with an endless revolving chain 40 is fastened to each of the two guide rails 38, from which chain trailing fingers 42 protrude outwardly. Along with the chain conveyor comprising the chain 40 and housing 62, the guide rail 38 forms a telescopically extendable carriage 44.

In the receiving position shown in Figures 1 to 6, in front of the loading opening 46 of the supporting frame 12, which lies opposite the longitudinal member 16, is located a trolley 14 which is to be received. In the lowered position of the supporting frame 12, the two gripping units 34 are extended through the loading opening 46, wherein the carriage 44 formed from guide rails 38 and housing 62 with chain conveyors is telescopically extended on both sides, until it grabs below the frame 48 of the trolley 14. In this completely extended position of the carriage 44, the trailing fingers 42 of the chains 40 grab the longitudinal rail 50 of the frame of the trolley 14 opposite the longitudinal member 16 and draw it into the supporting frame 12 when the chain 40 is running, wherein the casters 52 of the trolley 14 roll along the ground. In the completely retracted position of the trolley 14, the drive motor of the two chains 40 is switched off via a limit switch which is not shown and at the same time the supporting frame 12 of the trailer 10 is raised by means of the lifting device which is likewise not represented, so that the casters 52 of the trolley 14 are disengaged from the ground.

In order to unload the road train trailer 10, the steps explained above are carried out in the reverse order.

It is clear from the side views shown in Figures 7 and 8 that the supporting rails 36 mounted on both

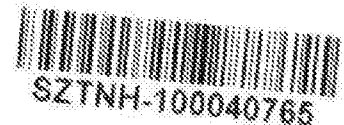
sides of the saddle 30 each receive a guide rail 38 movable in the transverse direction. Along with the housing 62, the guide rail 38 forms a carriage 44 which can be extended and retracted on the supporting rail 36 in the transverse direction.

Not depicted is the possibility disclosed in Claim 10 of two lifting prongs being moved together centrally in a C-shaped supporting frame mentioned above according to DE 20 2009 001 933, in order to form a central member on which the gripping unit 34 can be mounted.

Figures 9 to 14 show a further exemplary embodiment of the invention, according to which the two cross members 18 of the supporting frame 12 are each equipped with a roller conveyor 54. These are used for the receiving and delivery, supported by the gripping units 34, of a skeleton container 56, a pallet or the like, which are not equipped with casters, as in the previously described exemplary embodiment. In this case, in order to receive or deliver a skeleton container 56, a fixed delivery station 58 is provided which consists of two roller conveyors 54' parallel to one another which lie at the same, lowered height as the cross members 18 of the supporting frame 12 in the delivery position. In order to avoid any tilting of the supporting frame 12 about the axle 26 of the running gear 24, supporting rollers 60 are mounted on both cross members 18 of the supporting frame 12.

Trélervonat utánfutó

SZABADALMI IGÉNYPONTOK



1. Trélervonat utánfutó egy, futómű (24) vezetett teherfelvevő tartókerettel (12), ami egy oldalsó hossztartóból (16) és két, a hossztartó végeihez derékszögben csatlakozó keresztartóból (18) áll, ahol a keresztartók között, azokkal párhuzamosan a hossztartóra (16) egy középső tartó (22) van rögzítve, és egy, a középső tartóval (22) szemben fekvő teherbevezető nyílás (46) van kialakítva, ahol a középső tartón (22) egy, a hossztartó (16) és a bevezető nyílás (46) között keresztirányban mozgatható, a terhet megfogó egység (34) van elrendezve, azzal jellemezve, hogy a terhet megfogó egység (34) legalább egy végtelenített láncként (40) van kialakítva, amiből továbbító csapok (42) állnak ki, és ami egy házban (62) fut, ami a középső tartón (22) a hossztartóhoz (16) képest derékszögben mozgatható, ahol a tartókeret (12) és a futómű (24) között egy emelőszerkezet van elrendezve az egymáshoz viszonyított magasság beállítására.
2. Az 1. igénypont szerinti trélervonat utánfutó, azzal jellemezve, hogy a ház (62) egy ázi hordozó vezetősínnel (38) együtt egy szánt (44) alkot, ami egy, a középső tartóval (22) összekapcsolt tartósínen (36) teleszkóposan ki és be mozgatható.
3. Az 1. vagy 2. igénypont szerinti trélervonat utánfutó, azzal jellemezve, hogy a terhet megfogó egység (34) egy nyergen (30) van elhelyezve, ami a középső tartóra (22) van felülhetve és azon van rögzítve.
4. A 2. és 3. igénypont szerinti trélervonat utánfutó, azzal jellemezve, hogy a nyereg (30) mindkét oldalán egy szán (44) egy tartósínen (36) teleszkóposan mozgatható.

5. Az előző igénypontok bármelyike szerinti trélervonat utánfutó, azzal jellemezve, hogy a két keresztartó (18) mindegyikén egy görgőpálya (54) van elrendezve.
6. Az előző igénypontok bármelyike szerinti trélervonat utánfutó, azzal jellemezve, hogy a középső tartó (22) alatt az emelőszerkezet és egy futómű (24) van elrendezve két oldalsó, egy tengelyen (26) ágyazott kerékekkel (28).
7. A 7. igénypont szerinti trélervonat utánfutó, azzal jellemezve, hogy az emelőszerkezet legalább egy, a tengely (26) és a középső tartó (22) között feltámasztott hidraulikus munkahengert tartalmaz.
8. A 6. vagy 7. igénypont szerinti trélervonat utánfutó, azzal jellemezve, hogy a tartókeret (12) keresztartóin (18) támasztógörgők (60) vannak.
9. Az 1 – 5. igénypontok bármelyike szerinti trélervonat utánfutó, azzal jellemezve, hogy a keresztartókat (18) két párhuzamos vonófog alkotja, amik a felülnézetben C-alakú tartókeret (12) teherbevezető nyílásával (46) szemközt végükkel felülnek a hosszartó (16) peremére.
10. A 9. igénypont szerinti trélervonat utánfutó, azzal jellemezve, hogy a tartókeret (12) keresztartói (18) az emelőszerkezet hidraulikus munkahengerén keresztül az alattuk elhelyezkedő futóműn (24) állítható magasságban feltámaszkodnak.

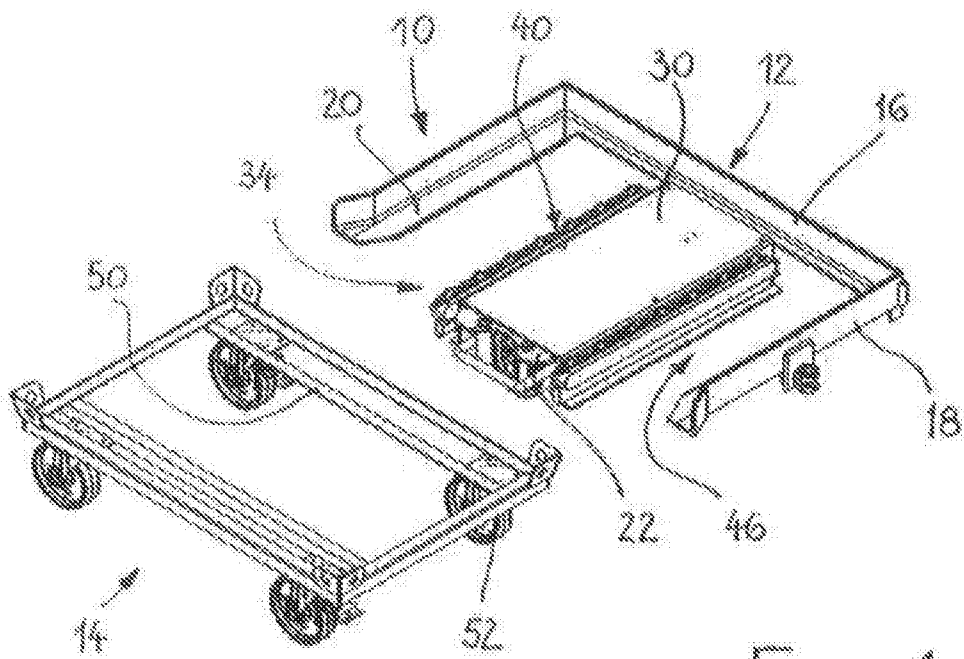
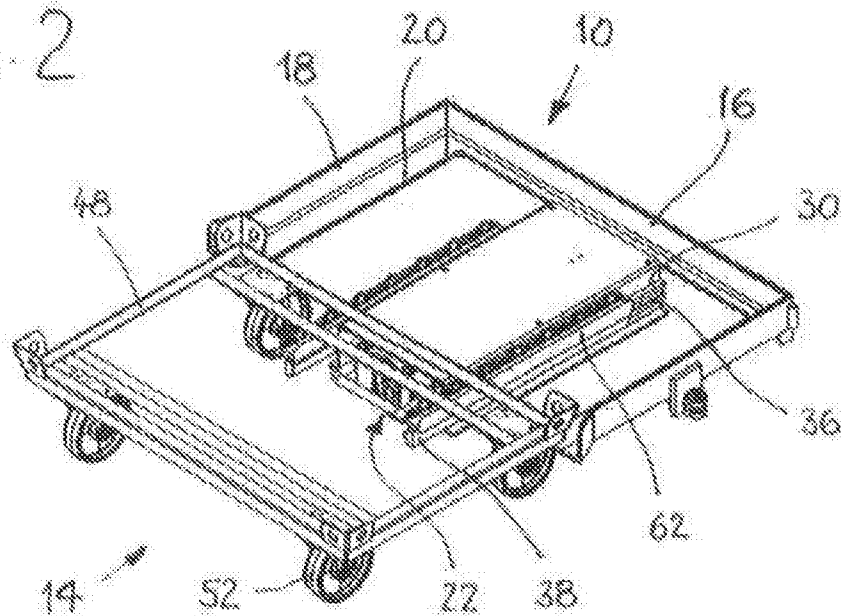


Fig. 1



Fig. 2



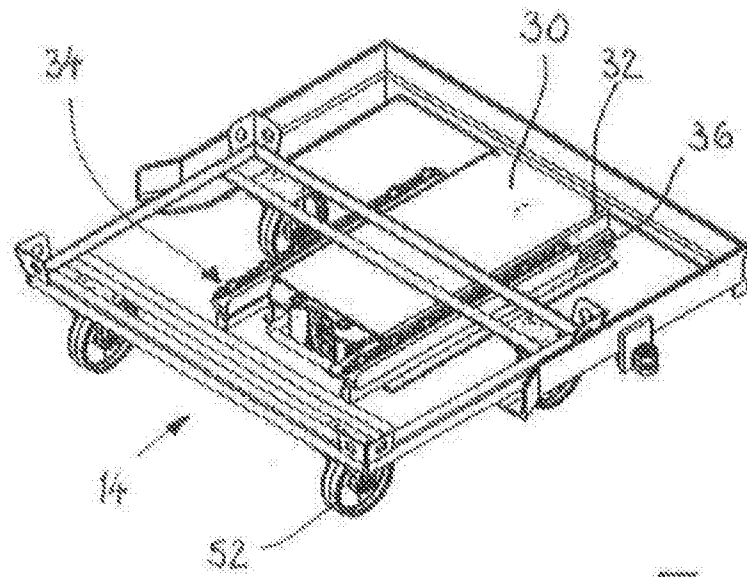


Fig. 3

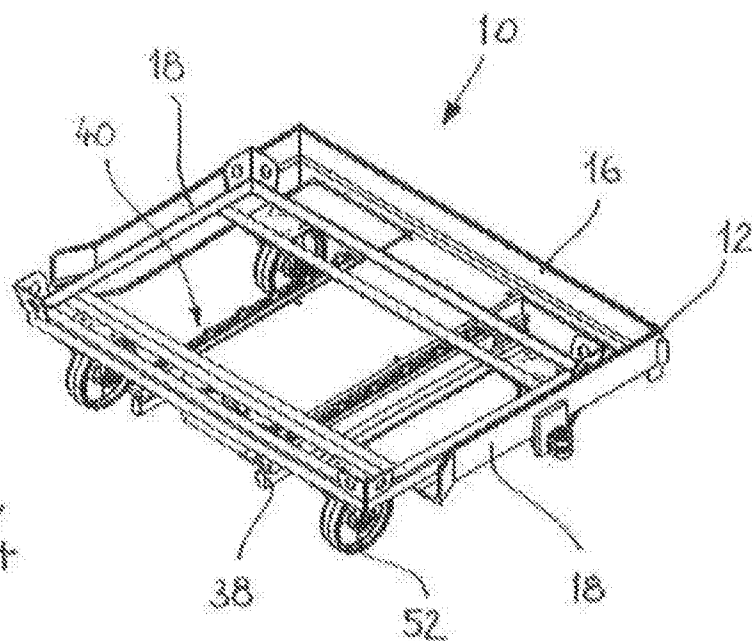


Fig. 4

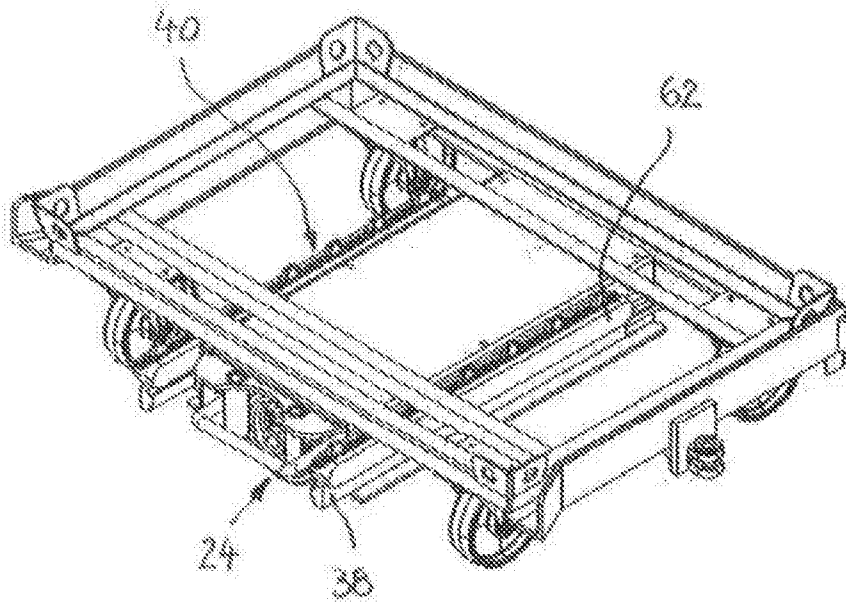


Fig. 5

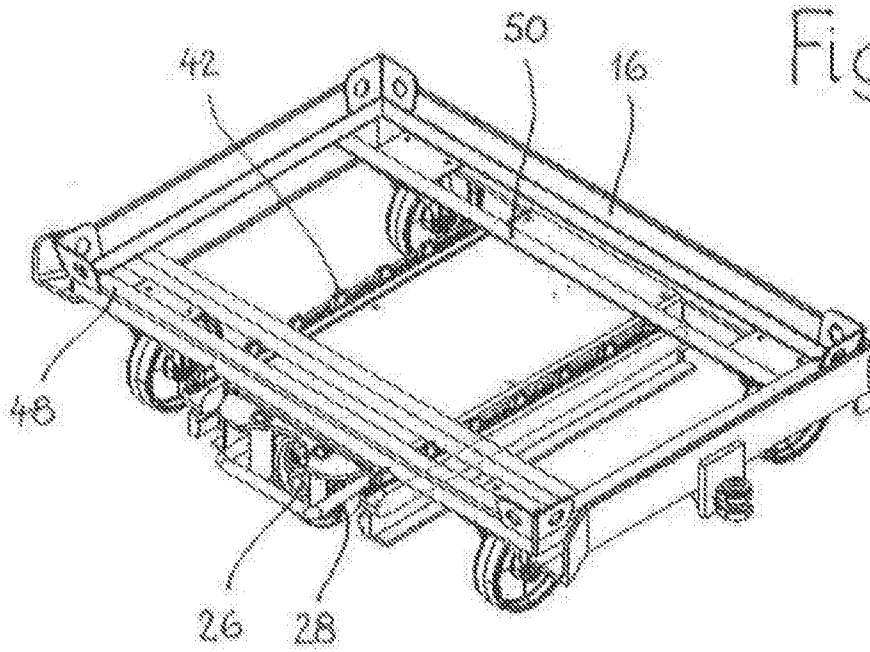


Fig. 6

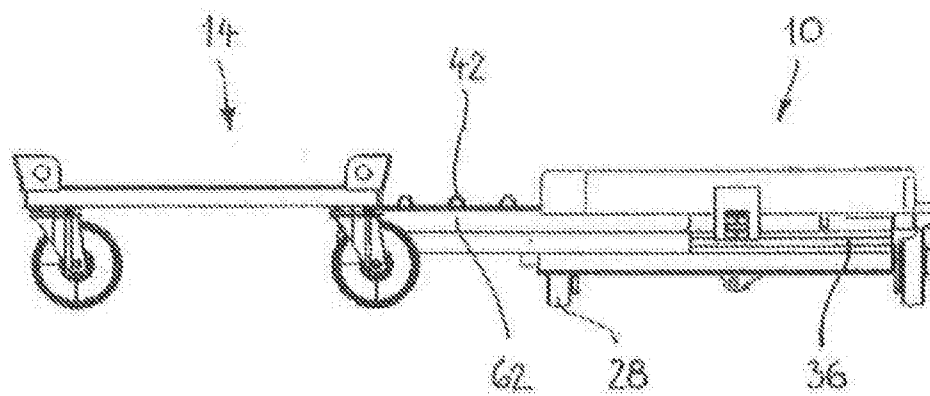
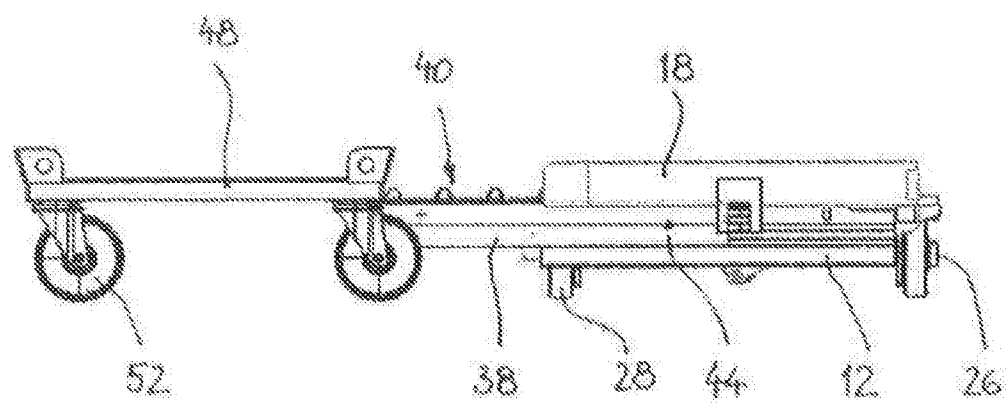


Fig. 7

Fig. 8



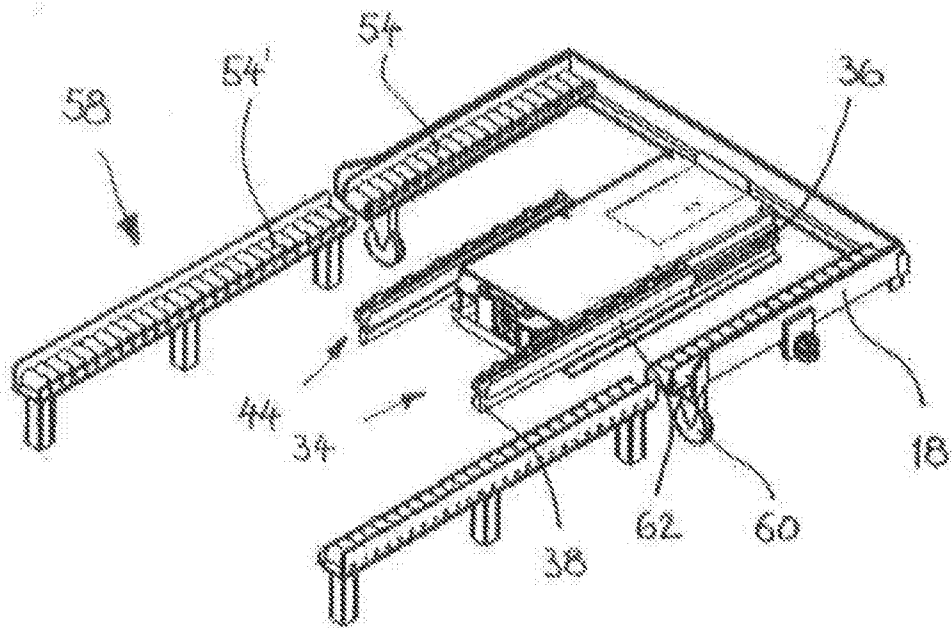
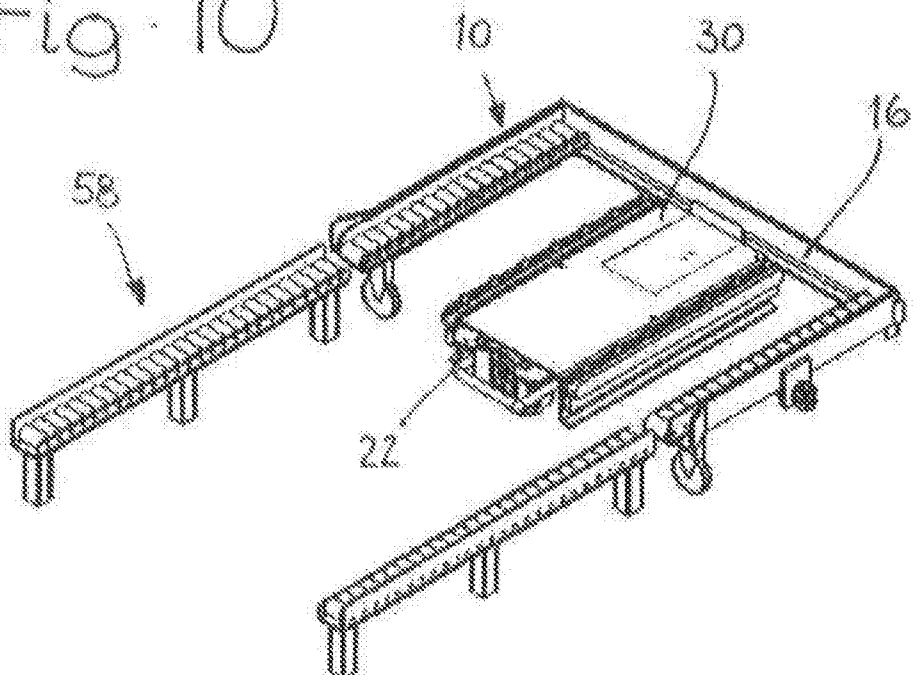


Fig. 9

Fig. 10



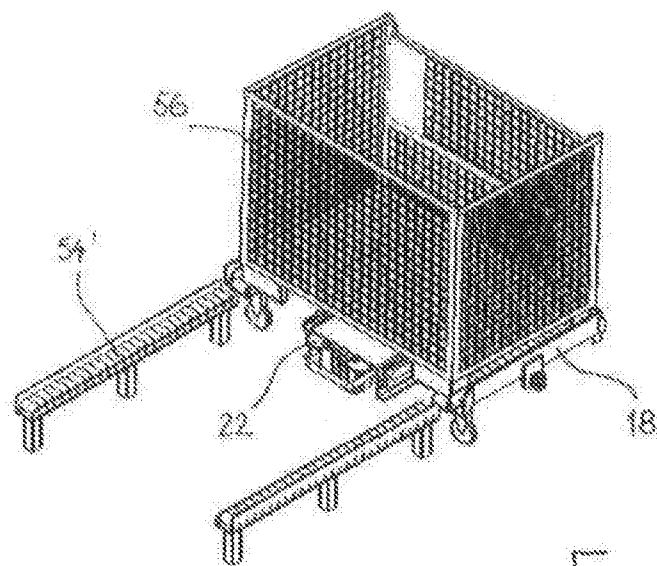
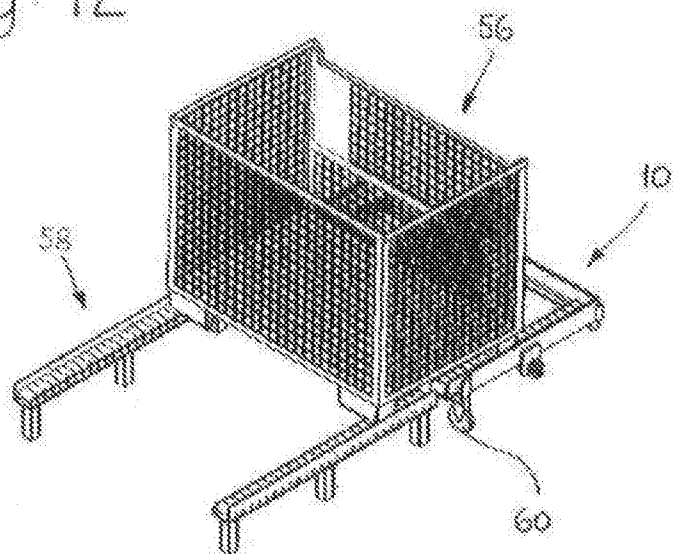


Fig. 11

Fig. 12



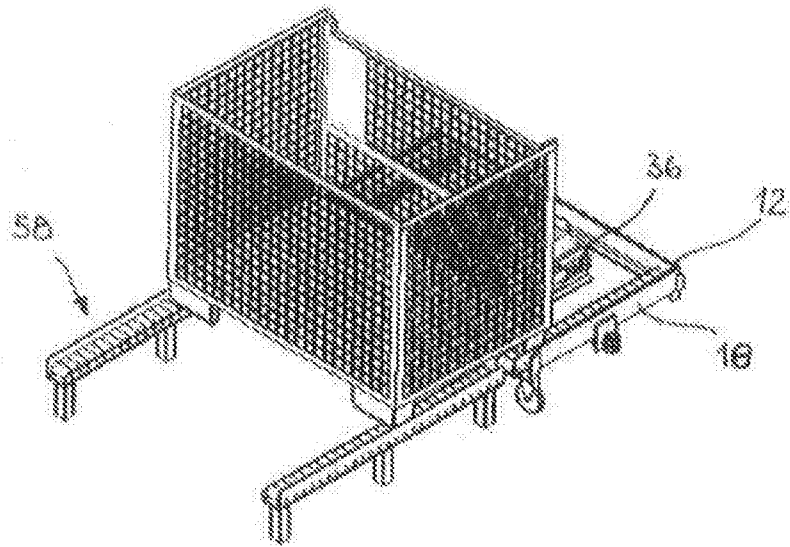


Fig. 13

Fig. 14

