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## CONSTRUCTION PLATFORM

## Field of the Invention

The invention relates to construction platforms, that is to say temporary landings which in use extend away from an exterior face of a  
5 multi-storey building under construction.

## Background of the Invention

In the construction of multi-storey buildings it has been proposed to employ construction platforms to facilitate the removal and delivery of materials to various floors under construction. One previously proposed  
10 platform comprises a pair of generally parallel, co-extensive, transversely spaced apart, horizontal beams which extend outwardly from a floor of a building under construction, a landing floor extending between the beams, and a safety rail extending about the outer free edges of the platform. The beams comprise supported portions that are  
15 fixedly secured on a floor of the building and cantilever portions that project from the building and carry the landing floor. Each beam may be so secured in position by at least two length adjustable struts which extend between a portion of the beam contacting one floor and an adjacent (usually the next above) floor of the building.

20 For descriptive convenience the terms "inboard" and "outboard" are used hereinafter with reference to a building, in the sense that items designated as inboard are disposed, when in use, within the perimeter of a relevant floor of the building, whereas items designated as outboard project from the building when in use and are disposed outside of that  
25 perimeter. The terms are similarly used to designate the positions for

the time being of movable items that may be inboard at one time and outboard at another.

Further construction platforms having retractable decks which may be moved from an outboard to an inboard position and vice versa have  
5 also been previously proposed by the present inventor. Such prior known retractable deck platforms have comprised semi-permanent supporting beams of the kind used for conventional fixed floor platforms and a horizontally movable landing deck carried by those beams. However, such prior known movable deck constructions have been  
10 widely regarded as unstable and therefore unsafe, and have not been adopted in practice. Moreover, in relation to some construction methods, particularly those involving swinging stages or mechanical stage platforms which climb up and down on towers, the outboard portions of the deck support beams have been obtrusive and  
15 undesirable.

### Objects and Summary of the Invention

It is an object of the invention to provide a construction platform which substantially overcomes or at least alleviates one or more of the above mentioned deficiencies of prior proposed platforms.

20 According to one class of embodiments, the invention attains that objective by providing construction platforms of the kind having a retractable deck including locking devices for retaining the movable deck in selected operating positions and wherein the deck is bounded along its outboard edges by safety barriers irrespective of its position.

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According to a second class of embodiments the invention provides retractable deck type construction platforms as aforesaid wherein the entirety of the outboard portion of the platform is retractable to an inboard position.

5        Therefore the invention consists in a construction platform comprising a stationary support structure adapted to be fixedly secured to a floor of a building under construction, a landing deck having an outermost edge carried by said support structure and able to move to and fro between at least one inboard and at least one outboard position  
10 relative to the building, immobilising means to releasably lock the deck in said at least one outboard position, and safety barrier means movable with the deck and extending along its said outermost edge.

According to one class of embodiments the support structure comprises stationary cantilever beams on which the movable deck may  
15 ride and which support the deck in the outboard position. In these instances the safety barrier means may comprise fixed safety railings or walls extending along those beams and swing mounted, lockable gates extending (when closed) along the outermost edge of the deck and moving therewith.

20        According to a second class of embodiments a self supporting deck may extend as a cantilever from the support structure when in its outboard position. In these instances the safety barrier means may comprise safety barriers extending along the side edges and the outermost edge of the deck and moving therewith.

## Brief Description of the Drawings

Figure 1 is a perspective view of three construction platforms according to the invention having retractable landing decks supported by a partly outboard support structure comprising semi-permanently  
5 erected beams.

Figure 2 is a perspective view of the platforms of Figure 1 shown as used to load and unload a truck.

Figure 3 is a perspective view of portion of a cantilever beam and deck immobilising means, being components of a platform of the kind  
10 depicted in figure 1.

Figure 4 is a cross section taken on line 4-4 of Figure 3, illustrating the immobilising means in the locked position.

Figure 5 is a view similar to figure 4 illustrating the immobilising means in the unlocked position.

15 Figure 6 is a perspective layout of a platform of the kind depicted in figure 1 with an electrically powered deck drive means.

Figure 7 is a detail view from one side of the portion of figure 7 included within the enclosure marked 7 in that figure.

Figure 8 is a view similar to figure 7 showing a drive means, being  
20 a component of the platforms of figure 1.

Figure 9 is a detail front elevation of guide and support means for a retractable deck, being components of a platform of the kind depicted in figure 1.

Figure 10 is a perspective view of an electrically powered friction  
5 drive means, being components of a platform of the kind depicted in figure 1.

Figure 11 is a view similar to figure 10 of an alternative drive means incorporating a rack and pinion mechanism which is electrically, mechanically or hydraulically powered.

10 Figure 12 is a perspective view of an end portion of a platform of the kind illustrated in figure 1 with its deck fully extended and braced for use, but with its end safety barrier omitted.

Figures 13 and 14 illustrate details of bracing means, being components of the platform illustrated in Figure 12.

15 Figure 15 is a perspective view of an end portion of another embodiment of a platform according to the invention of the kind shown in figure 1.

Figure 16 is a perspective view of a brace element and a pair of  
length adjustable struts being components of a platform in accordance  
20 with the invention.

Figure 17 is an exploded perspective view of the brace element and the pair of struts illustrated in Figure 16.

Figure 18 is a perspective view of a another construction platform according to the invention having a fully inboard support structure and a fully retractable landing deck.

Figure 19 is a top plan elevation of the platform of Figure 18.

5        Figure 20 is a side view of the platform of Figure 18.

Figure 21 is a perspective view of a plank located between two length adjustable struts, being components of the platform of figure 18.

Figure 22 is a side elevation of a base plate and roller arrangement, being components of the platform of figure 18.

10       Figure 23 is a section taken on line 23-23 of Figure 22, drawn to a smaller scale.

Figure 24 is a perspective view of a portion of a base and rollers, being components of the subject matter of figure 18.

Figure 25 is an elevation of a deck strut and a support structure  
15    strut and deck drive means, being components of the platform of figure 18.

Figure 26 is a perspective detail view of deck drive means including an electric motor or a hydraulic motor in conjunction with a rack and pinion, being components of the platform of figure 18 drawn to  
20    a larger scale.

Figure 27 is a view similar to figure 26 of an alternative deck drive means.

Figure 28 is a perspective view of three fully retractable platforms of another embodiment of the invention.

5        Figure 29 is a side view of two of the platforms depicted in Figure 28.

Figure 30 is a top plan elevation of one of the platforms depicted in Figure 28.

Figure 31 is a front view of one of the platforms depicted in  
10    Figure 28, but with struts omitted.

Figure 32 is a cross-sectional detail view of a support structure beam and part of a retractable deck carried thereby, according to another embodiment of the invention.

Figure 33 is a perspective view of a platform according to the  
15    invention in combination with a chute assembly.

Figure 34 is a perspective view of three platforms according to figure 33 in combination with the chute assembly of that figure.

#### Best Mode and Other Embodiments of the Present Invention

As shown in Figure 1, movement of materials into and out of a  
20    building under construction is facilitated by the use of one or more

retractable deck, construction platforms 100 in accordance with the invention and an overhead gantry or monorail crane 101. Each platform 100 comprises a semi-permanently erected stationary support structure comprising side rails or beams 102 and a movable landing  
5 deck 103 which is supported by and travels upon the beams 102 on rollers or bearings as described in more detail hereinafter. The deck 103 may be shifted between an inboard position (as shown in the two uppermost platforms of the figure) and an outboard position (as shown in the bottom platform of the figure), so that a load can be lifted  
10 straight through to the overhead rail 101. Similarly, a load may be deposited on any deck 103 when in its outboard position. Each platform 100 further comprises safety barrier means comprising side walls 104 extending along at least the outboard portions of the beams 102 and folding or swinging doors 105 mounted on the deck 103.  
15 An end gantry 105 may be required to support the far end of the rail 101.

Figure 2 shows this type of construction platform permitting a load to be picked up from, or delivered to, a truck 106. Note that each platform is secured in place by telescopic struts 107 which may be  
20 located in pairs on either side of the platform and which may be manually or otherwise extended to secure the inboard portions of the beams 102 between floors of the building.

Figures 3 to 17 inclusive illustrate in greater detail the embodiment of the invention appearing in figure 1.

25 As shown in Figures 6, 7 and 8, the rear portion 7 of one of the support structure beams 102 may partially house electrical components depicted in Figures 7 and 8, being a drive motor 108, operating

switches 109 and a rear limit switch 110 for shutting off the motor 108 of the drive means which advances and retracts the movable deck 103. The platform may also include a front limit switch 111 and various locking pins 112 for immobilising the deck in predetermined positions of use. A rear security gate or chain 113 may also be provided.

As shown in Figure 9 the deck 113 may comprise substantial Rectangular Hollow Section side members 114 with longitudinally extending flange plates 115 affixed to a rigidified floor panel 116 and running as movable rails upon supporting guide rollers 117 mounted on the respective I-beams 102.

Figure 10 illustrates the drive means of the embodiment now being described. Those means comprise the electric 108 or other motor driving a driving wheel 118 through a right angled gearbox 119 mounted on a beam 102. The wheel 118 has a high friction surface to minimise slip between it and the floor panel 116. This friction drive mechanism further includes an adjusting or tensioning screw 120 which is used to increase or decrease the amount of pressure exerted by the wheel 118 on the deck floor 116. The friction roller 118 is held on a pivoting bracket 121 which is raised or lowered by adjustment of the tension screw 120.

Figure 11 illustrates an alternative drive means for shifting the deck 103. In this instance the drive motor and gear box mounted on the beam 102 turns a pinion of a rack and pinion pair 122. The pinion is mounted for rotation about a fixed vertical axis and engages a longitudinally extending rack on the rail 114 through a slot in the web of the beam 102. Rotation of the pinion gear causes the deck 103 to advance and retract. Guide rollers 123 and 124 prevent the rack and

pinion from becoming disengaged, and wheel 125 supports the weight of the deck and provides for its free movement.

Figures 3, 4 and 5 illustrate in greater detail a preferred embodiment of a locking mechanism, being an immobilising means of the embodiment of the invention now being described. The illustrated mechanism comprises a latch bolt 126, a bolt guide 127 and a clip 128 to hold the bolt 126 in a retracted inoperative position.

Figure 4 illustrates the locking mechanism in an operative position with bolt 126 extending through openings in the top and bottom flanges of support beam 102, and through a hole in the edge margin of the movable deck 103 when the hole and openings are brought into register thereby preventing relative sliding movement between the deck 103 and the beam 102. Whereas Figure 5 illustrates the locking mechanism in an inoperative position with bolt 126 (in ghost outline) in a retracted position in engagement with the clip 157, thereby permitting relative sliding movement between the deck 128 and the beam 102.

A similar locking mechanism may be used as immobilising means in fully retractable platform embodiments in which the retractable beams of a sliding deck are slidably supported within respective stationary guides of an inboard support structure, to prevent relative movement therebetween.

Figures 12, 13 and 14 illustrate details of the outer edge of the embodiment now being described, with the deck 103 in its outboard position of use. In particular, they illustrate bracing means for the platform comprising a pair of elongate stay elements 129, each having an end hinged by means of hinge joint 130 or otherwise pivotally

mounted to a top edge of the exposed end of the retractable deck 103. The other end of each of the stay elements 129 is releasably fastened or secured to a respective safety wall 104. The latter securement may be effected by the releasable fastening means shown in more detail by

5 Figures 13 and 14 comprising a tongue 131 having one end welded or otherwise attached to the stay element 129 thereby to extend substantially perpendicular to the longitudinal axis of the stay element 129. The tongue 131 has an opening 132 piercing it near its other end. To fasten the stay element 129 to the safety wall 104 the tongue 131 is

10 positioned to extend through an aperture 133 in an upright member 134 to enable a latch pin 135 having a hooked end 136 is then driven into said opening 132 thereby releasably securing the stay element 129 to the safety barrier wall 104. The latch pin 135 also extends through a clearance hole in a substantially horizontal member 137 of the wall 104

15 with the hooked end 136 hooked thereover.

The bracing means further comprise locating holes 138 in end plates 139 applied to the beams 102 adapted to receive pins 140 protruding from the front edge of the deck 103. Those pins 140 thus constitute the third points of triangular constructions positively bracing

20 the deck 103 and the beams 102 into a rigid entity.

Figure 15 shows an alternative bracing structure wherein the simple pins 140 are replaced by tongues 141 adapted to pierce slots in the end plates and thereafter accept cotter pins 142 to lock the deck in place and provide further immobilising means.

25 The end edge of the deck 103 is able to be closed by means of doors 114, detachably hinged to the walls 104. In this regard it is

mentioned that the gates and/or chain 113 at the inboard end of the deck is/are primarily relied upon as a safety measure.

Figures 16 and 17 illustrate a pair of struts 143, such as struts 107, together with a releasably secured strut brace 144 to impart  
5 rigidity and stability to the strut structure. Each strut 143 comprises a Rectangular Hollow Section (RHS) member 145, a manually adjustable jack screw 146 with one end extending into the hollow core of tubular member 145, wing nut 147, floor or beam abutment means 148 at the other end of screw 146 and a bracket member 149. Said bracket  
10 member 149 comprises a tubular abutment member 150 of substantially the same cross section and dimensions as member 145, disposed within a sleeve 151 of substantially the same cross sectional shape but of larger dimensions, formed so that the bracket member 149 fits neatly over and sits on the end of the tubular member 145. A flange 152  
15 projects from the sleeve 151. The flange 152 provides a mounting for the ends of brace element 144. The brace element 144 is in the form of an elongate C-section structural member. The brace element 144 is mounted to the bracket member 149 by fastening means, for example the nut and bolt illustrated in Figure 17.

20 In other embodiments, a construction platform having a self supporting cantilever landing deck 200, as shown in Figure 18, may be provided. In this instance the deck 200 may be fully extended to an outboard position or retracted to an inboard position using human, electrical, hydraulic or other forms of power, whereupon no portion of the  
25 platform is outboard of the building, as the landing deck 200 is carried by an entirely inboard stationary support structure 201.

The support structure 201 comprises extendable struts 202 and supports the retractable deck 200 on rollers or the like. It also comprises drive means for shifting the deck 200. Those drive means may include braking devices to immobilise the deck, or may be self-  
5 locking when de-energised, in which event the immobilising means may merely comprise manually operable on-off switches or the like for the drive means.

The deck 200 comprises a deck floor 203, retractable beams 204 to which the floor 203 is fastened, safety walls 205, folding or swinging  
10 gates 206, and telescopic or otherwise extendable struts 207. Two of the struts 207 are located at the extreme rear of the deck 200. The struts 207 are shortened when the deck 200 is being shifted between its fully inboard and partly outboard extreme positions. Once the deck 200 is in its outboard position, the struts 207 are extended to firmly secure  
15 the landing deck 200 between two floors of a building under construction.

As shown for example in Figures 18, 20 and 25, the inboard support structure 201 comprises four length adjustable struts 202 which lie generally outside of the struts 207 of the movable deck 200. These  
20 struts 202 are extended to secure the support structure 201 in place when the platform is erected, and remain in place until the platform is no longer required. As mentioned earlier the support structure 201 comprises drive means for shifting the deck 200. These drive means may comprise an electric or hydraulic motor 208 or a gearbox 209  
25 suitable for hand cranking.

Each of the struts 202 may be welded to a base plate 210 (see figure 25) of, for example, 10 or 20mm steel plate, and each base

plate 210 preferably traps rollers 211 (see figures 22, 23 and 24) or bearings which allow the movable deck 200 to be driven to and fro without excessive friction.

Both the support structure 201 and the movable deck 200 may  
5 include horizontal planks 212 (see figure 21) conveniently located between upright struts so a person can step onto the plank 212 and adjust the length of the struts, as required.

As shown in Figures 19 and 20, when the deck 200 is fully extended into its outboard position, it is preferable that the rearmost  
10 end 213 of the deck 200 lies just inboard of the rearmost struts 202 of the support structure 201.

As the deck 200 must be stable when not moving, it must rest on a solid and stable base. As shown in Figures 22, 23 and 24 each base 210 may have anti-friction rollers or bearings 211 incorporated into  
15 it. Preferably, the bearings 211 are partially recessed within the base 210 and the base is welded to or attached to the bottom ends of the struts 202. In the embodiment now being described the retractable beams 204 are I-beams of conventional cross-section. Thus, as shown in Figure 22, each beam 204 comprises a central web 214, a top flange  
20 (not shown) and a bottom flange 215.

In order to immobilise the deck 200 when it is stationary in one or other of its two inboard or outboard positions of use and the drive means are de-energised, the bottom flange 215 is provided with a system of detents 216. Each detent 216 comprises a central  
25 opening 217 and ramped surfaces 218 on each side of the opening 217. When the beam 204 is advanced past a ramp 218 it rolls on the

rollers 211. As shown in Figures 22 and 23, the underside 219 of the beam 204 rests on the top surface 220 of the base 210 when the roller 211 is within a detent 216. The detents 216 are positioned to correspond with the predetermined use positions of the deck 200.

5       As shown in Figure 25 a deck strut 207 is shown as fixed above the I-beam 204. Similarly, a support structure strut 202 is welded or otherwise joined to the base plate 210. Thus, the deck I-beams 204 may move to and fro on the rollers or bearings 211 as discussed with reference to Figures 22, 23 and 24. In this example, an electric  
10   motor 208 is used to drive a pinion gear 221 which engages a rack 222 which is integrated into an upper surface of the bottom flange 215 of the I-beam 204. This arrangement is shown in more detail in Figure 26.

      As shown in Figure 26, an electric or hydraulic motor 208 may be used to directly or indirectly drive a pinion 221, which pinion 221  
15   engages a rack gear 222. Thus the rotation of the motor 208 results in a linear motion of the deck I-beams 204. As shown in Figure 27, a hand operated device 209 is also suitable, the device 209 being provided with a hand crank 223 and a suitable reduction gearbox 224. Preferably the gear box is a self locking worm and wheel so that it also  
20   constitutes immobilising means for the deck.

      Figures 28, 29, 30 and 31 illustrate another embodiment of fully retractable platforms wherein each platform comprises a support structure 300 and a movable deck 301. The stationary support structure 300 comprises a pair of stationary guides in the form of two  
25   substantially parallel, transversely spaced I-beams 302, each releasably secured by a pair of length adjustable struts 303 to the floor of a building. The struts 303 extend between the underside of one floor and

the upper surface of said beams 302 to secure the beams 302 between adjacent floors. Each strut 303 is located towards an end of each guide beam 302. Each guide beam 302 is preferably an I-beam or channel. The movable deck 301 comprises a pair of substantially parallel movable  
5 beams 304 of similar cross-section to that of the guide beams 302 but of smaller dimension, so that the movable beams 304 may be ensconced within and move longitudinally along respective channels defined by the guide beams 302, a deck floor 305 mounted to and extending between the beams 304, safety railings 306 and folding or  
10 swing gates 307.

The guide beams 302 are about half the length of the movable beams 304 and are emplaced within a building so as not to extend outside the face of the building. The deck 301 is advanced or retracted manually using a hand cranked mechanical device 308. The deck 301  
15 may be fully retracted whereby not to extend outside the face of the building, or may be advanced fully to the outboard position illustrated, or may be advanced to an intermediate extent.

Figure 32 illustrates retaining means to prevent separation of a movable deck 400 from stationary guide beams 401 (one beam only is  
20 illustrated) other than in the axial direction of the beams 401. Figure 32 illustrates one stationary I-beam 401 and an edge of the movable deck 400 which is axially slidable within a channel 402 of beam 401 but not separable therefrom in a non-axial direction. Said retaining means is in the form of a number of retaining members 403 provided along  
25 each beam 401 and a retaining flange 404 provided along the edges of the deck 400 facing the beams 401. The channel groove of each I-beam 401 accommodating an edge of the deck 400 is provided with said retaining members 403 at intervals along its length. The flange 404

may be releasably fastened to the deck 400 by fasteners, such as nuts and bolts 406, or may otherwise be fixed thereto. Said retaining members 403 are preferably welded to the beam 401. Each retaining member 403 has a recess 403 in its lower edge margin forming a cavity  
5 between itself and the web of the beam 401. The flange 406 extends into those cavities thereby preventing separation of the deck 400 from the beam 401 in a non-axial direction. The member 403 also supports a roller bearing 405 making rolling contact with the flange 404. Further, the web of the beam 401 is provided with a number of pairs of roller  
10 bearings 407 spaced apart along its length making rolling contact with the flange 404. A number of load bearing rollers 408 are also provided along the respective lower edge margins of the deck 400 to rolling contact with the upper surface of the lower flanges of the I-beams 401. Each retaining member 403 may be pierced by a hole 409 for use as an  
15 eyelet for a sling hook to facilitate lifting and handling of the beams 401.

Hitherto rubbish or debris disposal chutes have been attached to the outside of buildings or through a cavity in the floor of a building. It has been found that this previous practice interferes with effective waterproofing and closing of buildings and further additionally contributes  
20 to the costs of construction.

Accordingly there is herein disclosed a chute assembly in combination with a construction platform according to the invention.

Figure 33 illustrates a platform 500 in combination with a rubbish disposal chute 501. The safety barrier 502 of the platform 500 is  
25 provided with a set of gates 503 adapted to open onto an aperture 504 in the side wall of the chute 501 facing the platform 500. The chute 501 is releasably attached to said safety barrier 502 and as illustrated in

Figure 34 is adapted to be included in a chute assembly comprising a plurality of such chutes in a vertical stack, wherein each communicates with a neighbour or neighbours to form a continuous duct through which material may be delivered to a bin 506. The chutes 501 may be formed  
5 of plastics or metal material.

Figure 34 illustrates three platforms 500 in combination with a chute 501. The illustrated assembly of chutes 501 is releasably attached to each of the three platforms 500. Prior to retraction of the deck of one or more of platforms 500 the gates 503 of the respective  
10 safety barriers 502 may be closed and the deck of the platform 500 may then be retracted safely without interfering with the operation of the chute assembly or any other platform 500. Further, in the case of partial retraction, the gates 503 of any one safety barrier 502 may be relocated therealong to another position to coincide with the chute aperture 504.  
15 Further still, the assembly of chutes 501 does not interfere with the use of any one or more of the platforms 500. For example, as illustrated in Figure 34, the bottom platform 500 may be used as a loading platform, while the decks of the two upper platforms 500 are partially retracted and are used in combination with the chute assembly for rubbish  
20 removal.

## CLAIMS

1. A construction platform comprising a stationary support structure adapted to be fixedly secured to a floor of a building under construction, a landing deck, having an outermost edge, carried by said support  
5 structure and able to move to and fro between at least one inboard and at least one outboard position relative to the building, and immobilising means to releasably lock the deck in said at least one outboard position.
2. A construction platform according to claim 1 further comprising drive means to shift the deck between said positions.
- 10 3. A construction platform according to either claim 1 or claim 2 wherein the stationary support structure comprises two substantially parallel, transversely spaced guide beams, and two pairs of length adjustable struts respectively associated with the guide beams.
4. A construction platform according any one of the preceding  
15 claims wherein said safety barrier means comprise at least two barriers extending along side edges of the deck and at least one gate extending along an end edge of said deck.
5. A construction platform according to claim 3 wherein said  
movable deck may extend as a self-supporting cantilever when in said  
20 outboard position and has side edge margins respectively engaging said guide beams.
6. A construction platform according to claim 5 wherein each said side edge margin of the movable deck comprises a deck beam ensconced within and movable longitudinally along a channel defined by



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a respective one of said guide beams, and wherein a deck floor is supported by and extends between said deck beams.

7. A construction platform according to either claim 5 or claim 6 wherein the stationary support means are wholly inboard of the building.

5 8. A construction platform according any one of the preceding claims further comprising retaining means to permit longitudinal movement of the movable deck relative to the support structure but to prevent separation of the movable deck from the support structure.

9. A construction platform according to any one of the preceding  
10 claims in combination with a disposal chute.

10. A construction platform according to claim 9 wherein the safety barrier means further comprises a gate to close an in-feed opening in said chute.

11. A construction platform according to claim 10 wherein the  
15 disposal chute feeds into the disposal chute of a second platform and chute combination.

12. A construction platform according to claim 2 wherein said drive means comprise a drive motor.

13. A construction platform according to claim 12 wherein said  
20 immobilising means comprise detents that may be over-ridden by energising said drive motor.



14. A construction platform according to either claim 12 or claim 13 wherein said drive motor is interlocked with the integrity of said safety barrier means, being rendered inoperable if a gate of those barrier means is open.
- 5 15. A construction platform according to any one of the preceding claims further comprising manually erectable bracing means rigidifying said support structure and said movable deck when the deck is in said outboard position.
- 10 16. A construction platform according to any one of the preceding claims wherein said movable deck is rendered freely movable relative to the support structure by means of load bearing rollers disposed between it and the support structure, wherein said load bearing rollers are locationally fixed relative rollers to one of said deck and support structure and wherein said immobilising means comprise clearance  
15 recesses in the other of said deck and support structure which respectively come into register with said rollers when said deck is in at least one said position, to then render the rollers inoperative.
17. A construction platform according to claim 16 wherein each said recess has ramped end faces.
- 20 18. A construction platform substantially as described herein with reference to the figures illustrating any one embodiment of the invention.



## ABSTRACT

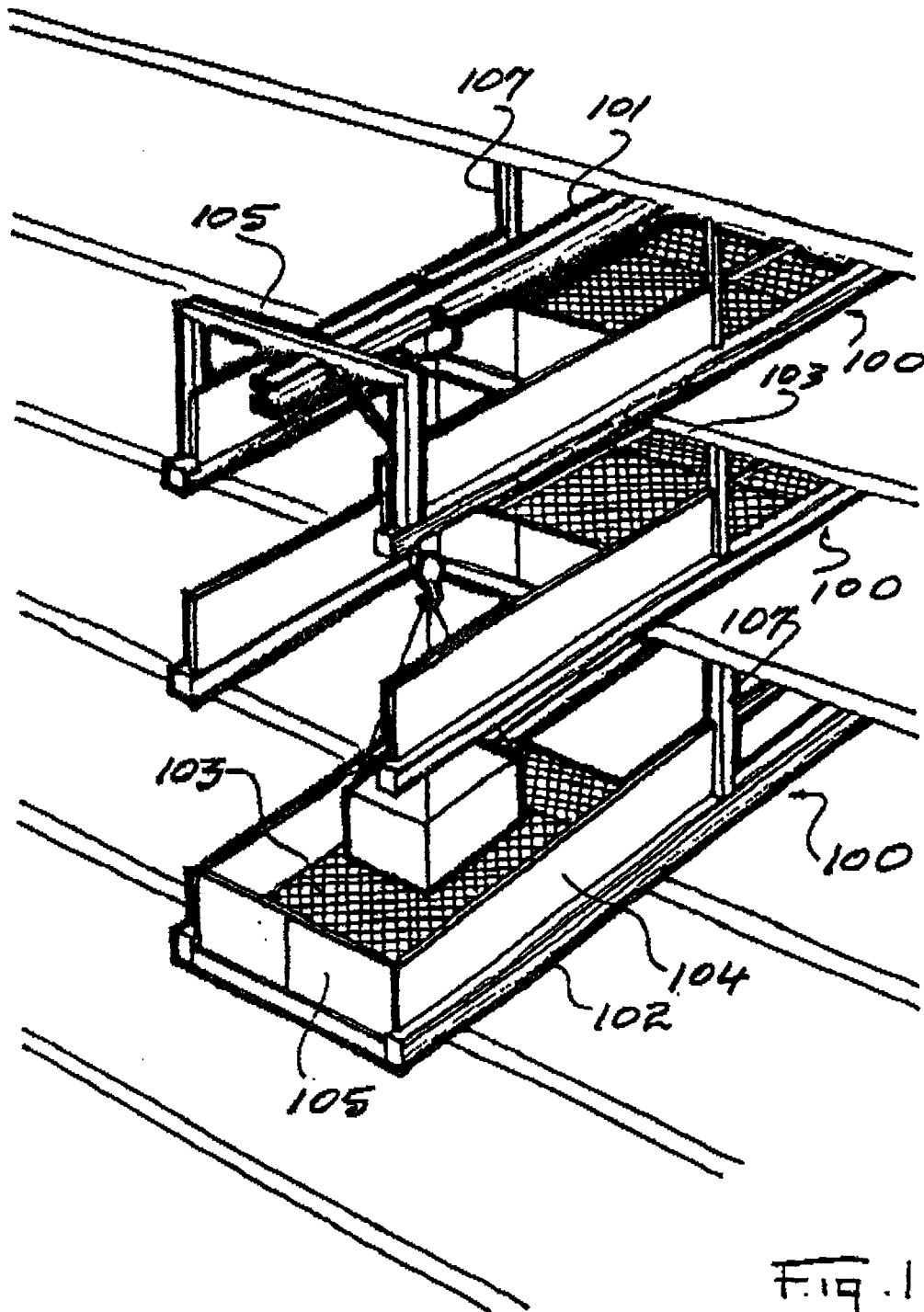
### CONTRUCTION PLATFORM

A construction platform comprises a stationary support structure (300) comprising two guide beams (302) and four length adjustable struts (303) for securing the guide beams between adjacent floor of a building under construction, a landing deck (301) carried by the support structure and able to move to and fro between at least one inboard and at least one outboard position relative to the building, drive means to shift the landing deck between those positions, immobilising means to releasably lock the deck in said at least one outboard position, and safety barrier means (306,7) extending about the periphery of the deck. In some embodiments the guide beams extend as cantilevers from the building and remain there when the deck is driven inboard. In other embodiments the deck extends as a self supporting cantilever in the outboard position and nothing projects from the building when the deck is inboard.

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FIG. 1

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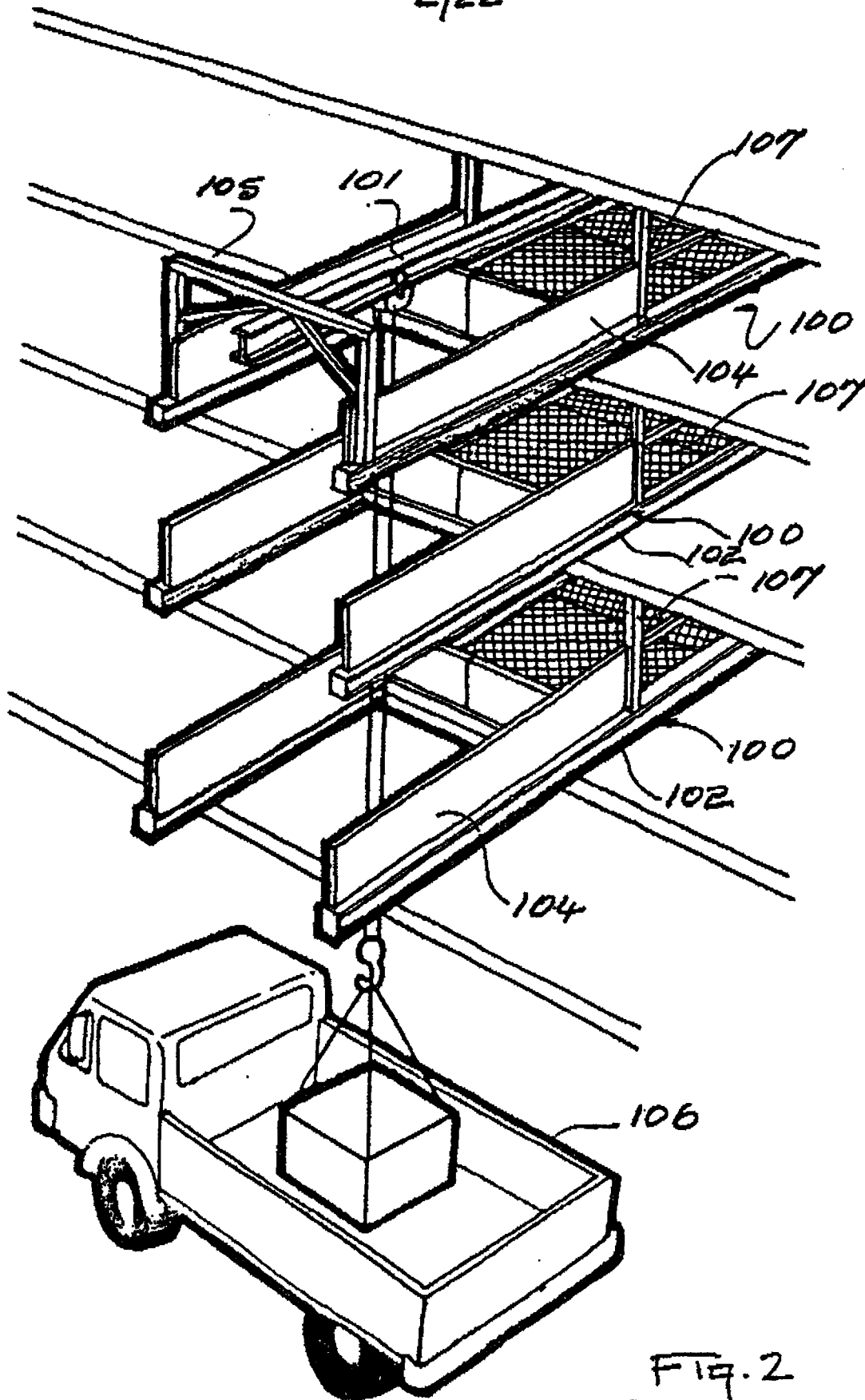
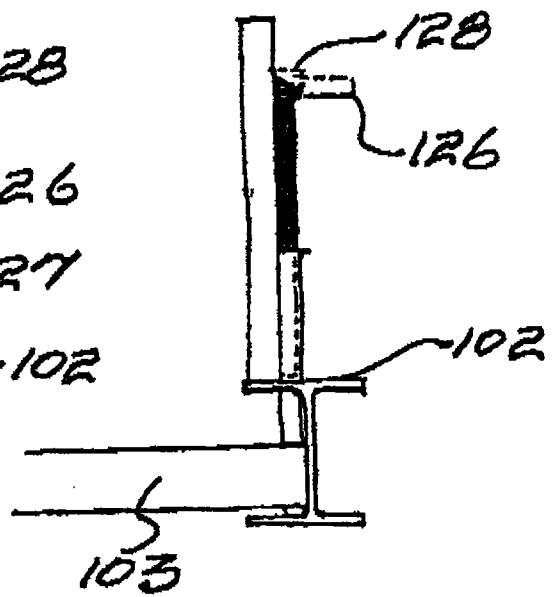
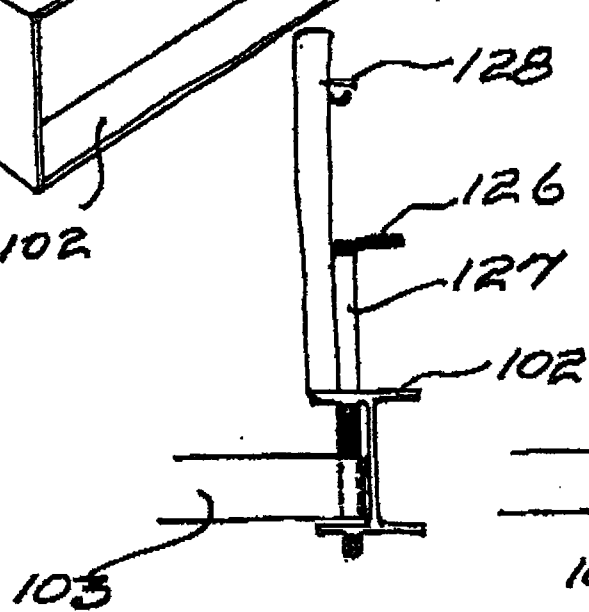
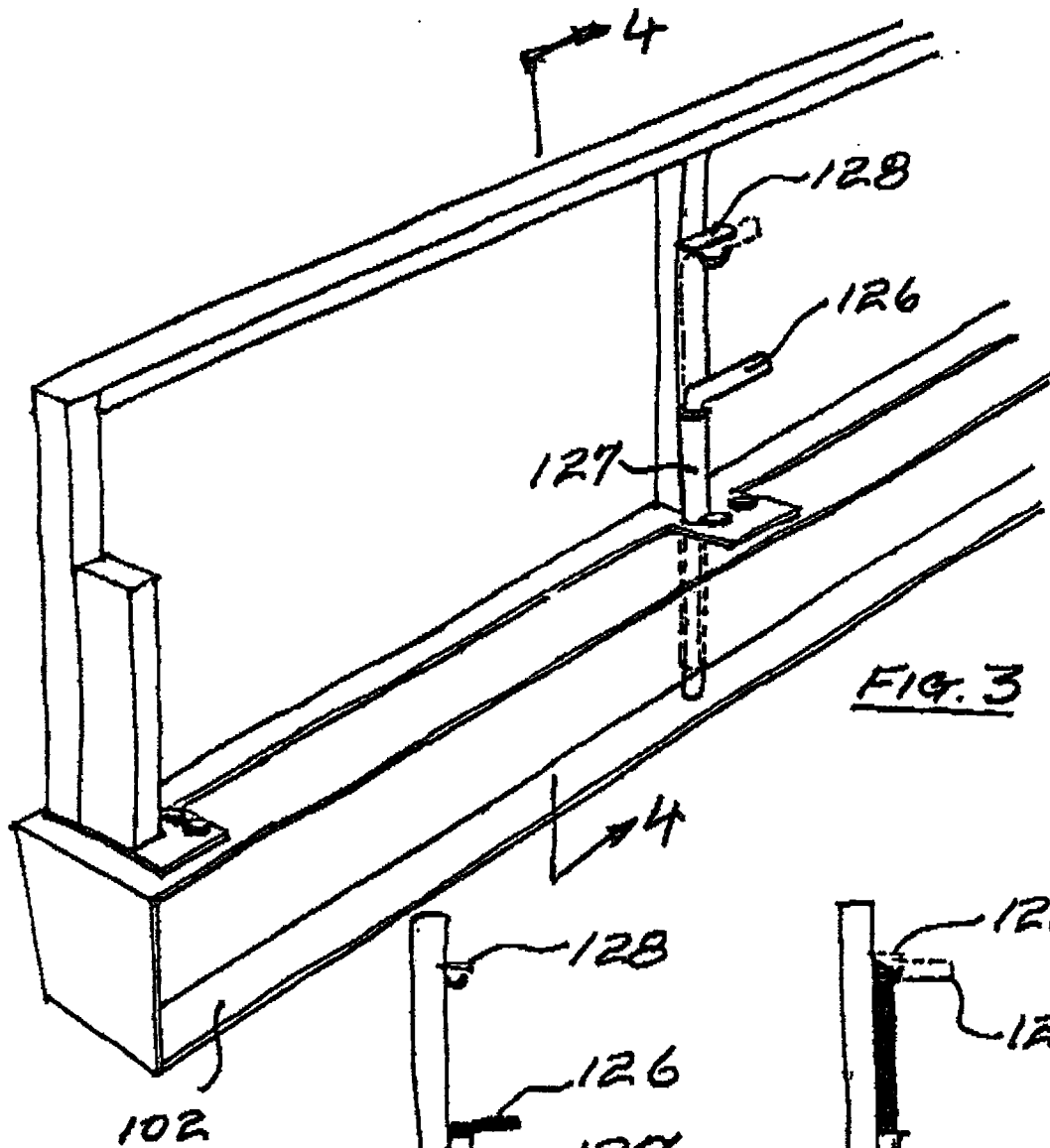


FIG. 2

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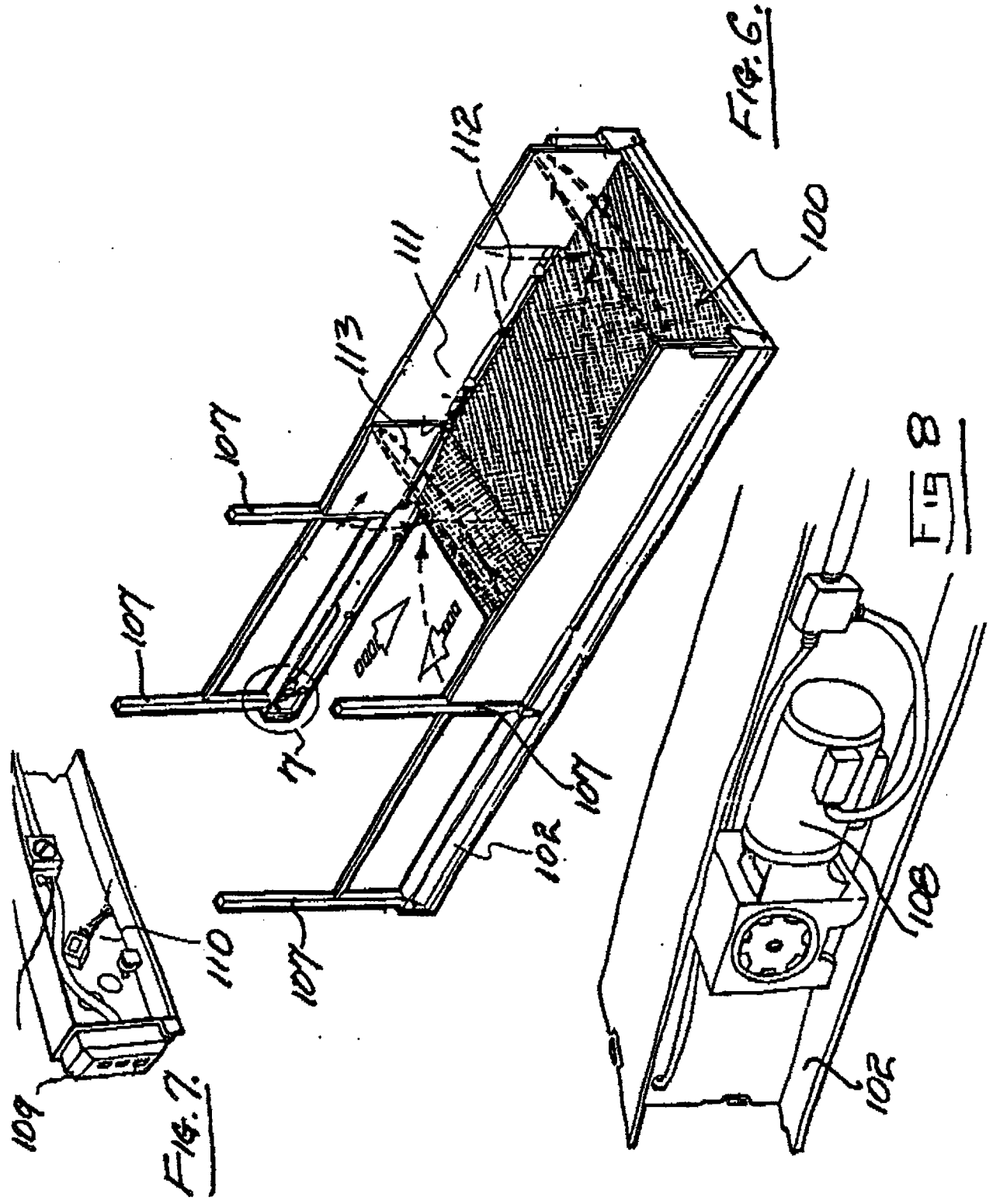


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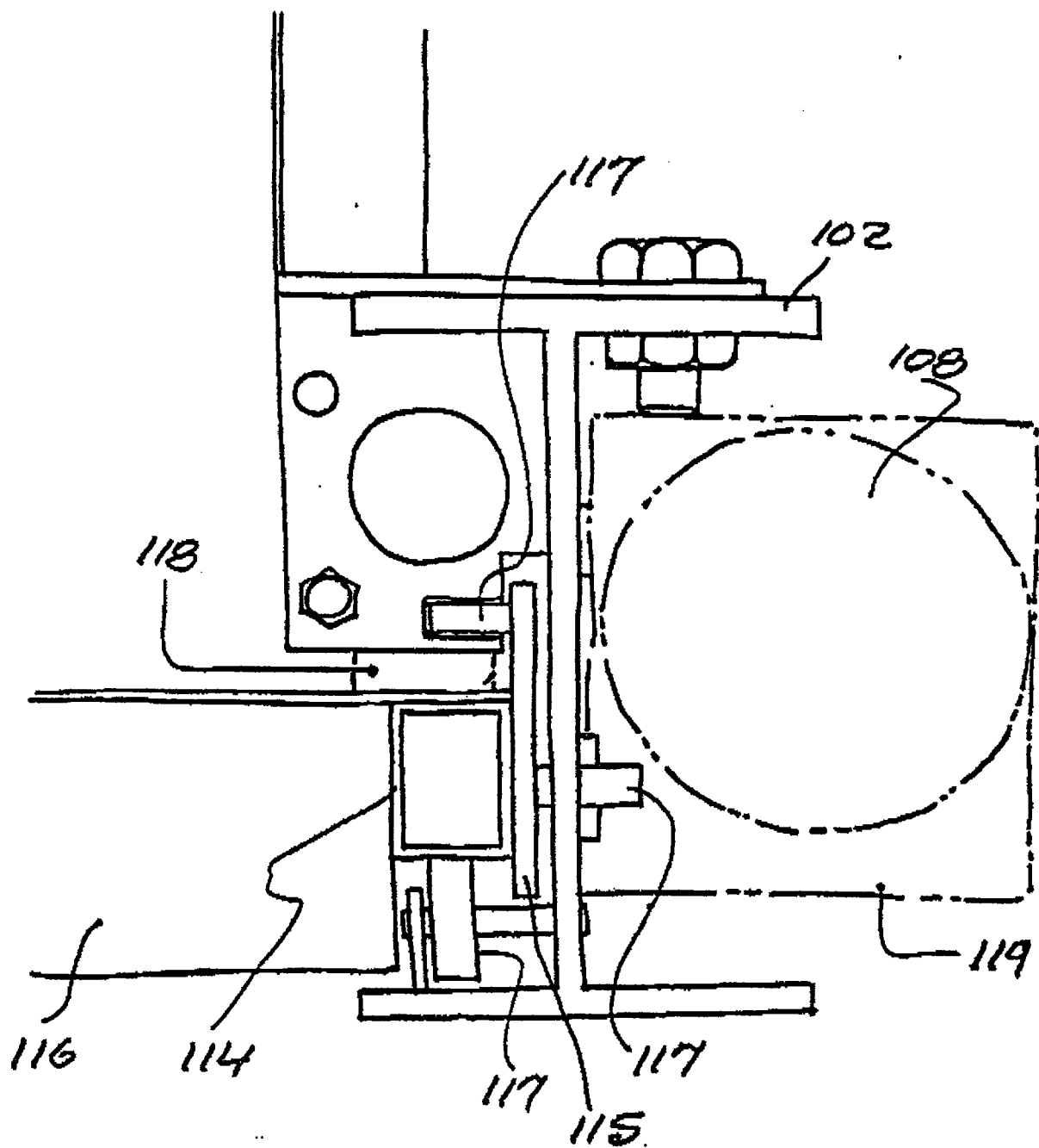


FIG. 9.

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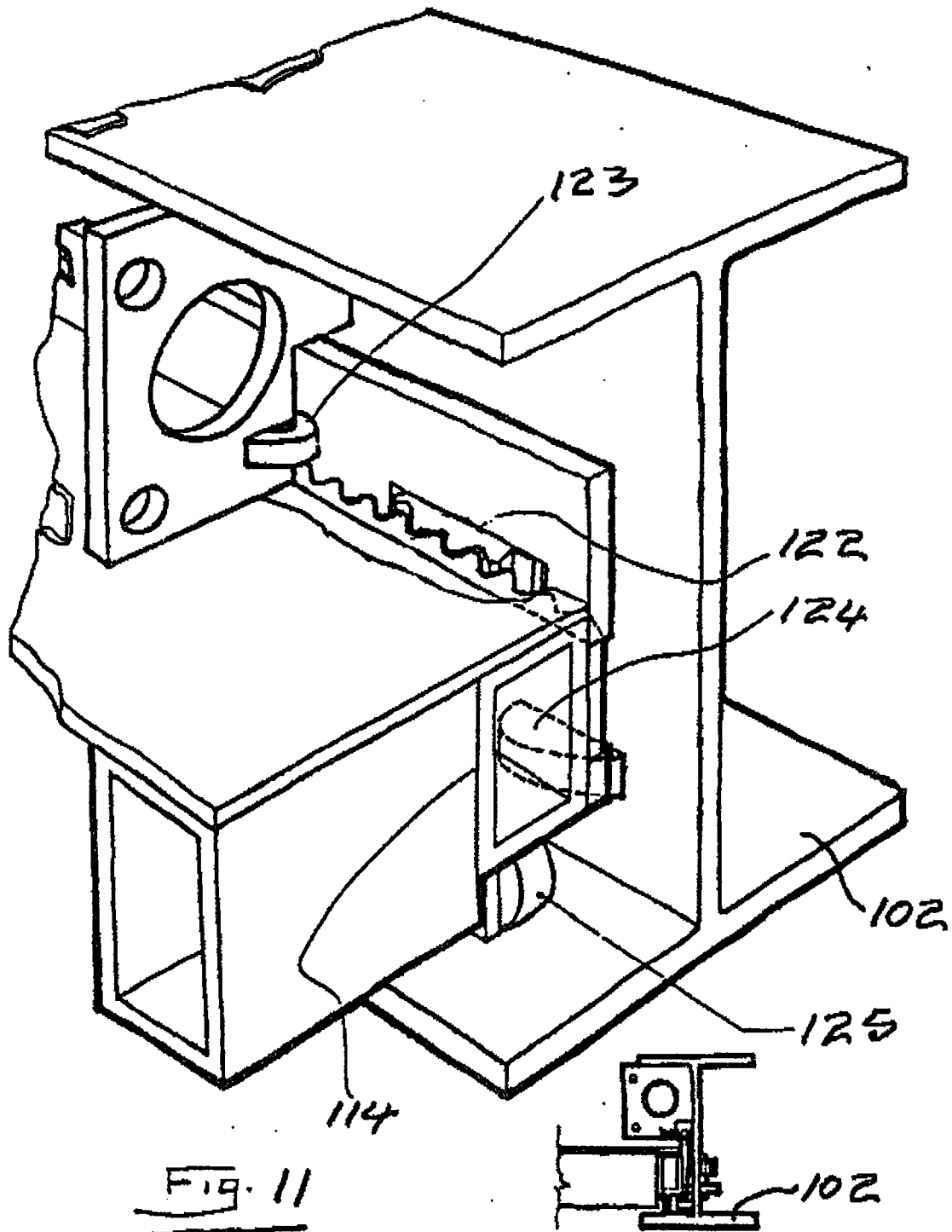


FIG. 11

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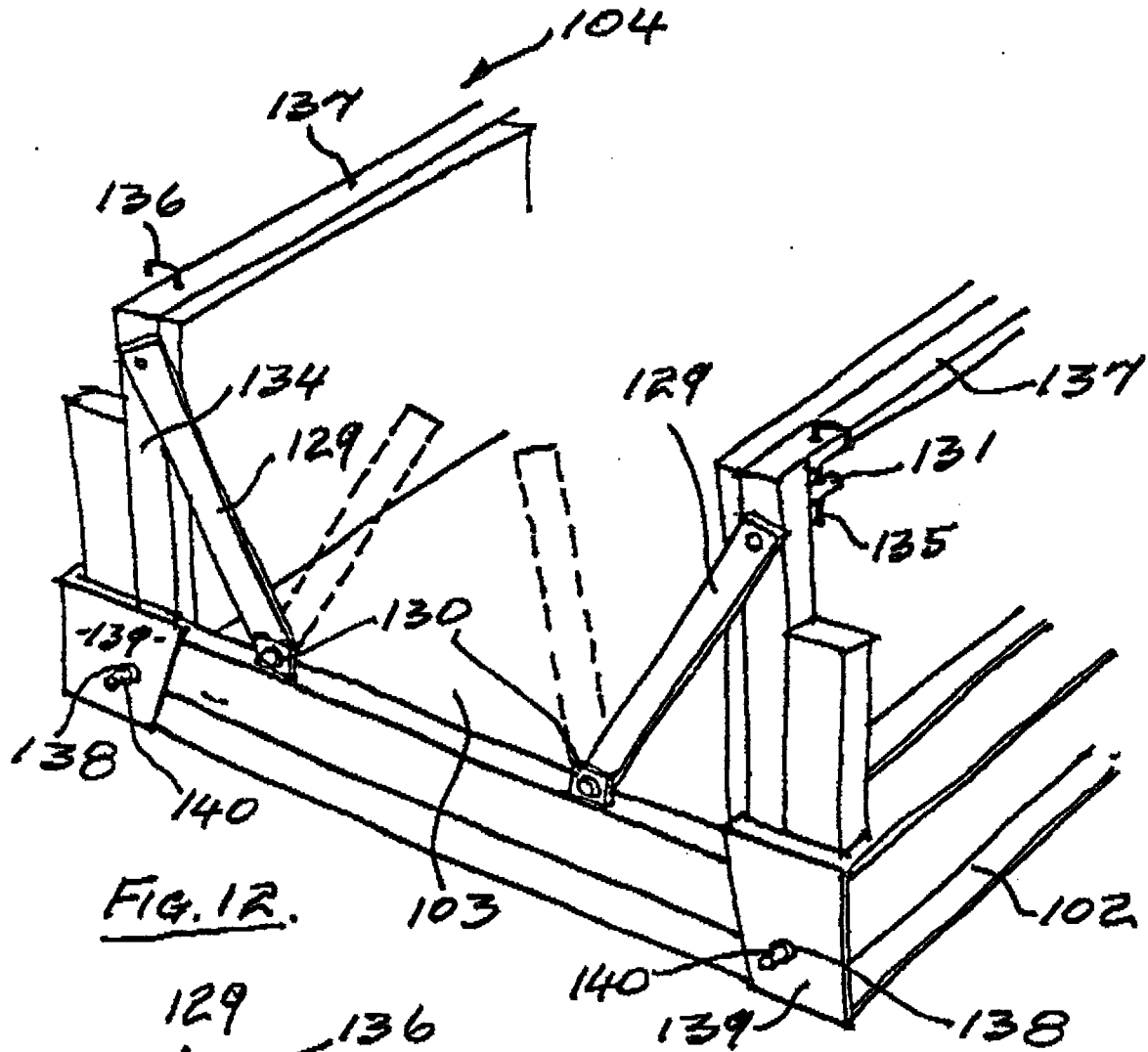


FIG. 12.

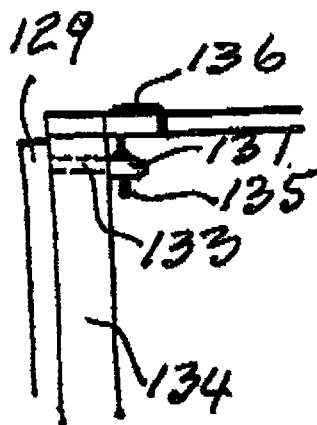


FIG. 13

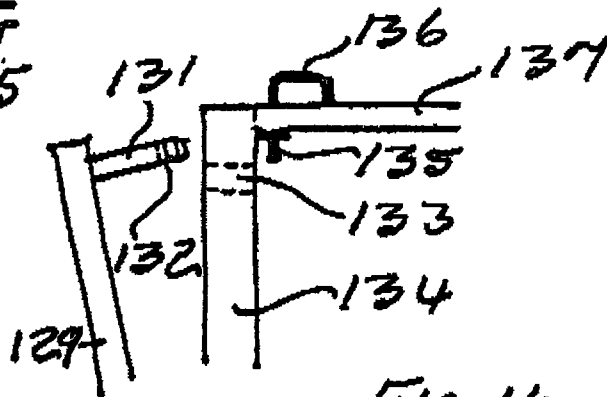


FIG. 14

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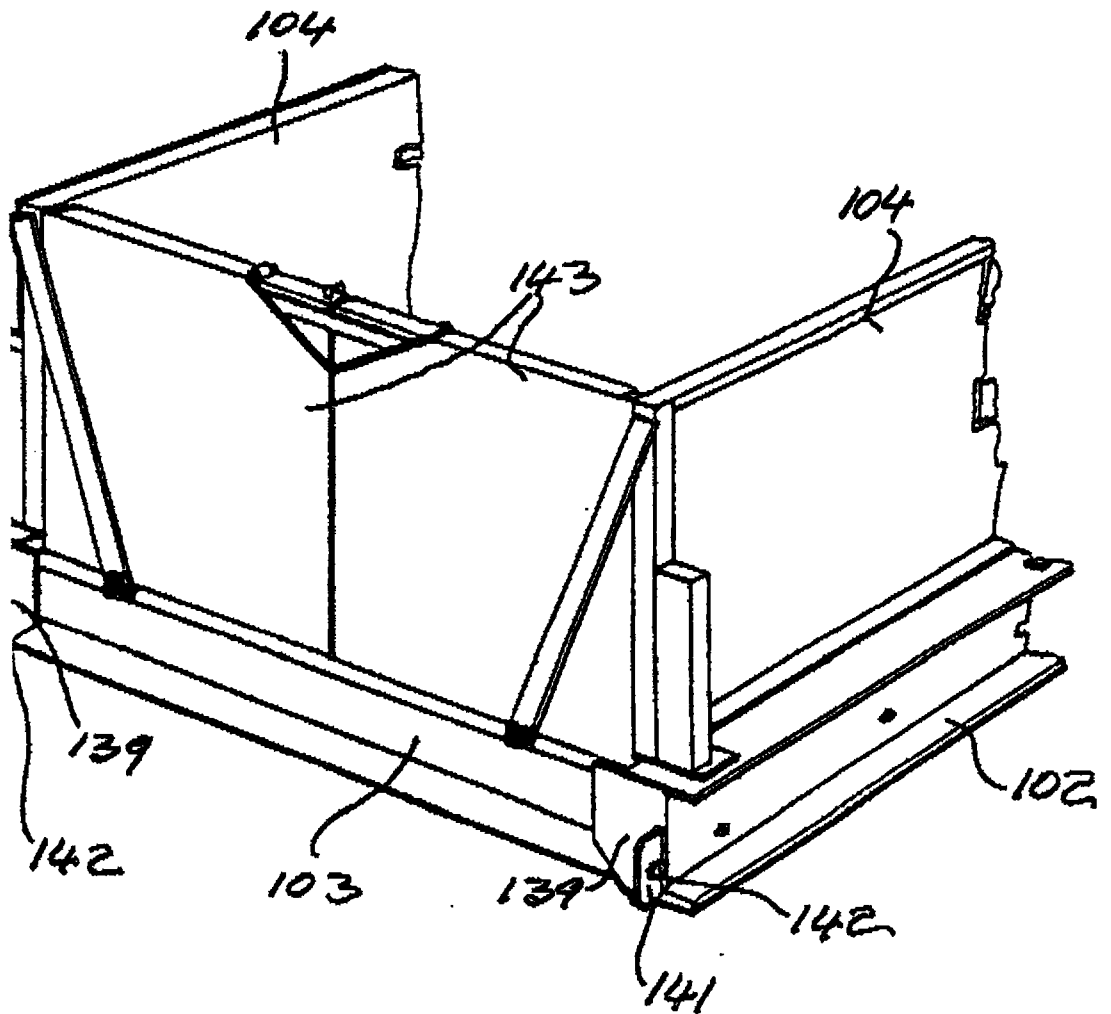
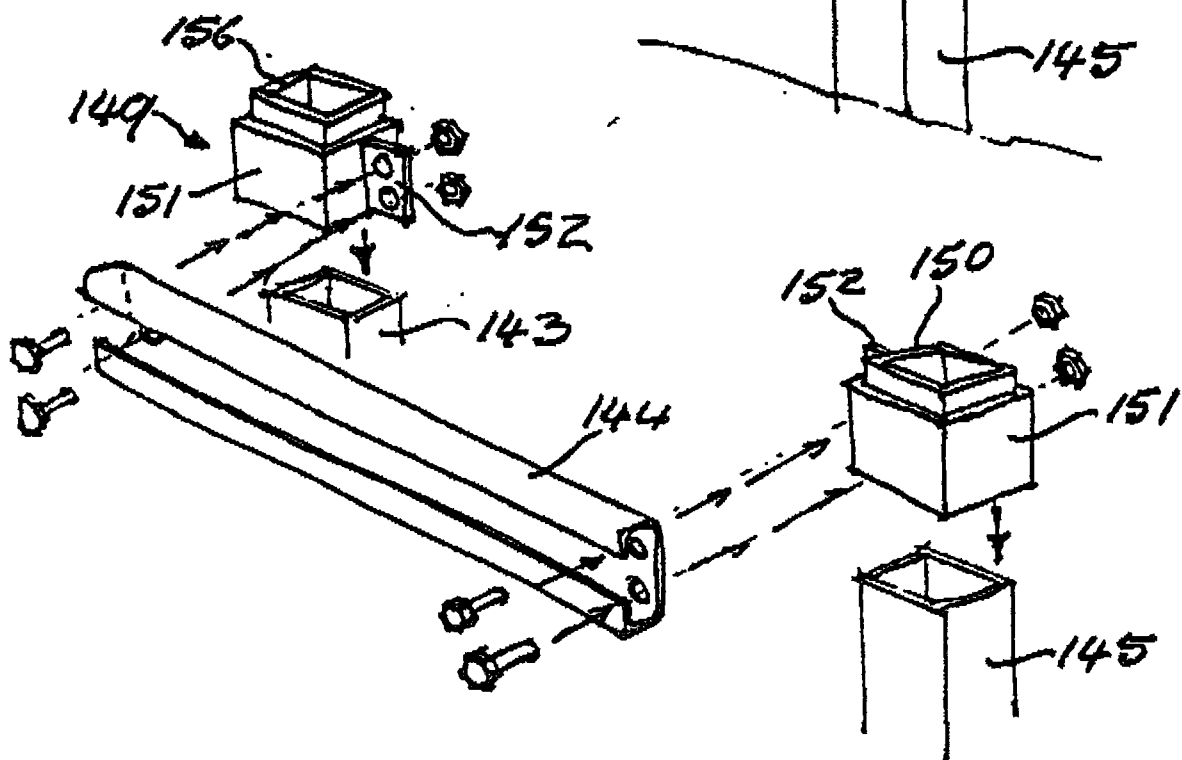
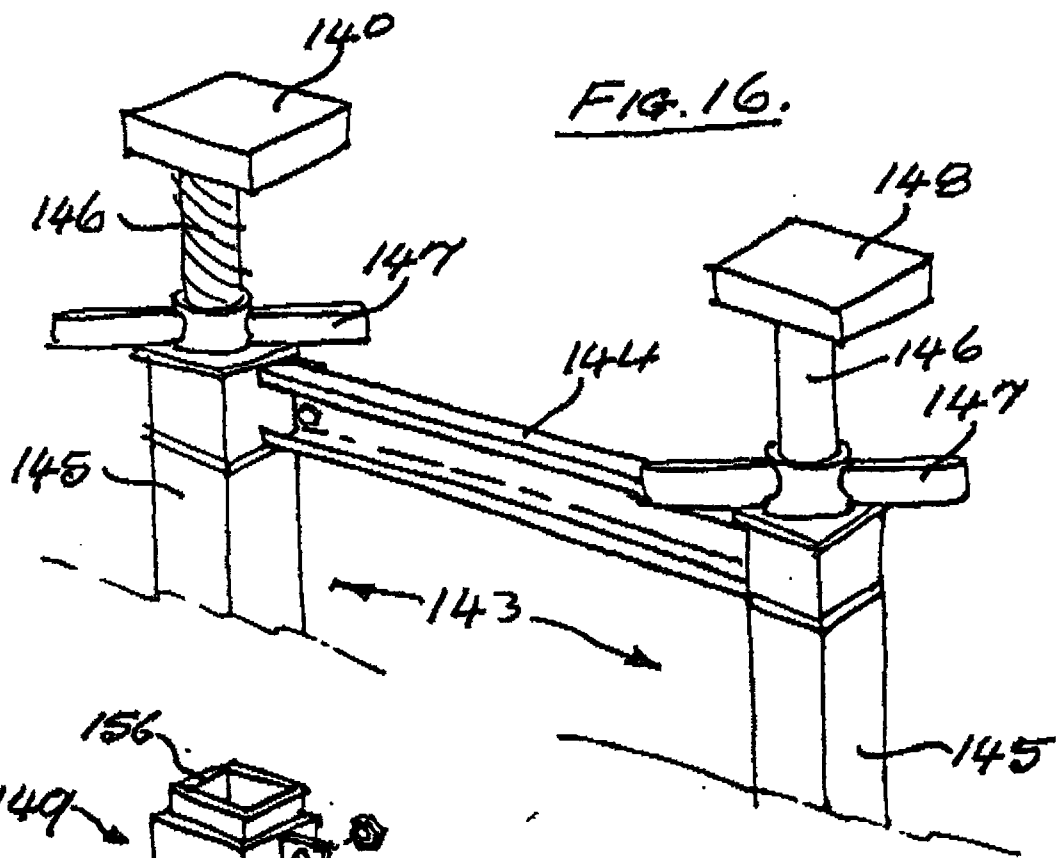


FIG. 15.

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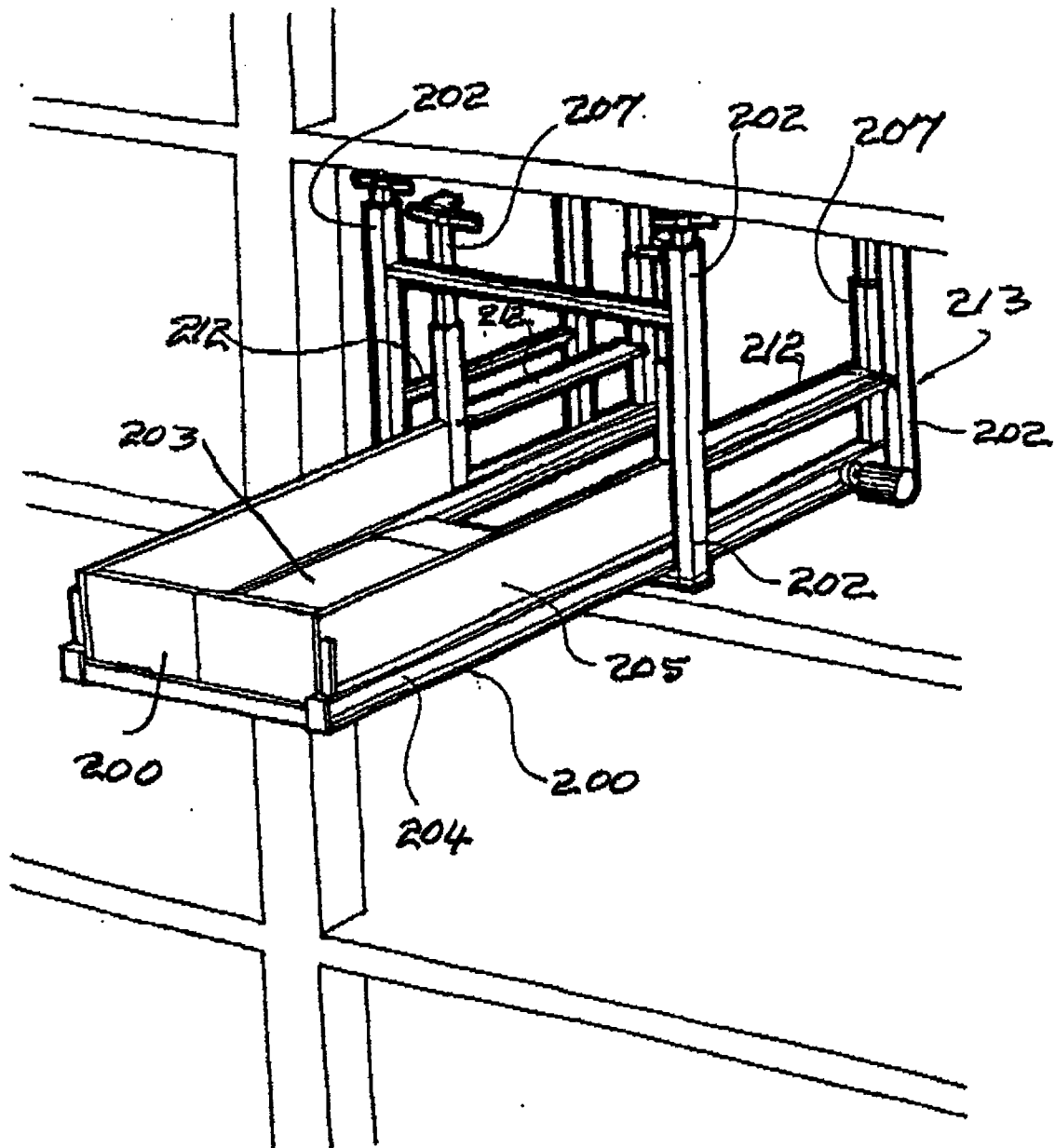


Fig. 18

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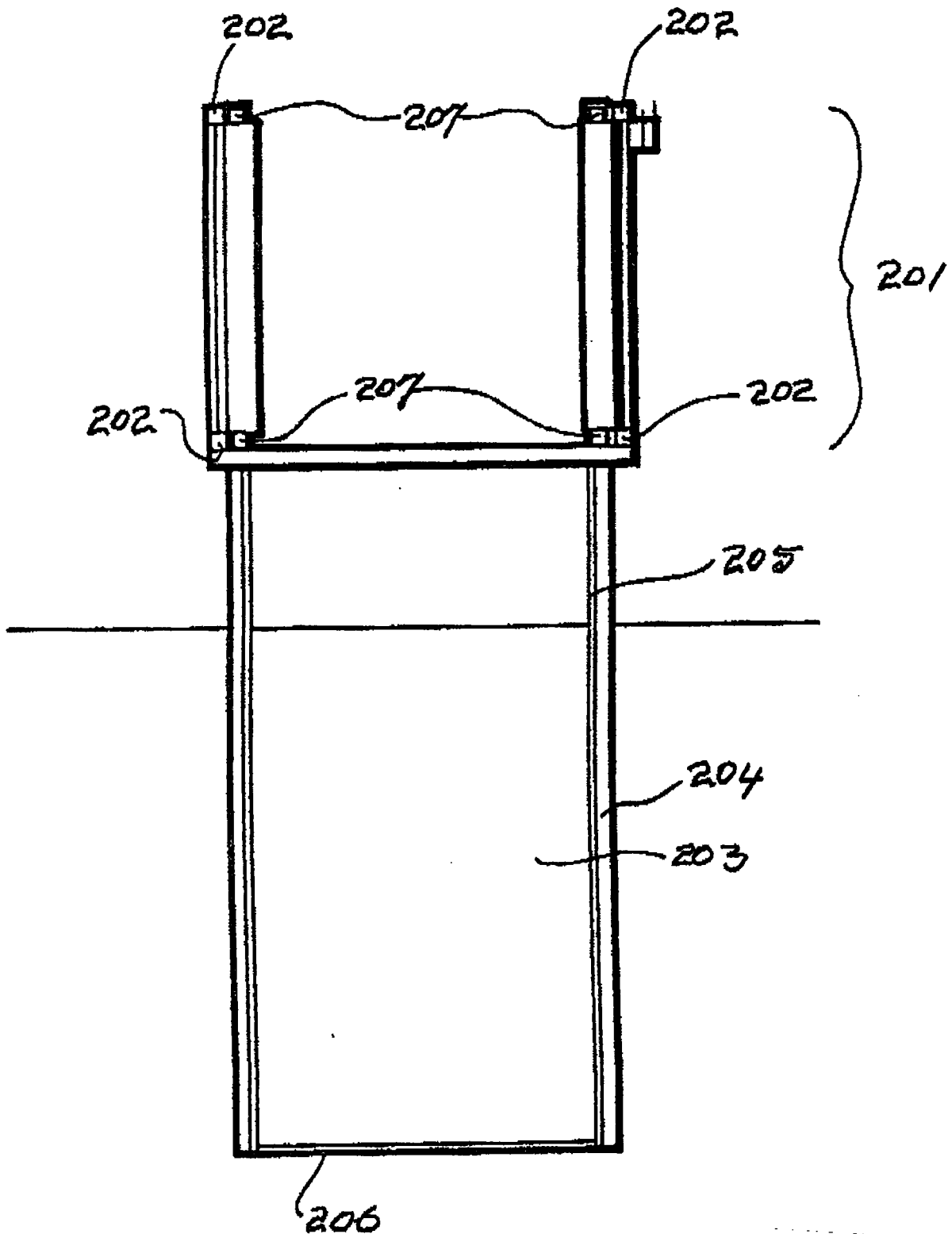
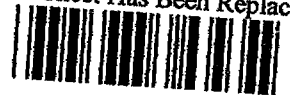


FIG. 19.

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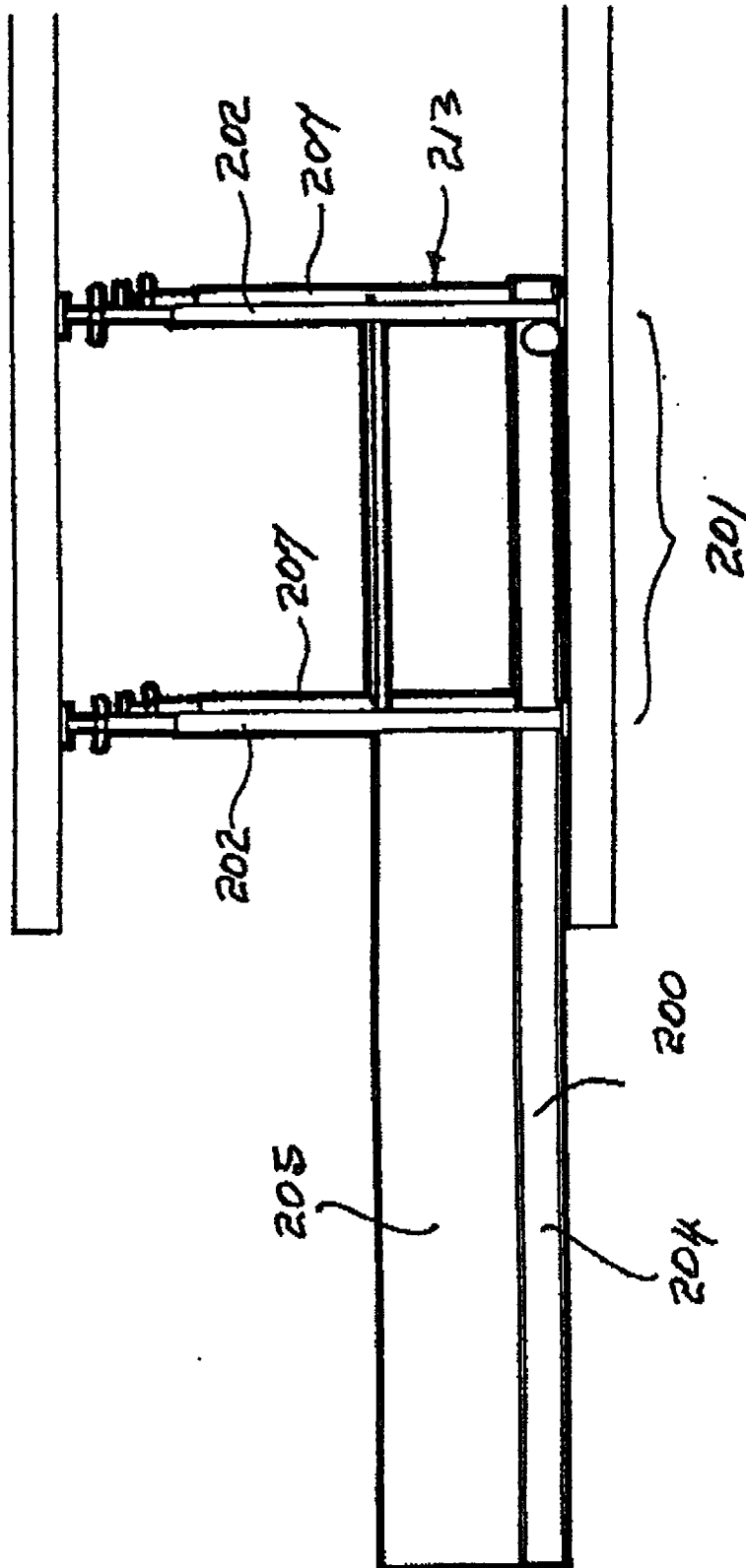


FIG. 20

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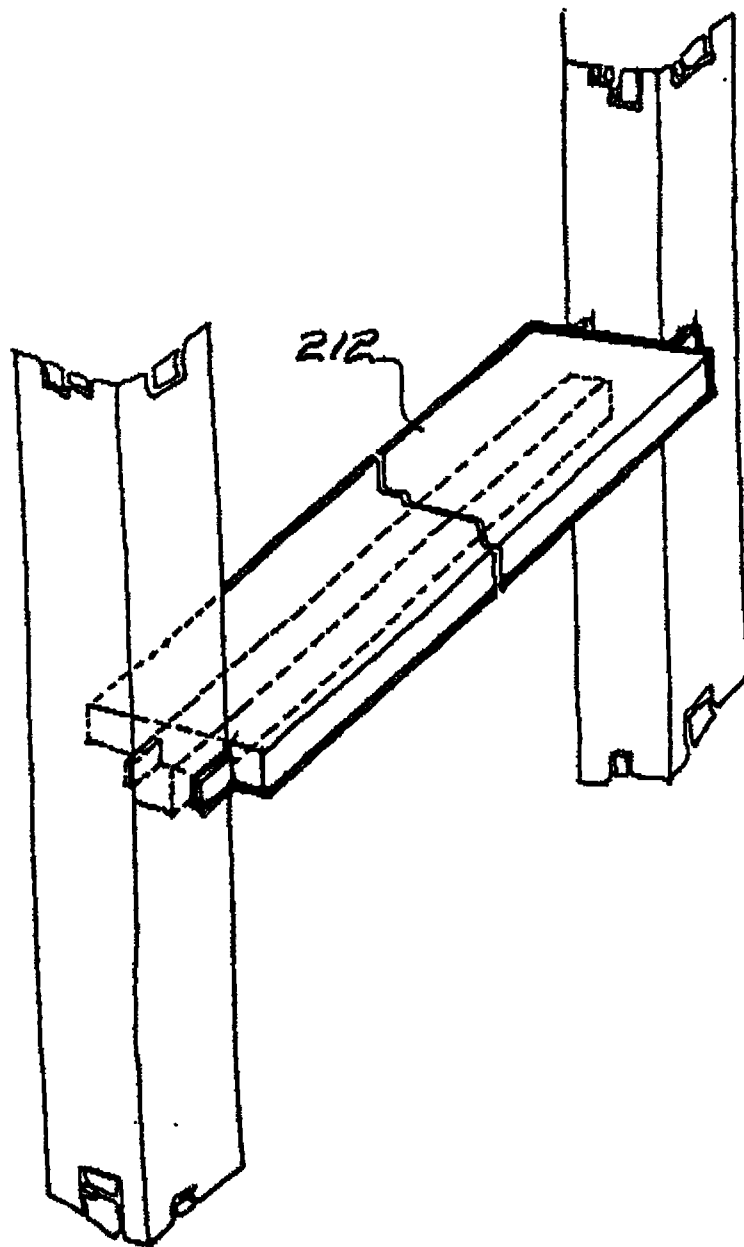
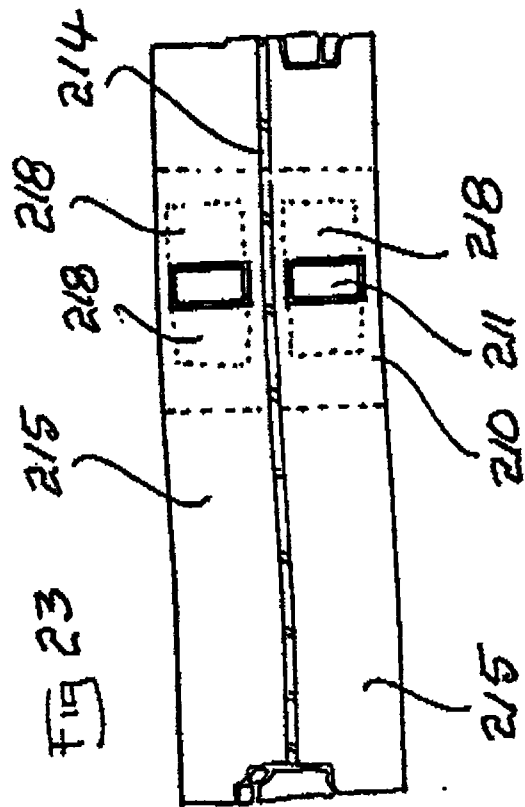
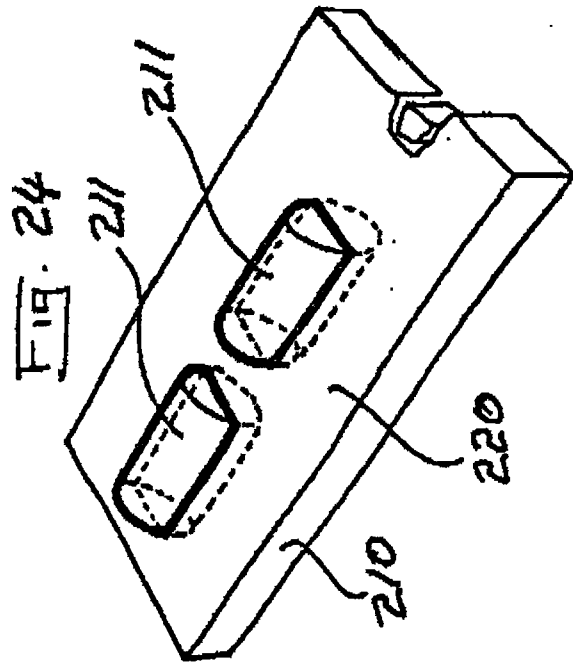
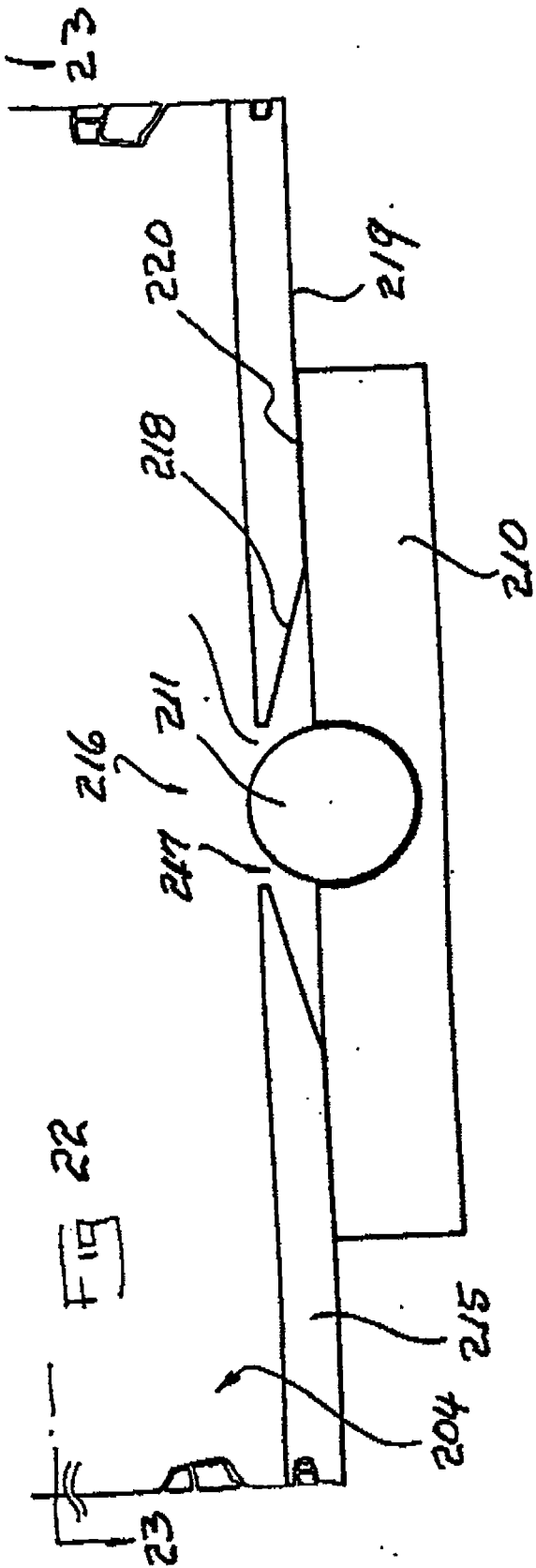


Fig. 21

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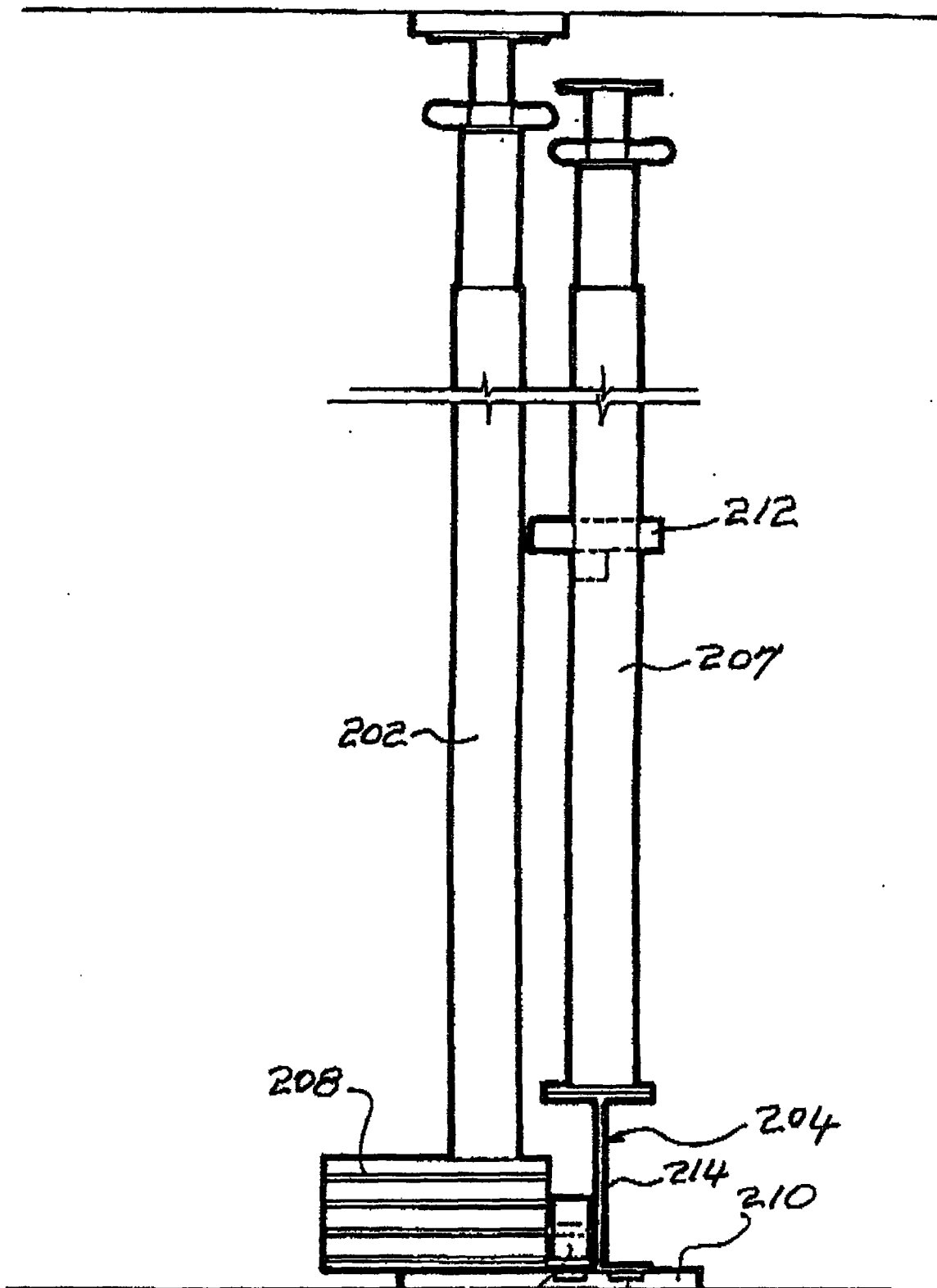
15/22



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FIG

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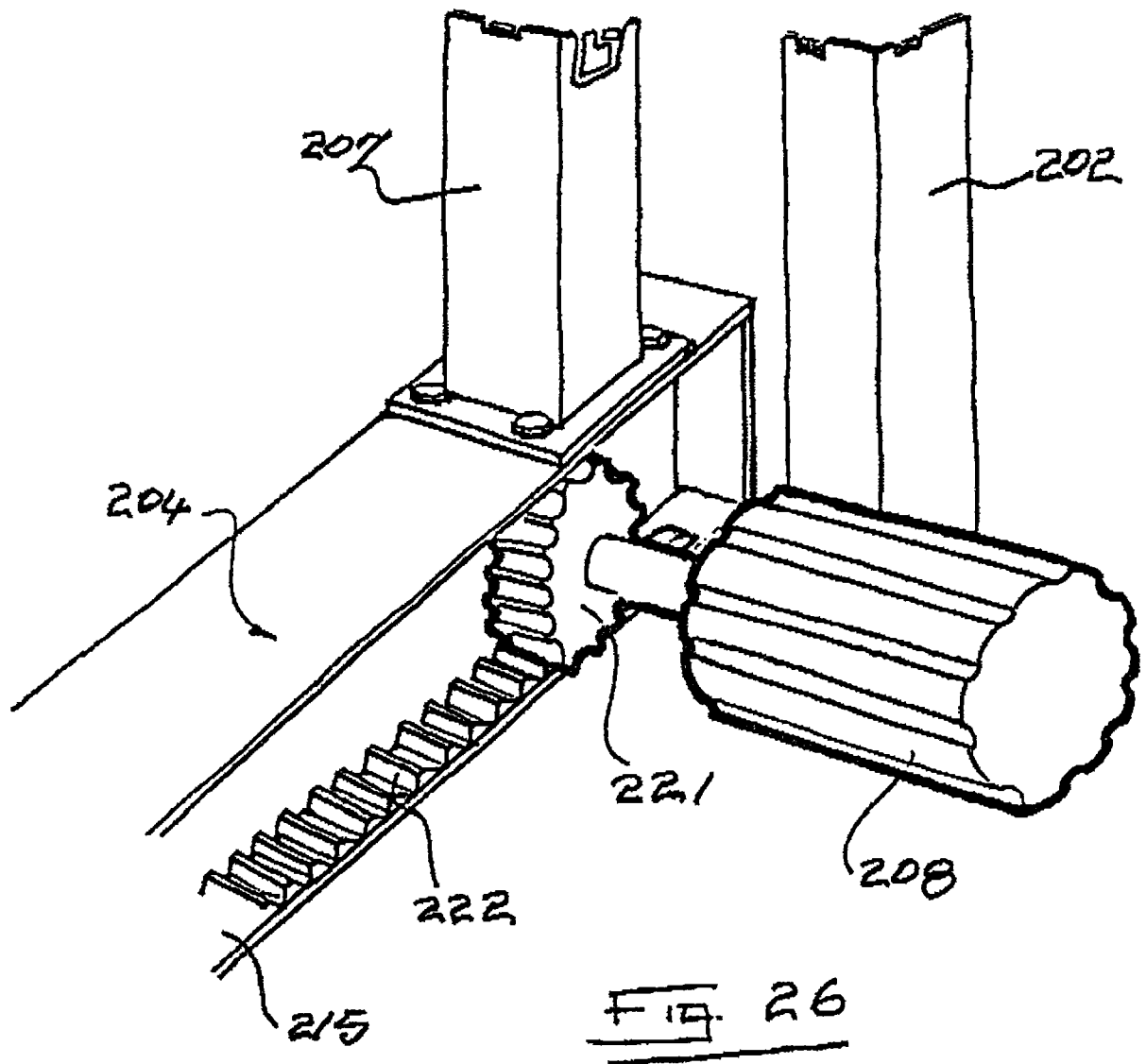
221

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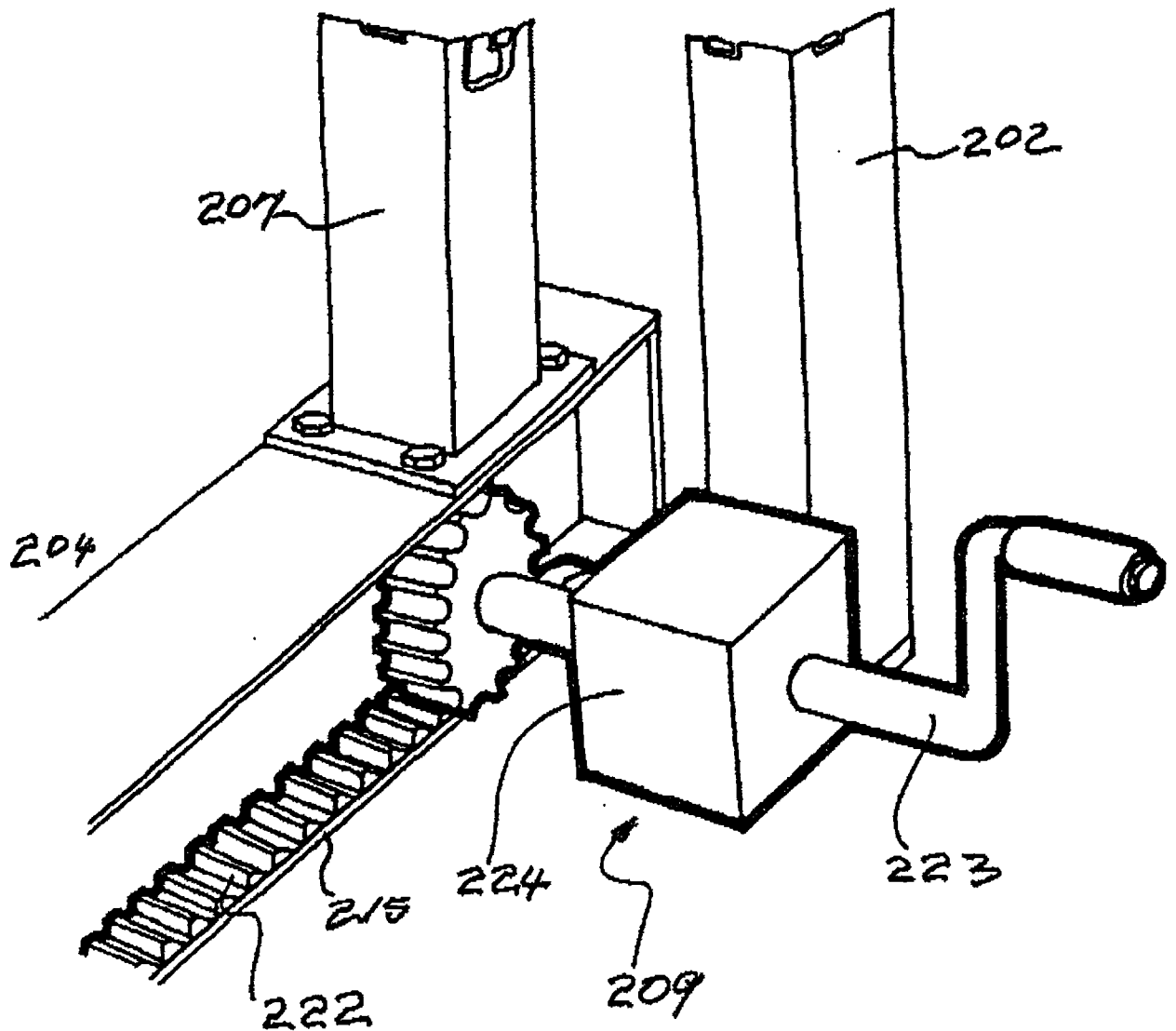


FIG. 27



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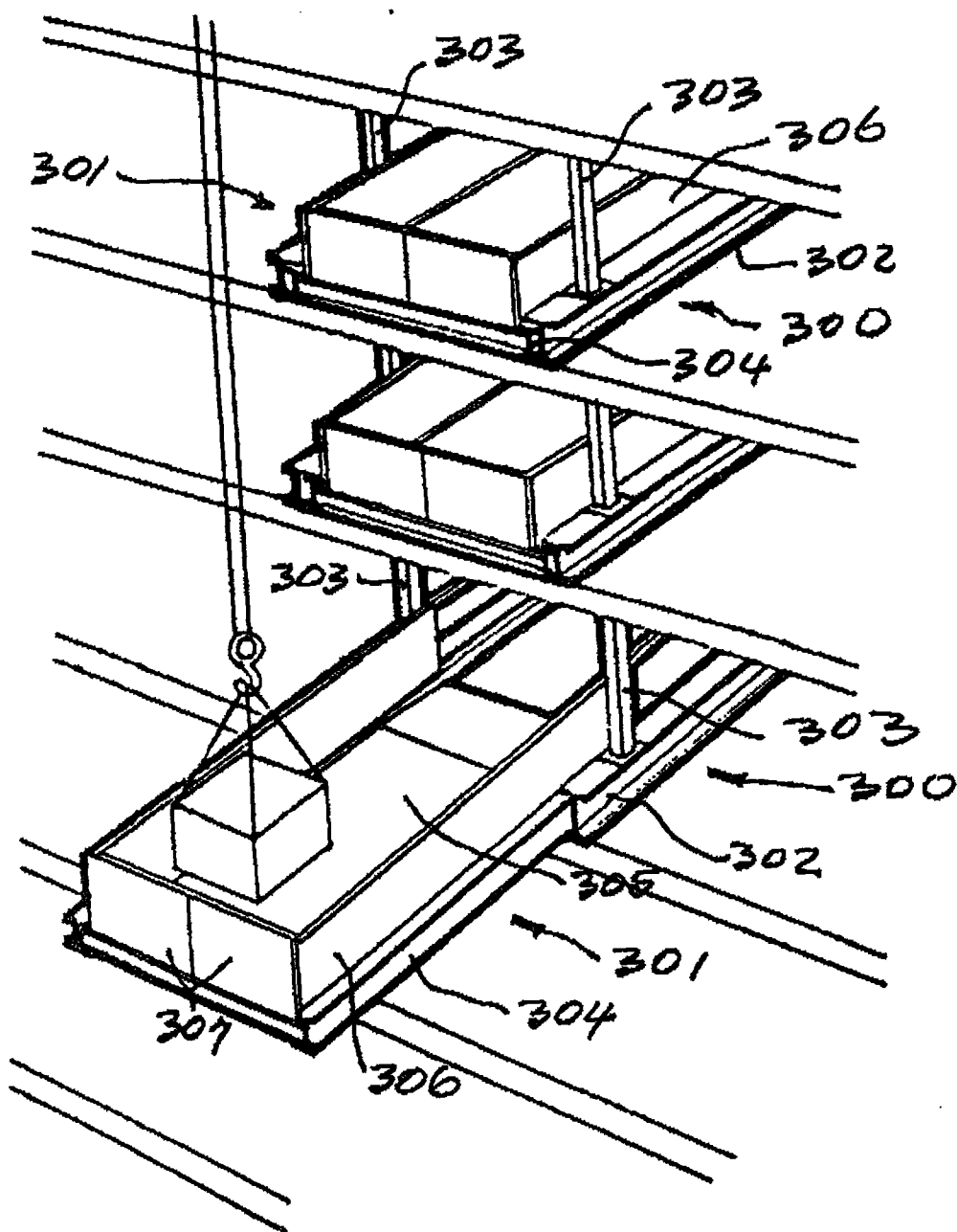


FIG. 28

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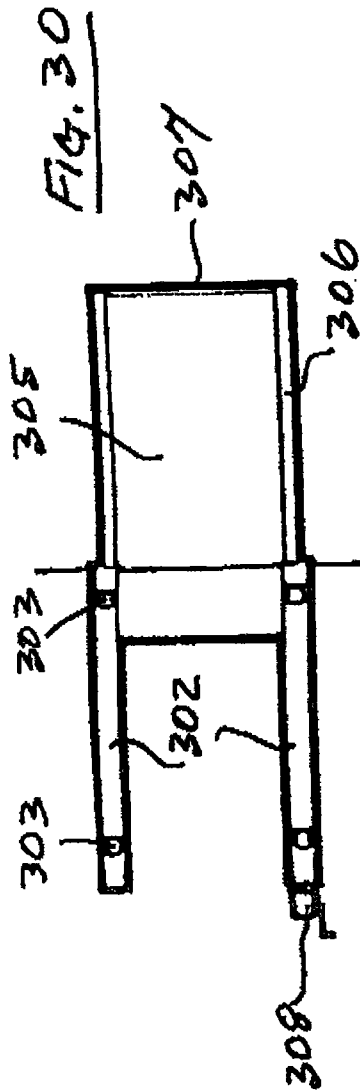


FIG. 30

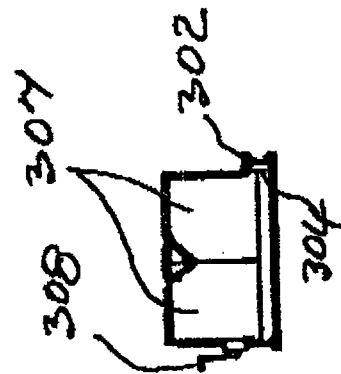


FIG. 31

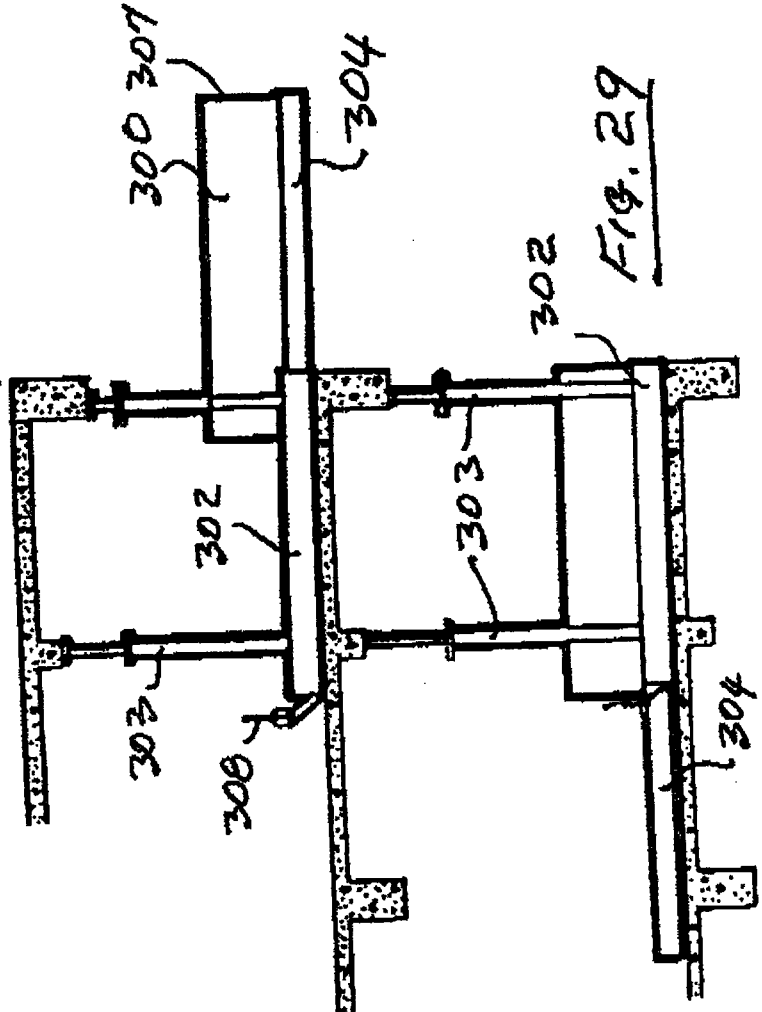


FIG. 29

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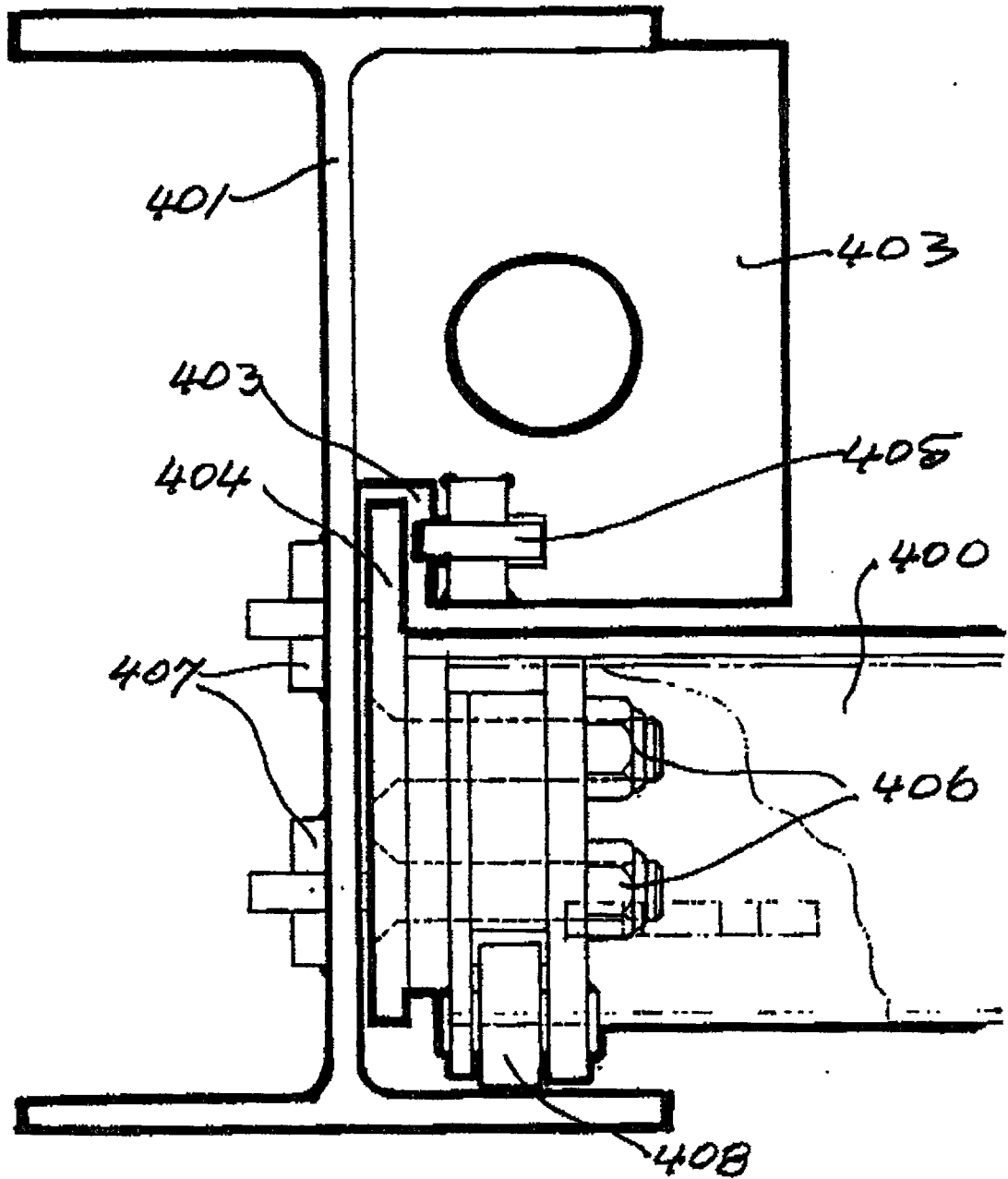
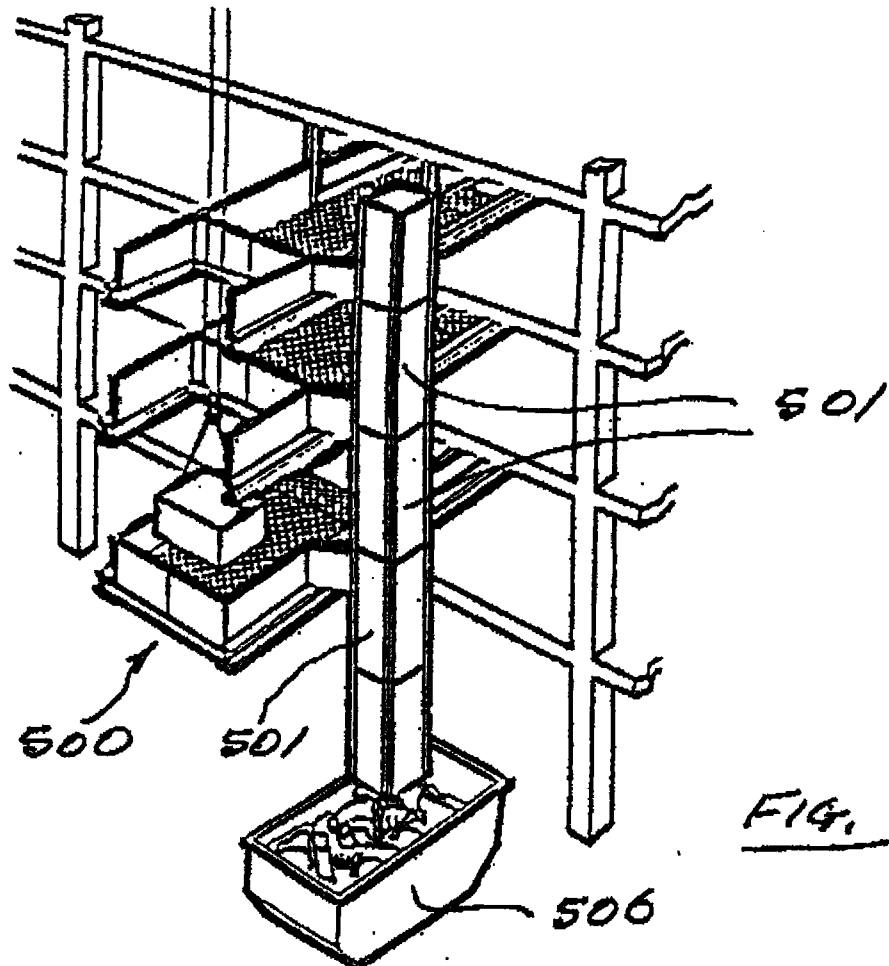
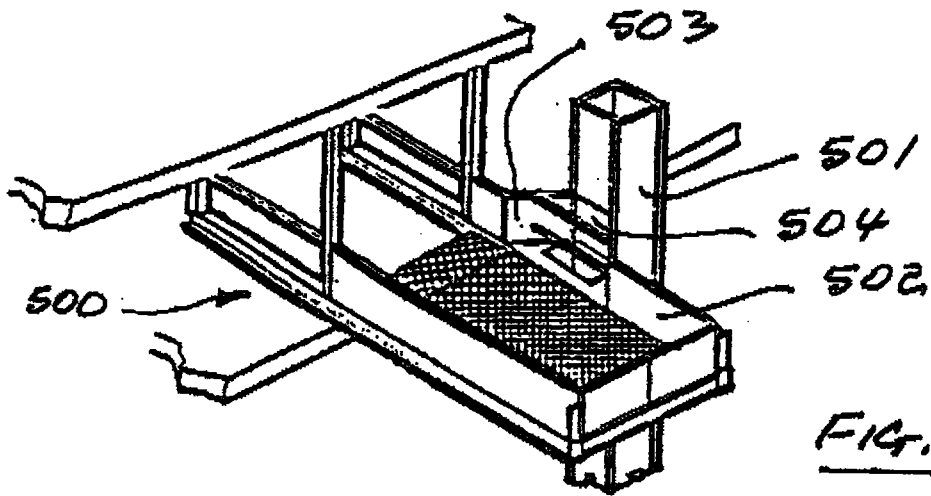


FIG. 32

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| REPLACEMENT SHEETS                  |                                        | SG          |
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| <input type="checkbox"/>            | Claim(s) : paged .... to paged ....    |             |
| <input checked="" type="checkbox"/> | Drawing(s) : paged 123 to paged 23     |             |
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| DATE OF RECEIPT                     |                                        | 21 OCT 1996 |

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## ABSTRACT

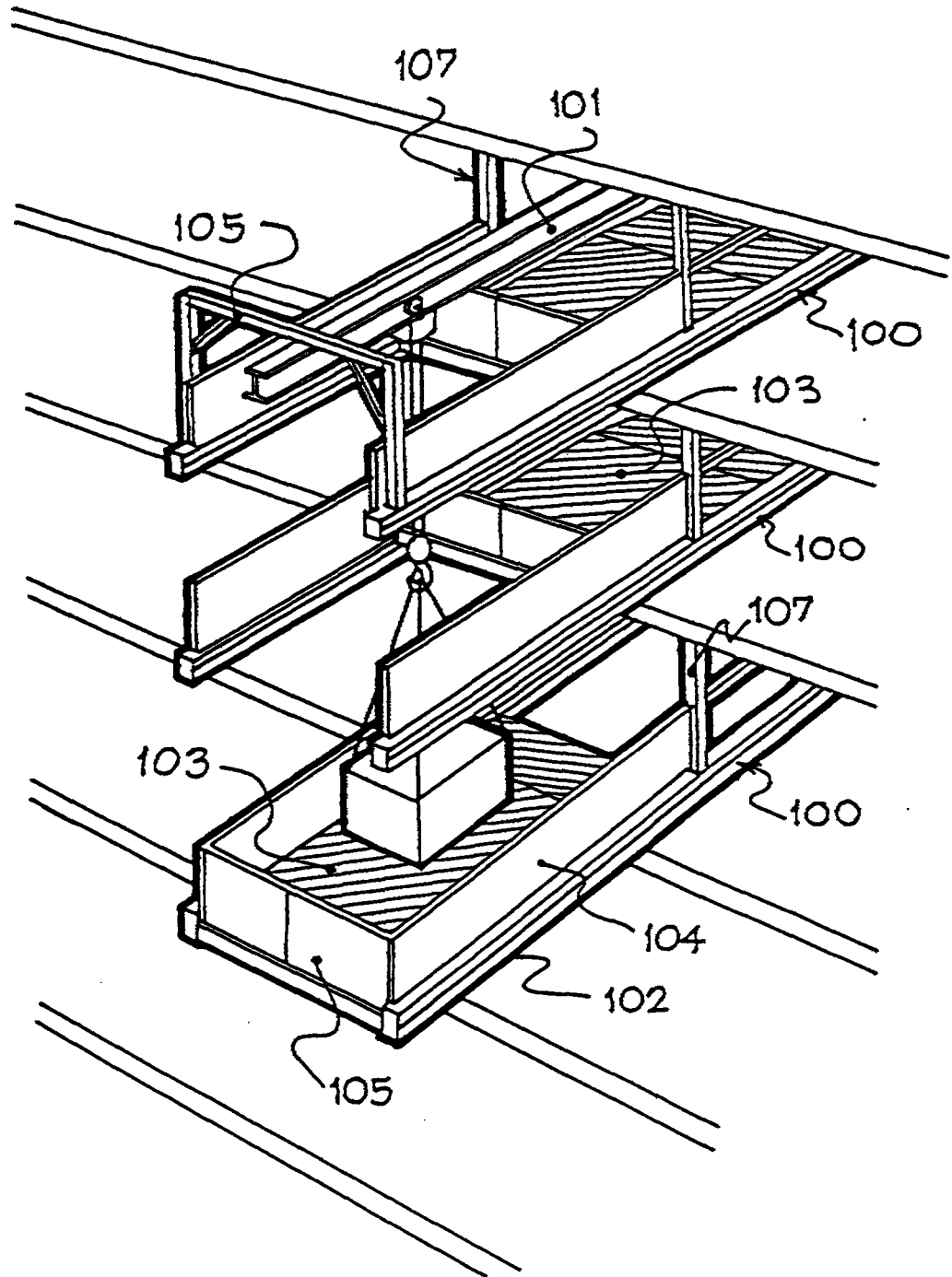
### CONSTRUCTION PLATFORM

A construction platform comprises a stationary support structure (300) comprising two guide beams (302) and four length adjustable struts (303) for securing the guide beams between adjacent floor of a building under construction, a landing deck (301) carried by the support structure and able to move to and fro between at least one inboard and at least one outboard position relative to the building, drive means to shift the landing deck between those positions, immobilising means to releasably lock the deck in said at least one outboard position, and safety barrier means (306,7) extending about the periphery of the deck. In some embodiments the guide beams extend as cantilevers from the building and remain there when the deck is driven inboard. In other embodiments the deck extends as a self supporting cantilever in the outboard position and nothing projects from the building when the deck is inboard.

FIGURE 28

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FIG. 1

0-1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99

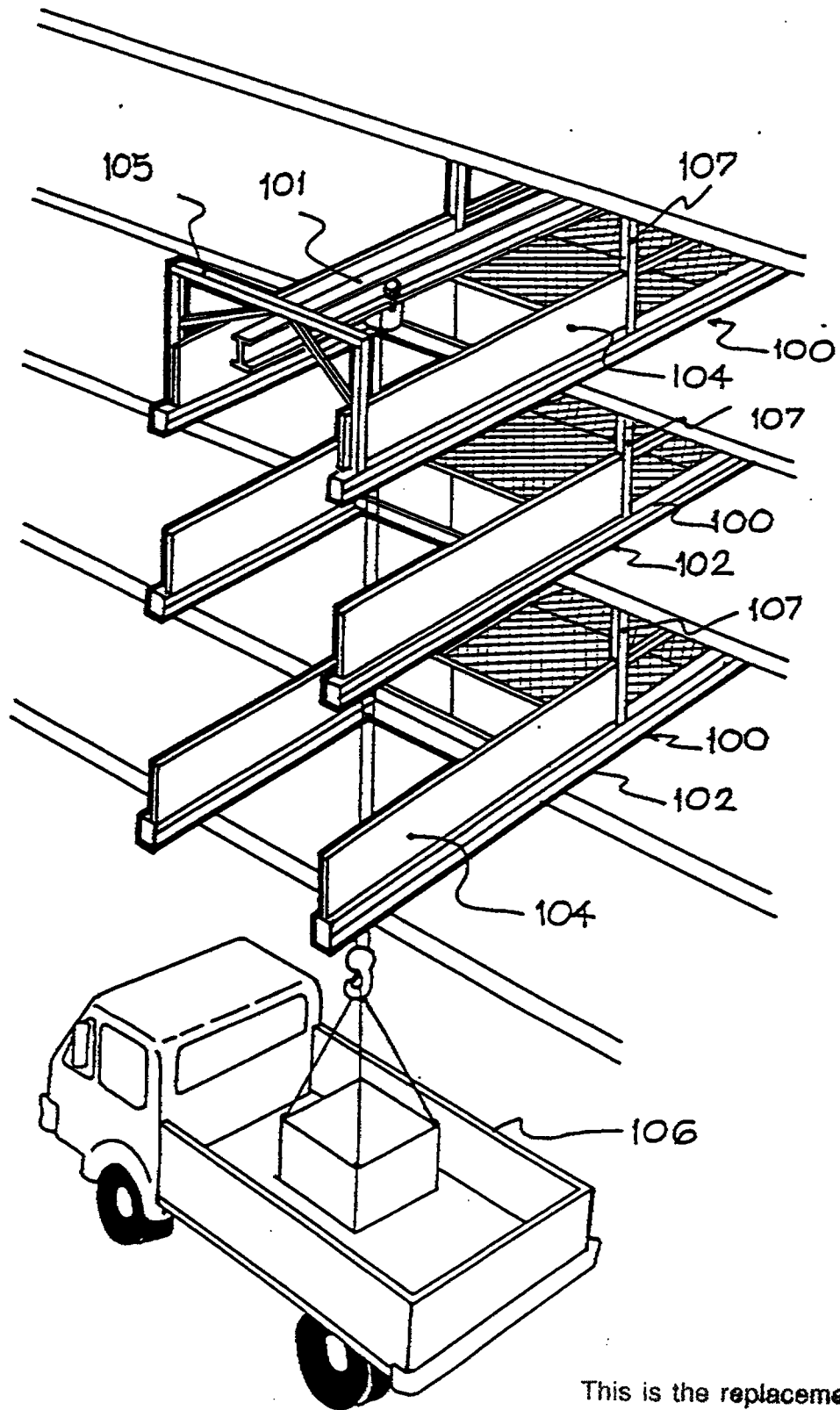
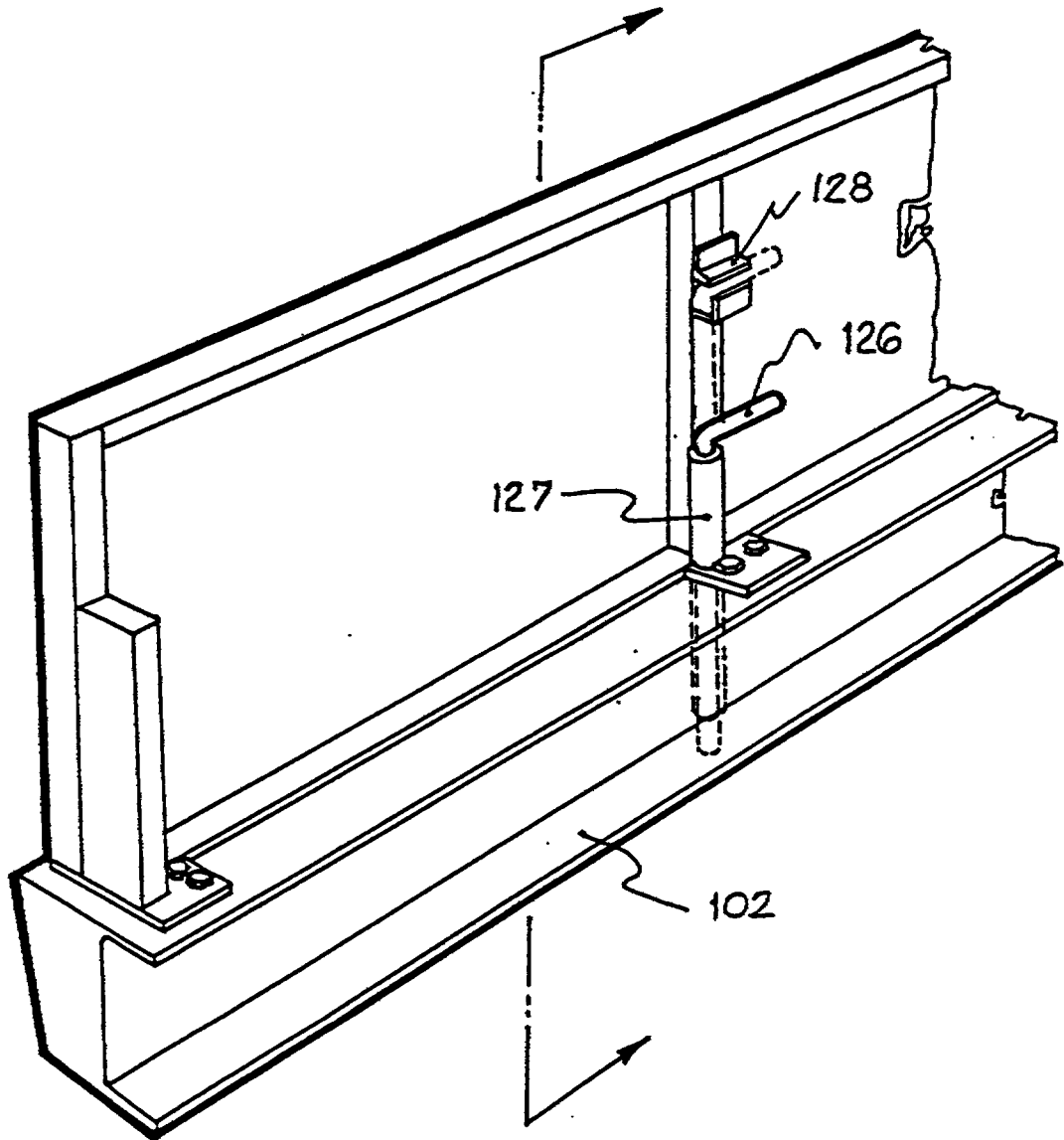


FIG. 2

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FIG. 3

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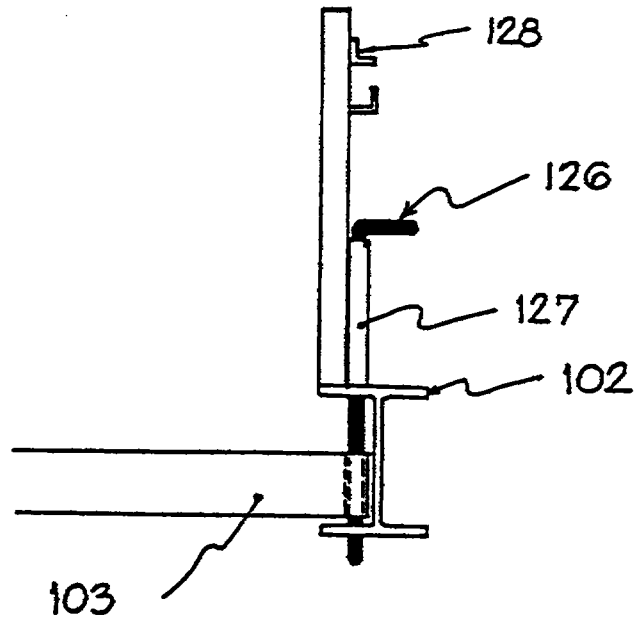


FIG. 4

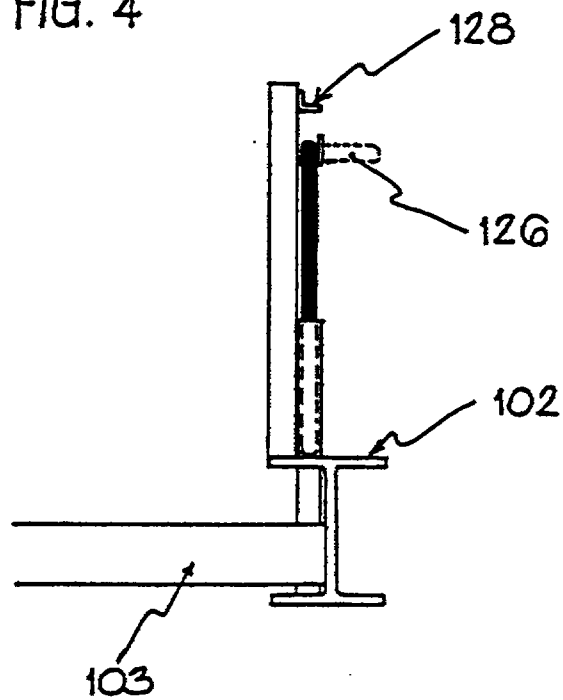


FIG. 5

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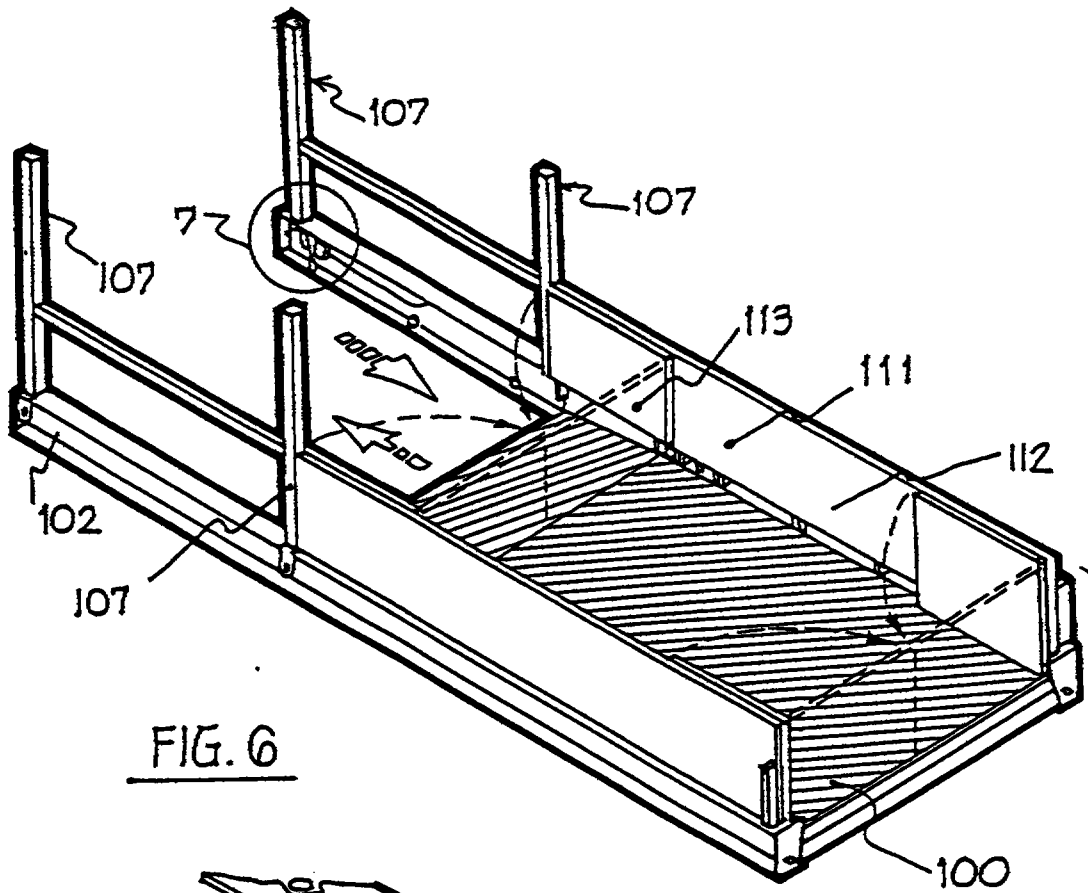


FIG. 6

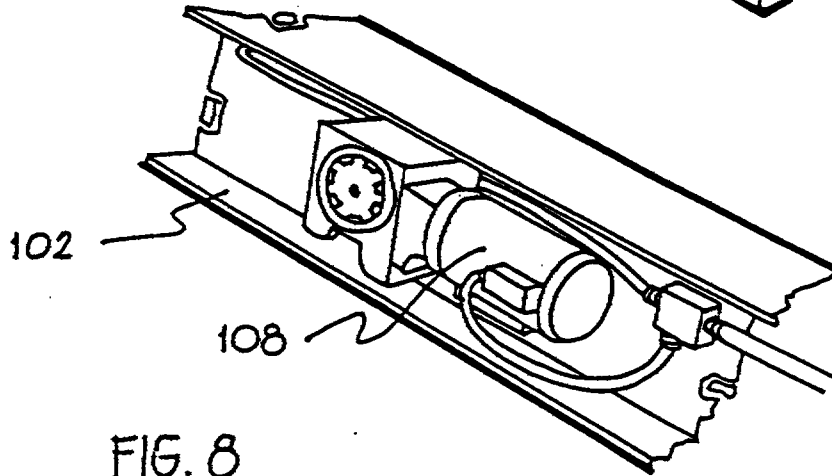


FIG. 8

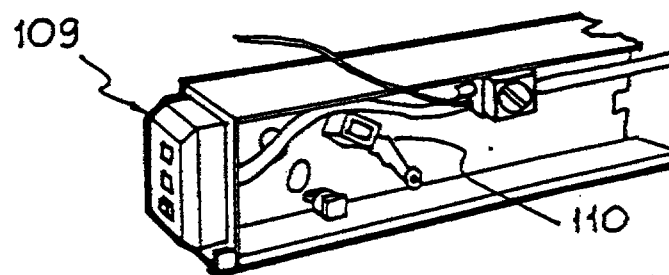


FIG. 7

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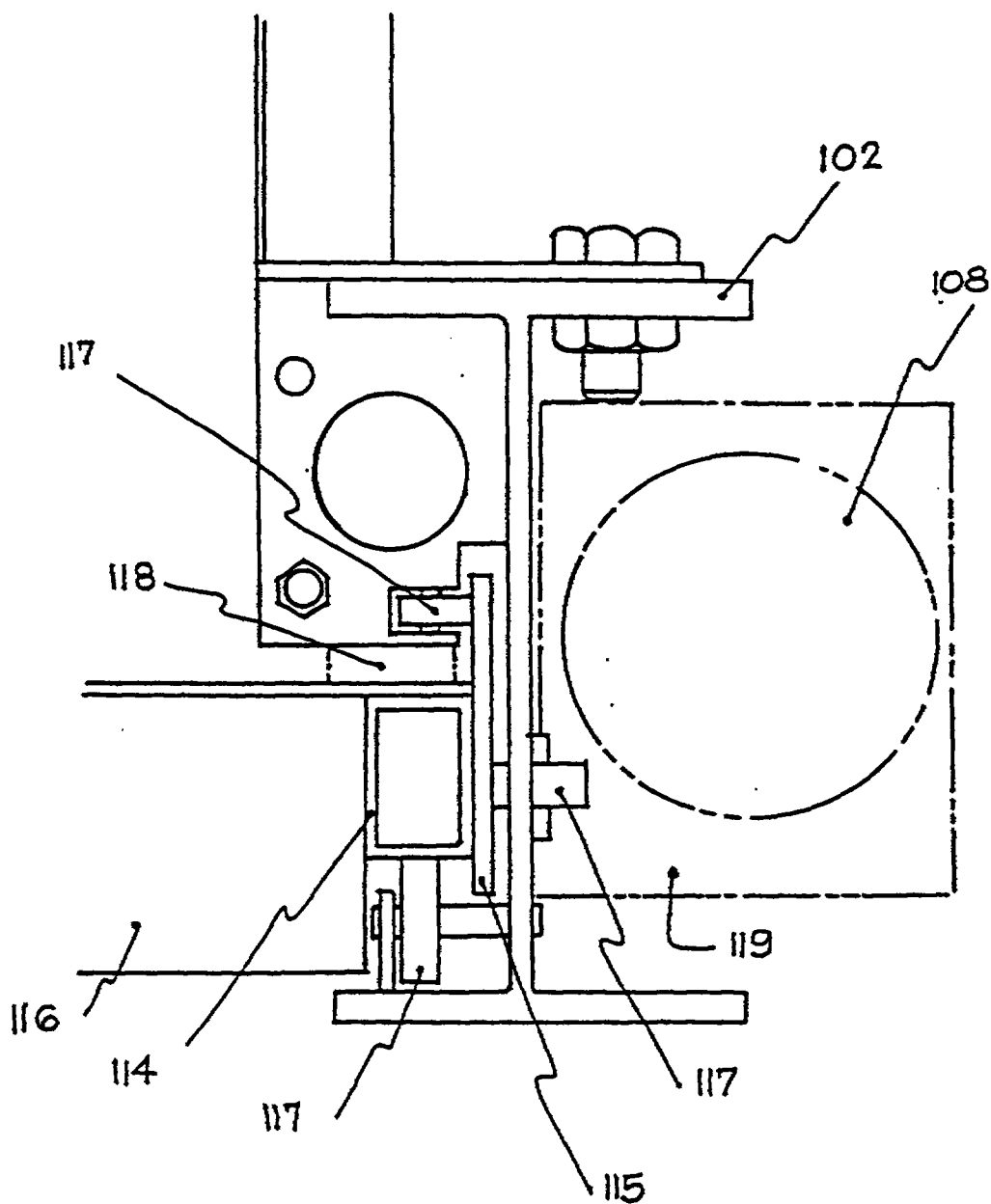


FIG 9

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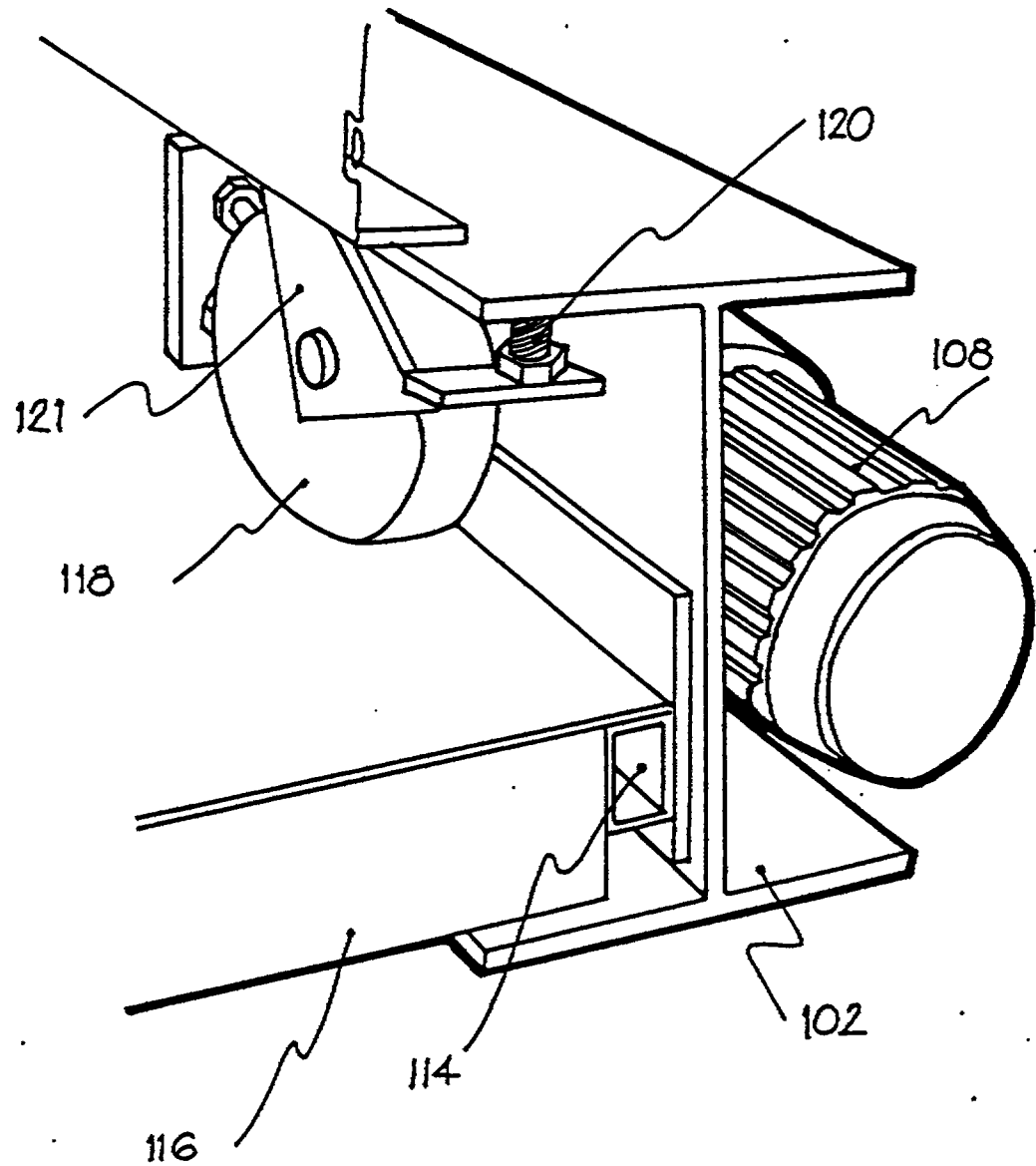


FIG. 10

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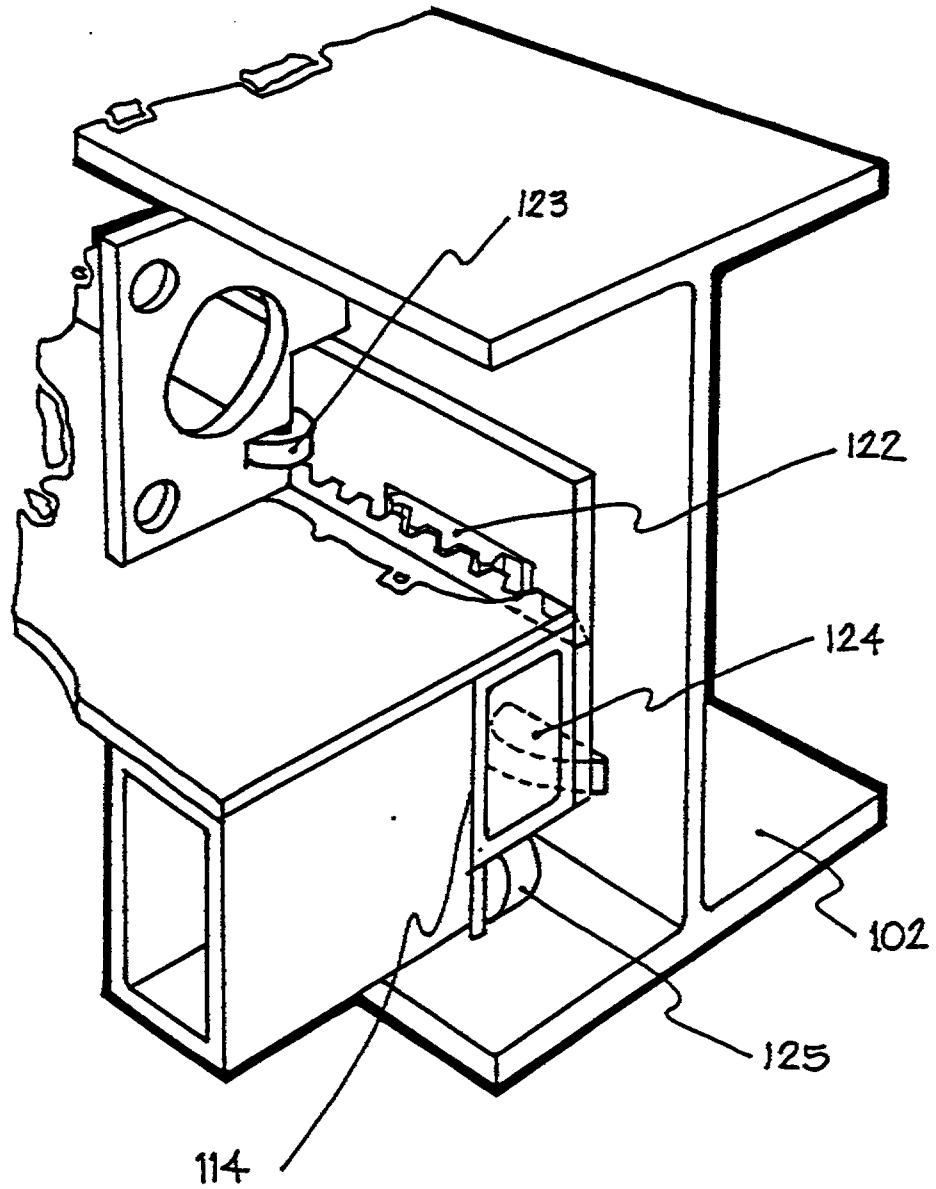


FIG. 11

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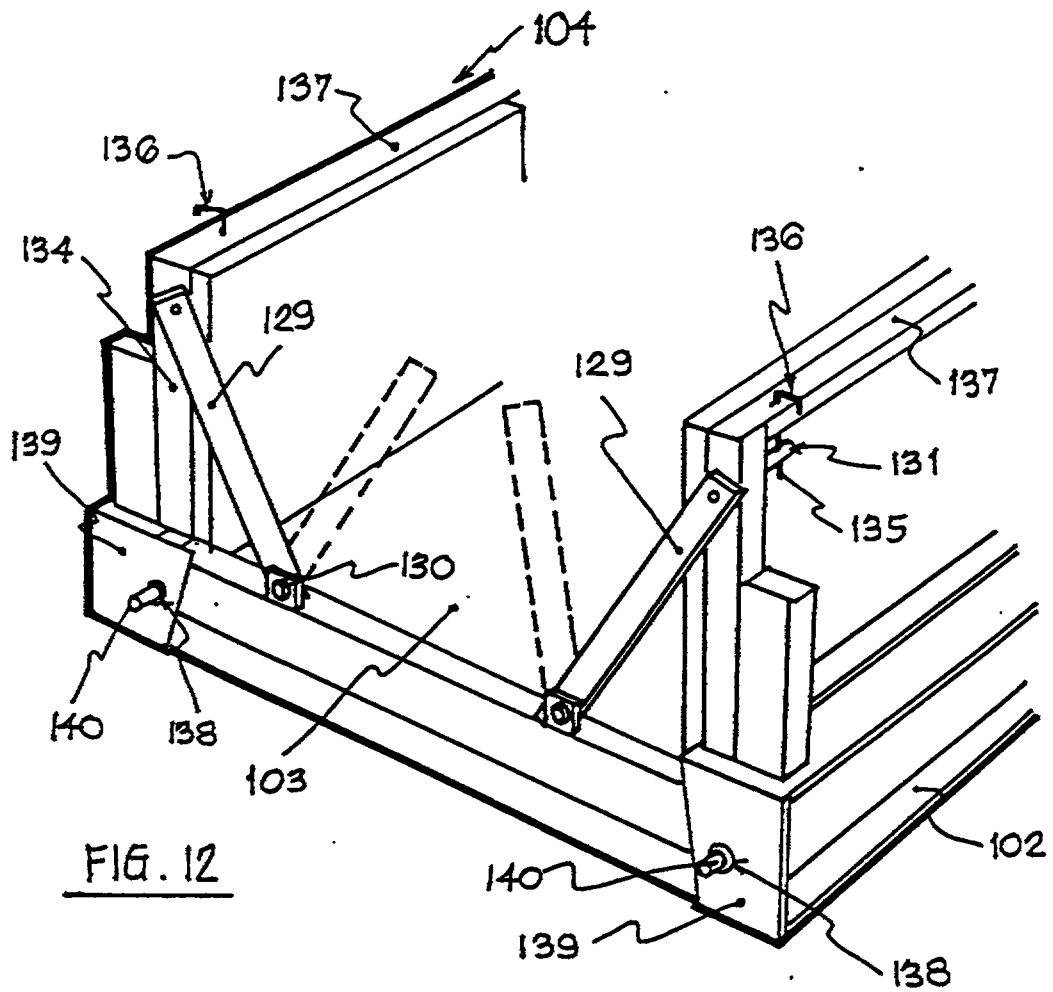


FIG. 12

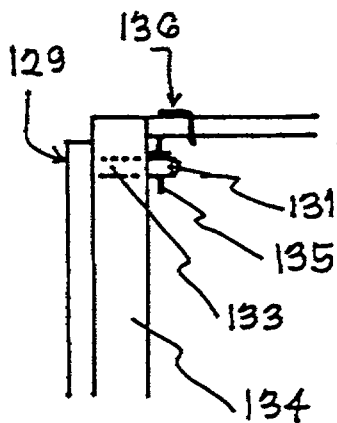


FIG. 13

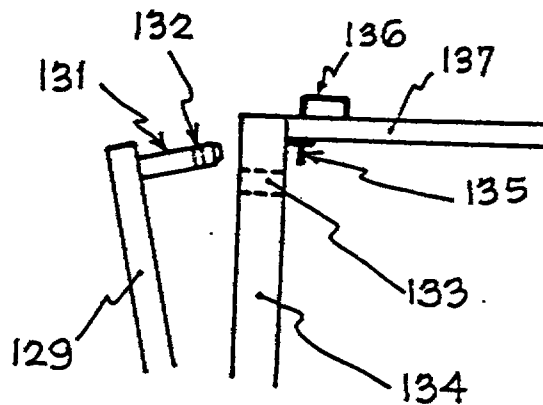


FIG. 14

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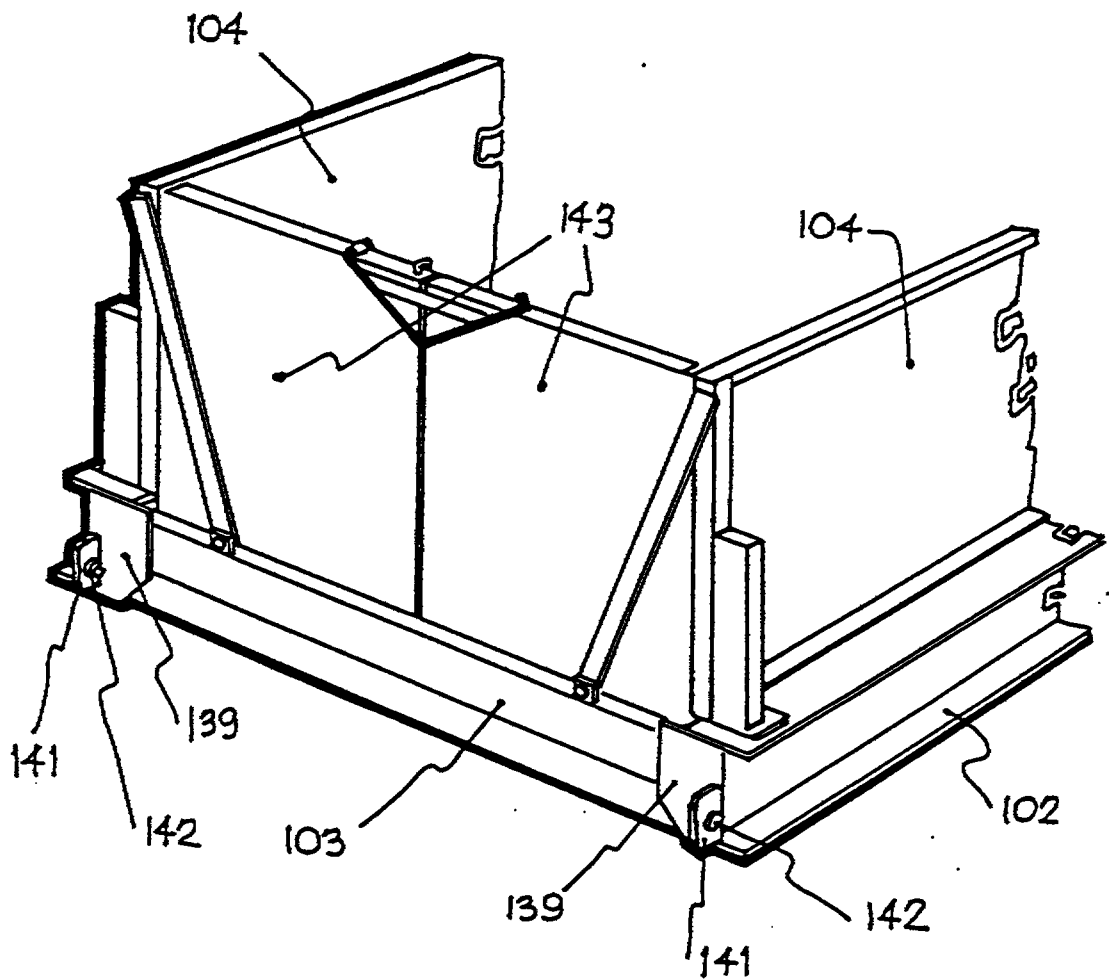
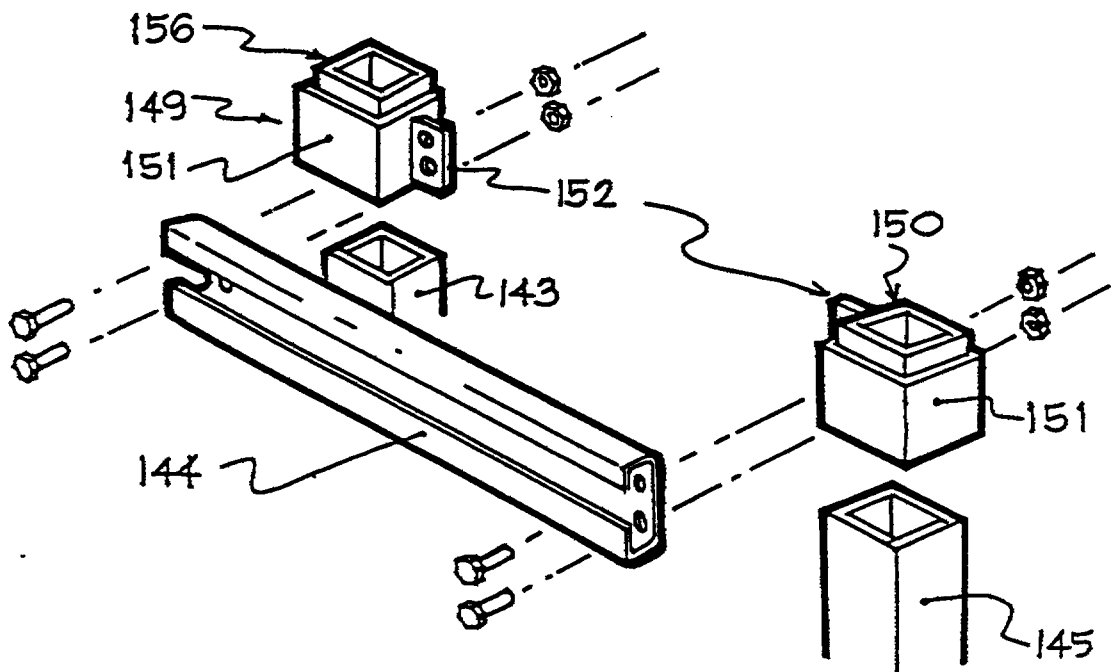
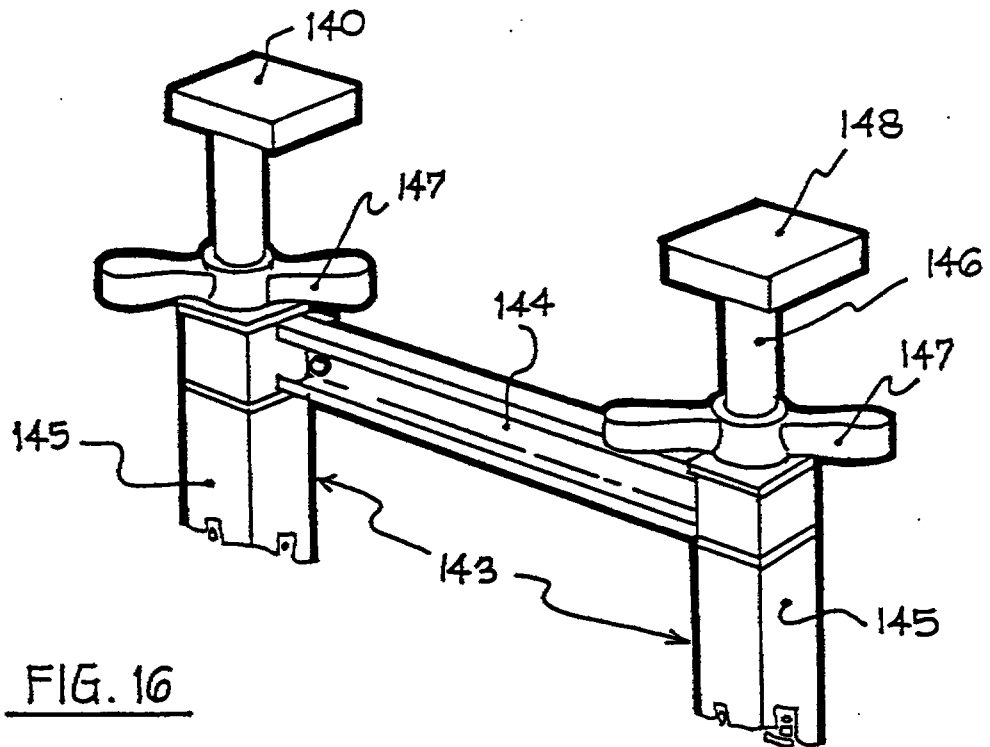


FIG. 15

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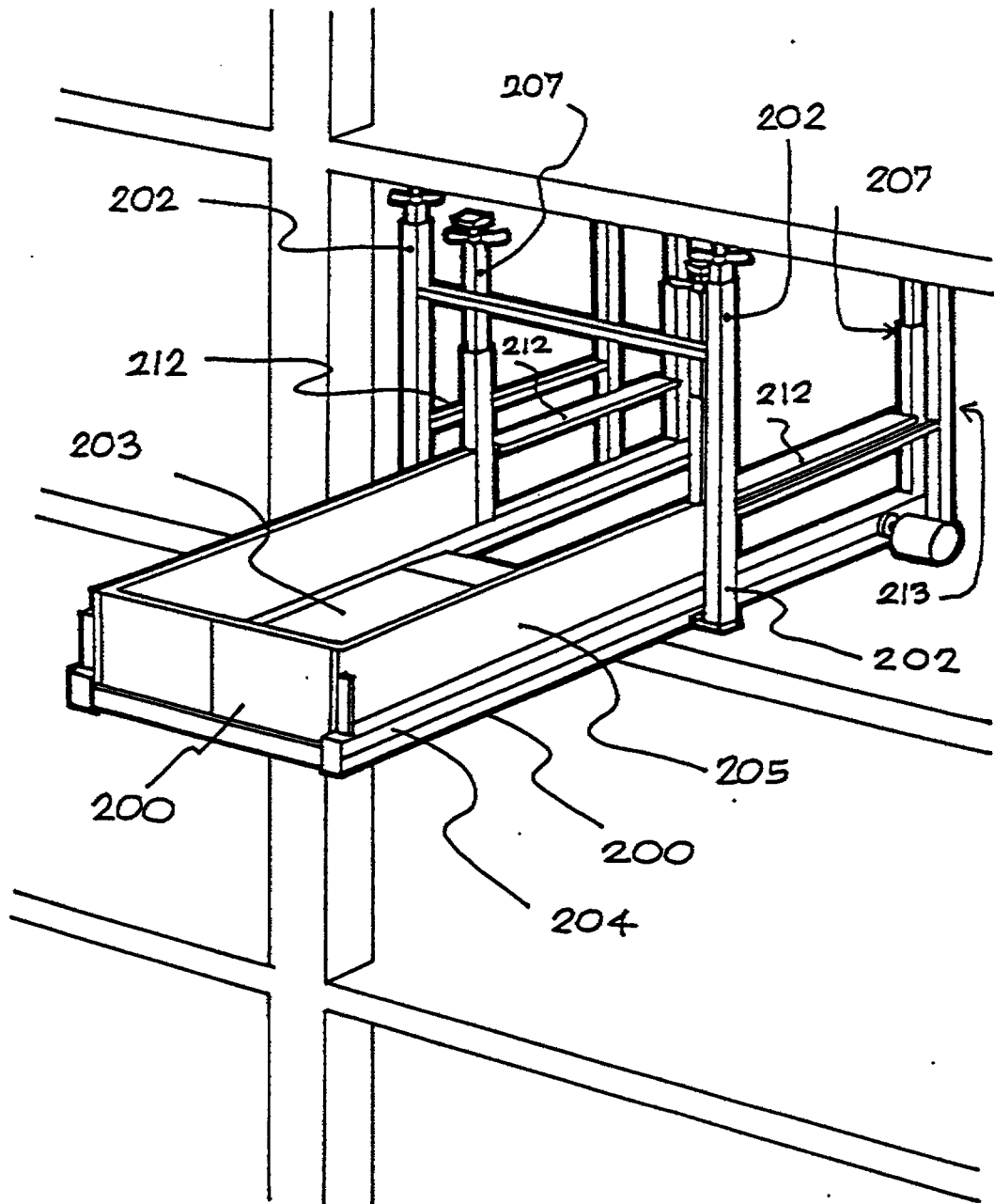


FIG. 18

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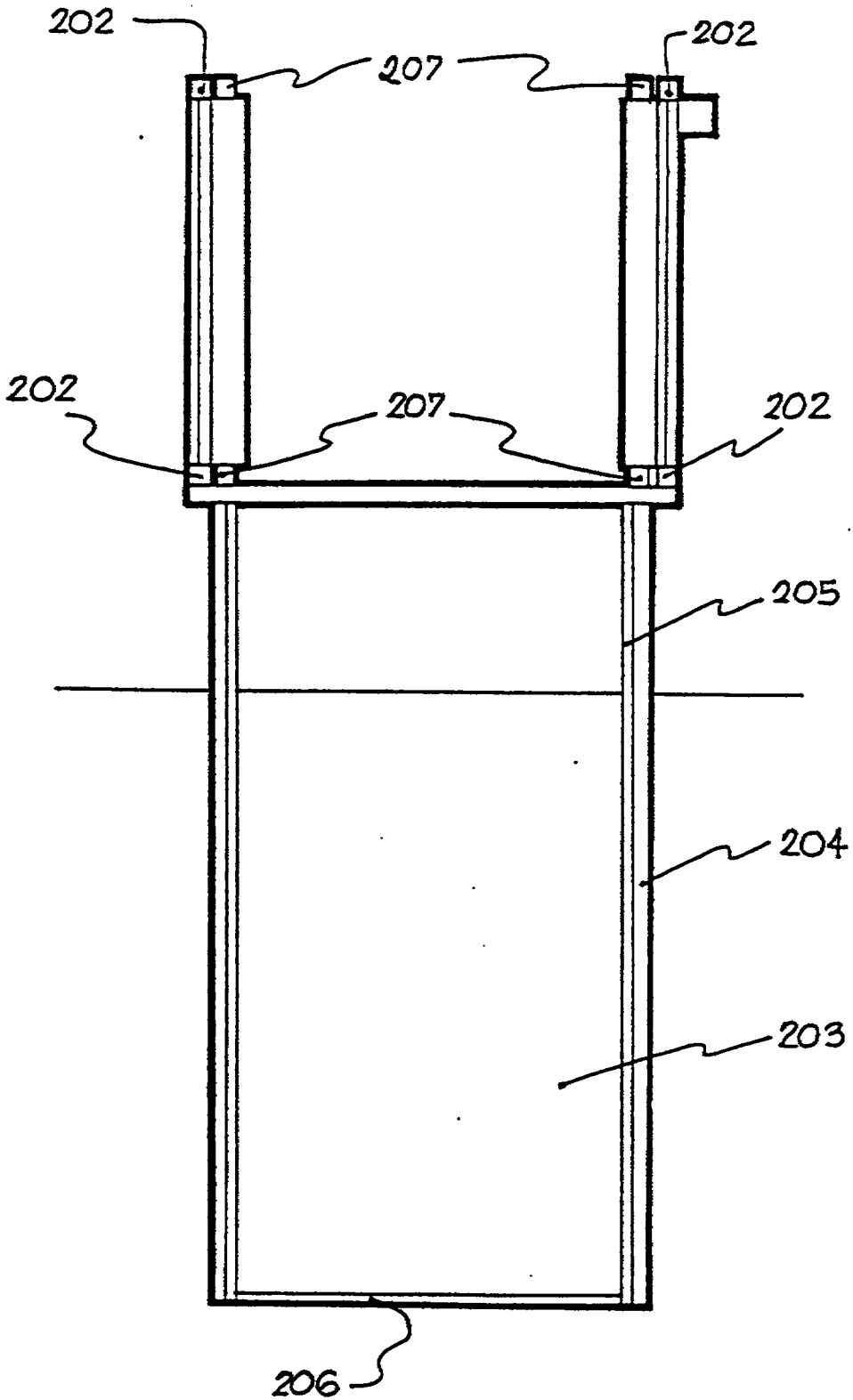


FIG. 19

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Date: 21/10/96

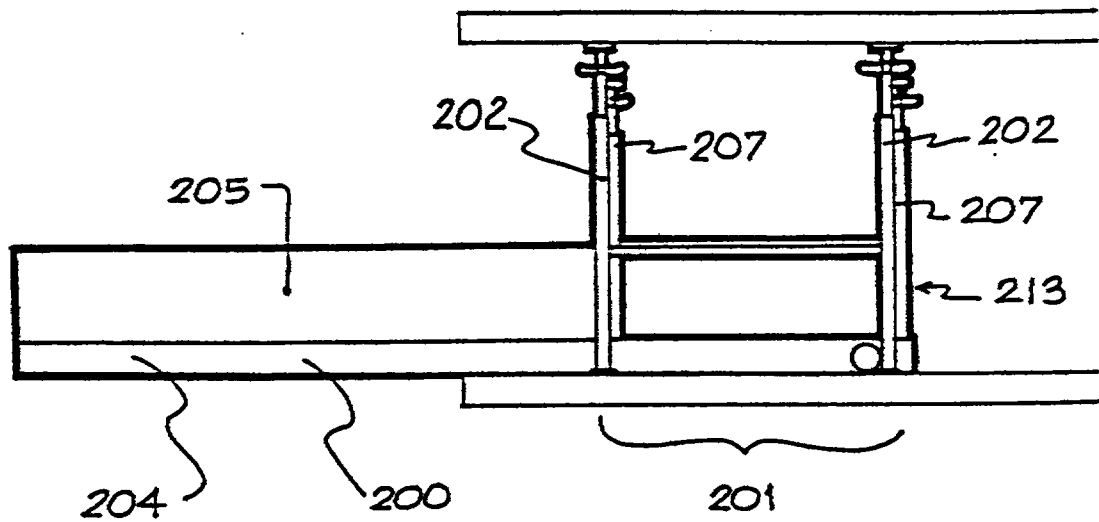


FIG. 20

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Date: 21/10/96

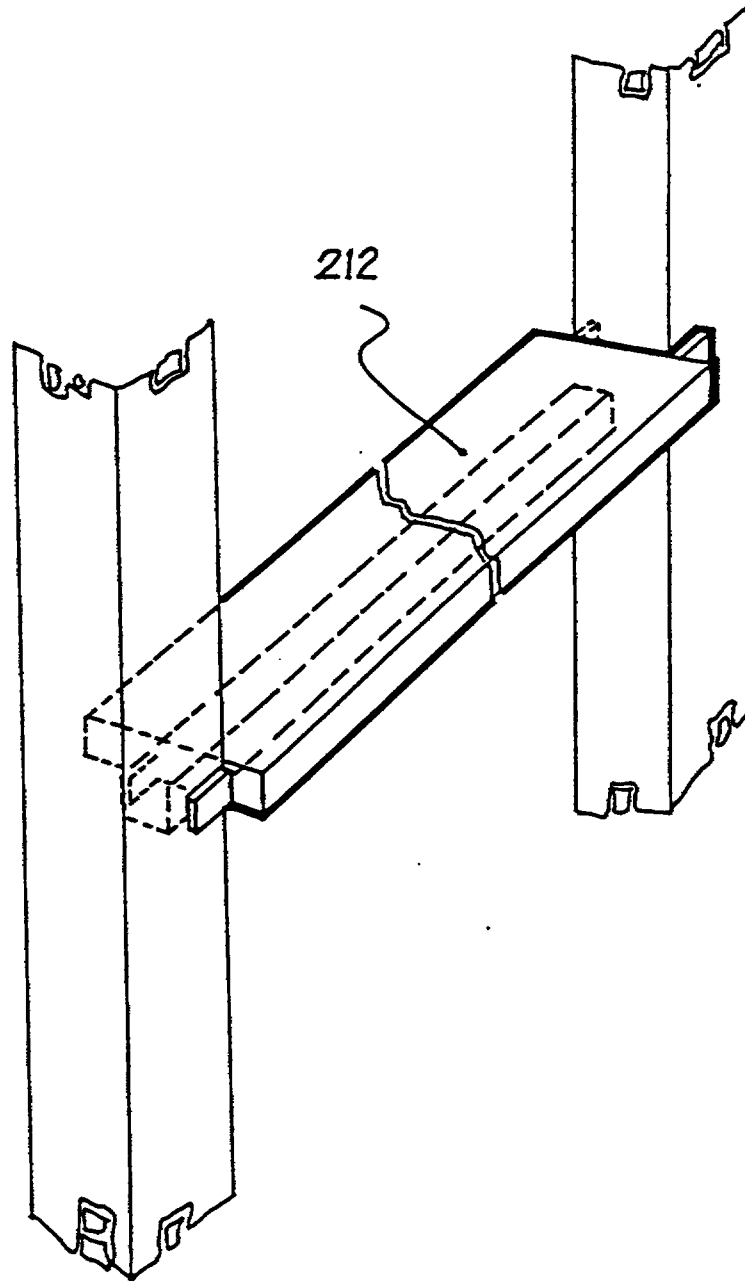


FIG. 21

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Date: 21/10/96

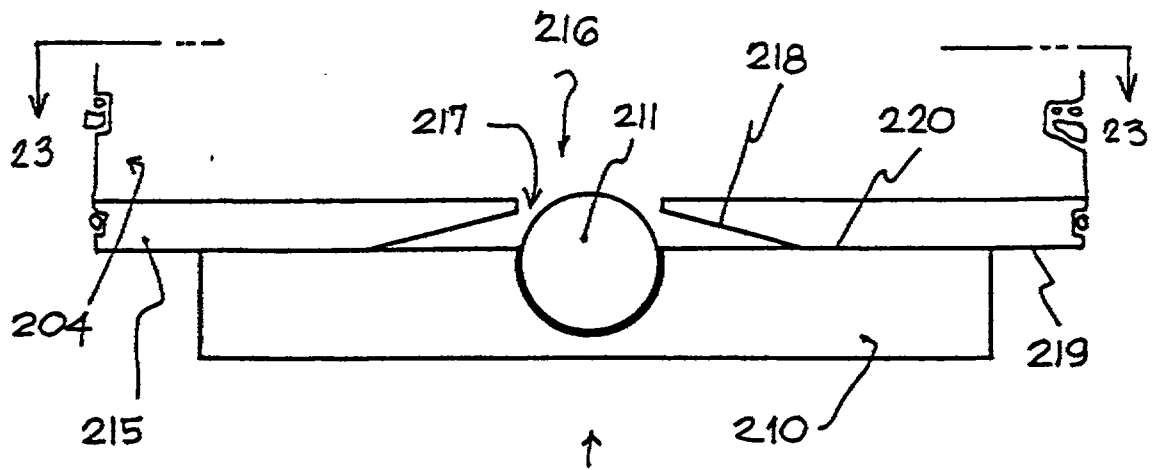


FIG. 22

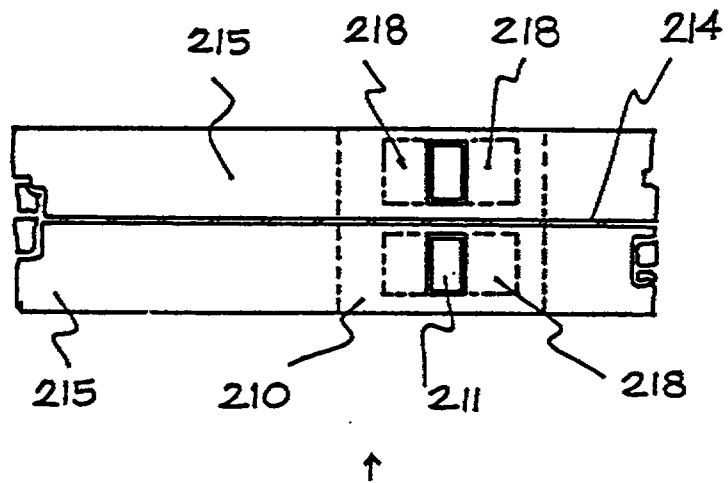


FIG. 23

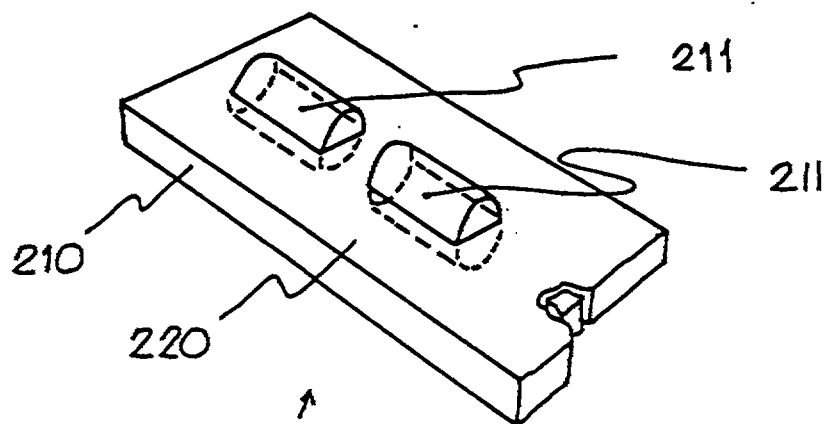


FIG. 24

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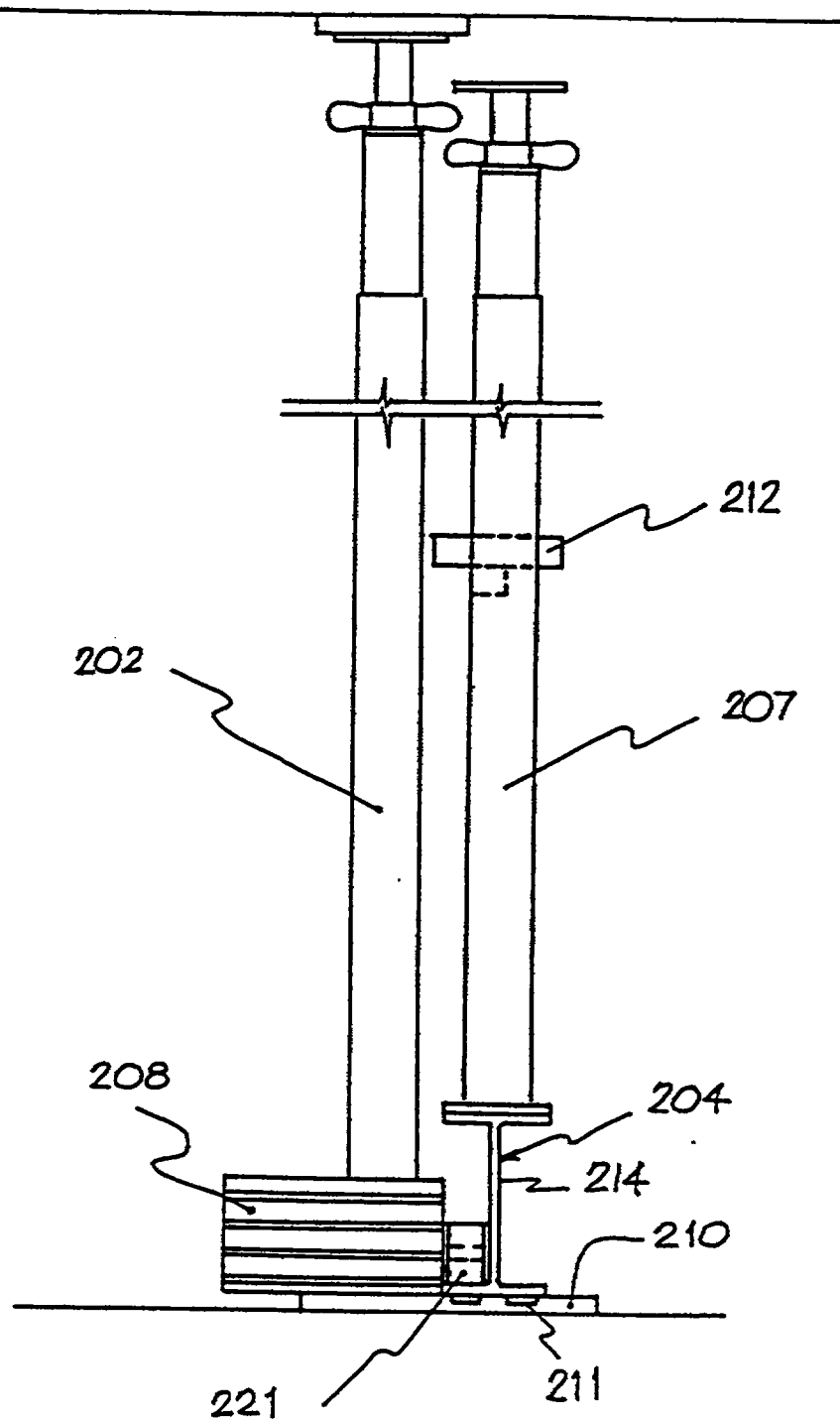


FIG 25

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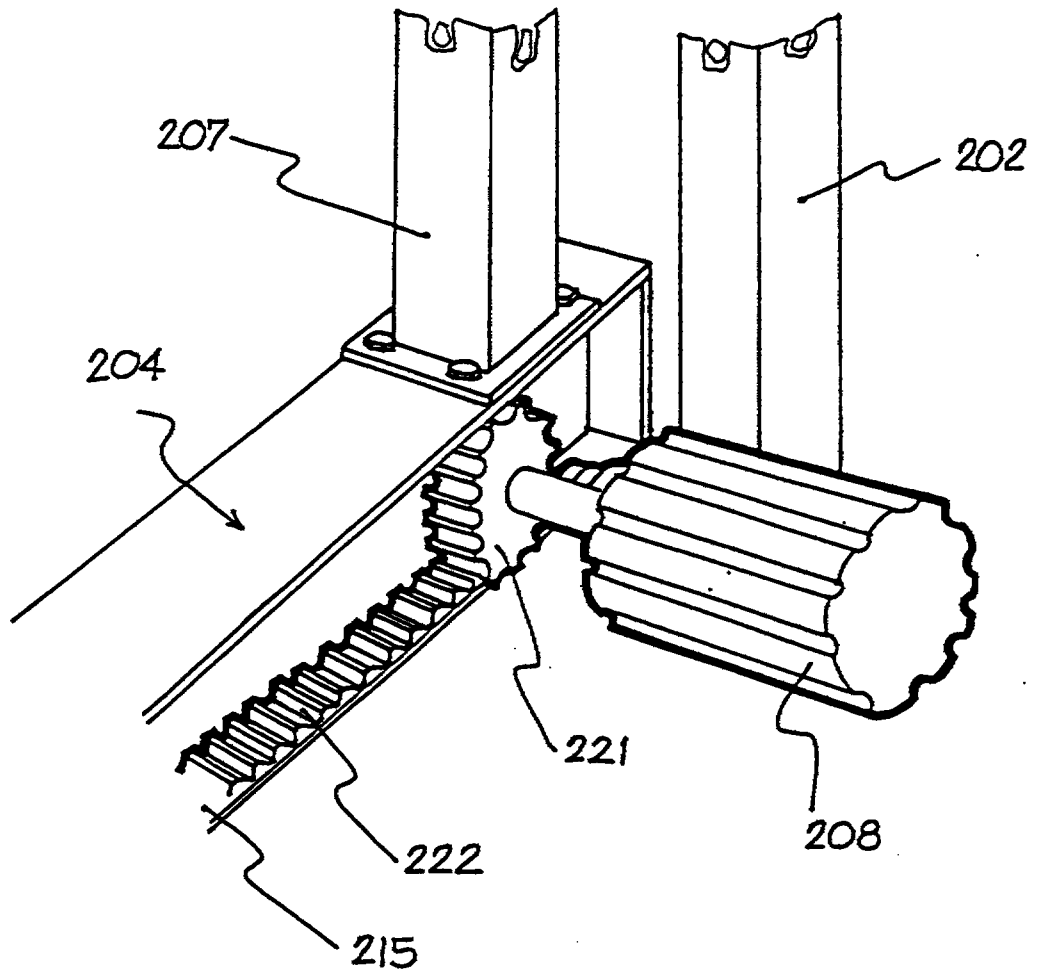


FIG. 26

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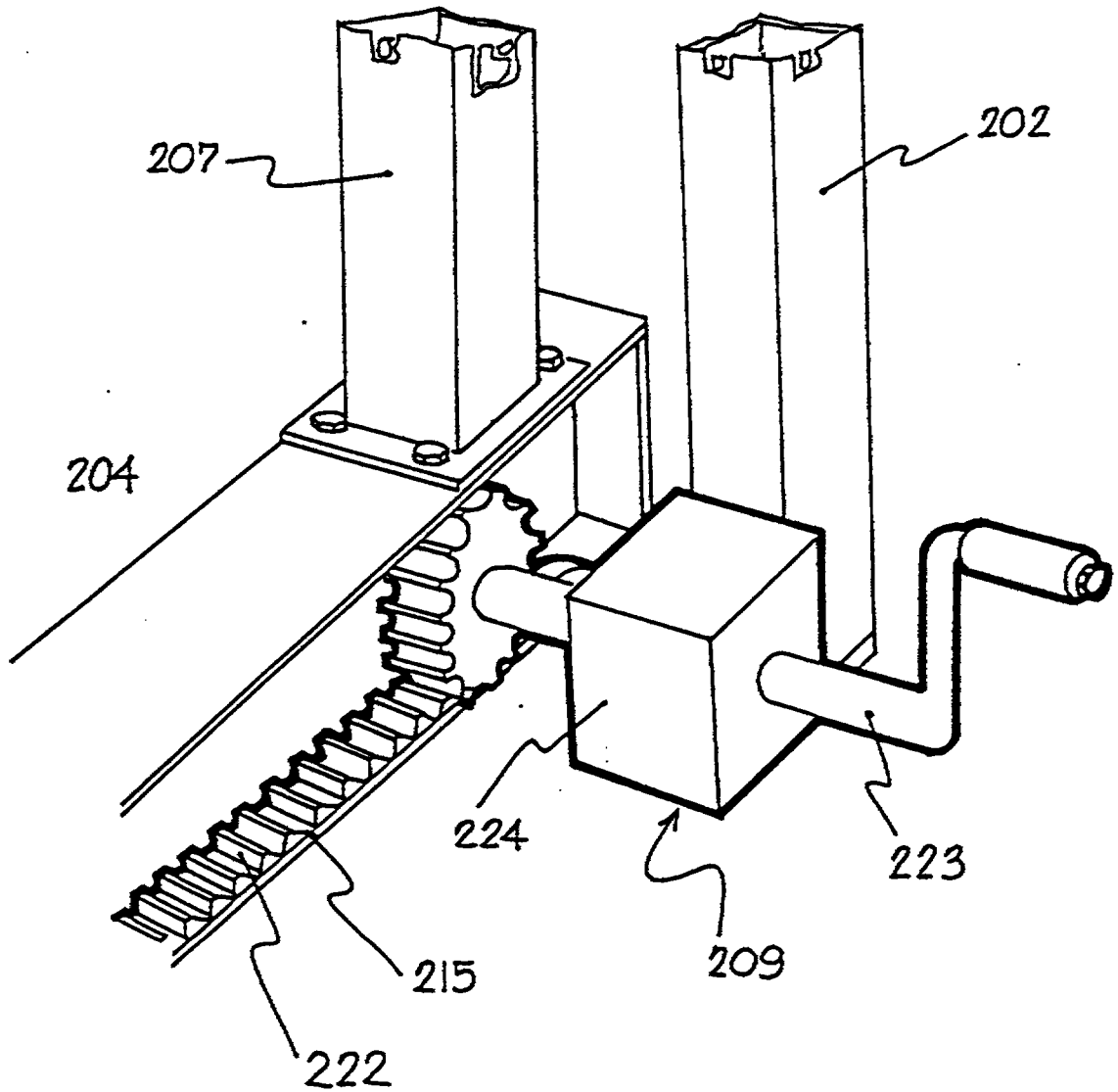


FIG. 27

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Date: 21/10/96

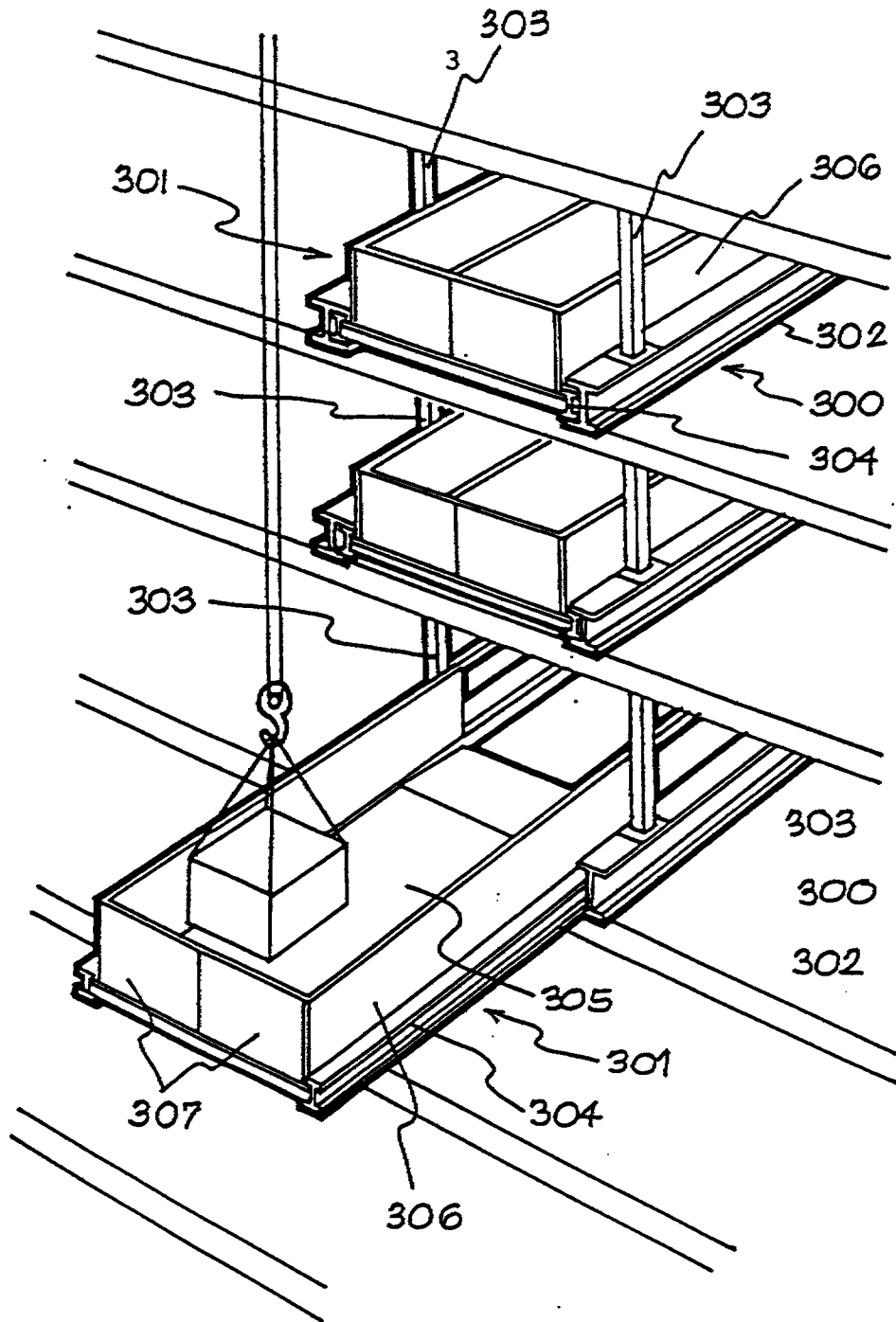


FIG. 28

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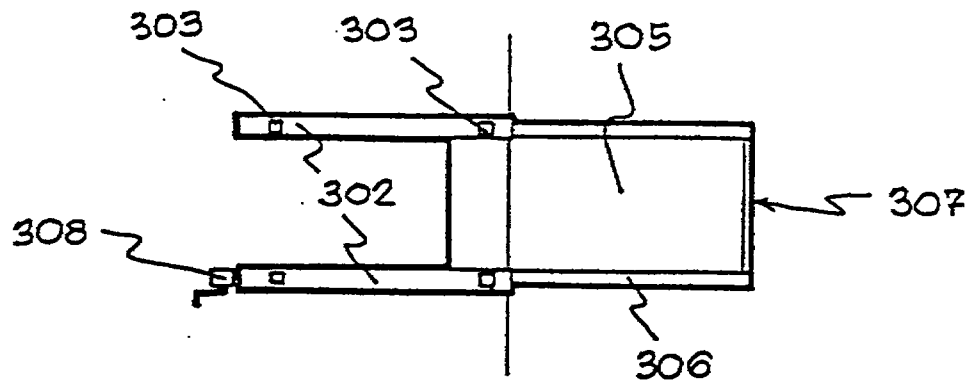


FIG. 30

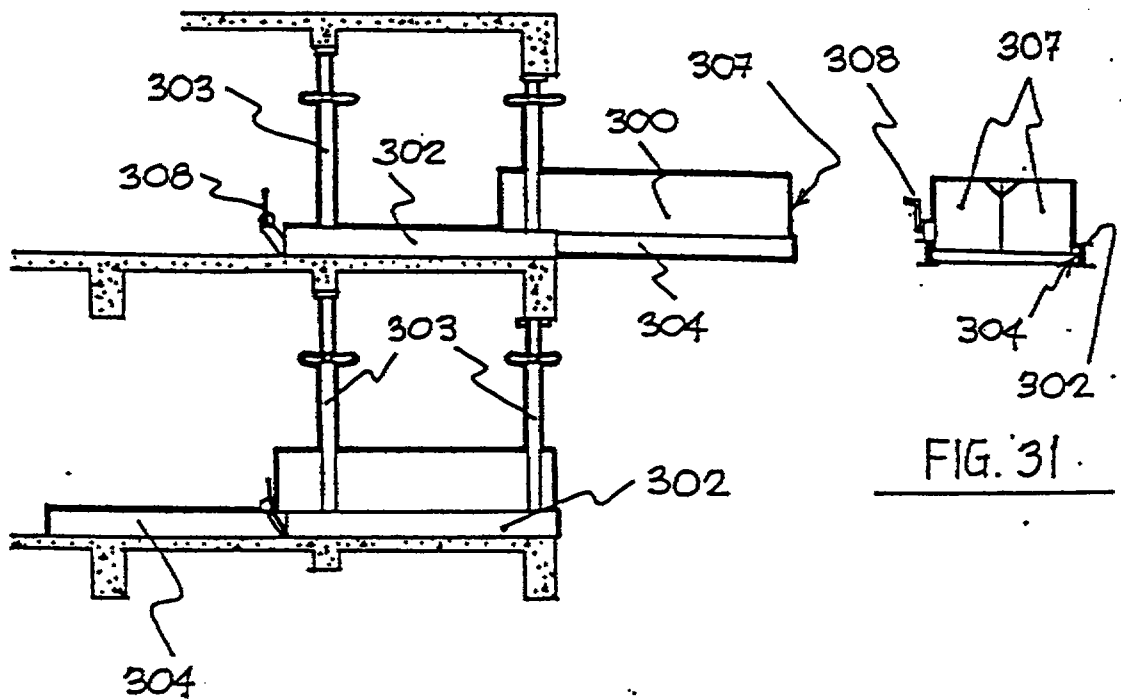


FIG. 31

FIG. 29

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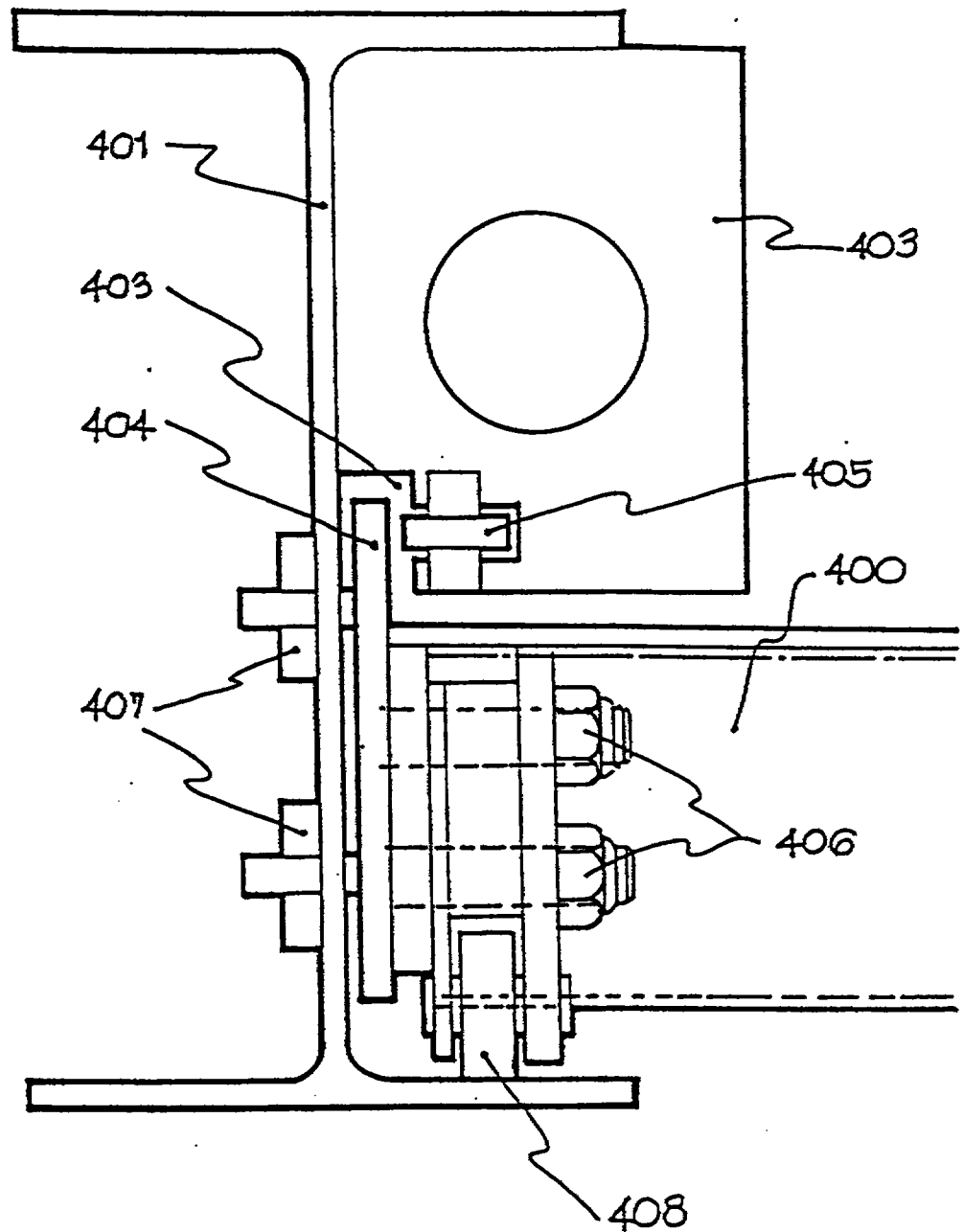


FIG. 32

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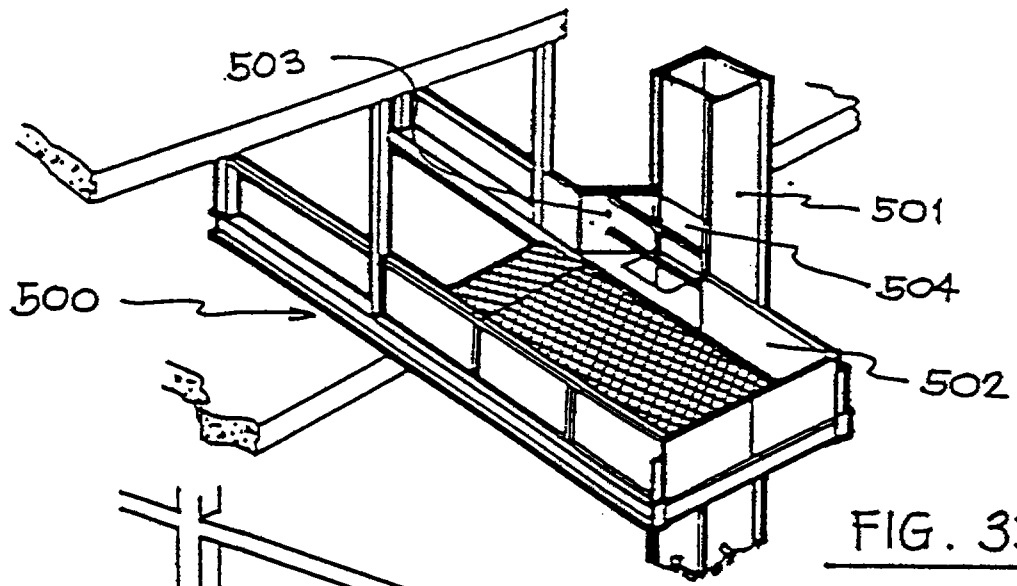


FIG. 33

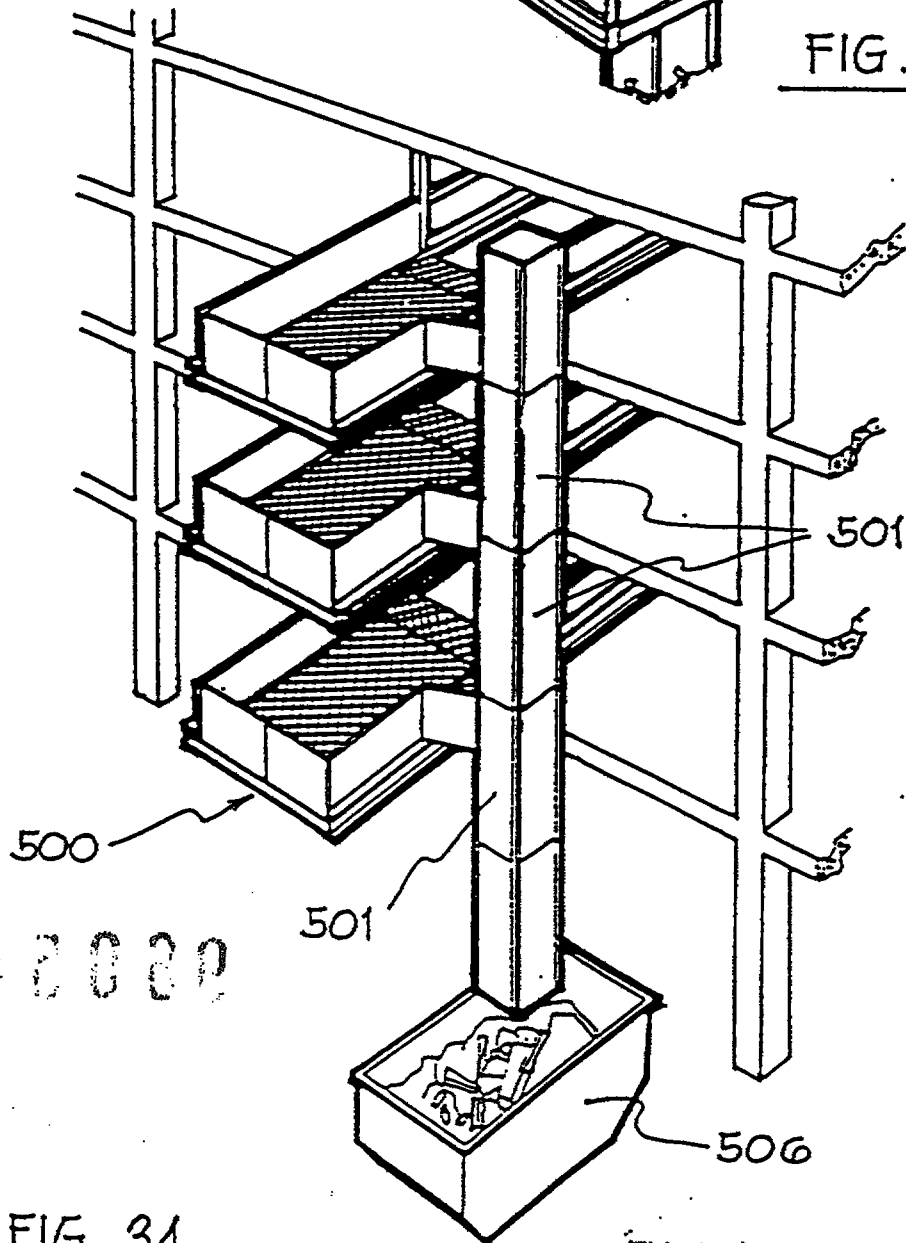


FIG. 34

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## CLAIMS

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| <input type="checkbox"/>            | Abstract : paged .... to paged ....    |            |
| DATE OF RECEIPT .....               |                                        | 1 SEP 1998 |

1. A construction platform comprising a stationary support structure adapted to be fixedly secured to a floor of a building under construction, a landing deck having an outermost edge carried by said support structure and able to move to and fro between at least one inboard and at least one outboard position relative to the building, immobilising means to releasably lock the deck in said at least one outboard position, and safety barrier means movable with the deck and extending along its said outermost edge.
2. A construction platform according to claim 1 further comprising drive means to shift the deck between said positions.
3. A construction platform according to either claim 1 or claim 2 wherein the stationary support structure comprises two substantially parallel, transversely spaced guide beams, and two pairs of length adjustable struts respectively associated with the guide beams.
4. A construction platform according any one of the preceding claims wherein said safety barrier means comprise at least two barriers extending along side edges of the deck and at least one gate extending along an end edge of said deck.
5. A construction platform according to claim 3 wherein said movable deck may extend as a self-supporting cantilever when in said outboard position and has side edge margins respectively engaging said guide beams.
6. A construction platform according to claim 5 wherein each said side edge margin of the movable deck comprises a deck beam ensconced within and movable longitudinally along a channel defined by

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| REPLACEMENT SHEETS                  |                                       | SG          |
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| <input type="checkbox"/>            | Abstract : paged .... to paged ....   |             |
| DATE OF RECEIPT .....               |                                       | 11 SEP 1998 |

the time being of movable items that may be inboard at one time and outboard at another.

Further construction platforms having retractable decks which may be moved from an outboard to an inboard position and vice versa have also been previously proposed by the present inventor. Such prior known retractable deck platforms have comprised semi-permanent supporting beams of the kind used for conventional fixed floor platforms and a horizontally movable landing deck carried by those beams. However, such prior known movable deck constructions have been expensive and/or difficult to move when heavily loaded, and have not been adopted in practice. Moreover, in relation to some construction methods, particularly those involving swinging stages or mechanical stage platforms which climb up and down on towers, the outboard portions of the deck and, to a lesser extent, their support beams have been obtrusive and undesirable.

## Objects and Summary of the Invention

It is an object of the invention to provide a construction platform which substantially overcomes or at least alleviates one or more of the above mentioned deficiencies of prior proposed platforms.

According to one class of embodiments, the invention attains that objective by providing, in construction platforms of the kind having a retractable deck, locking devices for retaining the movable deck in selected operating positions and wherein the deck is bounded along its outboard edges by safety barriers irrespective of its position.