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(54) Movable scaffolding

(57) A movable scaffolding of the type that comprises one or more uprights (11) for supporting and guiding the vertical translational motion of one or more lifting units (12) which are in turn connected to substantially horizontal beams (13) that form as a whole the working platform. One or more of the beams (13) can slide along a substantially horizontal plane and with a direction of motion that is substantially perpendicular to the alignment of the uprights (11), with respective ends (14) that rest slidingly, in a manner that is controlled and guided, on respective sides of the corresponding lifting unit (12), which is provided with dedicated motor means (16).

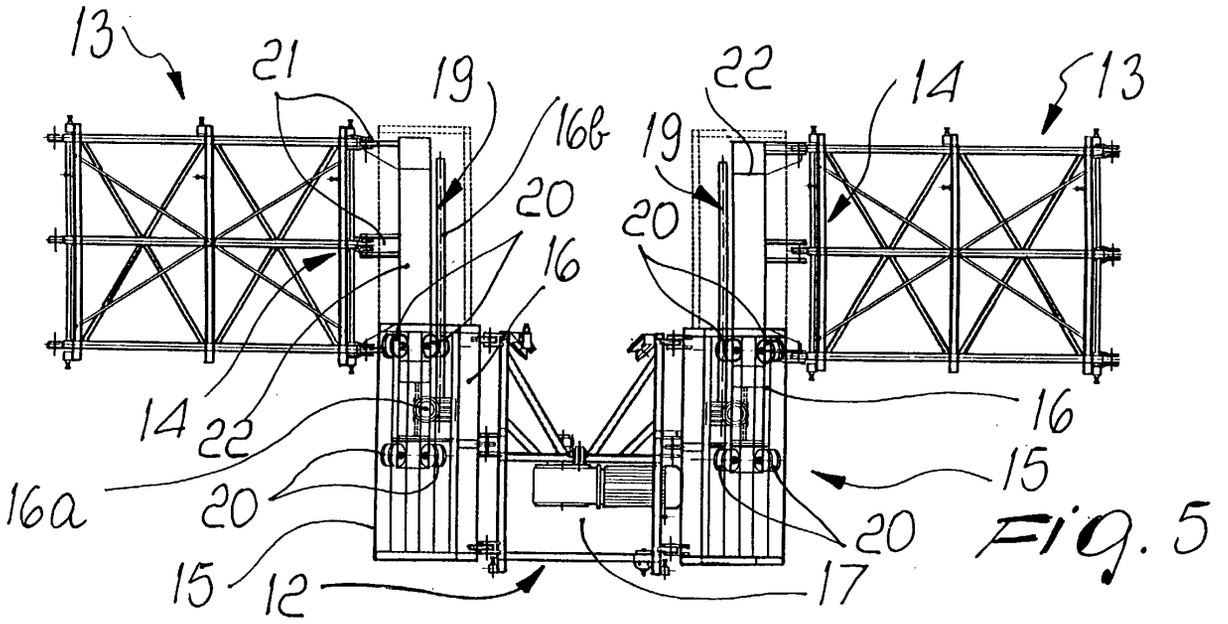

Fig. 5

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Description

[0001] The present invention relates to a movable scaffolding.

[0002] It is known that movable scaffoldings, substantially constituted by uprights for supporting and guiding the vertical translational motion of one or more lifting units that are in turn connected to substantially horizontal beams that form as a whole the working platforms, have long been used successfully in various operations and treatments performed on-site.

[0003] These scaffoldings are particularly useful because they allow personnel to work in full safety even at considerable heights on buildings or in any case on structures that require the simultaneous work of several operators.

[0004] However, in particular cases the structures or the buildings on which the scaffoldings are applied have an irregular face or shape.

[0005] In these cases, these irregularities cause considerable difficulties for optimum arrangement of the platforms of the scaffolding; this is particularly evident if one considers the presence, for example, of any recesses and/or protrusions in the structure to which they are applied.

[0006] For this purpose, modular scaffoldings or other solutions for moving the platforms or the uprights are provided, but they do not ensure adequately rapid adaptation to the shape of the surface to which they are applied.

[0007] In particular, in the presence of irregularly shaped buildings, the time required for assembling the scaffolding and adapting it to the building is increased considerably.

[0008] The aim of the present invention is to provide a movable scaffolding whose structure achieves its aim and objects, by particularly ensuring that any obstacle in the vertical translational stroke is overcome and ensuring an excellent positioning of the walkways and therefore of the operators even in the presence of particularly irregular buildings or faces to which they are applied.

[0009] Within this aim, an object of the present invention is to provide a scaffolding whose structure in no case detracts from overall safety and functional flexibility.

[0010] Another object of the present invention is to provide a scaffolding whose structure further allows considerable saving in terms of tooling and preparation on site.

[0011] Another object of the present invention is to provide a scaffolding whose structure can be manufactured with known technologies and equipment.

[0012] This aim and these and other objects that will become better apparent hereinafter are achieved by a movable scaffolding of the type that comprises one or more uprights for supporting and guiding the vertical translational motion of one or more lifting units which are in turn connected to substantially horizontal beams that form as a whole the working platform, said scaffolding being characterized in that said one or more beams can slide along a substantially horizontal plane and with a direction of motion that is substantially perpendicular to the alignment of said uprights, with respective ends that rest slidingly, in a manner that is controlled and guided by dedicated motor means, on respective sides of the corresponding lifting unit.

[0013] Further characteristics and advantages of the present invention will become better apparent from the description of an embodiment thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a side elevation view of a scaffolding having the structure according to the invention;
Figure 2 is another side elevation view of the scaffolding of Figure 1;
Figures 3, 4 and 5 are three side views of the same detail of the scaffolding of Figure 1.

[0014] With reference to Figures 1 to 5, a movable scaffolding having the structure according to the invention is generally designated by the reference numeral 10.

[0015] The scaffolding 10, in this case, has two lattice-like uprights 11 for supporting and guiding the vertical translational motion of a corresponding number of lifting units, each generally designated by the reference numeral 12, which are in turn connected to beams so as to support them, the beams being in this case also lattice-like and modular, being designated by the reference numeral 13, and forming as a whole the working platform.

[0016] In this case, in the scaffolding 10 all the illustrated beams 13 can slide on a substantially horizontal plane and with a direction of motion that is substantially perpendicular to the alignment of the uprights 11, their respective ends 14 resting so that they can slide in a guided manner, as described in greater detail hereinafter and in a manner that is controlled by dedicated motor means generally designated by the reference numeral 16, on respective sides 15 of the corresponding lifting unit 12.

[0017] Each one of the lifting units 12 in this case also has motor means 17 dedicated to actual lifting along the corresponding upright 11; the motor means typically motorizes a rack mechanism, which is not shown in the figures but is of a per se known type commonly used in the field.

[0018] In particular, the ends 14 of each beam 13 are fixed to composite brackets, each generally designated by the reference numeral 18, which form linear guides 19 that can slide on a plurality of rollers 20 that are pivoted to the corresponding lifting unit 12 (at one of its sides 15).

[0019] The motor means 16 is constituted by a gear-

motor 16a, which is rigidly coupled to the corresponding lifting unit 12 and whose output shaft supports a toothed pinion that meshes with a rack 16b that is rigidly coupled to the respective beam 13, thus achieving translational motion.

[0020] In particular, in this embodiment, for each side 15 of a same lifting unit 12 there are four pairs of rollers 20 that are mutually opposite in pairs; furthermore, the rollers 20 are arranged so that their rolling planes substantially converge inward in pairs.

[0021] Each one of the composite brackets 18 is substantially constituted by cantilevered connection elements 21 that are fixed to a tubular frame 22 whose horizontal sides 23 slidingly rest on respective rollers 20.

[0022] In particular, the connecting elements 21 are fixed to the frame 22 and their free ends 24 are pivoted to corresponding end nodes 25 of the corresponding beam 13.

[0023] In practice, operation is as follows: once the scaffolding 10 has been positioned appropriately, adaptation to the surface of the building being treated occurs simply by producing the translational motion of the beams 13 by activating the motor means 16, which makes the corresponding frames 22 slide outward or inward.

[0024] In this manner, it is evident that it is possible to achieve high precision and flexibility in the shape of the platform constituted by said beams 13.

[0025] In practice it has been found that the present invention has achieved the intended aim and objects.

[0026] In particular, it is noted that the scaffolding having the structure according to the invention ensures high operational functionality without however compromising in any case the overall safety and stability of ground contact and operator support.

[0027] Attention is also called to the rapidity and simplicity of the adaptation of the scaffolding according to the invention substantially to any type of surface of application, since it is possible to modify both the extent of the span of the beams, which typically can be modular, and the adaptation in terms of advancement or retraction with respect to a central alignment plane in positioning with respect to the uprights.

[0028] Moreover, it is noted that the scaffolding having the structure according to the invention ensures such a high functional flexibility without however entailing excessive complications with respect to fixed scaffoldings.

[0029] The present invention is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

[0030] The technical details may be replaced with other technically equivalent elements.

[0031] The materials and the dimensions may be any according to requirements. The disclosures in Italian Patent Application No. PD2000A000236 from which this application claims priority are incorporated herein by reference.

[0032] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A movable scaffolding (10) of the type that comprises one or more uprights (11) for supporting and guiding the vertical translational motion of one or more lifting units (12) which are in turn connected to substantially horizontal beams (13) that form as a whole the working platform, said scaffolding being **characterized in that** said one or more beams (13) can slide along a substantially horizontal plane and with a direction of motion that is substantially perpendicular to the alignment of said uprights (11), with respective ends (14) that rest slidingly, in a manner that is controlled and guided by dedicated motor means (16), on respective sides of the corresponding lifting unit (11).

2. The scaffolding according to claim 1, **characterized in that** the ends (14) of each one of said horizontally movable beams are fixed to composite brackets (18) that form linear guides (19) that can slide on a plurality of rollers (20) that are orientated and pivoted to the corresponding lifting unit (11).

3. The scaffolding according to claim 2, **characterized in that** each one of said lifting units (11) has, for each side, four pairs of said rollers (20) arranged mutually opposite in pairs.

4. The scaffolding according to claim 3, **characterized in that** the rollers (20) that constitute one pair converge inward in opposite pairs.

5. The scaffolding according to claim 1, **characterized in that** the rollers (20) are associated with said motor means (17) which are constituted by a gearmotor (16a) that is rigidly coupled to the corresponding lifting unit, whose output shaft bears a toothed pinion that meshes with a rack (16b) that is rigidly coupled to the respective beam (13).

6. The scaffolding according to claim 2, **characterized in that** said composite bracket (18) is constituted by at least two pairs of connecting elements (21) that are fixed to a tubular frame (22) whose horizontal sides rest (23) slidingly on the respective rollers (20).

7. The scaffolding according to claim 6, **characterized in that** said connecting elements (21) are provided

with a free end (24) that is pivoted to end nodes (25) of the corresponding beam (13).

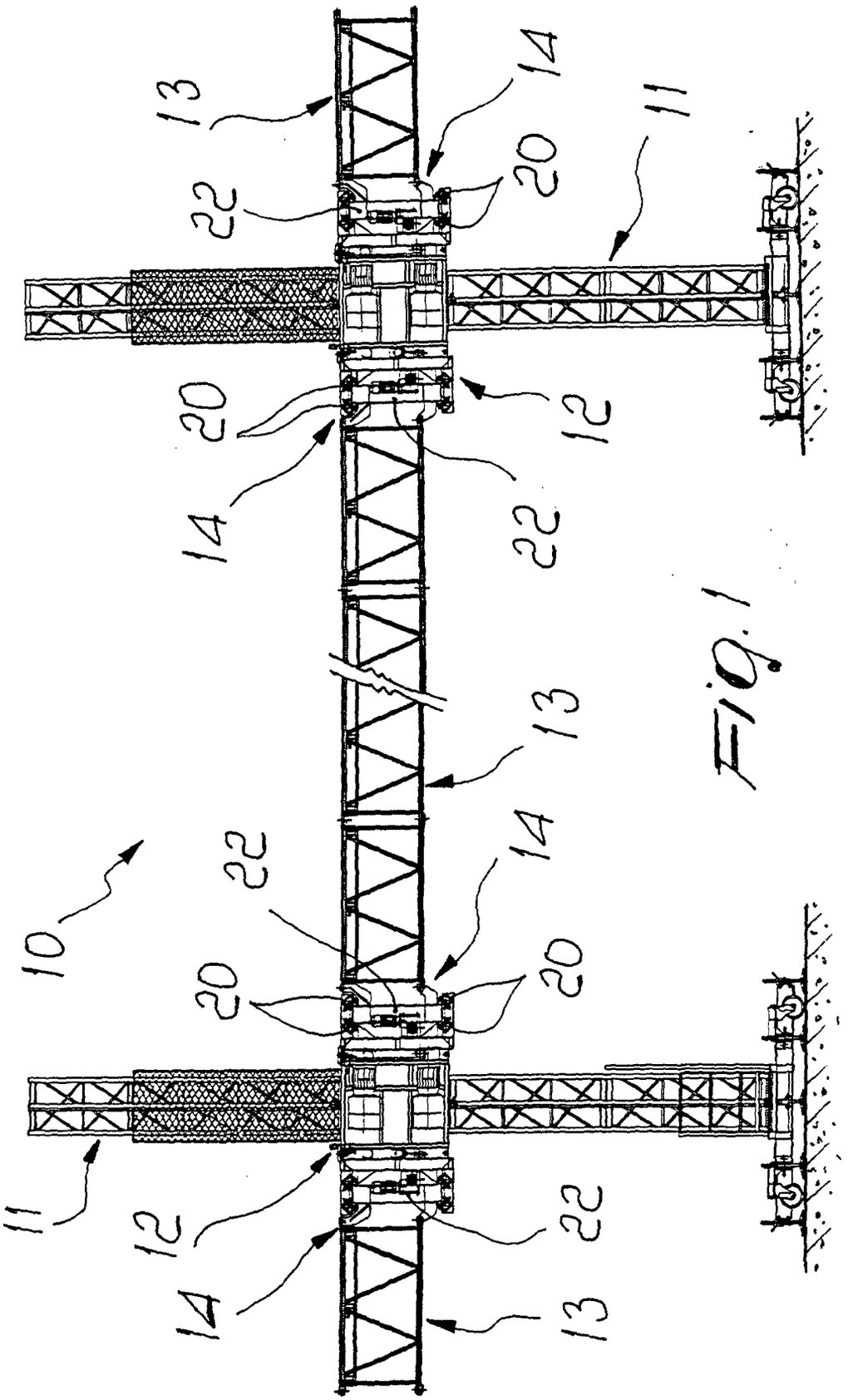

Fig. 1

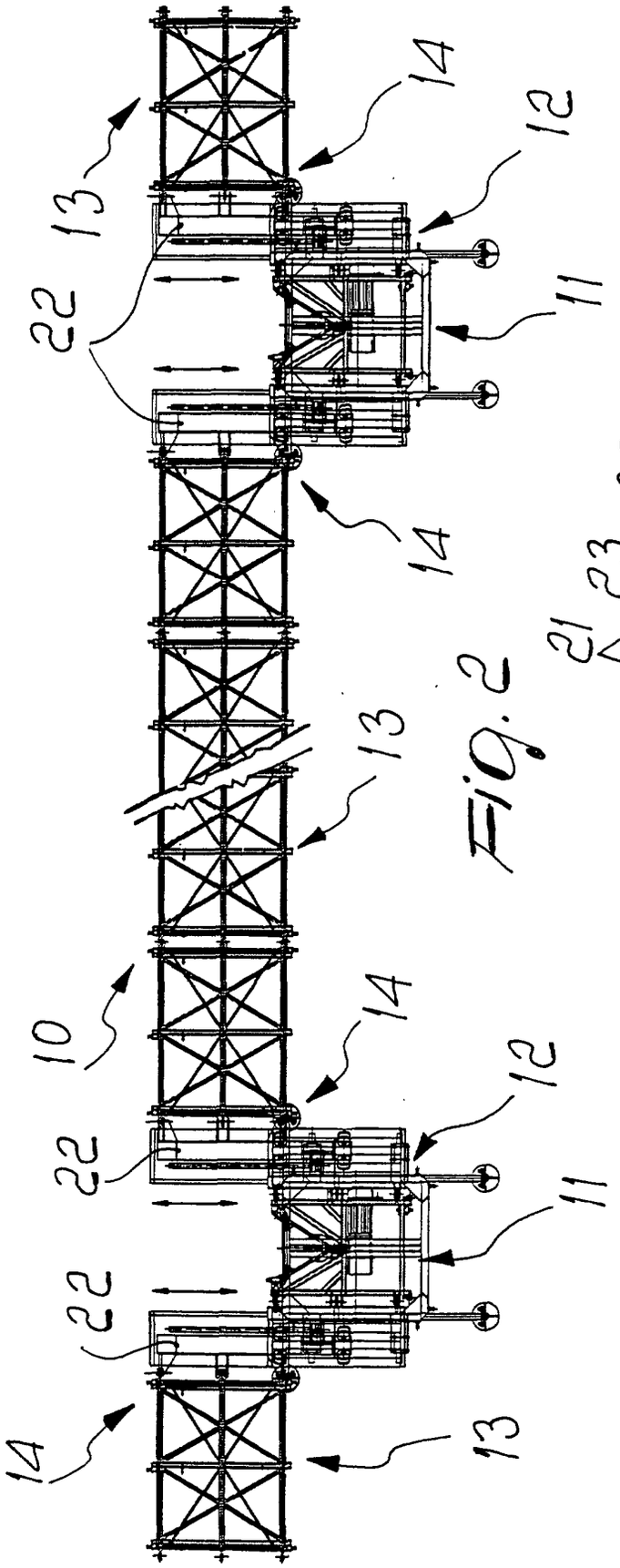

Fig. 2

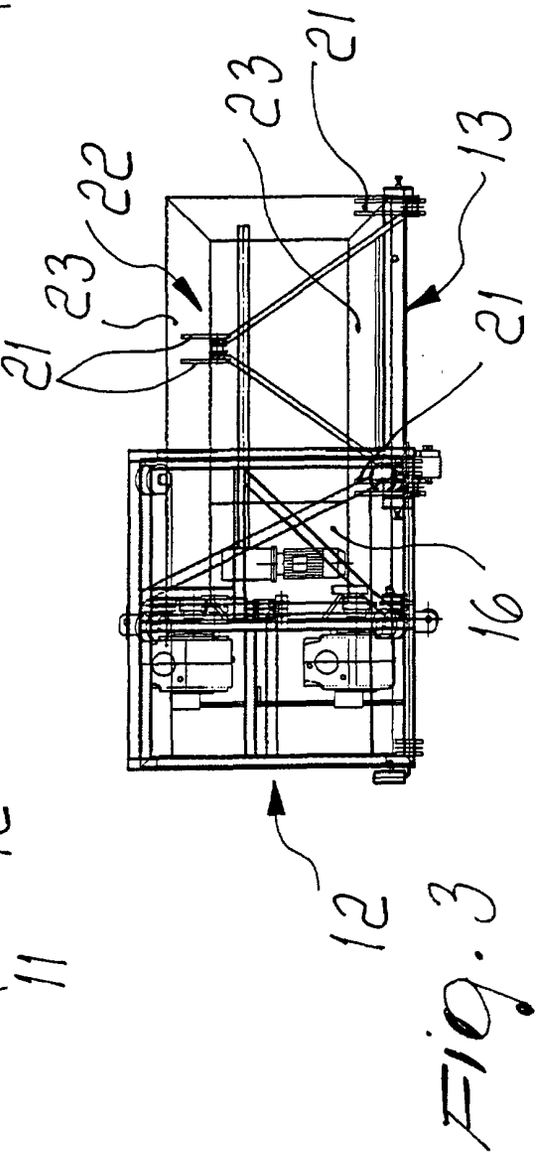

Fig. 3

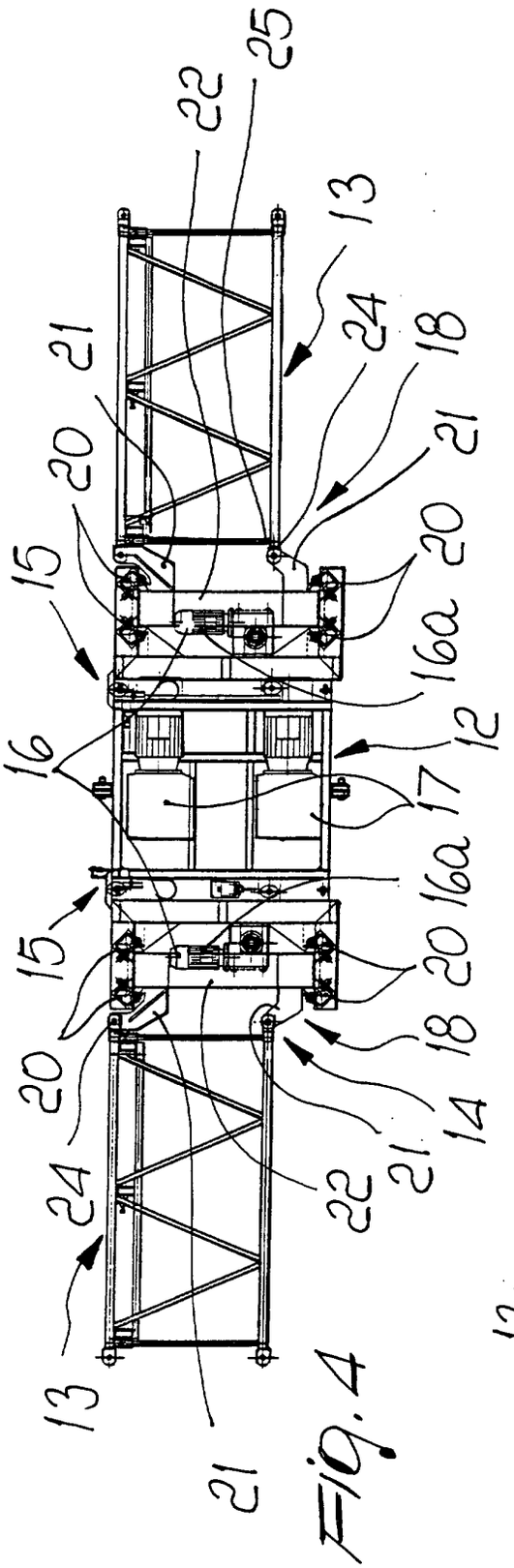
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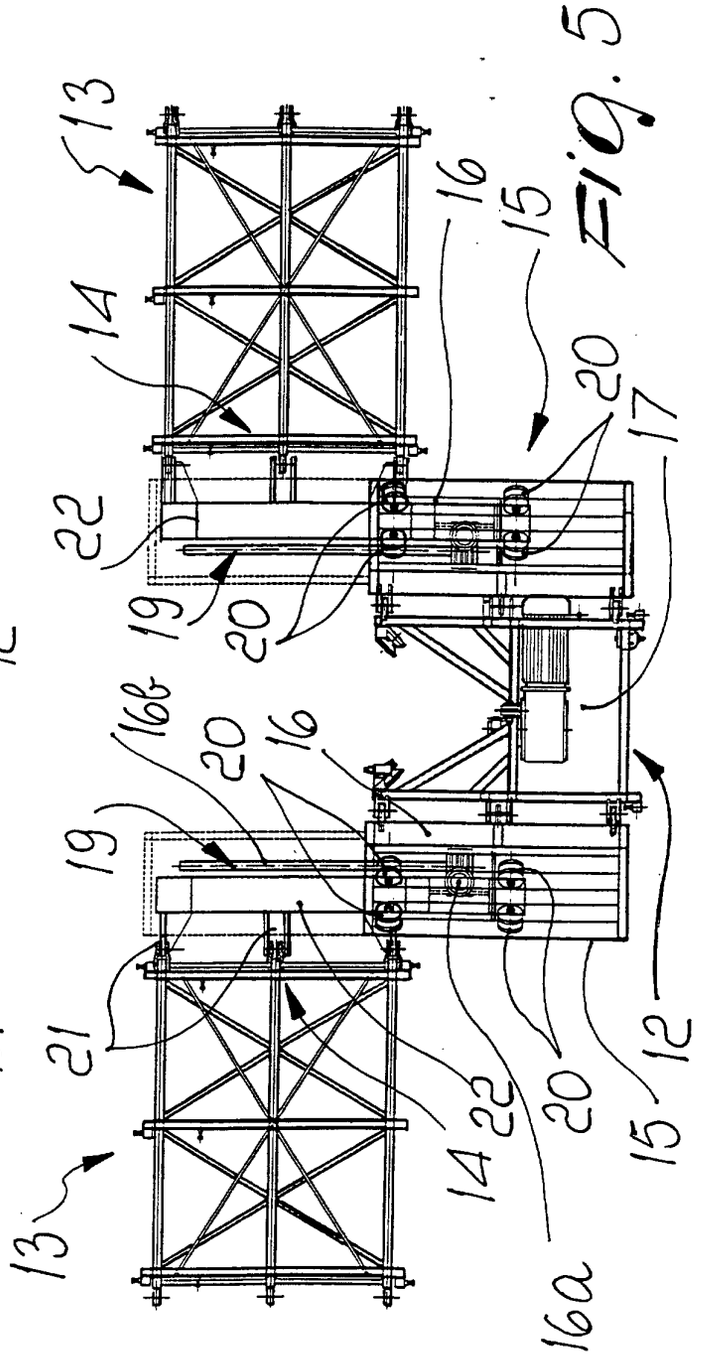
Fig. 4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16b
16a
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Fig. 5