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(54) Strapping trolley

(57) A strapping trolley capable of accomodating reels of strapping of variable width and number comprises a supporting element (12) and at least two fences (20) mounted on the said supporting element (12) and defining a space (22) for receiving at least one reel of strapping (24). At least one of said at least two fences (20) is movable with respect to the other in order to vary the transverse dimension of the said space (22). Means (30) are provided for the relative locking of the said at least two fences (20) and defining a given transverse dimension of said space (22). Also provided is at least one rolling-contact bearing element (38) interposed between the said at least two fences (20). The supporting element (12) extends to define a supporting surface (42) for at least one compressor (44).

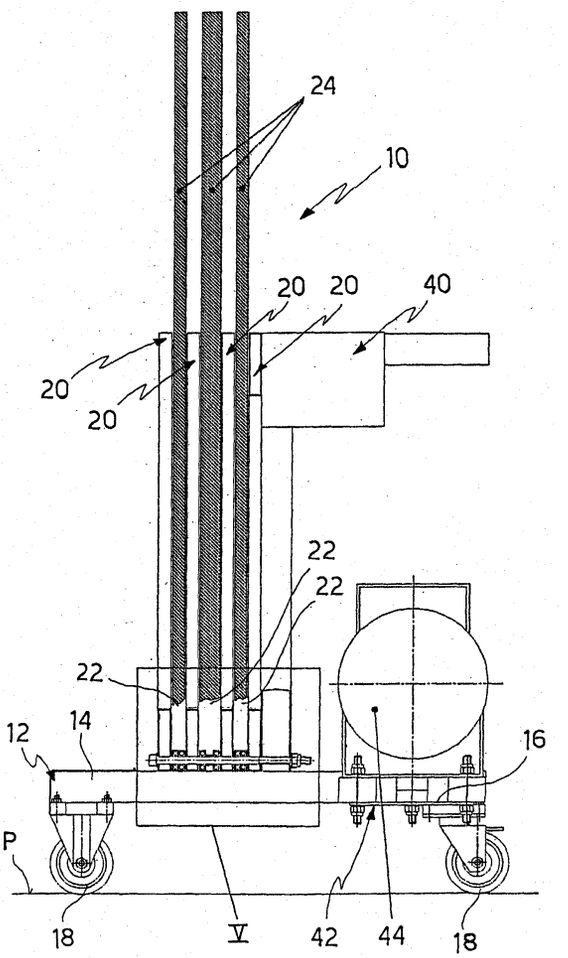

FIG. 4

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Description

[0001] The subject of the present invention is a strapping trolley.

[0002] As is known in the industry, the term "strap" generally refers to a band of variable thickness or height used to pack, for example, sections, tubes, flat sheeting or the like or for binding other objects such as packing cases.

[0003] The strap may be of a variety of different materials, and in particular metal.

[0004] The prior art includes devices, sometimes portable, in which the reel of continuously wound strapping is housed. During the strapping operation, the band or strap is manually unwound, rewound around the objects to be packed up, tightened by means of a suitable device also known as a strapper, and cut by the same device. The two ends of the strap are usually joined together by means of a seal.

[0005] There are a number of drawbacks with known devices, such as the fact that they can take reels of a predetermined width or of widths falling between limited intervals of variation, or the fact that they can only take one reel at a time. They also necessitate other equipment, such as compressors or the like, to perform the strapping operation.

[0006] One very familiar need is to be able to house in the same device a range of reels of widely varying widths and if required to have a variety of reels of different widths all on the same apparatus. Further, there is an acutely felt need for all the equipment necessary for the strapping operation - that is, for winding, cutting and sealing the strap around the product or products to be packed up - to be accessible.

[0007] It is an object of the present invention to devise and provide a strapping trolley that will fulfil these needs and at the same time obviate the drawbacks indicated with reference to the prior art.

[0008] This object is achieved with a strapping trolley in accordance with Claim 1. The dependent claims correspond to other embodiments of the strapping trolley.

[0009] Other features and the advantages of the trolley according to the invention will be found in the following description of a preferred illustrative embodiment thereof given by way of indication without implying any limitation, with reference to the appended figures, in which:

[0010] Figure 1 is a front end view of a strapping trolley according to the present invention;

[0011] Figure 2 is a front end view of the strapping trolley of Figure 1;

[0012] Figure 3 is a plan view of the trolley of Figures 1 and 2 in which some parts are omitted for clarity;

[0013] Figure 4 is a partly sectioned side view of the trolley of Figure 1 taken on the line VI-VI; and

[0014] Figure 5 is an enlarged view of detail V from Figure 4.

[0015] With reference to the abovementioned figures, the number 10 is a general reference for a strapping trolley. In this text the term "horizontal" refers to a plane or direction parallel to a surface P on which the trolley 10 is standing, while the term "vertical" refers to a plane or direction perpendicular to the surface P on which the trolley is standing.

[0016] In one possible embodiment, the strapping trolley 10 comprises a supporting element 12. This supporting element may for example comprise tubular parts 14 with bearer plates 16 fixed to them, preferably parallel to the surface P on which the trolley is standing.

[0017] In one possible embodiment there are wheels 18, preferably some or all of which are able to swivel about a vertical axis, underneath the supporting element 12.

[0018] In one possible embodiment, the trolley 10 comprises at least two fences 20 mounted on the supporting element 12 and defining a space 22 for receiving at least one reel of strapping 24 which is formed around an axis 24a.

[0019] The fences 20 define, for each space, parallel faces 23 arranged preferably in a vertical direction.

[0020] In the example illustrated in the figures, four fences 20 defining three spaces 22 are shown by way of example.

[0021] In one possible embodiment, a fence 20 is made of tubing or a hollow structure.

[0022] In one possible embodiment, the fences 20 are mounted on the supporting element 12, extending transversely with respect to the latter and in an essentially vertical direction.

[0023] In one possible embodiment, at least one of the fences is securely fixed or welded to the supporting element 12, particularly to uprights 28 that extend at right angles to the supporting element 12.

[0024] At least one of the fences 20 is mounted on the supporting structure 12 in such a way as to be movable with respect to an adjacent fence in order to vary the transverse dimension of the space 22 defined between these two fences.

[0025] The example shown in the figures has the uprights 28 and four fences whose position in a direction parallel to the axis 24a of the reel of strapping can be varied.

[0026] The number 30 denotes means for the relative locking of the fences so as to define a given transverse dimension of each space 22.

[0027] In one possible embodiment the locking means 30 comprise at least one screw or threaded bar 32 inserted transversely through the fences 20 and at least one spacer 34 having a length equal to the predetermined transverse dimension of the space and interposed between two adjacent fences.

[0028] In the example illustrated in the figure there are six screws 32 inserted transversely between the fences 20. Each screw 32 has a head 32a and a threaded end 32b for a nut 36.

[0029] If a plurality of screws are to be used, as for

example illustrated in the figures, they are essentially distributed in a semicircular arc on the fences 20 and on lateral portions thereof.

[0030] In one possible embodiment, the at least one spacer 34 is coaxially mounted on a respective screw 32. In the example illustrated in the figures there are four spacers 34 for each space, each coaxially mounted on one of the screws 32. In the example illustrated in the figures the spacers are mounted coaxially on the four upper screws at the sides of the reel of strapping 24. The spacers 34 perform the additional function of keeping the reel of strapping in its space, preventing it from moving in a transverse direction with respect to its axis.

[0031] In one possible embodiment, the spacers 34 comprise a hollow cylindrical element of larger size than the corresponding threaded bar.

[0032] In one possible embodiment, the trolley 10 comprises at least one rolling-contact bearing element 38 interposed between two adjacent fences 20.

[0033] If screws are inserted transversely between the fences 20, the rolling-contact bearing element 38 is advantageously mounted coaxially on one of the contact screws.

[0034] In the example illustrated in the figures, for each space there are two rolling-contact bearing elements 38, each mounted coaxially on one of the six screws 32 and in particular on the lower screws relative to the reel of strapping 34. The two rolling-contact bearing elements 38 are preferably arranged symmetrically with respect to an axis of symmetry a-a of the trolley 10.

[0035] In the example illustrated in the figures, each rolling-contact bearing element 38 in a space comprises two ball bearings fitted onto the same screw 32. In the case of very wide reels, the two bearings may themselves be separated by an additional spacer 39.

[0036] In one possible embodiment, the supporting element 12 comprises at least one box 40, for example for containing seals. In the example illustrated there are three boxes for seals or other devices such as the strapper.

[0037] In one possible embodiment, the supporting element 12 extends to define a supporting surface 42 for at least one compressor 44. In this case the supporting element 12, and in particular the upright 28, preferably comprises quick-release attachments 46 for the connection to the compressor of equipment capable of carrying out the operation, e.g. the so-called strapper.

[0038] The manner of use of a strapping trolley as described above will now be described.

[0039] Referring to Figure 4, the trolley in question has been made ready to support three reels of strapping 24 of differing widths (for example 16 mm, 32 mm and 19 mm).

[0040] For this purpose, four fences 20 have been set up parallel to each other, with interposed spacers 34 and rolling-contact bearing elements 38.

[0041] The fences have then all been locked relative to each other by tightening the nut 36 at the threaded end of each threaded bar 32.

[0042] To vary the number and/or width of the reels of strapping 24, the nuts 36 must be undone, the spacers 34 and if relevant the additional spacers 39 must be replaced, and the fences 20 must be locked again to the supporting element 12 or to the uprights 28.

[0043] It will be appreciated from the above that the provision of a strapping trolley in accordance with the present invention satisfies the abovementioned requirement to be able to vary within wide intervals the width of the reel of strapping which the trolley is to carry.

[0044] Also, the structure of the trolley designed as herein described also offers great versatility in respect of the number of reels of strapping that can be housed in one trolley.

[0045] The strapping trolley according to the invention advantageously has a modular structure that adapts to both the width and the number of reels of strapping to be held.

[0046] Moreover the compactness of the fences and of the means of locking them to the supporting element facilitates the provision of a trolley fitted with accessories in such a way that all the equipment necessary for the operation is to hand.

[0047] In particular the provision of the compressor is completely integrated into the actual structure of the trolley, achieving an overall synergistic effect for example due to the fact that the quick-release attachments allowing connection to the compressor of tools for carrying out the operation are integrated into the structure of the trolley, thereby reducing its bulk.

[0048] The strapping trolley according to the invention makes it possible to achieve other advantages, such as greater tidiness in the premises in which the operation is being carried out and consequently greater safety for the operators involved.

[0049] Another advantage of the strapping trolley according to the invention is its unusually simple structure, which means that it can be produced at a very moderate cost.

[0050] It will be clear that variations and/or additions may be made to what is described above and illustrated.

[0051] As an alternative to what is shown in the figures the strapping trolley may be fitted with only two fences with an adjustable separation to accommodate a single reel of strapping but of variable width. If required, both fences can be movable to vary the thickness of the space.

[0052] The number and/or shape of the fences, of the threaded bars, the spacers and of the rolling-contact bearing elements may vary.

[0053] The rolling-contact bearing elements may be produced in other forms.

[0054] The compressor integrated into the supporting element need not be present. Also, there could be an embodiment of the strapping trolley in which the fences are fixed and not adjustable and the supporting element is extended to support and incorporate a compressor.

[0055] The embodiment of the means for locking the fences to the supporting element or to uprights connected to this can also vary. For example, lateral clamps, or spring-action rather than threaded elements, or the like, could be used.

[0056] Furthermore, the form and the name trolley is given by way of example, other forms and names being possible.

[0057] To fulfil any specific requirements which may arise, numerous modifications, adaptations and replacement of parts with other functionally equivalent parts may be made by those skilled in the art to the preferred embodiment of the strapping trolley described above, without however departing from the scope of the claims which follow.

Claims

1. Strapping trolley (10) comprising:

a supporting element (12);
at least two fences (20) mounted on the said supporting element (12) and defining a space (22) for receiving at least one reel of strapping (24), at least one of the said at least two fences (20) being movable with respect to the other in order to vary the transverse dimension of the said space (22); and
means (30) for the relative locking of the said at least two fences (20) and defining a given transverse dimension of the said space (22).

2. Strapping trolley (10) according to Claim 1, in which the said locking means (30) comprise at least one screw or threaded bar (32) inserted transversely through the said at least two fences (20) and at least one spacer (34) having a length equal to the predetermined transverse dimension of the space (22) and interposed between the said at least two fences (20).

3. Strapping trolley (10) according to Claim 2, in which the said at least one spacer (34) is coaxially mounted on the said at least one screw (32).

4. Strapping trolley (10) according to Claim 2 or 3, having a plurality of screws (32) essentially distributed in an arc of a circle on the said fences (20).

5. Strapping trolley (10) according to at least one of the preceding claims, having at least one rolling-contact bearing element (38) interposed between the said at least two fences (20).

6. Strapping trolley (10) according to Claim 5 when it depends on one of Claims 2 to 4, in which the said at least one rolling-contact bearing element (38) is coaxially mounted on the said at least one screw (32).

7. Strapping trolley (10) according to Claim 5 or 6, having two rolling-contact bearing elements (38) arranged symmetrically with respect to an axis of symmetry (a-a) of the said trolley (10).

8. Strapping trolley (10) according to at least one of the preceding claims, having a plurality of fences (20) arranged side by side, two adjacent fences defining one of the said spaces (20) for receiving at least one reel of strapping (24).

9. Strapping trolley (10) according to at least one of the preceding claims, in which the said fences (20) define, arranged in a vertical direction, parallel planes (23) of the said space (22).

10. Strapping trolley (10) according to at least one of the preceding claims, in which the said supporting element (12) comprises at least one box (40) for containing seals.

11. Strapping trolley (10) according to at least one of the preceding claims, in which the said supporting element (12) extends to define a supporting surface (42) for at least one compressor (44).

12. Strapping trolley (10) according to Claim 11, in which the said supporting element (12) comprises quick-release attachments (46) for the connection to the compressor of equipment capable of carrying out the operation.

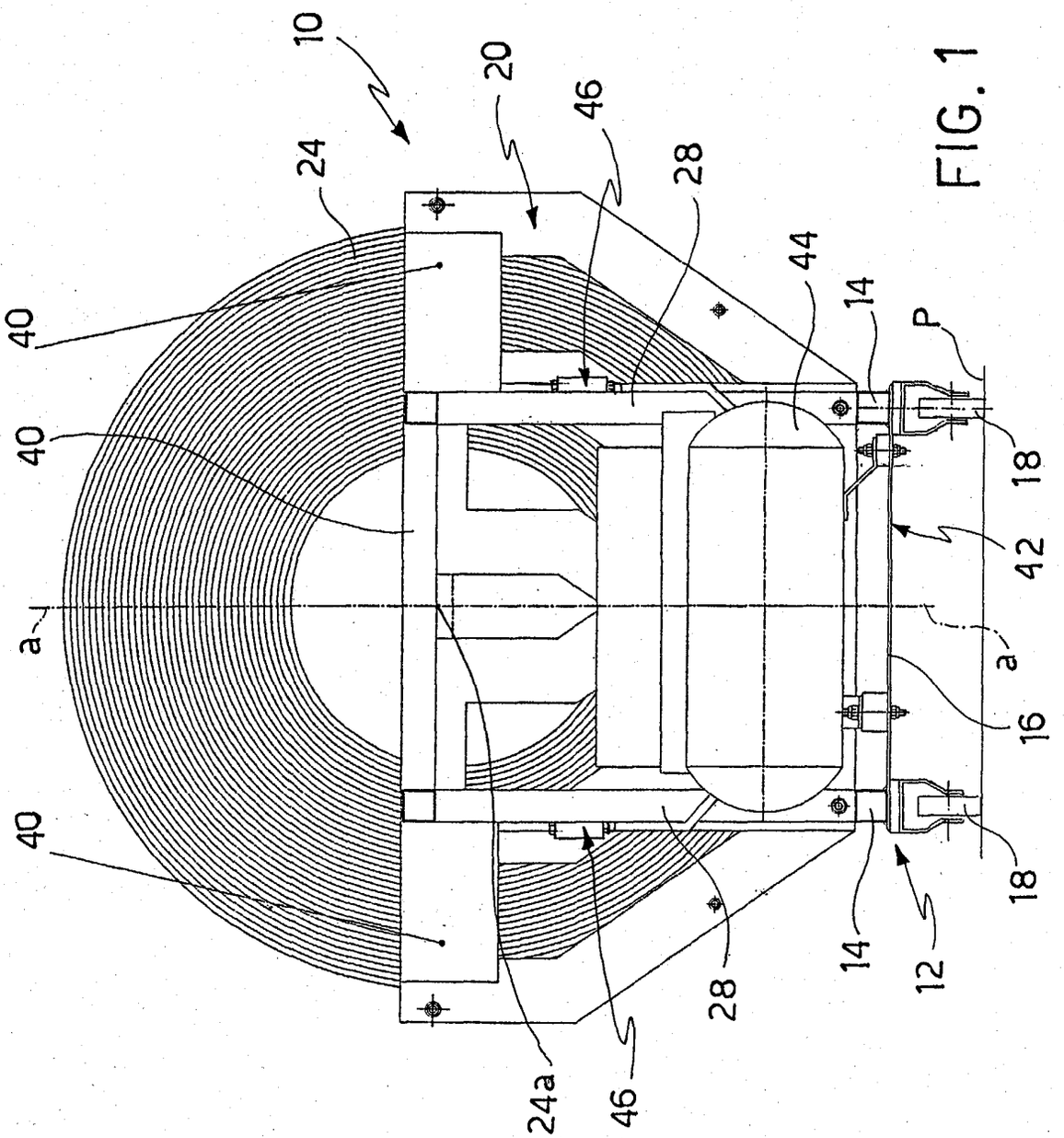

FIG. 1

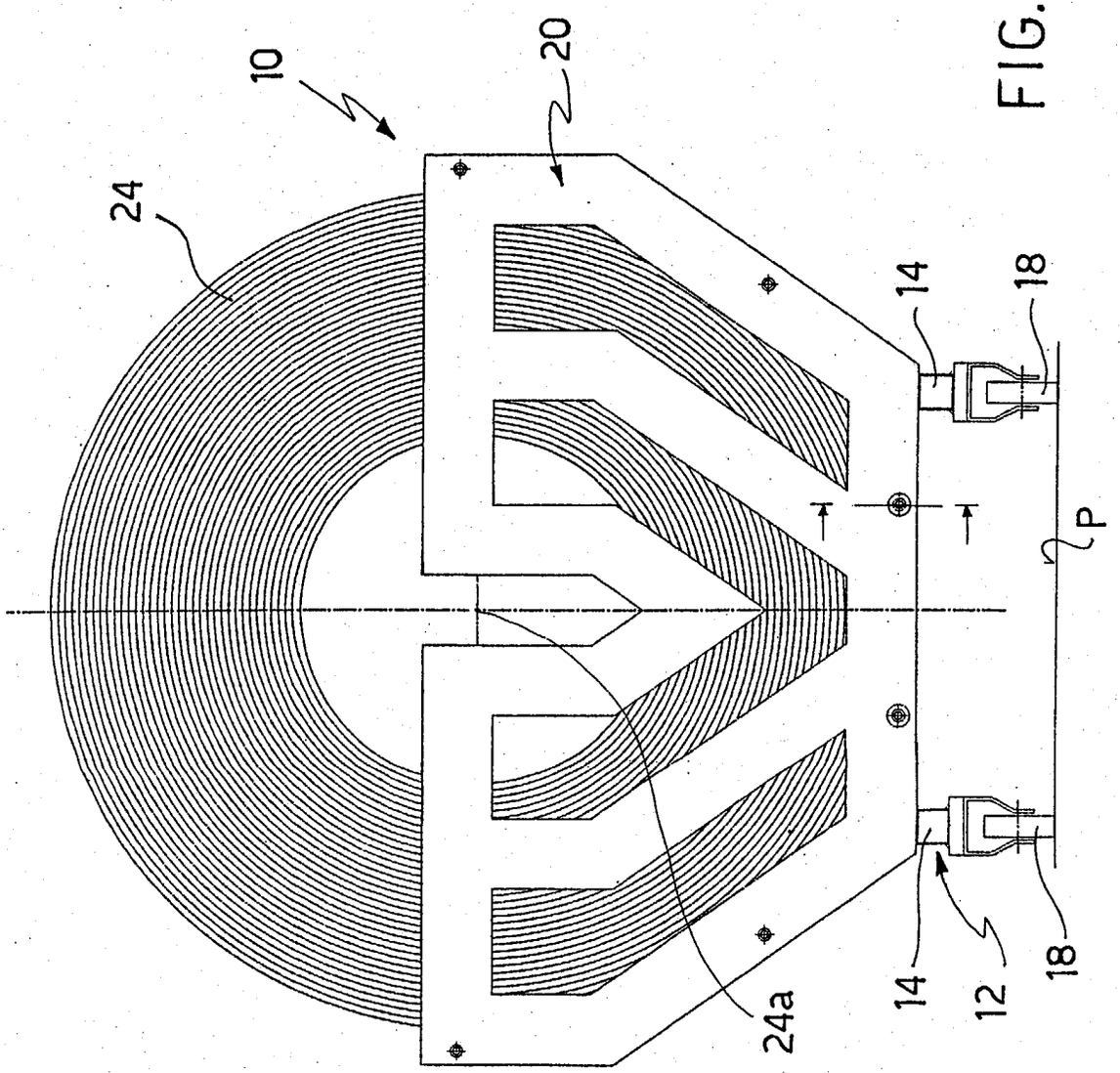

FIG. 2

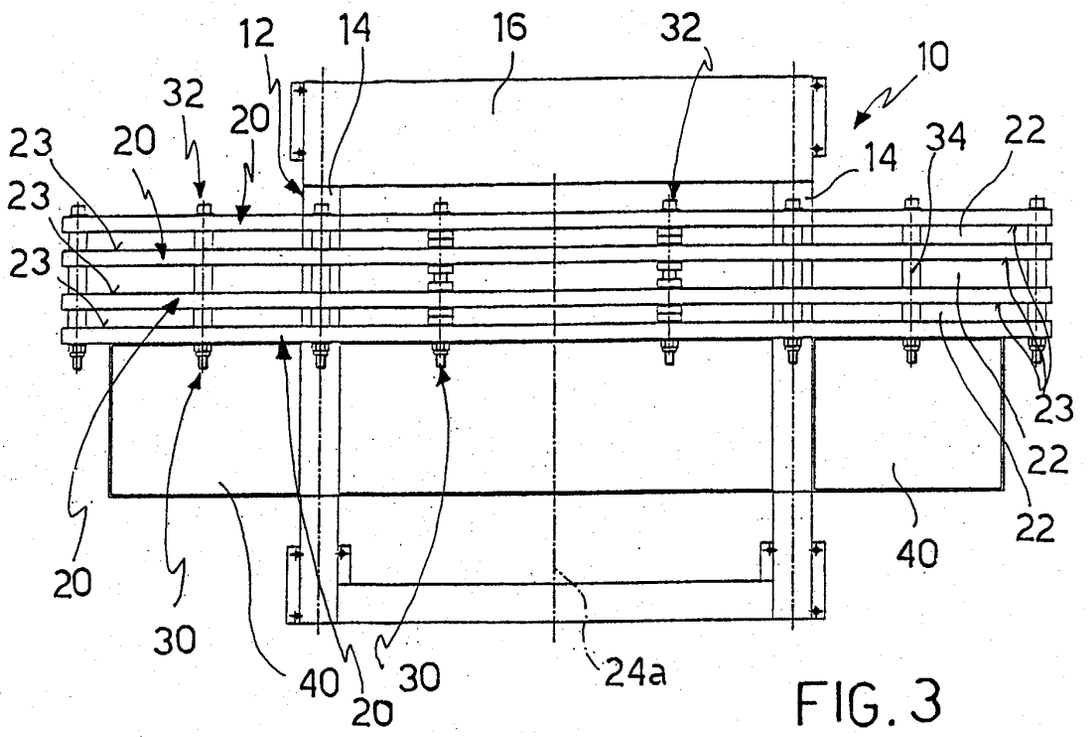
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FIG. 3

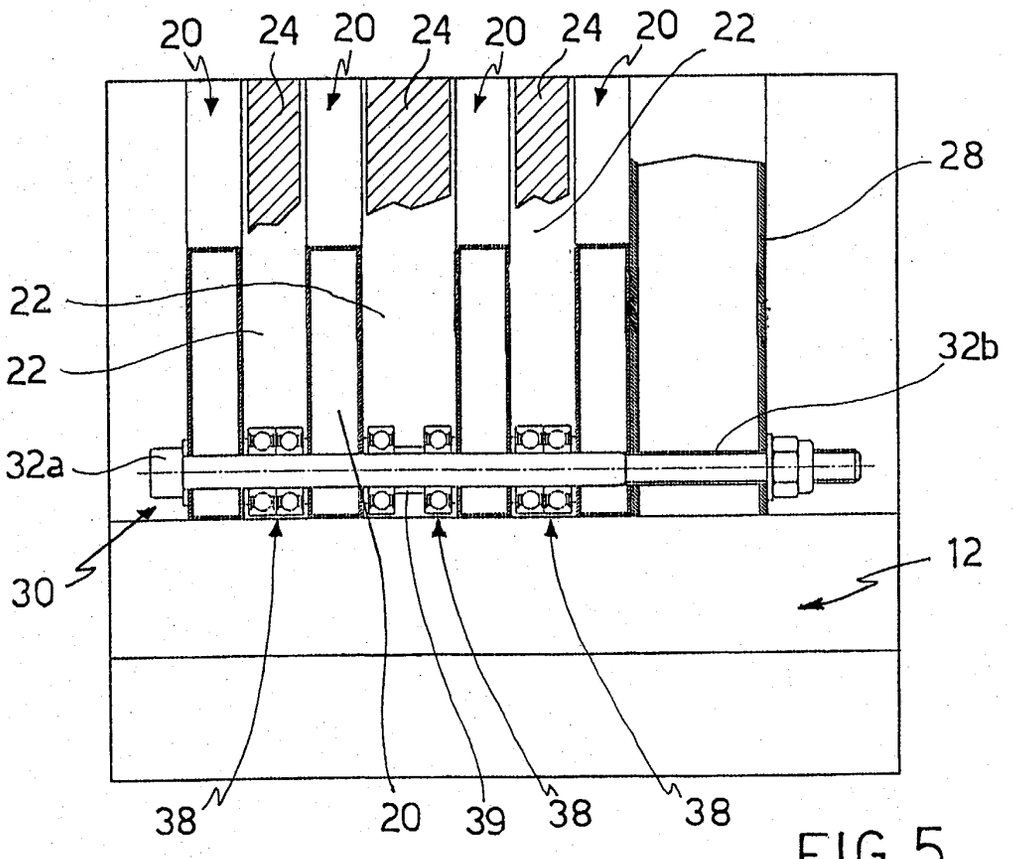
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FIG. 5

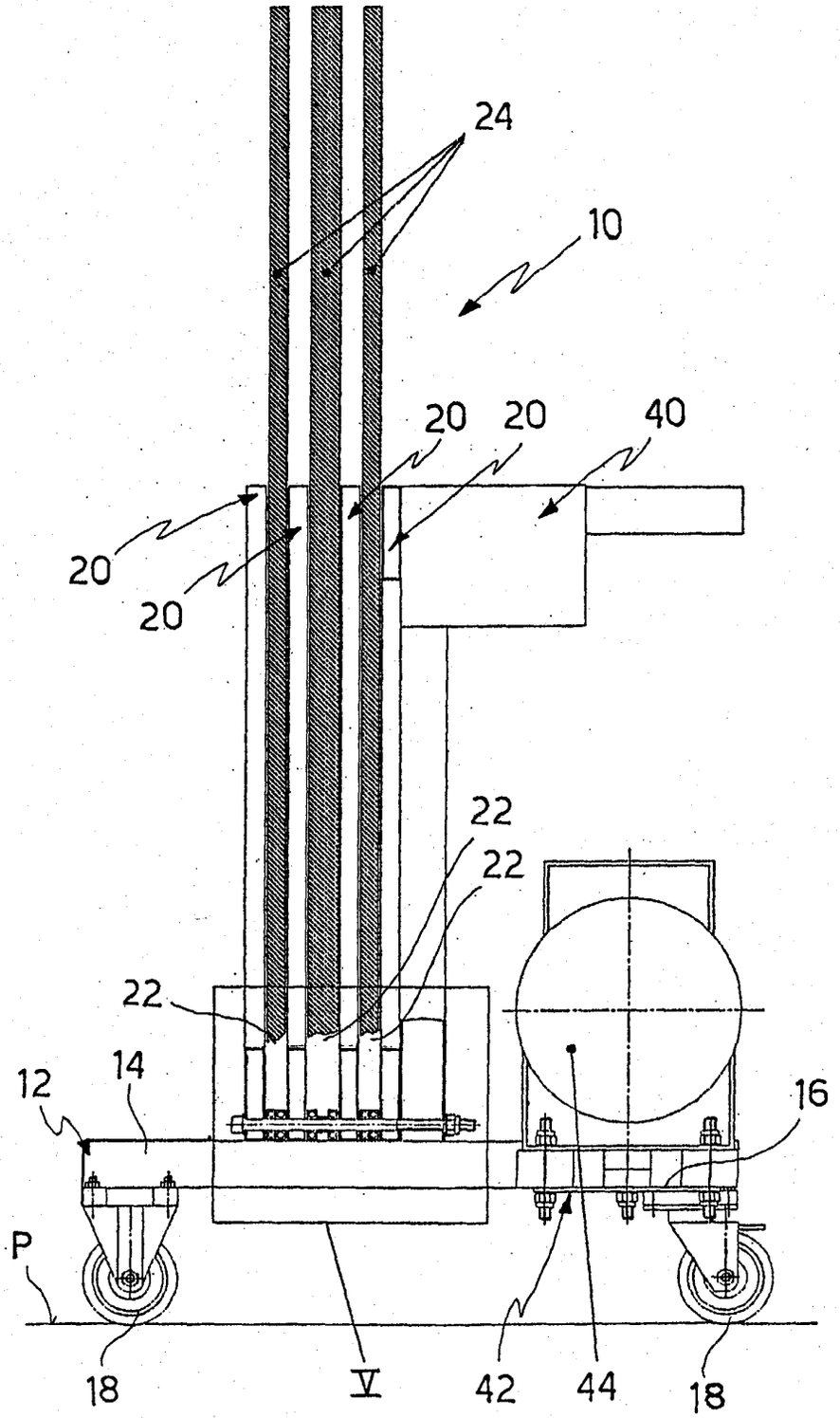

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 03 42 5045

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			B65B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	11 June 2003	Vigilante, M

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