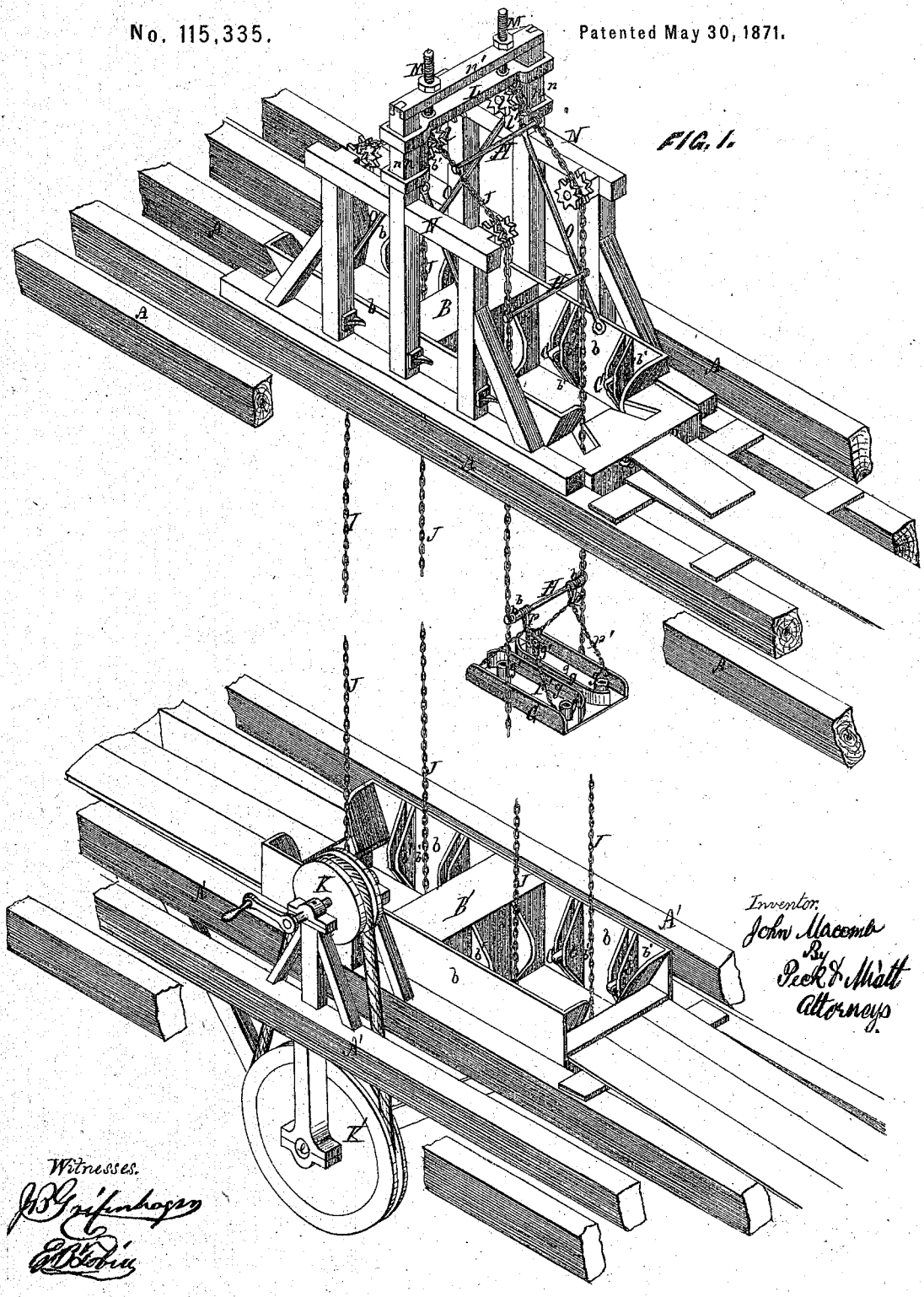
2 Sheets--Sheet 1.

JOHN MACOMB.

Improvement in Elevators.

No. 115,335. Patented May 30, 1871.

FIG. 1.



Inventor.
John Macomb
By
Pick & Watt
Attorneys.

Witnesses.
J. S. Gräfenberger
E. F. Bobin

2 Sheets--Sheet 2.

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FIG. II.

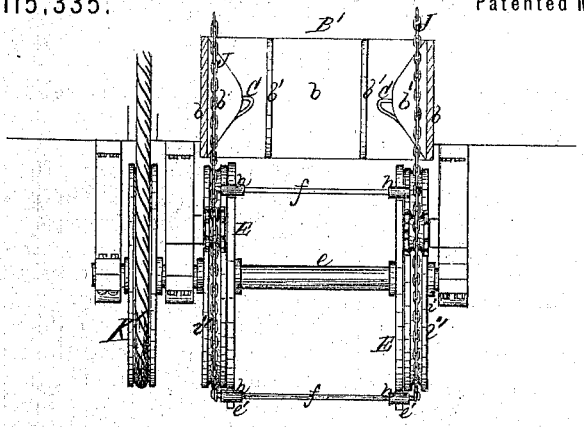


FIG. III.

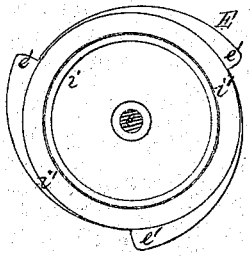


FIG. IV.

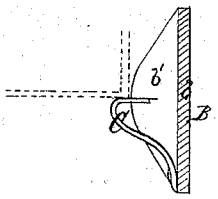
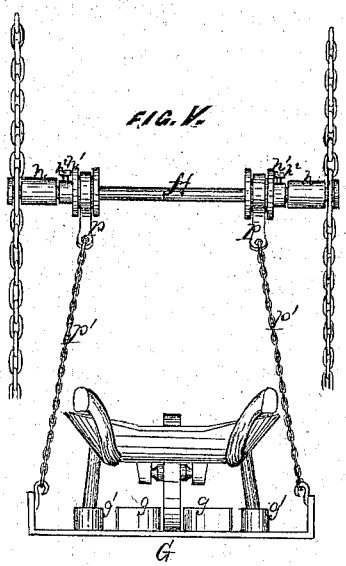


FIG. V.



Witnesses.

J. B. Goepenhagen

P. B. Tobin

Inventor.

John Macomb

By Peck & Platt

attorneys

UNITED STATES PATENT OFFICE.

JOHN MACOMB, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. 115,335, dated May 30, 1872.

To all whom it may concern:

Be it known that I, JOHN MACOMB, of the city of Chicago, in the county of Cook, and State of Illinois, have invented certain Improvements in Brick-and-Mortar-Elevating Machines, of which the following is a specification:

Nature of the Invention.

This invention relates to that class of brick-and-mortar elevators wherein the machine is especially intended to carry loaded wheelbarrows; and consists, first, in the employment of two box-shaped guides placed in both the upper and lower stories, the former hung and made adjustable vertically in a suitable frame for the purpose of controlling the relative position of the operating parts; secondly, in the peculiar arrangement, with two endless chains, of their driving-gear, whereby any irregularity in the action is automatically corrected; thirdly, in the employment of springs in connection with the guides, which compress and allow the platform to pass upward and then react and form a support for the same; and, lastly, in the special manner of hanging the platform between the chains and providing for the retention of the barrow in the same.

General Description.

In the drawing, Figure I is a perspective view of my apparatus as arranged to act between the upper and lower stories of a building; Fig. II, an elevation of the driving-gear, showing the lower guide-box in section; Fig. III, an end elevation of one of the sliding rings and driving-disks; Fig. IV, a sectional view, showing the arrangement of the supporting-spring and guide, with the edge of the platform represented in dotted lines; Fig. V, a detached view of the platform, showing the method of hanging to the cross-rods.

A represents the floor-joists or stringers of the upper floor, and A′ those of the lower floor. Double guide-boxes B B′ are placed between the stringers of the upper and lower stories. These guide-pieces consist of a plain vertical surface, *b*, to which are attached the guide pieces proper, *b′*, formed preferably in the shape of a truncated cone. These guide pieces *b′* are arranged in pairs, and between each of the pairs, on the ascending side and on either of the two sides of the box, are placed strong supporting-springs C, the construction of the guides and springs being the same on both the upper and lower stories. The mechanism for driving the elevating-chains D consists of a horizontal shaft, *e*, to which are attached the driving-disks E, shown in Fig. III, which disks are formed with shoulders *e′* on their edges, which serve to drive the endless chains J J by retaining and carrying forward the cross-bars H, and by the same means keep said platforms always in a horizontal position. To allow this action there are attached to the shaft *e* fixed pulleys *i i*, rigidly attached to or forming part of the driving-disk K, and having around their peripheries the sliding rings *i′ i′*, with groove-shaped surface fitted to retain the chain or rope J, and which allow the chain to adjust itself to the power for driving the apparatus, which power, as shown in Fig. I, is transmitted through the driving-pulley K to the secondary pulley K′ on the shaft *e*. The elevating-chains J are supported on the upper story by the toothed and grooved pulleys *l l* attached to a cross-head, L. Provision is made for regulating the length and tension of the chains by means of threaded bolts M secured to the sliding head L, this head being prevented from making any other than vertical movement by providing each end with a collar to slide upon an upright of the frame-work, marked *n* in Fig. I. The head L, which supports the chains J, is in turn supported by the cross-beam *n′*, which beam serves also to brace and connect the two sides of the frame N. The box-guide B′ is supported and held in place by the rods O, which at the upper end are secured to the collar *l′* of the cross-head L. The platform G has two guide pieces, *g g*, to direct the barrow-wheel, and four socket pieces, *g′ g′*, fitted to receive the barrow-legs. The cross-bar H supporting the platform G is furnished at each end with a thimble or hollow roller, *h*, fitting loosely on the bar and prevented from slipping too far inward by a second thimble or sleeve, h^1, held in place by the set-screw, h^2. This sleeve h^1 not only serves to hold the thimble *h* in position, but also retains in a corresponding groove and furnishes a bearing for the strap *p*, to which are attached the chains *p′*, which support the platform G. The thimble *h* furnishes a bearing for the bar H in its passage over the driving-disk E, and prevents any jar or irreg

ularity of motion which otherwise might occur by reason of the sliding of the bar on the shoulder.

The action of the invention is as follows: The platform G, resting upon the supporting-springs C in the lower guide-box B, receives the loaded barrow, the wheel of which rests between the guides *g g* and the legs in the sockets *g' g'*. The power being then applied to the driving-pulleys K and K', and thence transmitted to the shaft *e*, the endless chains J J are made to revolve, and the platform G, with its load, is carried up till it rests upon the spring C in the upper guide-box B', when the revolution of the chains is stopped sufficiently long to remove the loaded barrow. The chains are then made to continue their movement, and the empty platform is carried with them over the pulleys *l l* on the frame-work N until the platform reaches the center of the opposite division of the upper guide-box B', when an empty barrow is placed upon it in the same manner as when loaded, and the downward movement is then continued. The platforms are arranged at such a uniform distance from each other that they are always exactly opposite at the moment of stoppage of the chains, so that an empty barrow can be placed upon the vacant platform at the same time that the loaded barrow is being removed from the opposite platform. When the platform with the empty barrow has descended to the proper point the wheelbarrow is removed at the same time that a loaded one is being placed upon the opposite platform, and the now vacant platform continues its descent under the driving-disk *i*, and so up to the proper point to receive its load again. The chains J J, being held in the movable ring *i'* on the fixed pulley *i*, are at liberty to move backward or forward as much as is necessary to adjust the cross-bar H to the shoulders *e'* on the driving-disk. The apparatus is so constructed that it is readily movable both from one story to another and from one building to another. The frame-work N is bolted and matched together so as to be easily taken apart into convenient pieces for handling, and the guide-boxes B B' are also detachable from their supports, and made as light as is consistent with the necessary strength.

The advantages claimed for my invention are important. The principal advantage over others now in use is its effectiveness for the purpose designed. By the arrangement of the platforms opposite each other at the moment of the stoppage of the elevating-chains the loaded barrow is removed from one at the same time that the empty barrow is being placed upon the other platform, so that but a moment is consumed for the two operations. The special advantage of the driving-disk of the platform with guides, of the guide-boxes, and of the supporting-springs, is such as to give great superiority in all these working parts as compared with previous inventions on the same subject. It is easy of adjustment to different buildings and to the various floors of the same building. Its parts are not complicated or such as are liable to get out of order, and its cost is small compared with the amount of work it can accomplish.

I am aware that endless chains, platforms, &c., have been heretofore used for the same purpose. I do not, therefore, claim such broadly; but

What I claim, and desire to secure by Letters Patent, is—

1. The driving-disk K fixed firmly upon a shaft, *e*, and having shoulders *l l*, in combination with the sliding ring *i'* on the fixed pulley *i*, for the purpose of carrying forward two chains, J J, connected with a cross-bar, H, in the manner described.

2. The anti-friction rollers or thimbles *h h* on the cross-bar H, in combination with the driving-disk I, for the purpose specified.

3. The platform G hung centrally from the cross-bar H between the chains J J, as shown and described.

4. The platform G, provided with guide pieces *g g* and socket pieces *g' g'*, as shown.

5. The chains J J, or equivalent endless ropes, connected by the cross-bar H, in combination with the driving-disk I, for the purpose specified.

6. The chain-supporting cross-head L with its collar pieces *l' l'* and pulleys *l l*, for the object described and shown.

7. The device for elevating as a whole, consisting of driving-disk I and sliding ring *i'*, the chains J J, guide-boxes B B, platform G, and regulating cross-head L, all in the manner shown, and for the purposes described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN MACOMB.

Witnesses:
C. C. PECK,
GEO. W. MIATT.