

(No Model.)

3 Sheets—Sheet 1.

L. A. PARK.  
ELEVATOR AND CONVEYER.

No. 506,540.

Patented Oct. 10, 1893.

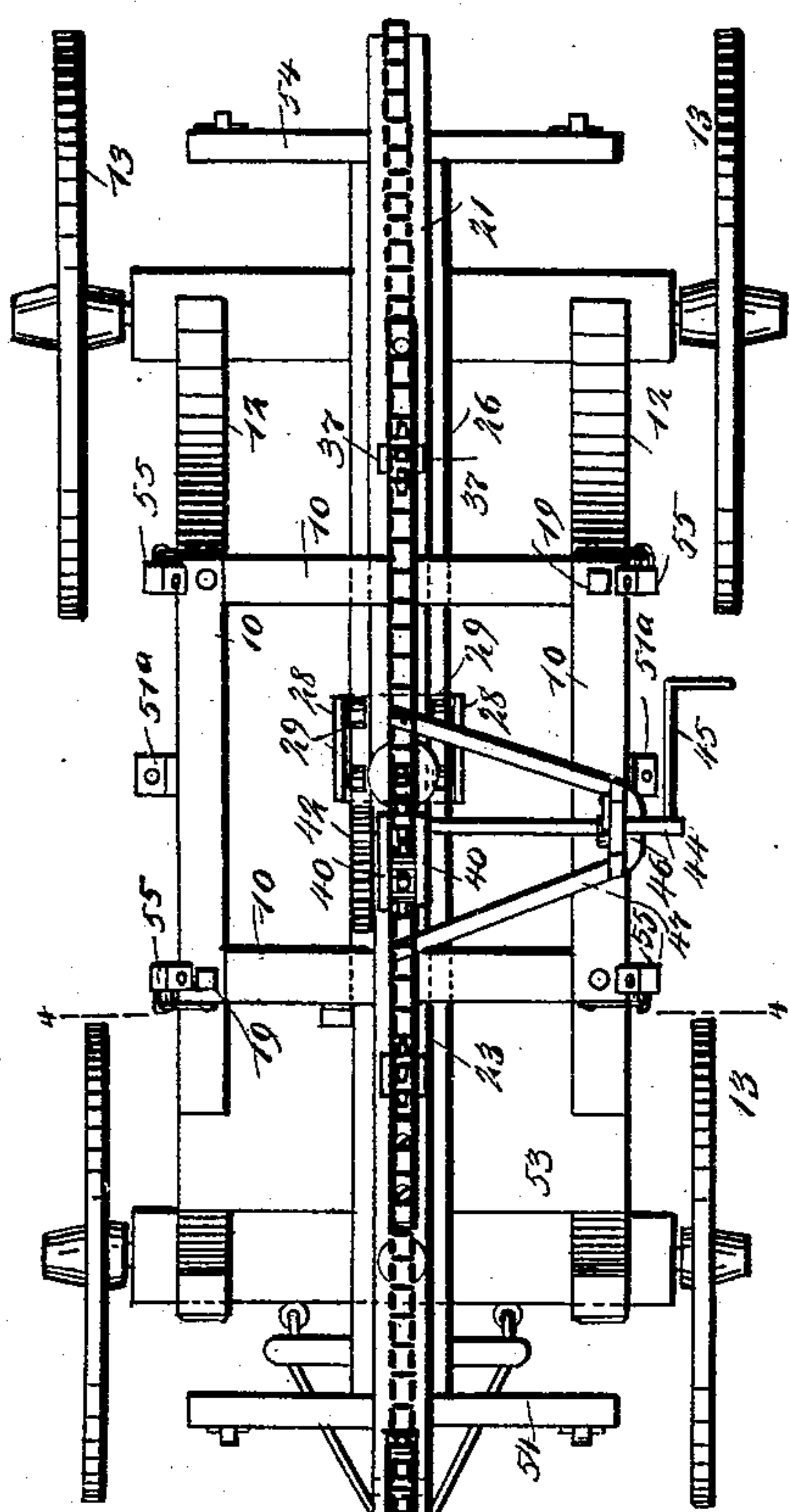


Fig. 1.

Fig. 2.

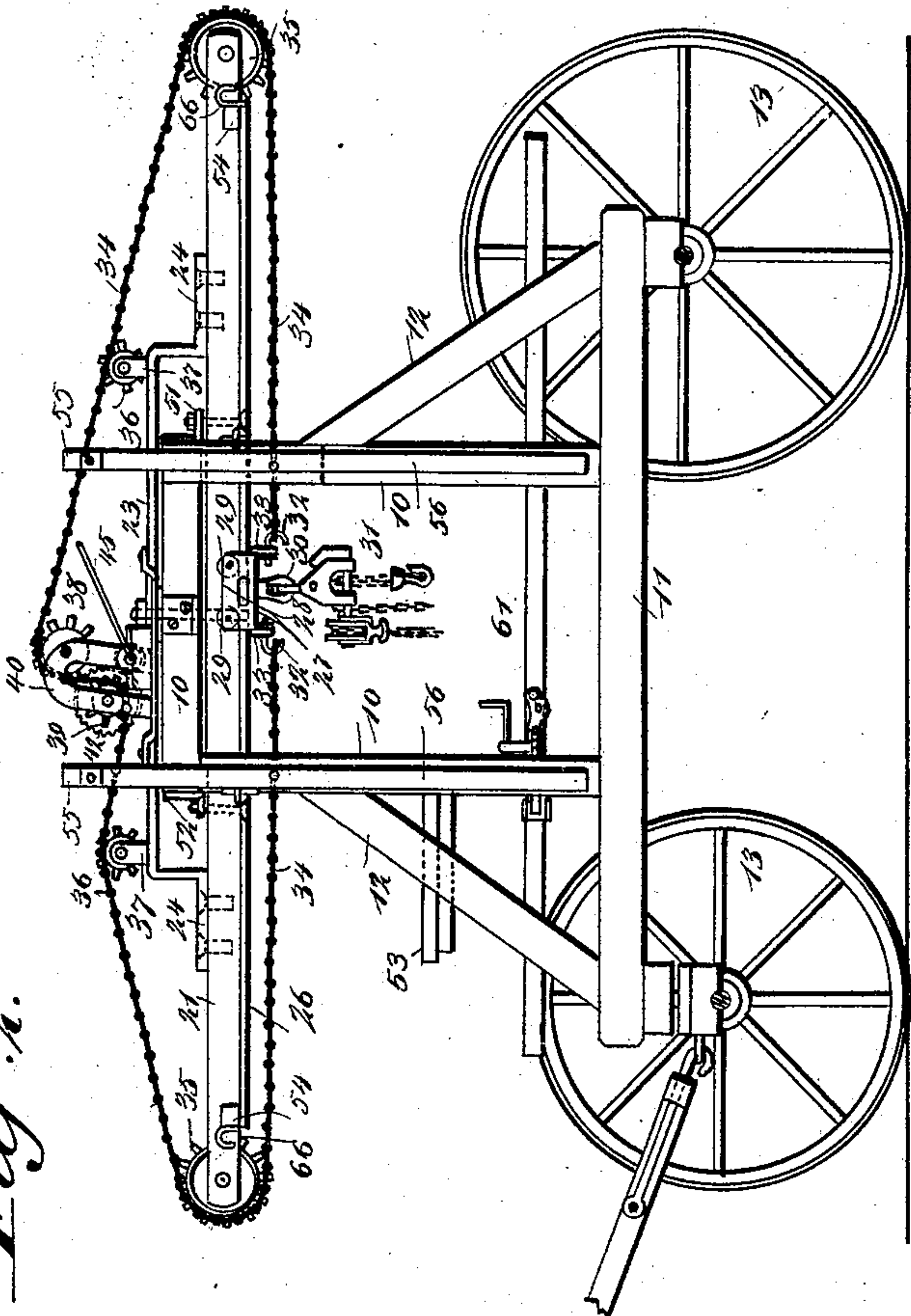
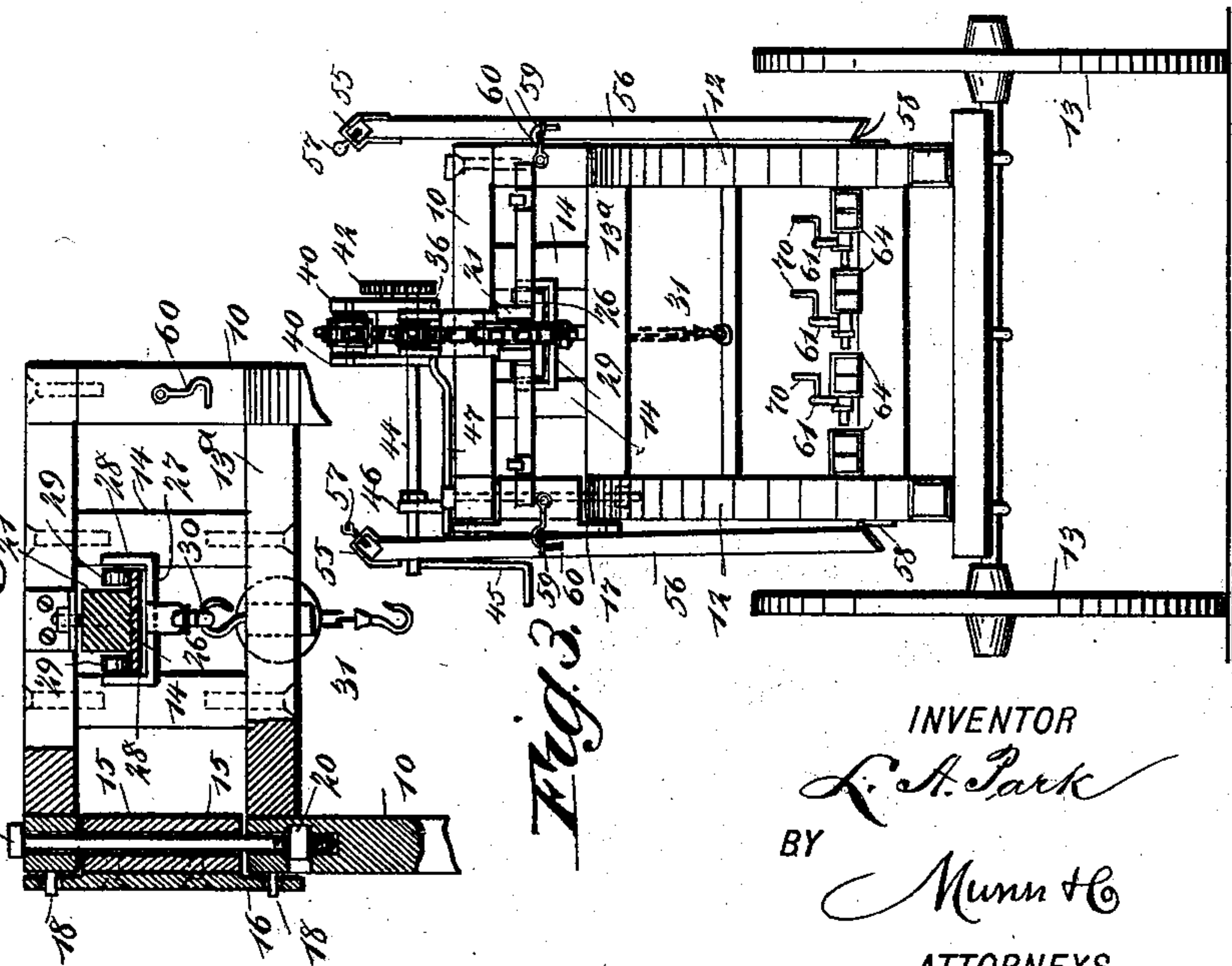


Fig. 3.



WITNESSES:

J. McArdle  
C. Sedgwick

INVENTOR

L. A. Park  
BY  
Munn & Co.  
ATTORNEYS.

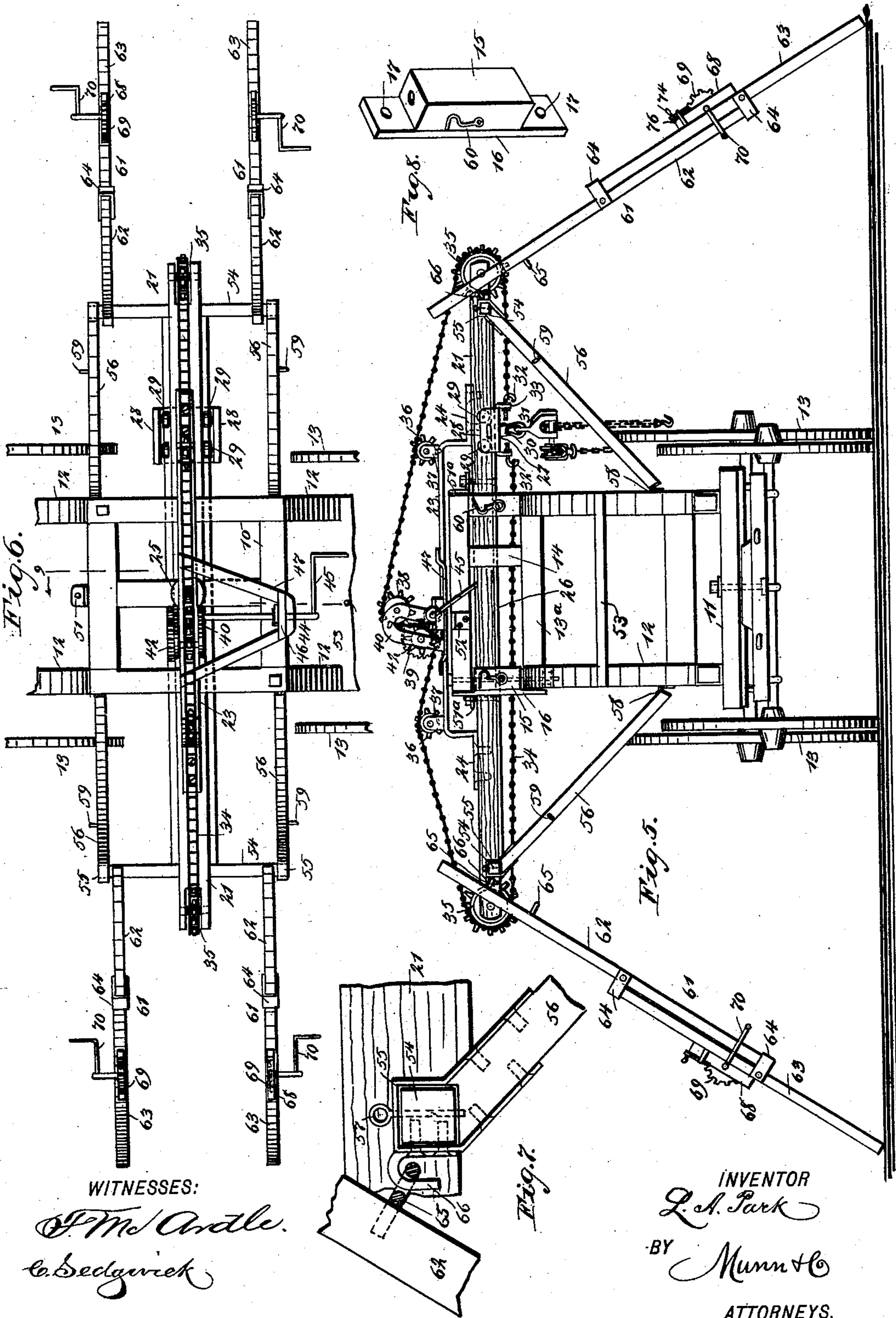
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WITNESSES:

*J. M. Andle.*  
*C. Sedgwick*

INVENTOR

*L. A. Park*

BY

*Munn & Co*

ATTORNEYS.



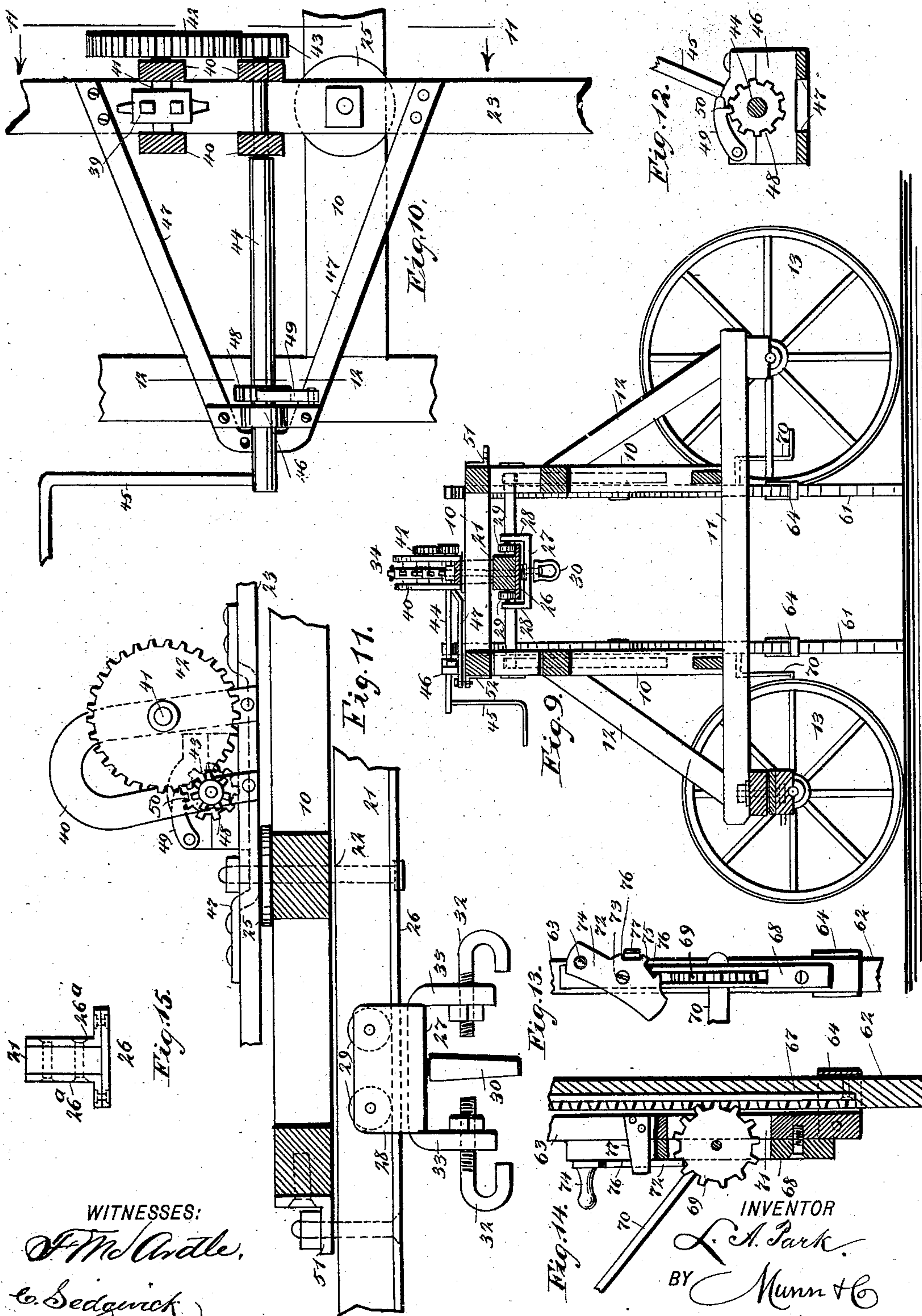
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3 Sheets—Sheet 3.

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WITNESSES:  
*F. M. Ordle,*  
*C. Sedgwick*

INVENTOR  
*L. A. Park.*  
BY *Munn & Co*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

LEWIS A. PARK, OF TOWNSBURY, NEW JERSEY.

## ELEVATOR AND CONVEYER.

SPECIFICATION forming part of Letters Patent No. 506,540, dated October 10, 1893.

Application filed February 10, 1893. Serial No. 461,779. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS A. PARK, of Townsbury, in the county of Warren and State of New Jersey, have invented a new and Improved Elevator and Conveyer, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of machines which are adapted for use in lifting heavy articles, such as rocks, and in conveying the same to a wall or other desired point, and the object of my invention is to produce a simple, strong and effective machine of this kind, which is readily moved from place to place, which enables articles of the kind described to be conveniently raised, which has means for depositing said articles in the exact place required, which is provided with an adjustable system of braces adapted to greatly strengthen the extended portions of the machine, and which has a horizontal pivoted track and carriage adapted to convey the raised material and adapted also to be swung into line with the body of the vehicle of which the machine constitutes a part, so that when the machine is hauled about it will be in a very compact shape.

To these ends, my invention consists in certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the apparatus embodying my invention, the machine being arranged for transportation. Fig. 2 is a side elevation of the same. Fig. 3 is a rear end view. Fig. 4 is a broken vertical section on the line 4—4 in Fig. 1, and shows in detail, one of the movable posts of the main frame and the manner in which the post is held in place. Fig. 5 is a rear end view of the machine, with the conveying track turned so as to extend at right angles to the body of the vehicle, and with the track braces in position to support the track. Fig. 6 is a broken plan view of the apparatus when in operative position as in Fig. 5. Fig. 7 is an enlarged detail view, partly in section, showing the connection between the track beam, the swing-

ing side pieces, and the extensible braces. Fig. 8 is a detail perspective view of one of the movable frame posts. Fig. 9 is a cross section on the line 9—9 in Fig. 6. Fig. 10 is a sectional plan of the gear mechanism for moving the carriage. Fig. 11 is a sectional elevation of the same, on the line 11—11 in Fig. 10, showing also a side elevation of the carriage. Fig. 12 is a detail sectional view on the line 12—12 in Fig. 10, illustrating the locking mechanism for securing the carriage operating gears. Fig. 13 is a broken detail front elevation of the connected portions of one of the extensible braces, showing particularly the gear mechanism for extending the braces, and the pawl for locking the gear mechanism. Fig. 14 is a sectional elevation of the gear connection between the parts of one of the extending braces; and Fig. 15 is an end view of a preferred form of track for the carriage.

The machine is provided with an upright frame 10, of a generally rectangular shape, which frame is supported on a bed 11 and braced by braces 12, and the bed 11 is provided with wheels 13, like an ordinary vehicle body.

On the front and back portions of the frame 10, at a point near the top and parallel with the top, are cross beams 13<sup>a</sup>, and each beam connects with the top of the frame above it by a post 14, the post being placed off the center, as shown best in Figs. 3 and 5, one post being on one side of the center and the other on the opposite side, so as to provide for the swinging of the track beam as hereinafter described.

The track beam, which will be described below, is held centrally on the frame and is adapted to be turned horizontally into line with the bed 11, or at right angles to the same, and consequently it is necessary to provide openings in diagonally opposite corners of the frame, and to this end, one corner of the frame on the front side and the opposite corner on the back side, have a removable post 15 which extends from the cross beam 13<sup>a</sup> to the top of the frame 10.

The post 15, which is shown in detail in Fig. 8, has on its outer side a plate 16, which overlaps the upper and lower portions of the frame and serves to strengthen the post, and



in the projecting ends of the plate are holes 17, which are adapted to receive pins 18 on the upper and lower portions of the frame 10, as illustrated in Fig. 4. Each post is locked  
5 in place by a bolt 19, which extends downward through the top of the frame through a longitudinal hole in the post 15, and into a nut 20 which is held in one of the posts of the frame 10.

10 The track beam 21 is a long beam capable of extending well out from each side of the machine, and it is pivoted in the center on a bolt 22, and on the under side and central portion of the top of the frame 10, as clearly  
15 shown in Fig. 11. The track beam is strengthened by a brace 23, which extends over the top of the frame and is bent downward at its ends and formed into flanges 24, which are bolted to the beam. The brace 23 is also pivoted on the bolt 22, and between the brace  
20 and the frame 10, is a broad washer 25.

It will be seen from the foregoing description that the track beam may be held in a line parallel with the length of the bed 11,  
25 and that by removing the posts 15, it may be turned into a position at right angles to said line.

On the under side of the beam 21, is fastened a flat plate 26, which projects from opposite sides of the track beam, as shown in  
30 Fig. 9, and which serves as a track on which the conveying carriage 27 runs.

The preferred form of track is shown in Fig. 15, and this form has angle irons 26<sup>a</sup>  
35 bolted to opposite sides of the beam 21 so as to fit snugly against the beam and against the plate 26. The carriage consists of a flat plate having up-turned side flanges 28, which have on their inner sides rollers 29, and these  
40 run on the track plate 26, and the carriage 27 is thus hung so as to travel beneath the track.

The carriage 27 is provided with a swivel hook 30 on its under side to which a hoisting  
45 device 31, which may be of any approved construction, is attached, and the hoisting device is thus always beneath the carriage and in position for use. The carriage has at opposite ends hooks 32, which are secured to lugs  
50 33 on the carriage, and these hooks are fastened to the ends of a chain 34, by which the carriage is moved.

The chain 34 extends longitudinally around the track beam, it being carried over sprocket  
55 wheels 35 which are journaled in the ends of the beam, thence over sprocket wheels 36, which are journaled in hangers 37 on the brace 23, thence over a sprocket wheel 38, and under a driving sprocket wheel 39, these  
60 latter wheels 38 and 39 being journaled in hangers 40 on the brace 23, and being arranged one above the other but in different planes.

The sprocket wheel 39 is carried by a shaft  
65 41 (see Figs. 10 and 11) and this shaft is provided with a relatively large gear wheel 42, which is driven by a small gear wheel or pin-

ion 43 on the shaft 44, which shaft is provided at its outer end with a crank 45 by which it may be turned, and it is journaled at its inner end in the hangers 40, and at its outer end in a box 46 carried by an outwardly-extending brace 47, which is rigidly attached to the brace 23.

The object of having the shaft 44 and its supporting brace 47 prolonged, is to enable the crank 45 to be brought into position above the operating platform when the machine is used as will be presently described. It will be observed that by turning the crank 45, the  
80 gear wheels 43 and 42 are turned and movement imparted to the chain 34, so that the hoisting device 31 may be brought into any necessary position beneath any part of the beam 21.

The chain 34 and the carriage connected with it are held in position by locking the shaft 44, and to this end the shaft is provided near its outer end with a cog wheel 48, near which is pivoted a pawl 49 (see Fig. 12) which  
90 has a tooth 50 adapted to fit between the cogs of the wheel 48, and when the pawl is in engagement with the wheel, the shaft 44 is locked and cannot be turned in either direction.

When the track beam 21 is in alignment with the bed 11, that is, when it extends longitudinally of the carriage, it may be locked in place by bolts extending through the beam 21, and through lugs 51 and 52 on the frame 10, and when the beam is turned so as to extend transversely across the frame, it may be  
100 locked by bolts extending through it and through lugs 51<sup>a</sup> on the sides of the frame 10.

When the machine is used for hoisting and conveying, the beam 21 is always at right angles to the main portion of the carriage, and when in this position, the operating crank 45 comes directly above a platform 53 on the front side of the frame 10, as shown in Fig. 110  
5, and the operator or operators stand upon this platform to work the machine. It is obvious that where a heavy load is to be carried to one end of the beam 21, the beam will require efficient bracing, and to this end, the  
115 braces described below are employed. The beam 21 has at its ends strong cross braces 54, which are adapted to receive sockets 55 on the free ends of swinging side pieces 56, the sockets being locked to the cross pieces  
12 by pins 57, and the side pieces are hinged at their lower ends to the lower portion of the frame 10, as shown at 58 in Fig. 5; consequently, when the side pieces are swung outward and the sockets 55 locked to the cross  
125 pieces 54, the side pieces will extend in a diagonal direction from the frame, and will assist in supporting the beam 21. When, however, the side pieces are not in use and the machine is to be moved, they are swung into  
130 a vertical position against the sides of the frame 10, and they are held in this position by means of hasps 60 on the frame which engage eyes or staples 59 on the side pieces.



To further brace the beam extensible braces 61 are used, which are adapted to extend from the cross pieces 54 to the ground, and these extensible braces should extend in a direction approximately at right angles to the direction of the side pieces 56, as shown clearly in Fig. 5.

Each brace 61 consists of two sliding sections 62 and 63, which are provided with keepers 64, each keeper being secured rigidly to one section and serving as a guide for the opposite section, as illustrated in Figs. 5 and 14. The upper section 62 of each brace is provided with staples 65, which are adapted to engage hooks 66 on the cross pieces 54.

The brace 61 is adjustable longitudinally by the following mechanism; the section 62 of the brace is provided with a rack 67 near its lower end, and journaled in a supporting block 68 on the section 63, at a point which overlaps the rack, is a gear wheel 69, which is turned by a crank 70, and is held in a slot 71 made in the block 68 and section 63, so that the gear wheel meshes with the rack. It will be seen then that by turning the gear wheel, the sections 62 and 63 may be moved in relation to each other and the length of the brace 61 regulated. The two sections of the brace 61 are held in a fixed position in relation to each other by a pawl 72, which is pivoted near the center, as shown at 73 in Fig. 13, on the block 68, and the pawl has at one end a handle 74 by which it may be conveniently moved. The opposite end of the pawl is adapted to engage the gear wheel 69 and lock the same. The pawl is curved on one side so that the curved portion projects beyond the side of the brace, as shown at 75 in Fig. 13. In this curved portion are notches 76, which are adapted to engage a spring 77 on the side of the section 63 (see Fig. 14) and the pawl may be locked either into or out of engagement with the gear wheel by this spring, according as to whether the brace is to be extended or to be locked in a fixed position. It will be readily seen then that each brace 61 may be made of any necessary length and locked rigidly so as to be as strong as a solid brace, and it will be seen that the brace 61 and side pieces 56 make a very strong support for the beam 21, so that a rock or other article of great weight may be carried to the extreme outer end of the beam without tipping the machine in the least.

When the machine is to be used, it is drawn into position above the rock or other article to be handled and adjacent to the wall or other place into or on which the article is to be deposited. The posts 15 are removed, the beam 21 turned into a position at right angles to the length of the machine so that one end of the track beam will extend above the wall or other point where the article is to be deposited; the beam is fastened in place in the manner described. The posts 15 are replaced, the side pieces 56 swung outward and placed in engagement with the cross pieces

54. The braces 61 are placed in position to support the outer ends of the beam, although it is usually necessary to use but two braces at a time as only one side of the machine needs supporting. The article is then lifted by means of the hoisting apparatus 31, and the operators standing on the platform 53, turn the crank 45, thus moving the carriage 27, and the article is carried to the desired point at one side of the machine where it may be deposited.

When the machine is to be moved, the track beam is fastened in place so as to extend longitudinally of the machine, the side pieces 56 are held in a vertical position against the machine frame, and the braces 61 may be laid upon the bed 11 and within the frame 10, as shown in Fig. 3.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An elevator and conveyer, comprising an upright portable open frame, a centrally pivoted track held to turn horizontally on the frame, a carriage arranged to travel through the frame from end to end of the track and adapted to carry hoisting mechanism, and a gear mechanism for moving the carriage, substantially as described.

2. An elevator and conveyer, comprising an upright portable open frame, a centrally pivoted track adapted to move horizontally on the frame, a carriage held to run on the track past its pivot and through the frame, a gear and chain mechanism for moving the carriage, and detachable braces for the ends of the track, to support it at both ends when turned at right angles to the frame substantially as described.

3. An elevator and conveyer, comprising an upright portable open frame, a horizontally-turning track beam pivoted centrally to the upper portion of the frame, a plate secured to the under side of the track beam and projecting from its sides to form a track, a carriage held to run upon the track, past the pivot thereof an operating chain secured to opposite ends of the carriage and extending endwise around the track beam over suitable guide wheels, and a gear mechanism for moving the chain and carriage, substantially as described.

4. In an elevator and conveyer, the combination, with the upright frame and the track held to move horizontally in the upper portion of the frame, of the detachable corner posts, and fastening devices to lock the posts into the frame, substantially as described.

5. In an elevator and conveyer, the combination, with the upright frame and the horizontally-turning track, of the detachable corner posts having side plates which overlap the adjacent portions of the frame, and locking bolts extending longitudinally through the posts and into adjacent portions of the frame, substantially as described.

6. An elevator and conveyer, comprising an



upright frame, a horizontally-turning track beam pivoted beneath the frame top, a brace secured to the track beam and extending across the frame top, a plate secured to the under side of the beam and projecting from its sides to form a track, a carriage held to travel on the track and provided with hoisting mechanism, a chain extending longitudinally around the track beam and secured to the carriage, an outwardly-extending brace or hanger secured to the track-beam brace, a revoluble crank shaft carried by the hanger or brace, and a gear connection between the crank shaft and the chain, substantially as described.

7. In an elevator and conveyer, the combination with the wheeled open frame having a platform 53 at one end of the centrally pivoted horizontal track, the carriage held to travel thereon, the chain extending longitudinally of the track and over suitable guide wheels, the chain being secured to the carriage, the revoluble driving shaft having a gear connection with the chain to turn the latter, and mechanism, as a cog wheel and pawl, for locking the shaft, said driving shaft being at about the middle of the track and provided with a crank at one end adapted to be brought over said platform when the track is at right angles to the frame, substantially as described.

8. The combination, with the supporting frame and the horizontally-turning centrally pivoted track having laterally projecting portions at both ends, of side pieces hinged to the frame, and means for connecting the

outer ends of the side pieces with the said projecting portions, to support the track against vertical or lateral strain, substantially as described.

9. The combination, with the supporting frame and the horizontally - turning track beam pivoted in the frame and provided with cross pieces, of the side pieces hinged to the frame and provided at their outer ends with sockets to receive the ends of the cross pieces, substantially as described.

10. The combination of the supporting frame, the horizontally-turning track beam, and the extensible braces to support the ends of the track beam, the braces comprising sliding sections fastened together, and a gear mechanism for moving the sections in relation to each other, substantially as described.

11. In an apparatus of the character described, the extensible brace comprising sliding sections held together by suitable keepers, a rack secured to one of the sections, a gear wheel journaled on the opposite section and held to engage the rack, a crank for turning the gear wheel, a pawl 72 pivoted to swing transversely and engage said gear and having a curved edge 75 provided with notches 76 and the spring 77 engaging one or the other of said notches to lock the pawl in or out of engagement with the said gear, all substantially as shown and described.

LEWIS A. PARK.

Witnesses:

CHAS. N. WADE,  
JACOB D. FLOCK.