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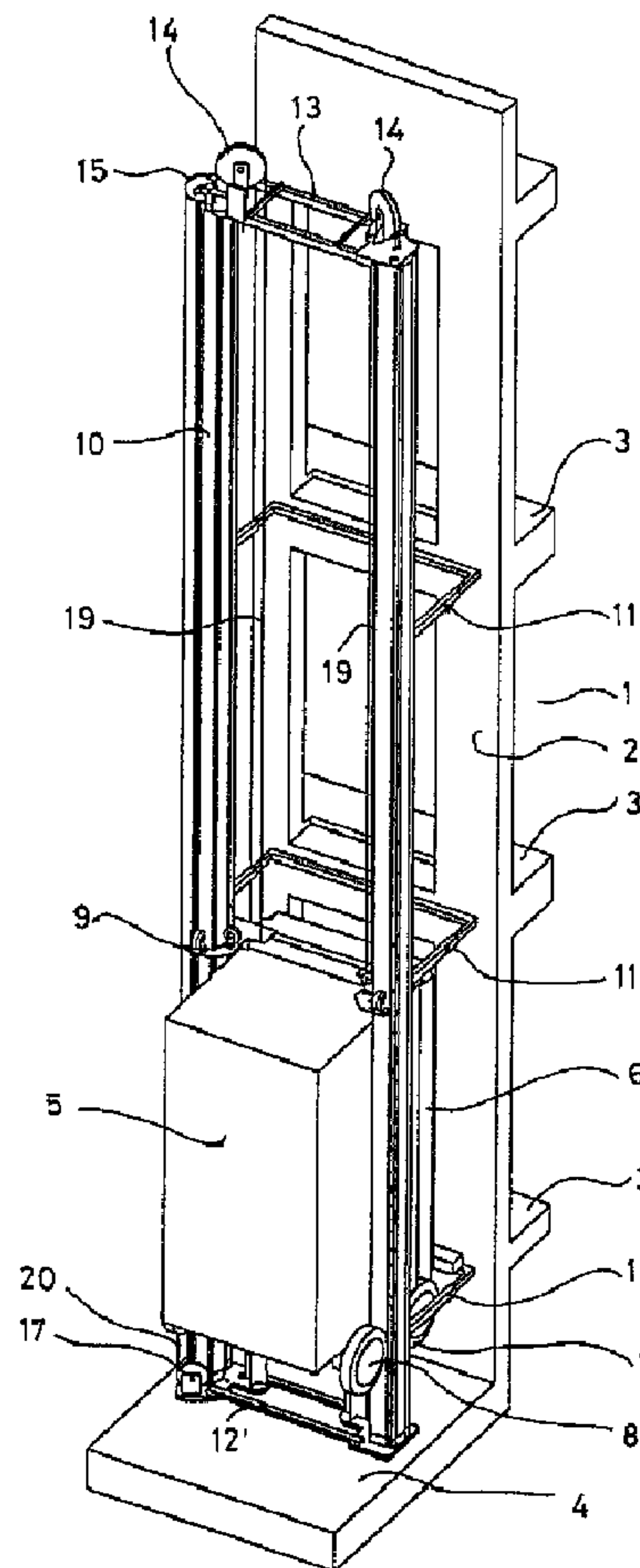
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(54) Titre : ASCENSEUR EXTERIEUR EN APPLIQUE

(54) Title: ATTACHMENT LIFT



(57) Abrégé/Abstract:

The invention concerns an attachment lift for the transport of persons and goods, which is connected with an outside wall (2), which comprises shaft doors (22), of a building (1), with an automotive cage (5), which runs in guides and is connected by way of



(57) Abrégé(suite)/Abstract(continued):

support elements (19) and support frames (6) with a counterweight (18), guide rollers (9), cage-arresting device and cage door (21) as well as with control, command transmitters, shaft information, buffers and signalling equipment, wherein the access from the cage (5) to the building (1) and conversely is arranged in the zone between the guide (10), and the guides (10) are constructed as supporting elements for the entire shaft construction, which together with a foundation module (12) and a shaft head module (13) form an inherently stiff and transportable frame. The drive and the control are accommodated in and at the cage (5). The prefabricated lift is connected by way of fastening modules (11) with the building (1). The arrangement of the support frame (6) reduces the overall width of the lift. A shaft formation matched to the building (1) arises by the lining with cladding elements.

Summary

The invention concerns an attachment lift for the transport of persons and goods, which is connected with an outside wall (2), which comprises shaft doors (22), of a building (1), with an automotive cage (5), which runs in guides and is connected by way of support elements (19) and support frames (6) with a counterweight (18), guide rollers (9), cage-arresting device and cage door (21) as well as with control, command transmitters, shaft information, buffers and signalling equipment, wherein the access from the cage (5) to the building (1) and conversely is arranged in the zone between the guide (10), and the guides (10) are constructed as supporting elements for the entire shaft construction, which together with a foundation module (12) and a shaft head module (13) form an inherently stiff and transportable frame. The drive and the control are accommodated in and at the cage (5). The prefabricated lift is connected by way of fastening modules (11) with the building (1). The arrangement of the support frame (6) reduces the overall width of the lift. A shaft formation matched to the building (1) arises by the lining with cladding elements.

(Fig. 1)

Description

The invention concerns an attachment lift for the transport of persons and goods, which is connected with a wall, which has shaft doors, of a building, with an automotive cage which runs along two column-like guides and is connected with a counterweight, in particular by way of support elements, wherein the access from the cage to the building and conversely is arranged in the zone between the guides and the guides are constructed as supporting elements.

Lift installations of the described kind are preferably built on at the outward side of a building, in particular for the purpose of modernisation of existing buildings without lifts. For this purpose, the outside wall intended for the attachment of the lift is provided with shaft doors. In front of the outside wall thus prepared, the shaft frame is erected and this connected with the outside wall. The installation of a lift with guide rails for the cage and counterweight, buffers, shaft information and so forth then takes place in the shaft frame itself, thus in the same manner as the installation into a shaft in the interior of a building.

A lift, which is carried and guided by two strong columns, in which counterweights run, without loading the building is described in German published specification DE 1 506 479. An "elastic drive shaft drive", which by toothed pinions at both sides engages into a roller chain embedded to be kink-resistant in the columns, is arranged on the cage. Due to the special kind of the drive, a cage-arresting device should be dispensable. What, however, prevents the use of this construction as comfortable passenger lift is the circumstance that the drive develops strong vibrations and noises and is therefore suitable only for lower speeds, which is also confirmed by the indication "for industrial and garage lifts". Furthermore, it is not evident from the specification and the drawings how the cage is carried and how the access from the cage to the building and conversely is disposed.

The present invention is therefore based on the object of creating a modularly constructed and prefabricatable attachment lift which can be manufactured at favourable costs, is equipped completely, can be installed in a short time, is usable for the middle range in respect of speed and conveying height and fulfills the safety demands on a passenger lift.

This problem is solved by the invention illustrated in the drawings and the description.

The invention distinguishes itself inter alia by the attachment lift having only few parts and being capable of being transported to the building site prefabricated as a whole for small and medium conveying heights.

Advantageous developments and improvements of the invention are indicated in the dependent claims. By appropriate arrangement of cage, supporting frame and guides, an optimum utilisation of an available base area is achieved.

In one aspect, the present invention resides in an attachment lift for the transport of persons and goods, which is connected with a wall, which comprises shaft doors, of a building, with an automotive cage, which runs along two-column-like guides and is connected with a counterweight, in particular by way of support elements, wherein the access from the cage to the building and conversely is arranged in the zone between the guides, and the guides are constructed as supporting elements, wherein a shaft is formed of a foundation module, a shaft head module, at least two guide modules and at least one fastening module and that the guide module, the foundation module and the shaft head module are assemblable into a self-supporting frame and form a transportable unit, and the fastening module is telescopically extendable from the guide modules.

The invention is explained more closely in the following with the aid of an example of embodiment and illustrated in the drawings; there:

Fig. 1 shows an overall elevation with a view onto the outward side of the lift,

Fig. 2 shows an overall elevation with a view from the inward side of the building, and

Fig. 3 shows a plan view of the attachment lift.

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Fig. 1 shows the overall elevation of an attachment lift at the outward side 2 of a building 1. Two vertical guide modules 10 are supported at the ends and fastened at the spacing of the track width on both the lateral ends of a foundation module 12 resting on a building base area 4. At the upper end-face ends of the guide modules 10 these are closed off by a shaft head module 13 spanning the track width. Within the guide module 10, there is arranged a cage 5, the own drive of which is disposed at the underside and drives a drive wheel 7 at both sides, which runs along on running surfaces of the guide modules 10 and which co-operates with a supporting wheel 8 disposed on the opposite running surface of the guide module 10. Guide rollers 9, which guide the cage 5 in the two horizontal axes on three running surfaces at the guide modules 10, are arranged on the upper side of the cage 5. The cage 5 is retained in an encircling support frame 6 and connected at the top at both sides by way of support elements 19, which guide by way of deflecting rollers 14 disposed at both sides on the shaft head module 13, with a

respective counterweight 18 running within the guide modules 10 (Fig. 2). A speed limiter 15, which is driven by a limiter cable 20 fastened at the cage 5 and guided by way of a lower deflecting roller 17 fastened on the lefthand side of the foundation module 12, is arranged on the lefthand side on the shaft head module 13. In the case of the speed being exceeded impermissibly, a not-illustrated cage arresting device disposed at the cage 5 is triggered in known manner. The guide modules 10 are connected with the building 1 for each storey 3 by way of a respective fastening module 11 in the form of a U-shaped frame part fastened at the outside wall 2.

Fig. 2 shows a front elevation of the attachment lift. The building 1 illustrated in section has door openings 27 with threshold recesses 28 on the storeys 3. The partly cut-open lefthand guide module 10 shows details of the counterweight 18. Weight discs are arranged one above the other in a vertical rod cage, the total weight of the discs together with the rod cage amounting to, for example, half the cage weight with $1/4$ useful load. The guide modules 10 have substantially a partially structured and about square quadrilateral cross-section. Parts of a shaft information, which is not illustrated in this figure, at the shaft side are preferably mounted on the cage 5 at the horizontal arms of the fastening modules 11 as well as analogously lying oppositely.

In Fig. 3 further parts and subassemblies of the attachment lift are evident in plan view and partially in cross-section. The lateral vertical parts of the support frame 6 are connected above the cage 5 with a yoke part 23, which at each of both sides carries a respective about L-shaped base plate 24 connected force-lockingly and shape-lockingly with the yoke part 23. The guide rollers 9, which are not illustrated here, are fastened on the base plates 24. Furthermore, the suspension points for the support elements 9 are present on the bases plates 24 near to the yoke part 23. The building 1 is closed off by a shaft door 22 for each storey 3 and the cage 5 is closed off by a cage door 21. The distance between the inward sides of the guide modules 10 is denoted by "d" and a guide axis parallel with the building 1 is denoted by 25. The support frame 6 or its constructional plane denoted by 26 has a constant parallel spacing "a" from the guide axis 25 and from the oppositely disposed vertical running surface of the guide modules 10. The width of the support frame 6 parallelly to the guide axis 25 is greater than the distance "d"

between the inward sides of the guide modules 10. Elements of a shaft information, which are arranged at the horizontal connecting stays of the fastening modules 11, are denoted by 29. The shaft information at the cage side is denoted by 30 and arranged at a small spacing opposite the shaft information 29, preferably on the cage roof.

The support frame 6, which as seen from the building 1 is arranged in front of the guide modules 10, reduces the overall width of the entire attachment lift and thus also the demand on building base area 4. The not-illustrated drive and command control is arranged in and at the cage 5, in particular in or beside the support frame 6, so that no additional space for a machine plant and a control is needed in the building 1. The light openings present at the intermediate floors or storeys 3 of a building with a staircase are, for example, suitable for the shaft door openings 27, which are to be set up, at the outside wall 2 of the building 1. By appropriate adaptation work, the installation of outside wall shaft doors 22 is possible with tolerable effort at these places, in particular for the reason that these are the only constructional adaptations which are prerequisite for the attachment of a lift. The fastening modules 11 are also mounted at the same time as the installation of the shaft doors 22 into the outside wall 2 of a building 1. Then, the building 1 is already prepared ready for the attachment of the lift. This is transported to the building 1, which is envisaged for the attachment, ready fabricated, preliminarily assembled and wired for up to medium conveying heights or up to a height or length permissible for a street transport, erected there and connected with building 1 by way of the fastening modules 11. The transport of the ready attachment lift is possible, because the guide modules 10 connected together by way of a foundation module 12 and a shaft head module 13 form a stiff and self-supporting unit which can even be transported together with the installed cage 5. The attachment lift can after its installation be provided with a cladding of any desired kind, for example, with glass, grids or opaque solid wall elements so that a shaft protecting the technical equipment against climatic influences arises in case of need. By an appropriate architectural structuring of the cladding, the present building character can be taken into account so far that the attachment lift does not negatively influence the appearance of the building 1, but even provides new architectural accents.

The cage 5 is equipped with all technical equipments as prefabricated subassembly and, apart from the complete drive, also contains its control and regulation. Equally, the command control for the call processing, the call transmitters, the door control as well as the illumination and communication means are present. For the storey equipment, prefabricated installation units are provided, which contain the storey call transmitters and display elements. The electrical shaft installation is preferably led as finished installation channel along at the fastening modules 11 and fastened at these. For the energy feed and the data exchange, slip lines and opti-electrical systems, for example, are provided, when the use of a suspension cable is not possible or not desirable.

The invention is, however, also applicable to cages without own drive. In this case, the cage can be moved by way of a cable, which is led to the shaft head module 13, and a drive motor mounted there.

The afore-described shaft information 29 or its carriers can also be fastened directly at a guide module 10 and independently of the fastening module 11. As further variant or augmentation, the mounting of a code strip at the guide module 10 for optical reader is also proposed.

The fastening modules 11 are constructed to be horizontally extendible telescopically in a further developed form. Thereby, the possibility is given to already connect pre-assembled shaft doors 21 with the fastening modules 11 and, thanks to the telescopic facility, to transport them, pushed back against the guide modules 10, to the building site.

As cage-arresting device, a normal wedge or roller arresting device is used, which engages at the guide module 10 at a place especially formed for this purpose.

For the cage 5 and the counterweight 18 running in the guide modules 10, appropriate buffer devices, which are not illustrated and are matched to the operational needs, are arranged on the foundation module 12.

The matching to an existing building 1 is not restricted only to the cladding. Further attractive effects can be achieved by coloured, decorative and constructional variants, in particular at the cage 5.

The attachment lift according to the invention can also be erected at any desired wall suitable for this or in the staircase well of a conventional staircase.

Patent Claims

1. Attachment lift for the transport of persons and goods, which is connected with a wall, which comprises shaft doors, of a building, with an automotive cage, which runs along two-column-like guides and is connected with a counterweight, in particular by way of support elements, wherein the access from the cage to the building and conversely is arranged in the zone between the guides, and the guides are constructed as supporting elements, wherein a shaft is formed of a foundation module, a shaft head module, at least two guide modules and at least one fastening module and that the guide module, the foundation module and the shaft head module are assemblable into a self-supporting frame and form a transportable unit, and the fastening module is telescopically extendable from the guide modules.
2. Lift according to claim 1, wherein the cage comprises a supporting frame, a constructional plane of which is at a parallel spacing "a" from a horizontal guide axis extending through the guides and that the supporting frame has a horizontal width which is greater than the distance "d" between the inward sides of the guide modules, which face the cage.
3. Lift according to claim 1, wherein engagement surfaces for a cage-arresting device are arranged at the guide modules.
4. Lift according to claim 1, wherein deflecting rollers for the support elements and a speed limiter are arranged on the shaft head module.
5. Lift according to claim 3, wherein a limiter cable deflection is arranged on the foundation module.
6. Lift according to claim 1, wherein the fastening modules are constructed as shaft information carriers.

7. Lift according to claim 1, wherein the fastening modules are constructed to be extendible telescopically.
8. Lift according to claim 1, wherein the guide modules are constructed as shaft information carriers.
9. Lift according to claim 1, wherein a buffer equipment is arranged on the foundation module.

Fig. 1

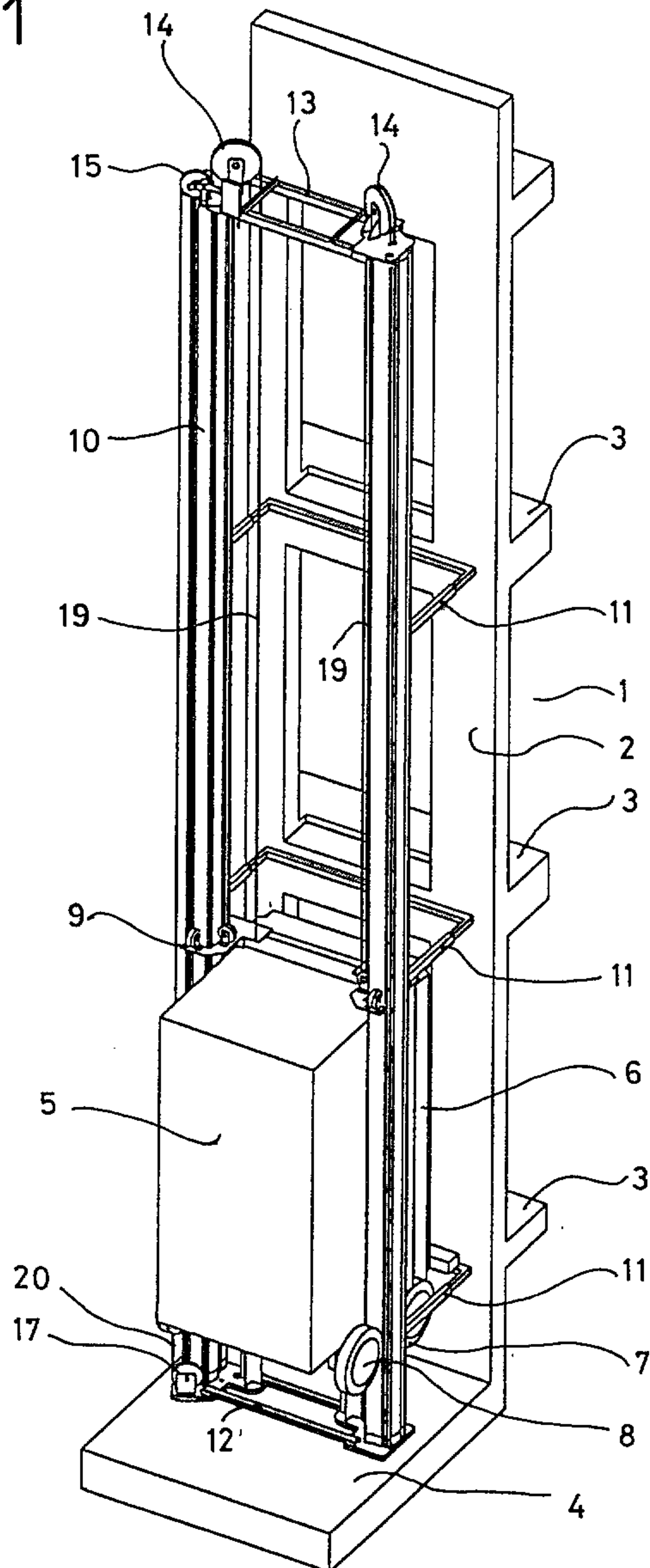


Fig. 3

