Dec. 1, 1925. 1,563,792

J. H. RICKARD

CABLELESS ELEVATOR

Filed May 6, 1925 2 Sheets-Sheet 1

Fig. 1.

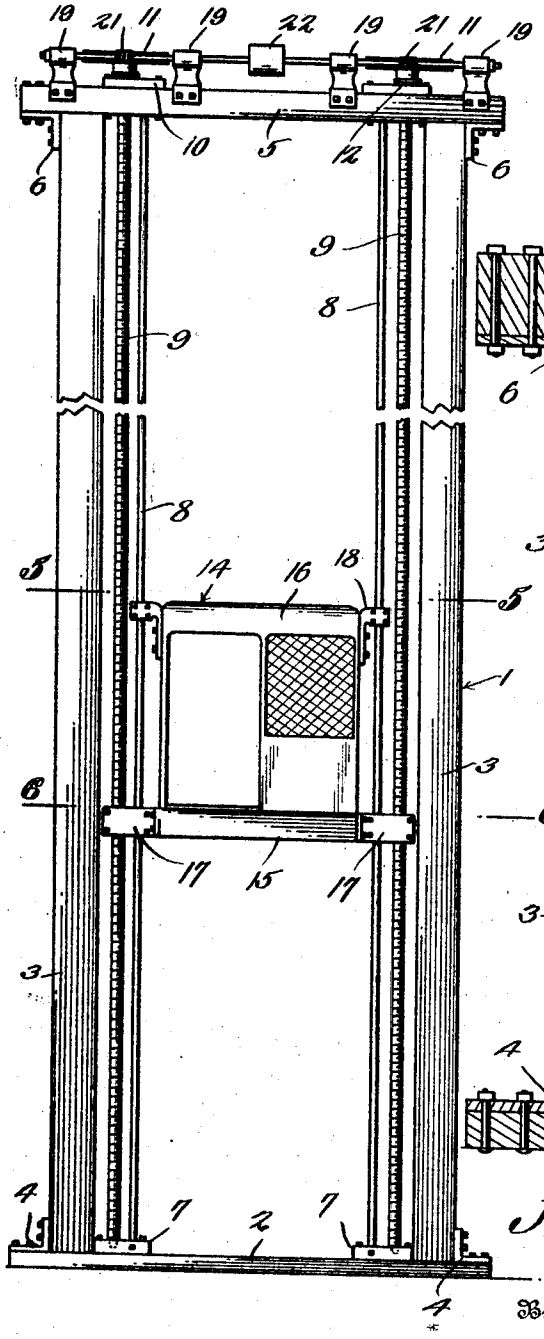


Fig. 2.

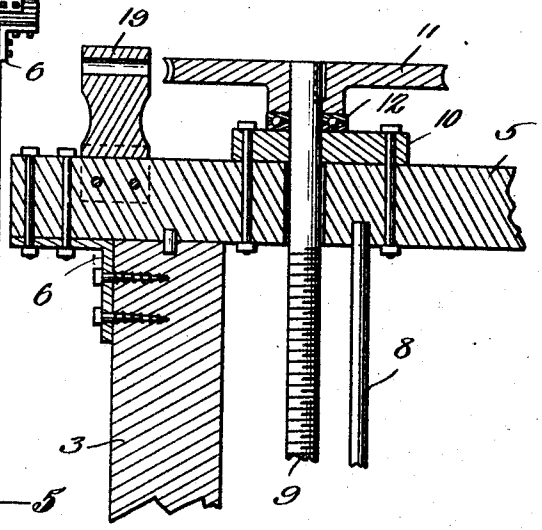
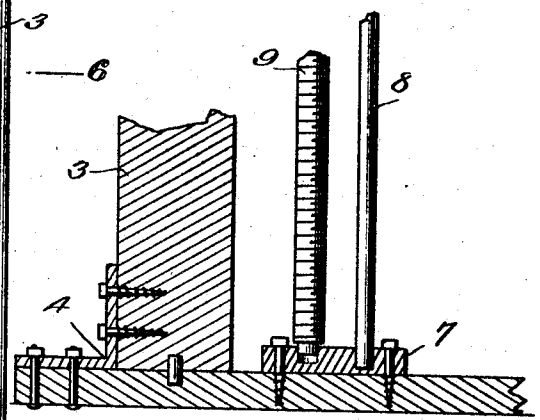


Fig. 3.



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Fig. 4.

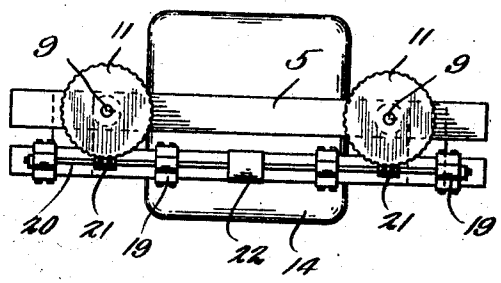


Fig. 5.

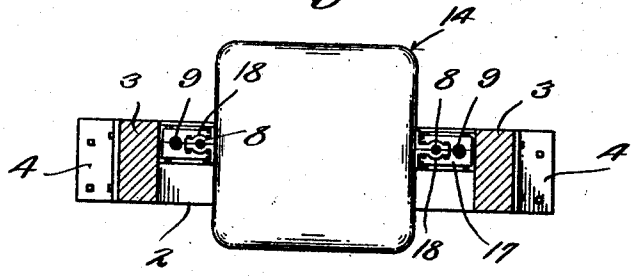
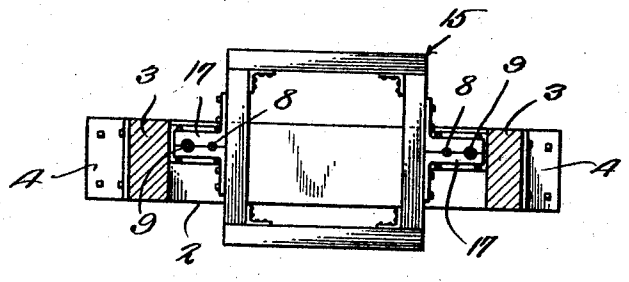


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN H. RICKARD, OF LEXINGTON, NORTH CAROLINA.

CABLELESS ELEVATOR.

Application filed May 6, 1925. Serial No. 28,483.

To all whom it may concern:

Be it known that I, JOHN H. RICKARD, a citizen of the United States, residing at Lexington, in the county of Davidson and State of North Carolina, have invented a new and useful Cableless Elevator, of which the following is a specification.

The device forming the subject matter of this application is a means for operating an elevator, and the invention aims to supply a structure of the sort mentioned, wherein cables, weights and the like may be dispensed with, it being possible to hold the elevator at any desired position simply by stopping the driving mechanism.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that sort to which the invention appertains.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in elevation, a device constructed in accordance with the invention, parts being broken away; Figure 2 is a vertical sectional view showing the upper end of one of the lead screws and attendant parts; Figure 3 is a vertical sectional view showing the lower end of the lead screw and attendant parts; Figure 4 is a top plan; Figure 5 is a section on the line 5—5 of Figure 1; Figure 6 is a section on the line 6—6 of Figure 1.

The device forming the subject matter of this application includes a frame 1. The frame 1 may be variously constructed; in the present embodiment of the invention, but not necessarily, it is made up of a base 2, in the form of a beam, standards 3 connected at their lower ends, by angle brackets 4, to the base 2, and a cap 5 connected to the upper ends of the standards 3 by angle brackets 6. Bearings 7 are secured to the base 2 and may be considered as part of the base for convenience in claiming the invention. The lower ends of guide rods 8 are mounted in the bearings 7. The upper ends of the guide rods 8 are mounted in the cap 5.

Lead screws 9 are located between the guide rods 8 and the standards 3. The lower ends of the lead screws 9 are journaled in the bearings 7. The lead screws 9 are rotatable in the cap 5 and are rotatable in bearings 10 secured to the cap, the bearings being considered as part of the cap, for convenience in claiming the invention. Worm wheels 11 are secured to the upper ends of the lead screws 9. Anti-friction bearings 12 are interposed between the hubs of the worm wheels 11 and the bearings 10.

The numeral 14 marks a carriage. The carriage may be constructed in various ways, depending upon whether passengers or freight are to be carried. The device forming the subject matter of this application will be found peculiarly useful in the handling of freight. The carriage 14 may be made up of a base frame 15 and a body 16 thereof. Brackets 17 are detachably mounted on the base frame 15 of the carriage 14 and comprise laterally separable parts. The lead screws 9 are threaded into the brackets 17. The brackets 17 slide on the guide rods 8. Upper brackets 18 are detachably secured to the body 16 of the carriage 14. The brackets 18 comprise laterally separable parts. The brackets 18 slide on the guide rods 8, and the lead screws 9 preferably are not threaded into the brackets 18.

It is to be observed that the lead screws 9 which support the carriage 14 do not press downwardly on the bearings 7, the lead screws 9 being supported against downward movement solely by the anti-friction bearings 12 at the upper end of the frame 1. The result is that the lead screws and the carriage are suspended, and there is no tendency for the lead screws to bend laterally, no matter how great the weight of the carriage 14 and its contents may be.

There are spaced bearings 19 on the cap 5 of the frame 1. In the bearings 19, a drive shaft 20 is journaled. Worms 21 are secured to the drive shaft 20. The worms 21 mesh with the worm wheels 11 on the lead screws 9. Intermediate its ends, the drive shaft 20 is supplied with a pulley 22 or any other suitable means, whereby the shaft 20 may receive power from a prime mover.

When the shaft 20 is rotated in one direction, the carriage 14 will be elevated, and

when the shaft 20 is rotated in an opposite direction, the carriage will be lowered, the lead screws 9 being threaded into the lower brackets 17 on the carriage, rotation being imparted to the lead screws 9, from the shaft 20, by way of the worms 21 and the worm wheels 11.

Having thus described the invention, what is claimed is:—

1. In a device of the class described, a frame, lead screws having their lower ends mounted in the lower portion of the frame against lateral movement, driving elements on the lead screws and located above the upper portion of the frame, a carriage whereinto the lead screws are threaded, anti-friction bearings interposed between the driving elements and the upper portion of the frame, the anti-friction bearings carrying the entire weight of the lead screws and of the carriage and effecting a suspension of the lead screws and the carriage, guides mounted at their upper and lower ends in the corresponding portions of the frame, and spaced from the side portions of the frame, and brackets on the carriage, the brackets being slidable upon the guides.

2. In a device of the class described, a frame, lead screws having their lower ends mounted in the lower portion of the frame against lateral movement, driving elements on the lead screws and located above the upper portion of the frame, a carriage, guides mounted at their upper and lower ends in the corresponding portions of the frame and spaced from the side portions of the frame, brackets on the carriage, the brackets being slidable on the guides, and lead screws being threaded into the brackets, and anti-friction bearings interposed between the driving elements and the upper portion of the frame, the anti-friction bearings carrying the entire weight of the lead screws and the carriage, and effecting a suspension of the lead screws and the carriage.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JOHN H. RICKARD.