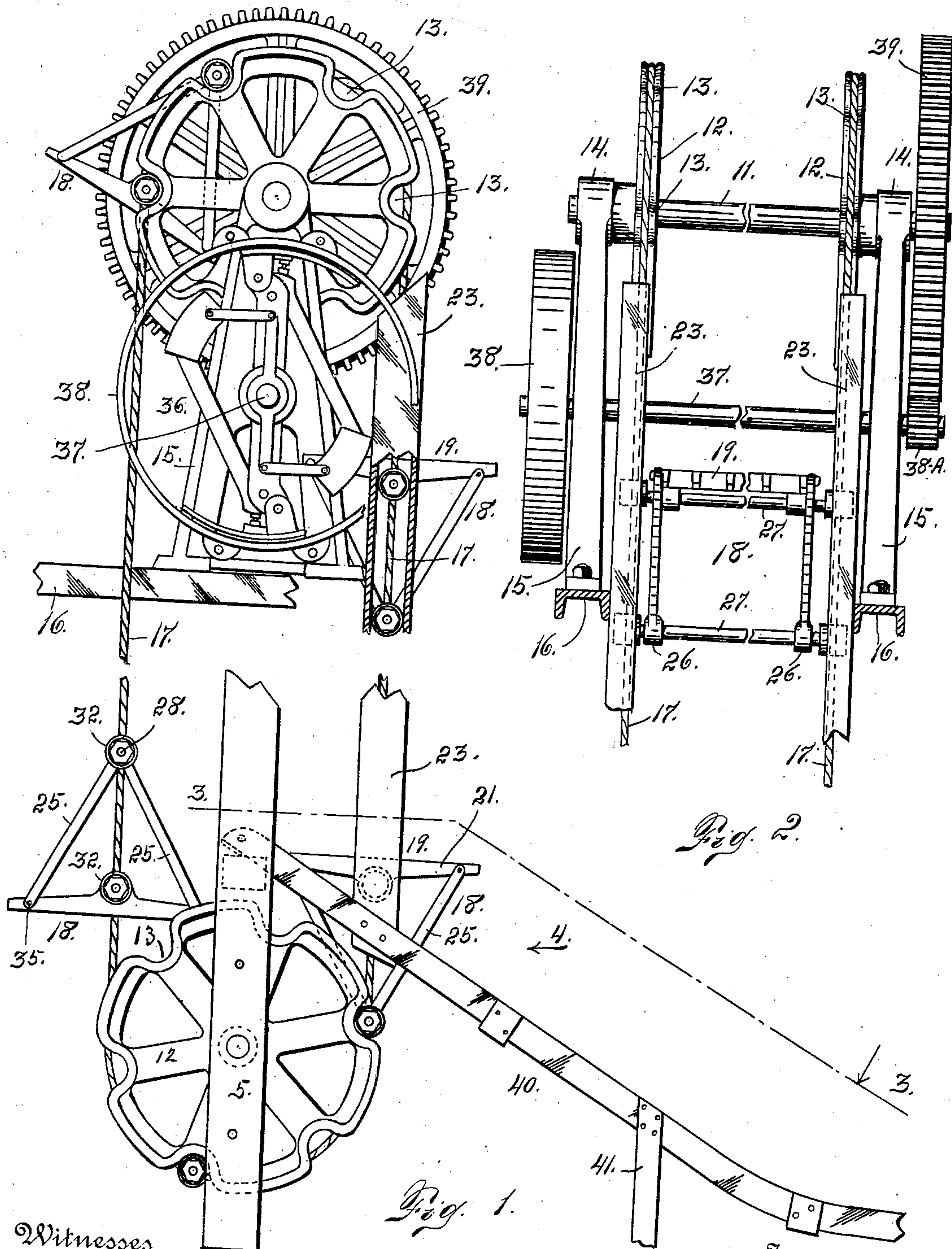


No. 890,746.

G. W. YOUNKMAN. PATENTED JUNE 16, 1908.
AUTOMATIC FREIGHT MECHANISM.
APPLICATION FILED MAY 27, 1907.

2 SHEETS—SHEET 1.



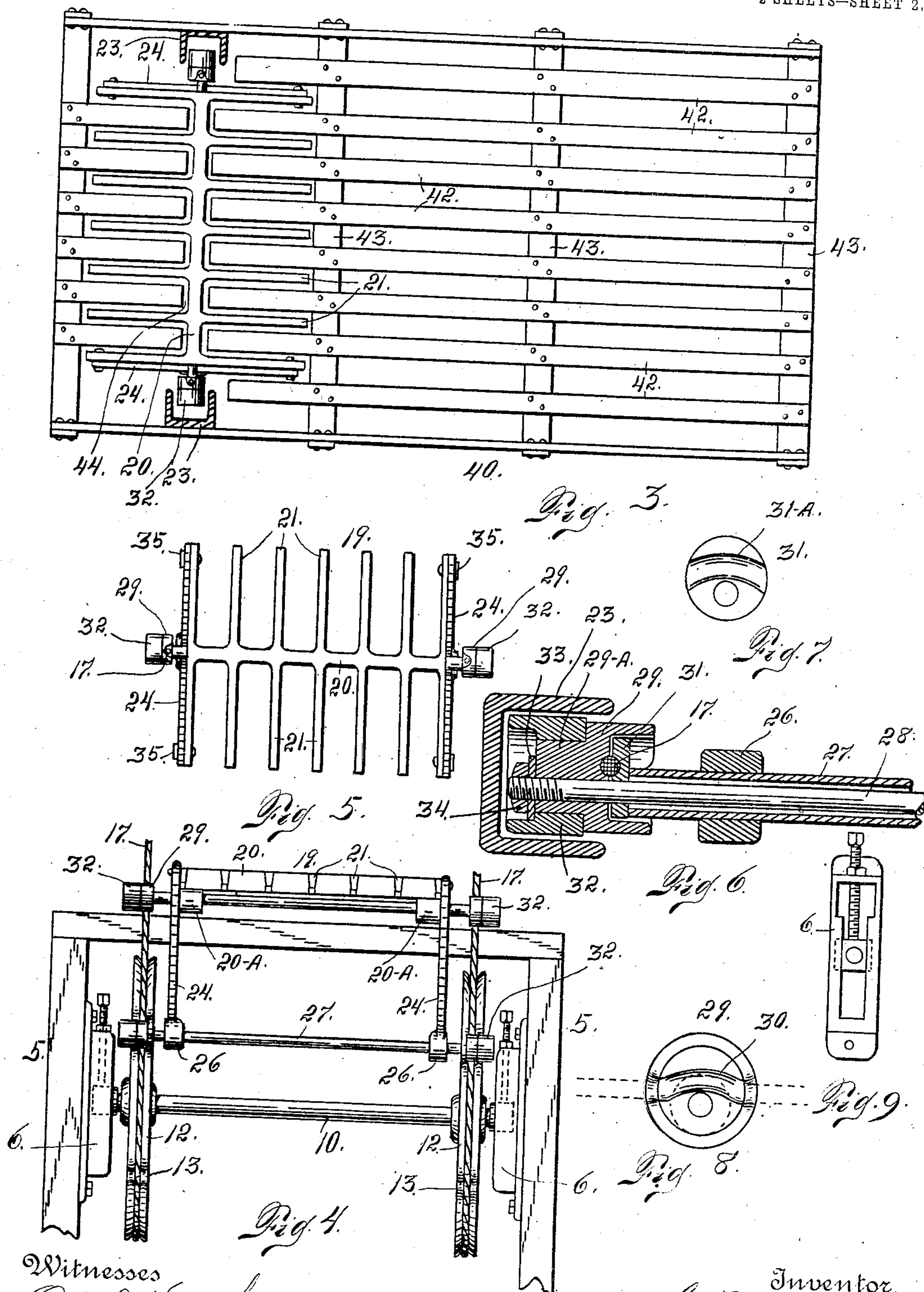
Witnesses
Otto E. Haddick.
Dena Nelson.

Inventor
G. W. Younkman.
By *[Signature]* Attorney

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Geo. W. Younkman.
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UNITED STATES PATENT OFFICE.

GEORGE W. YOUNKMAN, OF DENVER, COLORADO.

AUTOMATIC FREIGHT MECHANISM.

No. 890,746.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed May 27, 1907. Serial No. 375,849.

To all whom it may concern:

Be it known that I, GEORGE W. YOUNKMAN, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Automatic Freight Mechanism; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in means for lowering objects from one floor of a building or other structure to a lower floor or position, the operation being entirely automatic, since a governor is employed to control the speed of the apparatus. Hence a minimum speed of travel of the carrier is at all times maintained. The carrying mechanism consists of two pairs of upper and lower wheels and an endless carrier composed of cables engaging the said wheels and upon which are mounted carriages provided with grated platforms adapted to intermesh with an inclined stationary grate or chute, whereby as the carriage passes through the grated chute, the material on the carriage is automatically removed and caused to slide downwardly to any desired location.

The carriages are connected with the cables by a special construction including rods whereby the cables are clamped in place, anti-frictional rollers being mounted at the extremities of each rod and adapted to enter a frame composed of channel bars which form guides for the endless carrier.

Having briefly outlined my improved construction, I will proceed to describe the same in detail reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a side elevation partly in section illustrating my improved freight carrying mechanism. Fig. 2 is a fragmentary front view of the same. Fig. 3 is a section taken on the line 3—3 Fig. 1. Fig. 4 is a view looking in the direction of arrow 4 Fig. 1 with the grated chute removed and the lower frame work partly broken away. Fig. 5 is a top view of one of the carriages shown in detail. Fig. 6 is an enlarged sectional view showing one of the channel bars in cross section and a portion of

the carriage mechanism. Fig. 7 is a detail view of one of the members used to clamp the carriage to the cable forming a part of the endless carrier. Fig. 8 is a view of the cooperating clamping member. Fig. 9 is a detail view of the means for vertically adjusting the lower pair of wheels forming a part of the carrier mechanism.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the lower part of the frame work to which is applied brackets 6 in which are mounted vertically movable boxes in which are journaled the outer extremities of an axle 10 carrying wheels 12 in the peripheries of which are formed recesses 13 at suitable intervals. The upper wheels 12 are mounted on an axle 11 journaled in boxes 14 supported by standards 15 resting on horizontally disposed channel bars 16. The endless carrier is provided with two endless cables 17 to which are secured a number of carriages 18. Each of these carriages is composed of a grated top 19 consisting of a central web 20 and fingers 21 projecting in opposite directions therefrom.

Connected with the opposite ends of the platform 19 of each carriage is a V-shaped frame 24 composed of two bars 25 whose extremities remote from the carriage merge into a lug 26 through which passes a spacing sleeve 27 surrounding a rod 28 whose extremities pass eccentrically through sleeves 29. The inner surface of each sleeve 29 is provided with a curved half bearing 30 adapted to receive the cable 17, which enters and leaves the groove at the extremities of a diameter of the sleeve. The groove bends out of the line of a diameter intermediate its extremities, in order to hold the cable more securely against slipping. Coöperating with the clamping face of the sleeve 29, is a disk 31 having a curved groove 31^a adapted to engage the cable on the opposite side from the clamping face of the sleeve 29. This disk 31 is held in operative engagement with the clamping face of the said sleeve by one extremity of the spacing sleeve 27. Nuts 34 are applied to the opposite extremities of the rod 29, and by screwing these nuts sufficiently tight, the cables are locked securely in place and it is in this manner that the V-shaped end members of the carriage are connected with the cable. The outer extremity of each sleeve 29 is reduced as shown at 29^a,

to form a journal for an anti-frictional roller 32 which is prevented from slipping off its journal by a washer 33 against which the nut 34 is screwed. In order that the cable may enter and leave the clamping members 29 and 31 at the opposite extremities of a diameter of the said members, the connecting rod 28, is passed eccentrically through these clamping members. The journal 29^a of the clamping sleeve 29, is so formed that the anti-frictional roller 32 rotates on the true axis of the clamping members. The separated extremities of the bars 25 of the end frames, are suitably secured to the platform 15 of the carriage as shown at 35.

The carriage platform is secured to the cables 17 in substantially the same manner as the V-shaped end frames heretofore described. In the case of the platform 19, however, the web 20 thereof is provided with perforated lugs 20^a formed on its under surface and at its opposite ends. In comparing this construction with that for connecting the end frames of the platform with the cables, these lugs 20^a correspond with the perforated lugs 26 of the said frame. With this exception, the two constructions are substantially identical and the corresponding parts will be given the same reference characters. A spacing sleeve 27 passes through the lugs 20^a and acts on a clamping member 31 which coöperates with a sleeve 29 upon which is mounted a roller 32. The rod 28 passes through the sleeve 27 and through the clamping members 29 and 31 having its extremities secured in place by nuts in the manner illustrated in Fig. 6. The anti-frictional rollers 32 of the carriage, engage the recesses 13 of the upper and lower wheels of the endless carrier.

In order that the speed of the carrier may be properly regulated, a centrifugal governor mechanism 36, carried by a shaft 37, acts on a stationary friction ring 38. The shaft 37 is provided at one extremity with a pinion 38^a meshing with a larger gear 39. By virtue of this construction, when freight is placed upon the platform of a carriage on the downwardly traveling side of the carrier, the latter is caused to travel, thus imparting motion to the gear 39 and thence to the governor mechanism through the medium of the pinion 38^a and the shaft 37.

At the lower extremity of the carrier, is mounted an inclined chute or platform 40 whose upper extremities are suitably supported by the frame work of the apparatus while its lower extremity may be supported by uprights 41. This chute 40 is composed of spaced bars 42 connected by transverse pieces 43. The bars 42 are divided at 44 to allow the web 20 of the carriage to pass through, while the fingers 21 of the carriage platform pass between the space bars 42 of the inclined chute. In this way the chute

forms no obstruction to the travel of the carriage though it is located in the path thereof. From this it will be readily understood, that as the carriage passes through the chute, the articles upon the carriage are automatically removed therefrom and left upon the chute, whose downward inclination is made sufficient to cause the said articles to be automatically transferred or delivered to any suitable or desired point.

The frame work of the structure is provided on one side with channel bars 23 into whose grooves or channels the bearing devices of the carriages protrude, whereby the carrier on the freight carrying side is caused to move downwardly in a vertical plane, thus preventing the swaying of the carriages which might result in the displacing of the freight carried thereby.

Having thus described my invention, what I claim is:

1. In mechanism of the class described, the combination with a suitable frame work, of upper and lower wheels journaled therein, endless cables engaging the said wheels whose peripheries are grooved to receive them, carriages mounted on the said cables, and means for clamping said carriages to said cables, said clamping means comprising a pair of clamping members for each cable, a rod passing through the said clamping member, means for tightening the rod at the end of one clamping member, and a spacing sleeve through which the rod passes, the said sleeve engaging at its opposite ends the other clamping member of each pair, and said carriages having end bearings adapted to enter transverse recesses formed in the peripheries of the wheels, the frame work being provided with channel bars forming guides for the carriages on the down side of the apparatus and into which the bearings of the carriages protrude.

2. The combination with upper and lower pairs of wheels, of two endless cables suitably separated and engaging the said wheels, carriages carried by the cables, and means for clamping the carriages to the cables, said clamping means comprising a pair of clamping members for each cable, a rod passing through the said clamping members, means for tightening the rod at the end of one clamping member, and a spacing sleeve through which the rod passes, the said sleeve engaging at its opposite ends the other clamping member of each pair, substantially as described.

3. In apparatus of the class described, the combination with upper and lower pairs of wheels, of two endless cables adapted to engage the wheels, and means for transversely connecting the cables, comprising a pair of clamping members for each cable, a rod passing through both pairs of clamping members, means for tightening the rod at the ex-

5 tremities of the outer clamping members, and a spacing sleeve through which the rod passes, the extremities of the said sleeve engaging the inner clamping member of the two pairs, substantially as described.

10 4. In apparatus of the class described, the combination with upper and lower pairs of wheels, of two endless cables adapted to engage the wheels, and means for transversely connecting the cables, comprising a pair of clamping members for each cable, a rod passing through both pairs of clamping members, means for tightening the rod at the extremities of the outer clamping members, 15 a spacing sleeve through which the rod passes, the extremities of the said sleeve engaging the inner clamping member of the two pairs, and carriages mounted on the said cable connecting devices intermediate their 20 extremities, substantially as described.

25 5. In a carrier mechanism of the class described, the combination with a governor, of upper and lower wheels whose peripheries are provided with recesses suitably spaced, endless cables suitably spaced and adapted to engage the said wheels whose peripheries are also grooved to receive the cables, carriages mounted on the cables and provided with anti-frictional bearings, adapted to enter 30 the recesses of said wheels, and means for clamping the carriages to the cables, said clamping means comprising a pair of clamping members for each cable, a rod passing through the said clamping members, means

for tightening the rod at the end of one clamping member, and a spacing sleeve through which the rod passes, the said sleeve engaging at its opposite end the other clamping member of each pair, substantially as described. 35 40

6. In a mechanism of the class described, the combination with a suitable frame work, of upper and lower pairs of wheels; endless cables suitably separated and engaging the said wheels, carriages carried by the cables 45 and having grated platforms, and a grated chute supported at the lower extremity of the apparatus and through which the carriages are adapted to pass, the grate bars of the carriage platforms intermeshing with the 50 bars of the chute whereby the articles resting upon the platform are automatically moved and left upon the chute, and means for clamping the carriages to the cables, said clamping means comprising a pair of clamping mem- 55 bers for each cable, a rod passing through the said clamping members, means for tightening the rod at the end of one clamping member, and a spacing sleeve through which the rod passes, the said sleeve engaging at its oppo- 60 site ends the other clamping member of each pair, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. YOUNKMAN.

Witnesses:

HENRY J. MARTIN,
DENA NELSON.