No. 670,466. Patented Mar. 26, 1901.

H. BOLANDER.

ELEVATOR.

(Application filed Dec. 26, 1900.)

(No Model.) 2 Sheets—Sheet 1.

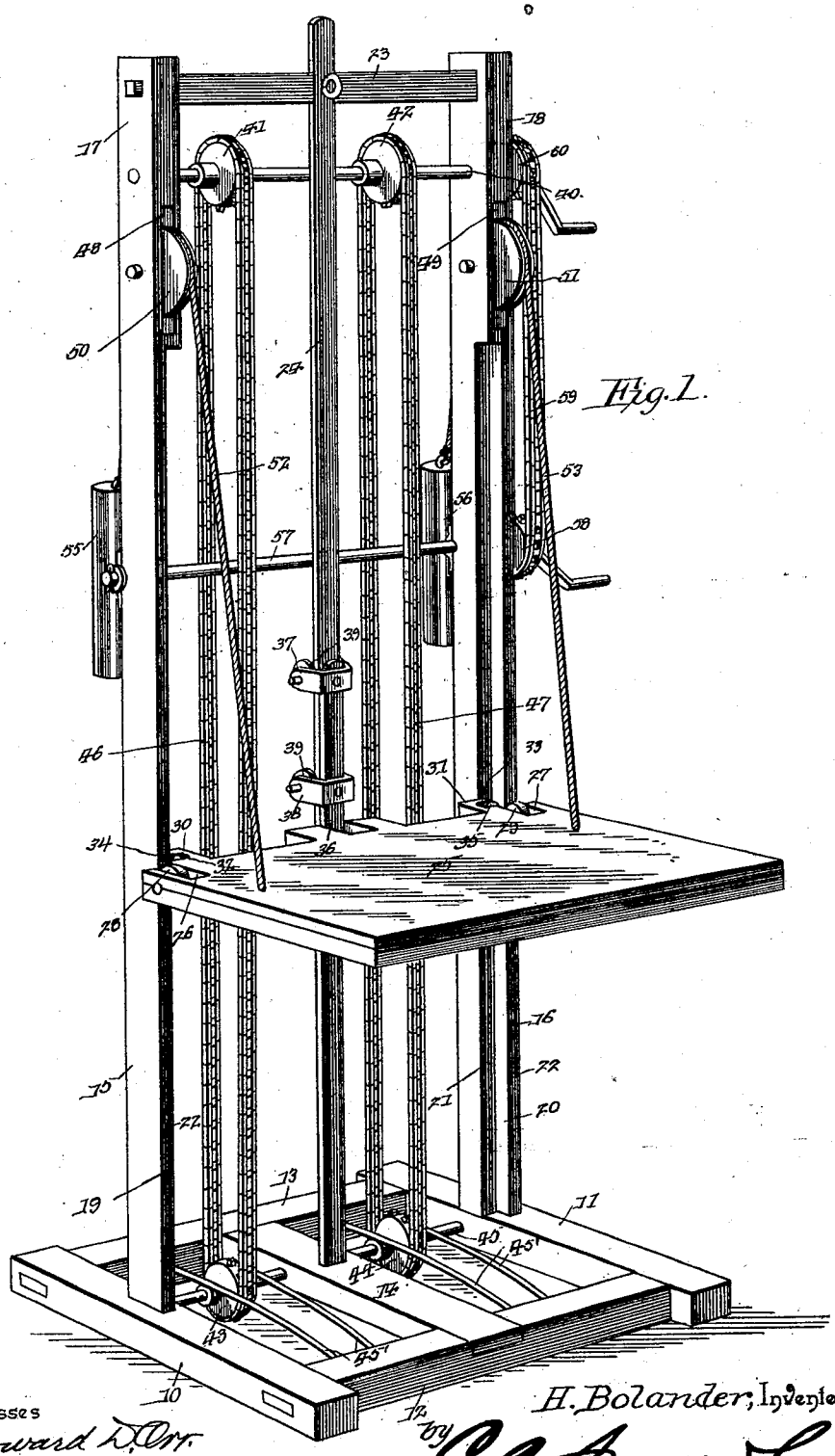


Fig. 1.

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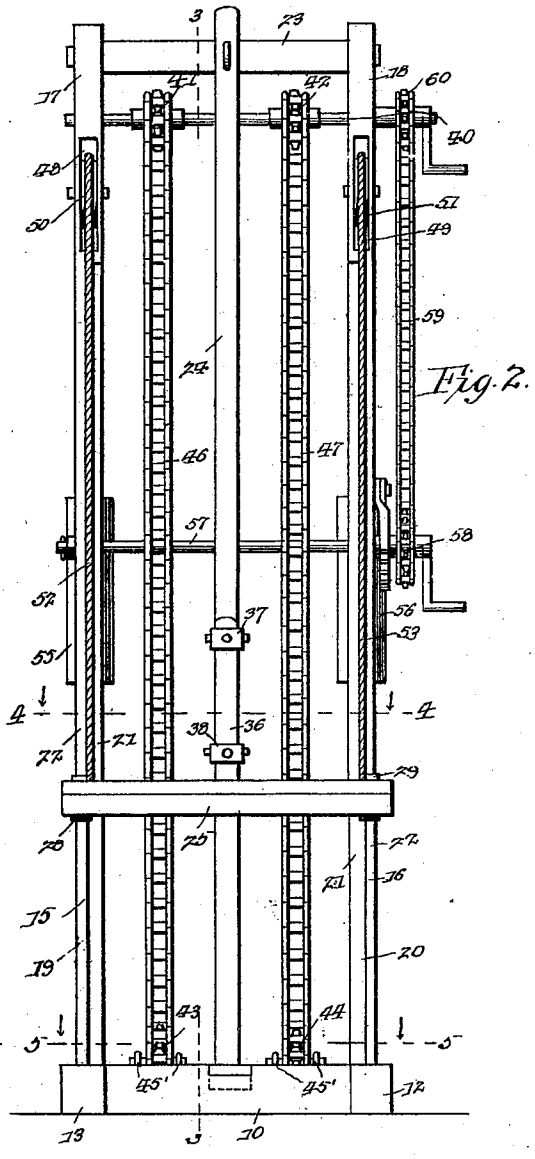


Fig. 2.

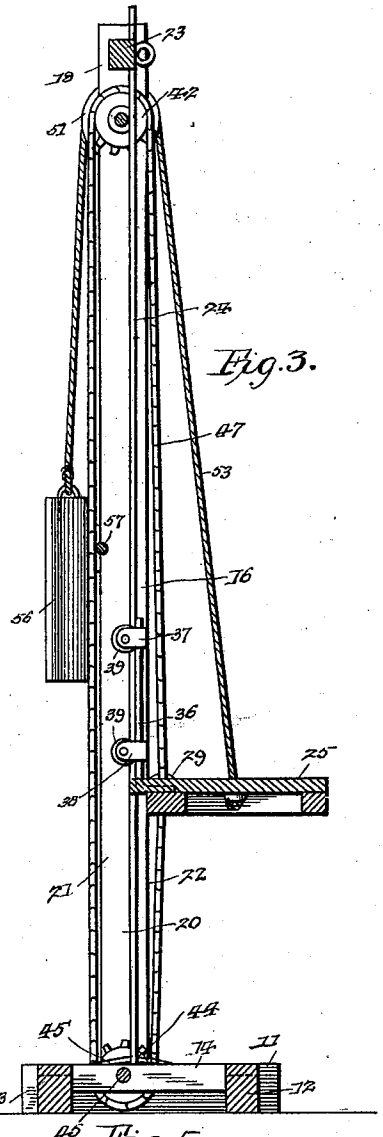


Fig. 3.

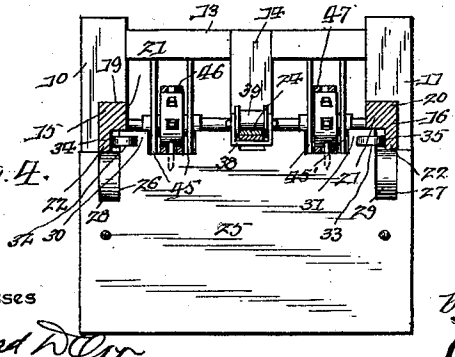


Fig. 4.

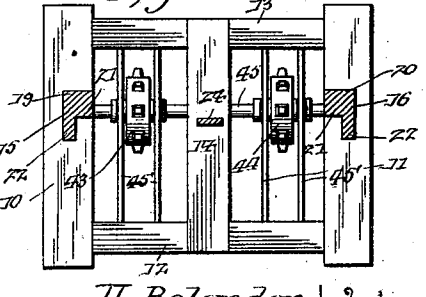


Fig. 5.

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UNITED STATES PATENT OFFICE.

HENRY BOLANDER, OF ROMULUS, NEW YORK.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 670,466, dated March 26, 1901.

Application filed December 26, 1900. Serial No. 41,157. (No model.)

To all whom it may concern:

Be it known that I, HENRY BOLANDER, a citizen of the United States, residing at Romulus, in the county of Seneca and State of New York, have invented a new and useful Elevator, of which the following is a specification.

This invention relates to elevators; and it has for its object to provide a device of this nature most particularly adapted for lifting freight, although it will be understood from the following description that the principles involved may be embodied in an elevator for passenger service.

A further object of the invention is to provide a guide-frame with which the elevator-platform is engaged in such manner as to permit of ready vertical movement, while preventing lateral movement such as would displace it from the frame.

Additional objects and advantages of the invention will be apparent from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a perspective view showing the complete elevator. Fig. 2 is a front elevation of the entire apparatus. Fig. 3 is a section on line 3 3 of Fig. 2. Fig. 4 is a section on line 4 4 of Fig. 2. Fig. 5 is a section on line 5 5 of Fig. 2.

Referring now to the drawings, the present apparatus comprises a rectangular base including sills 10 and 11, cross-pieces 12 and 13, and an intermediate sill 14, which are secured firmly together, as shown. Upon the sills 10 and 11 are erected uprights 15 and 16, the upper portions of which are rectangular in cross-section, as shown at 17 and 18, respectively, while the lower portions thereof are in the form of angle-rails 19 and 20, each rail including a laterally-projecting flange 21 and a forwardly-projecting flange 22. Connecting the upper ends of the uprights 15 and 16 is a cross-bar 23, the front face of which is recessed to receive a third upright 24, the lower end of which is mounted in the intermediate sill 14.

The platform 25 of the elevator has recesses 26 and 27 in its rear edge, in which are mounted antifriction-rollers 28 and 29, which bear against the forwardly-projecting flanges 22 of the uprights 15 and 16, while adjacent to these recesses are rearwardly-projecting portions 30 and 31, having laterally-extending recesses 32 and 33, in which are mounted additional antifriction-rolls 34 and 35, which bear against the inner side faces of the flanges 22 of the uprights 15 and 16, the platform being thus held against lateral displacement from the uprights, while the friction incident to rearward pressure of the platform against the uprights is taken up in greater part by the rollers 28 and 29.

To prevent forward displacement of the platform from the uprights, a plate 36 is secured to the rear portion of the platform and is bent upwardly to lie against the front face of the intermediate upright, and riveted or otherwise secured to this upwardly-projecting portion of the plate are two yoke-shaped frames 37 and 38, having bearings in their ends lying beyond the rear of the intermediate upright. In the bearings of each of the frames is mounted a spindle which carries a roller 39, which bears against the rear face of the intermediate upright and which has end flanges which lie against the side edges of said upright. These rollers prevent outward movement of the plate and therewith of the platform.

To raise and lower the platform, a crank-shaft 40 is journaled in the upper portions of the uprights 15 and 16 and just below the cross-bar thereof, and which shaft carries two sprockets 41 and 42 between the uprights and which aline with the sprockets 43 and 44, which are mounted upon a shaft 45, mounted in the sills of the base of the apparatus and in the plane of the uprights 15 and 16 and slightly to one side of the intermediate upright. Sprocket-chains 46 and 47 engage the corresponding upper and lower sprockets, the upper sprockets being driving-sprockets for the chains, while the lower sprockets are mere idlers. These chains pass through recesses in the back of the platform of the elevator and are secured firmly therein, so that as the chains are moved in one direction the platform will be raised, and when they are moved in an opposite direction the platform is lowered. Owing to the positions of the two shafts relatively to the uprights, the strain on the

shafts as the platform is raised is longitudinally of the uprights, and great strength is thus given to the structure.

Through the upper squared portions of the uprights 15 and 16 are formed passages 48 and 49, and in the passages are rotatably mounted pulleys 50 and 51, with which are engaged ropes 52 and 53, which are attached to the platform and taken upwardly and over the pulleys and have counterbalancing-weights 55 and 56 attached to their rear ends.

To assist in raising the elevator, a countershaft 57 is mounted in the uprights 15 and 16 below the upper crank-shaft, and at one end thereof, at the outer side of the upright 16, there is fixed a sprocket 58, with which is engaged a chain 59, which engages also with a sprocket 60 upon the outer portion of the upper shaft.

To prevent lateral play of the lower idler-sprockets 43 and 44, the hubs thereof are grooved peripherally, and in these grooves are engaged cross-bars 45, the ends of which are engaged with the cross-pieces of the base of the elevator.

With this construction it will be seen that there is provided a simple construction that is cheap of manufacture and which is strong and durable.

In practice modifications of the specific construction shown may be made and any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. An elevator comprising a base including sills and connecting cross-pieces, uprights mounted upon the sills and having forwardly-projecting flanges, an additional intermediate upright, a platform having antifriction-rolls disposed against the front faces of the flanges of the uprights, additional antifriction-rolls carried by the platform and engaging the side faces of the flanges, a plate extending upwardly from the platform and lying against the intermediate upright, yoke-shaped plates mounted upon the last-named plates and with their legs projecting beyond the intermediate upright, antifriction-rolls mounted in the ends of the yoke-shaped plates and bearing against the rear of the intermediate upright to prevent forward displacement of the platform, and means for raising and lowering the platform.

2. An elevator comprising a base having side and intermediate uprights mounted thereon, an elevator-platform engaged slidably with the uprights, upper and lower shafts mounted in the outer uprights, one of said shafts having a crank and fixed sprockets, and the other having sprockets mounted loosely thereon, chains engaging corresponding sprockets and attached to the platform, the idler-sprockets having grooved hubs, and means engaged with the grooves of the hubs to prevent lateral displacement of the idler-sprockets from alinement with their respective fixed sprockets.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY BOLANDER.

Witnesses:
JOHN W. SNOOK,
CHAS. S. MCKNIGHT.