

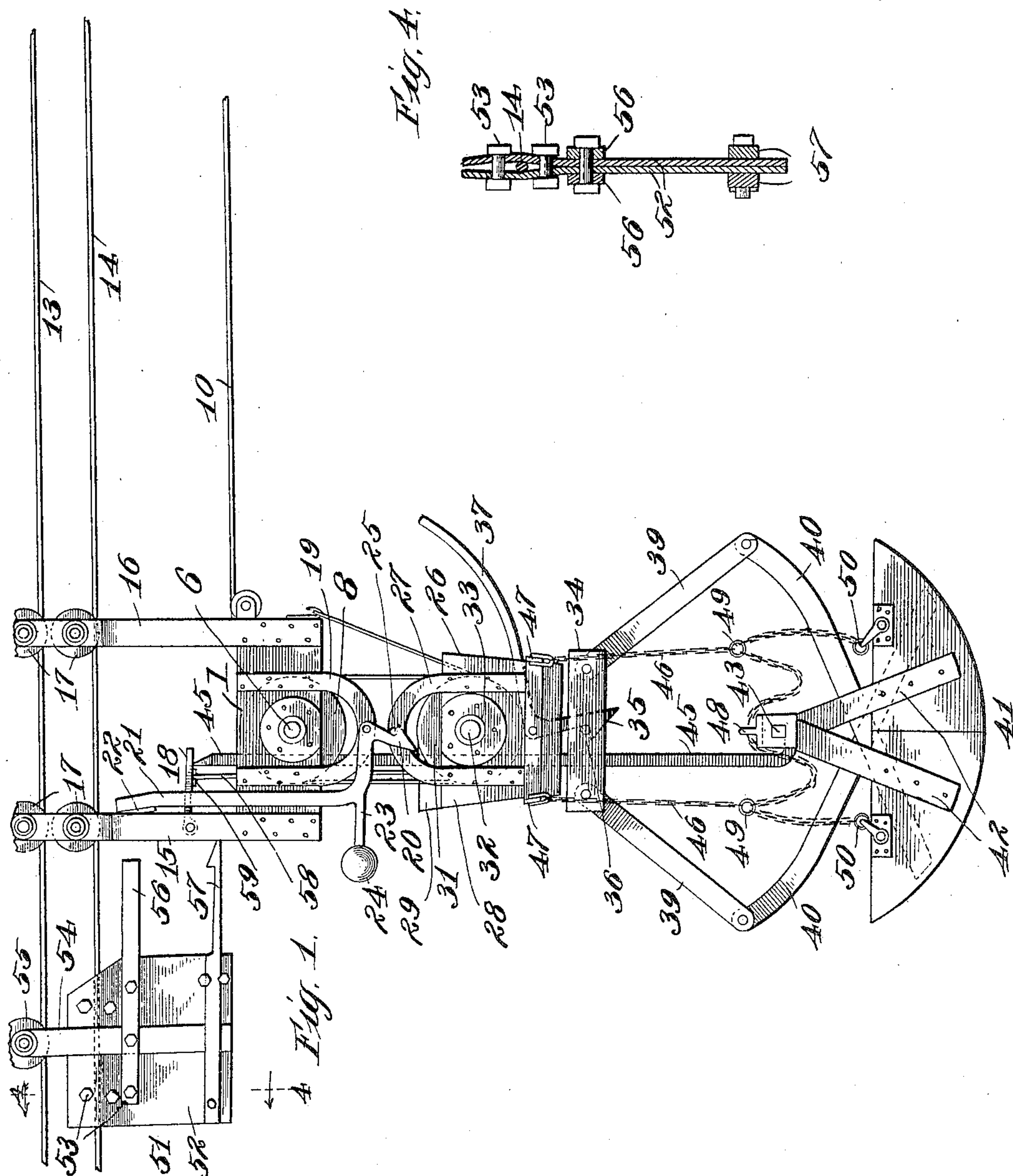
No. 813,160.

PATENTED FEB. 20, 1906.

D. G. LYMAN.
CARRIER.

APPLICATION FILED AUG. 4, 1905.

2 SHEETS—SHEET 1.



Witnesses.

C. A. Pauberschmitt

George L. Chindahl

Inventor.

Dwight G. Lyman

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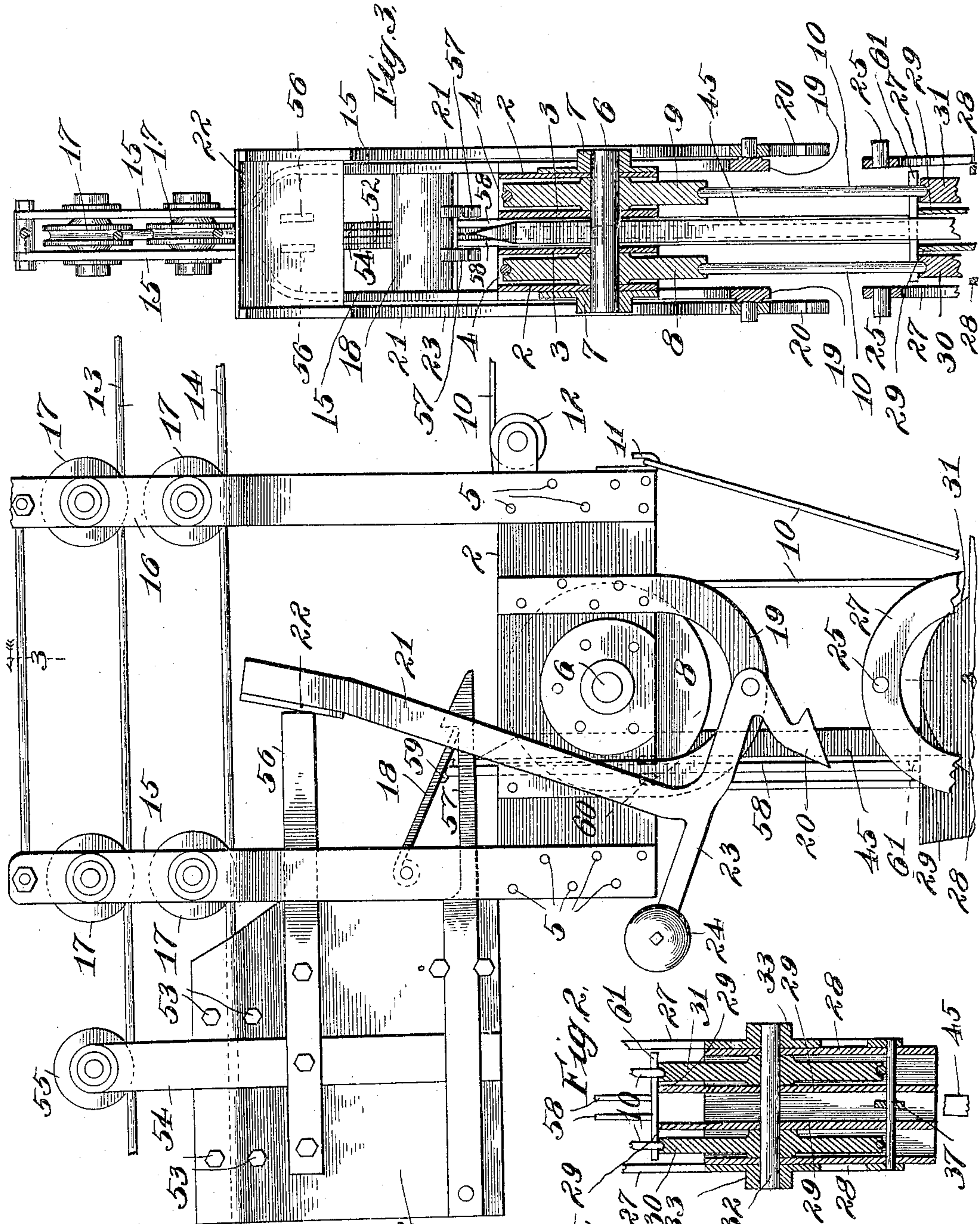
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2 SHEETS—SHEET 2.



Witnesses:
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Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
Fig. 6.
Fig. 7.
Fig. 8.
Fig. 9.
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Fig. 96.
Fig. 97.
Fig. 98.
Fig. 99.
Fig. 100.

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UNITED STATES PATENT OFFICE.

DWIGHT G. LYMAN, OF OMAHA, NEBRASKA.

CARRIER.

No. 813,160.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed August 4, 1905. Serial No. 272,694.

To all whom it may concern:

Be it known that I, DWIGHT G. LYMAN, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Carriers, of which the following is a specification.

This invention relates to carriers, and particularly to the kind commonly known as "elevated or overhead conveyers." Such conveyers usually are supported upon overhead tracks or cables, and this invention refers particularly to a means for stopping the carriage of the carrier at a predetermined point in its movement and for automatically connecting with and disconnecting from said carriage the bucket and its operating devices.

In the accompanying drawings, Figure 1 is a side elevation of a carrier embodying the features of this invention. Fig. 2 is an enlarged view, in side elevation, of the carriage for the carrier, showing the locking and releasing mechanisms in different positions from those in which said mechanisms are represented in Fig. 1. Fig. 3 is a transverse vertical section through the mechanism illustrated in Fig. 2, Fig. 3 being taken on dotted line 3 3 of Fig. 2. Fig. 4 is a transverse vertical section through the stop and unlocking devices shown in Fig. 1, said figure being taken on dotted line 4 4 of Fig. 1. Fig. 5 is a transverse vertical section through the hoisting-head.

In the embodiment of my invention herein shown and described I have provided a carriage 1, the body portion of which is made up of four plates 2 and 3, separated by spacing-blocks 4 at the ends of the plates and held together by bolts passing through suitable openings in said blocks and plates. A shaft 6 passes through suitable openings (not shown) in the plates 2 and 3 and has bearings 7, secured upon the outer sides of the outer plate 2. Sheaves 8 and 9 are loosely mounted upon the shaft 6 between the plates 2 and 3, said sheaves being provided to carry the hoisting-cable 10, one end of which cable is secured to the forward end of the carriage 1 by the hook 11 and the portion of said cable running to the hoisting-drum passing over an idler-sheave 12, mounted at the forward end of said carriage.

In the present instance the carriage 1 is supported upon a cableway comprising two

cables 13 and 14, stretched taut between two points of support by means of two pairs of hanger-arms 15 and 16 at the ends of the carriage. The arms of each pair of hanger-arms are secured upon opposite sides of the carriage 1 and between their upper ends pivotally support the rollers 17, one for each of the cables 13 14. A locking-latch 18 for holding the carriage in its loading position is also pivotally mounted between the rear pair 15 of the arms of the carriage. A bracket 19 is secured to the outer side of each of the plates 2, and near their lower edges said brackets carry pivotally-mounted hooks 20, each of which hooks has an integral upwardly-extending releasing-arm 21, the upper ends of said releasing-arms being rigidly connected by a bar 22. The hooks 20 are thus secured together, and to each is rigidly fixed a weight-arm 23, bearing a weight 24. The hooks 20 are adapted to engage studs 25, projecting from the hoisting-head 26, said studs being fixed upon and projecting from brackets 27, fixed to said head 26. The hoisting-head 26, like the carriage 1, comprises four vertically-placed plates 28 29, two outer and two inner ones, between which plates sheaves 30 31 are rotatably mounted upon a shaft 32, extending through suitable openings in said plates. The sheaves 30 31 are loosely mounted upon the shaft 32, and said shaft is supported in bearings 33, secured upon opposite sides of the outer plates 28.

A bucket-operating head 34 lies below the hoisting-head 26 and is detachably connected to said hoisting-head by means of a hook 35, pivotally mounted within said hoisting-head in position to engage a bolt 36, extending through said operating-head. The hook 35 has a rearwardly-extending arm 37 for manually (or automatically by means of a stop-block not shown) tripping said hook 35 to dump the load from the bucket.

The bucket-operating head 34 is pivotally connected, by means of links 39, with the bucket-operating arms 40, the lower ends of which arms are fixed to the sides of the bucket 41. The sides or sections of said bucket are also provided with the supporting-arms 42, one at each end of each section, said arms being pivotally connected at their ends with a pivot-shaft 43, square in cross-section, except at the points where the supporting-arms 42 have a bearing, at which bearing-points said shaft is round. Near the middle portion of

the shaft 43 an upwardly-extending unlock-
ing-bar 45 is mounted, the upper end of
which bar is pointed and adapted to engage
the locking-latch 18. When the bucket-op-
erating head 34 is locked in its upper position
by the hook 35, the two bucket-sections are
held together by the arms 40 and said bucket
thereby held closed. Chains 46, secured at
their upper ends to the hoisting-head 26 by
means of ears 47, extend downwardly and
are connected to loops 48 on the shaft 43,
while branches of said chains extend from
rings 49 in said chains to loops 50, pivotally
secured to the end of the bucket-sections.
When the hook 35 is withdrawn from the bolt
36, the bucket, together with the operating-
head 34, falls to the limit of the chains 46,
and the bucket-sections are separated or
opened by the pull of the opening-chains 46.
A stop-block 51, comprising two plates 52,
is provided upon the cableway, said plates
being clamped upon opposite sides of the
lower cable 14 by means of bolts 53, extend-
ing through suitable openings in said plates.
When it is desirable to change the point at
which the bucket is to be loaded, the nuts of
the bolts 53 are loosened and the stop-block
51 moved, as desired, upon the cable 14.
Arms 54 are secured to the block 51, and be-
tween their upper ends said arms carry a
roller 55, adapted to bear upon the upper ca-
ble 13, whereby the stop-block may be the
more readily moved upon loosening the
clamping-bolts 53. The stop-block 51 also is
provided upon its opposite sides with the two
pairs of stop-fingers 56 57, the former to en-
gage the bar 22, connecting the upper ends of
the arms 21 and by withdrawing the hooks
20 release the hoisting-head and the latter of
hook form to be engaged by the latch 18 and
hold the carriage 1 in position for the bucket
to take its load.

In order to provide an unlocking or releas-
ing means for the carriage when the bucket is
raised in an open position, (in which position
of the bucket the unlocking-bar 45 is not suf-
ficiently elevated to raise the locking-latch
18,) I have supplied the following-described
mechanism: The locking-latch 18 is provided
with two downwardly-extending rods 58,
formed from a single rod bent in U shape,
said rods being loosely connected with said
latch by means of the standing loop 59, se-
cured to the under side of said latch. The
rods 58 are guided by a bracket 60, suitably
located in the carriage-body, and near their
lower ends are connected by a cross-bar 61,
said cross-bar being adapted to be engaged
by the upper edges of the intermediate plates
29 of the hoisting-head 26. Thus when the
unlocking-bar is not in position to raise the
latch 18 and release the carriage 2 from the
stop-block 51 the rods 58 perform that func-
tion. This latter auxiliary unlocking device
may be used alone, if desired, and may be

employed when the carriage 2 is used with-
out the bucket 41, as in transporting large
stones or other similar objects.

The cables 13 and 14 are stretched reason-
ably taut over the points between which
earth, coal, or other granular material is to
be transported. According to the usual
practice the end of the cable at the point
from which the material is to be removed is
lower than the opposite end of the cable, it
being so arranged that the empty bucket will
run by gravity to its loading position. The
hoisting-engine (not shown) is located near
the delivery end of the cableway. The stop-
block 51 is secured upon the cable 14 over the
loading-point.

In operating, when the carriage 1, support-
ing the open empty bucket upon the chains
46, approaches the stop-block 51 the free end
of the locking-latch 18 is struck and raised by
the wedging-points of the hooks 57, said
latch as the carriage proceeds a slight dis-
tance farther dropping behind the shoulders
of said hooks and locking the carriage in po-
sition upon the cableway. At about the
same time the arms 21 of the hooks 20 are
engaged and tilted by the fingers 56, releas-
ing the hoisting-head and permitting said
head, with the open bucket, to descend as the
hoisting-cable 10 is paid out by the rotation
of the hoisting-drum. The paying out of the
cable 10 being continued, the bucket settles
upon the material to be removed and the
hoisting-head, continuing to descend, be-
comes connected with the operating-head 34
by reason of the hook 35 slipping over and
engaging the bolt 36. Raising the hoisting-
head and operating-head by winding up the
cable 10 will now cause the bucket-sections
to be drawn together, said sections inclos-
ing between them a quantity of the mate-
rial to be removed. In the continued up-
ward travel of the bucket the unlocking-bar
45 and the raised portions of the intermediate
plates 29 of the hoisting-head disengage the
latch 18 from the hooks 57, freeing the car-
riage 1 from the locking-block 51, and as the
carriage begins to move forward under the
continued pull of the cable 10 the weighted
hooks 20 engage the studs 25 and lock the
hoisting-head to the carriage, Fig. 1. Upon
arriving at the point where the load is to be
discharged the bucket is dumped by disen-
gaging the hook 35 from the bolt 36, which
may be done manually or automatically, as
hereinbefore stated. Upon the disengage-
ment of the hook 35 the operating-head 34
and the bucket 41 drop by gravity to the
limit of the chains 46, the weight of the oper-
ating-head, bucket, and connecting-arms
causing the bucket-sections to swing apart
upon their pivot 43. The unlocking-bar 45
being connected to the bucket also drops, per-
mitting the latch 18 to rest upon the upper
side of the carriage 1 in position to be en-

gaged by the hooks 57. The bucket is now ready to be returned to the loading-point.

I claim as my invention—

1. In a carrier, in combination, a carriage; 5
a locking-latch pivoted thereon; a stop-block; two projecting hooks on the stop-block adapted to be engaged by the latch; a bucket movably supported with relation to said carriage; and a releasing-rod carried by the bucket, 10
adapted to be projected upward between said hooks to disengage said latch and hooks.

2. In a carrier, in combination, a carriage; means for locking said carriage upon a way; a hoisting-head releasably connected with said 15
carriage; an operating-head releasably connected with said hoisting-head; a bucket connected with said hoisting-head and said operating-head; and means carried by said bucket for operating said locking means.

20 3. In a carrier, in combination, a carriage; a stop-latch pivoted on said carriage; a stop-block for said carriage, said block having a hook adapted to engage said latch; a hoisting-head releasably connected with said carriage; a bucket connected to said hoisting-head but arranged to have a vertical movement with relation thereto; and a releasing-

rod vertically movable with said bucket, the upper portion of said rod extending through said hoisting-head into position to engage 30
said latch for disengaging said latch and said hook.

4. In a carrier, in combination, a carriage; means for locking said carriage upon a way; a hoisting-head releasably connected with said 35
carriage; an operating-head releasably connected with said hoisting-head; a bucket connected with said hoisting-head and said operating-head; and a releasing-rod connected to move with said bucket, said rod extending 40
through said operating-head and hoisting-head into position to operate the carriage-locking means.

5. In a carrier, in combination, a carriage; a stop-latch pivoted on said carriage; a stop- 45
block having a hook adapted to engage said latch; a hoisting-head suspended from said carriage; and a rod depending from said latch into position to be raised by said head for operating said latch.

DWIGHT G. LYMAN.

Witnesses:

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GEORGE L. CHINDAHL.