

Jan. 2, 1923.

1,440,406

C. NOLAN.
OVERHEAD CONVEYER SYSTEM.
FILED FEB. 11, 1921.

3 SHEETS-SHEET 1

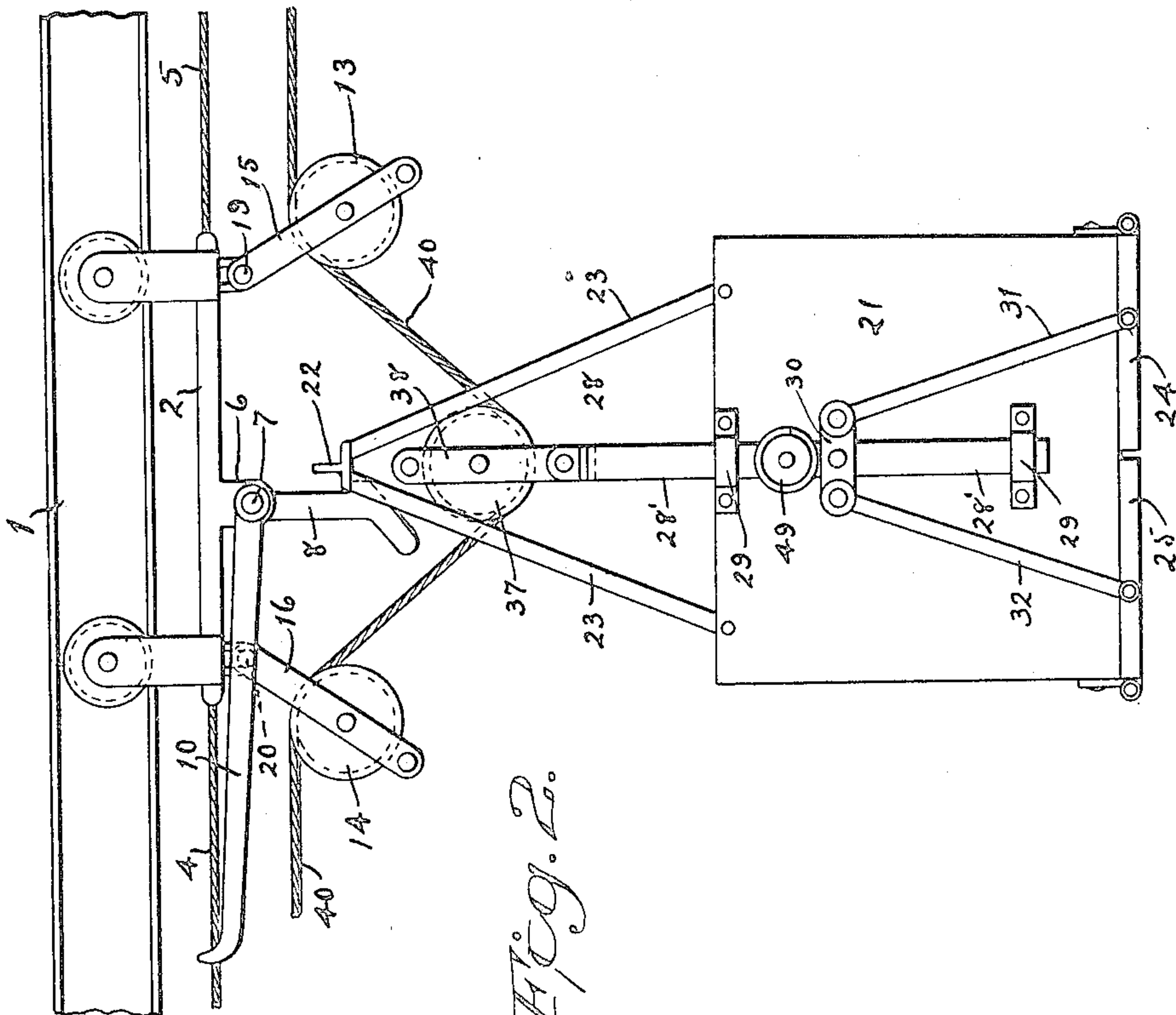


Fig. 2.

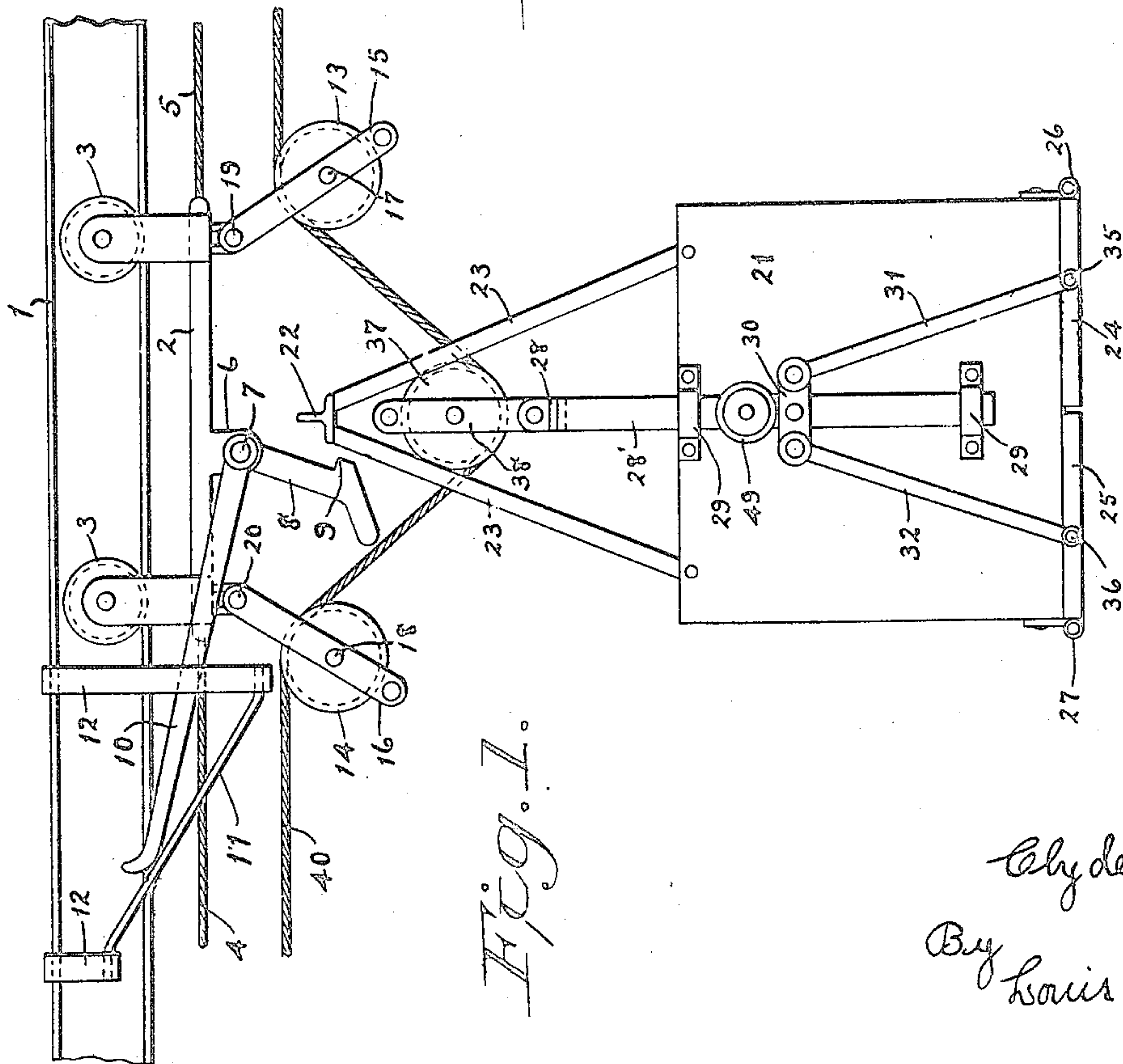


Fig. 1.

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3 SHEETS-SHEET 2.

Fig. 4.

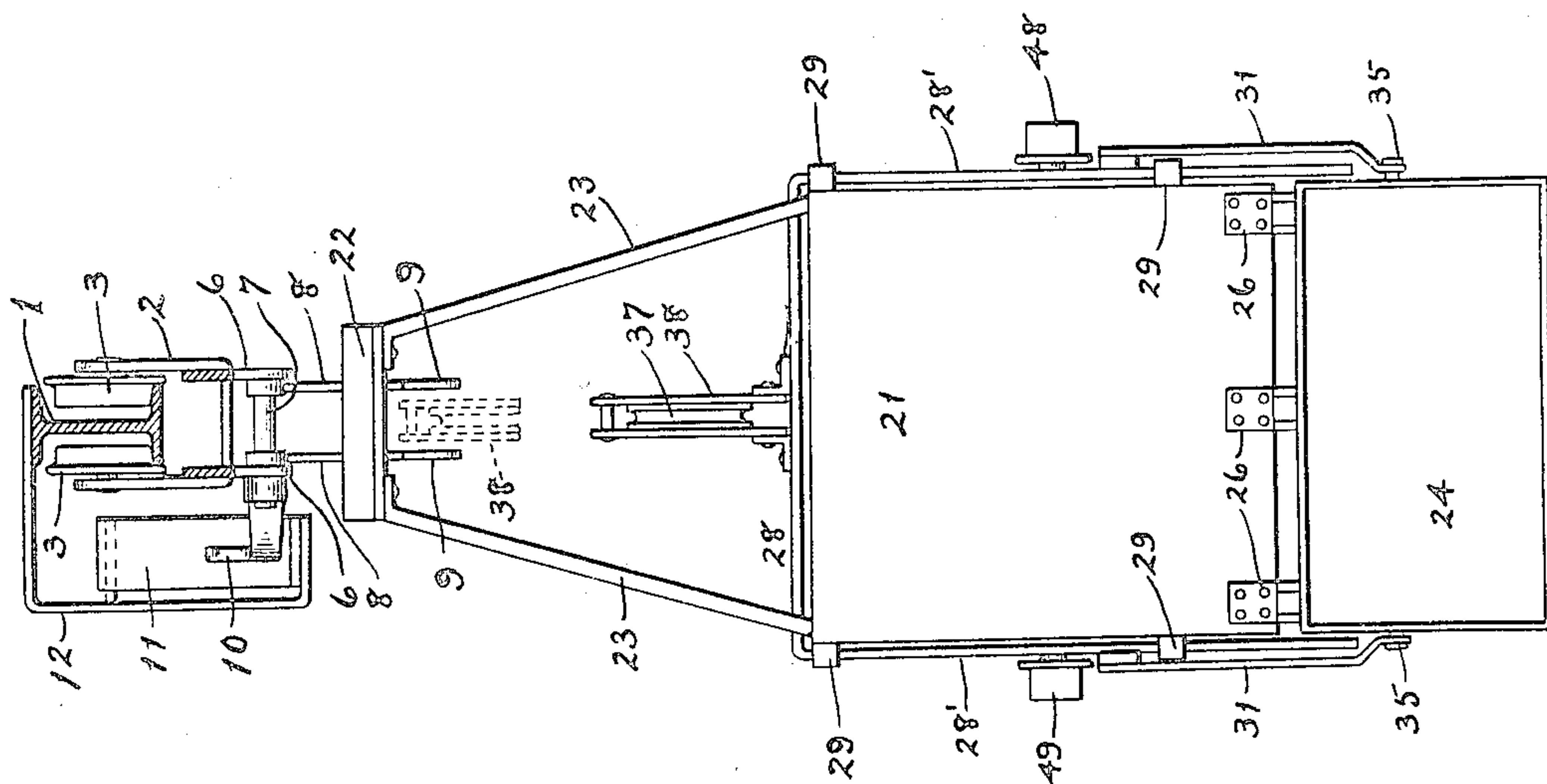
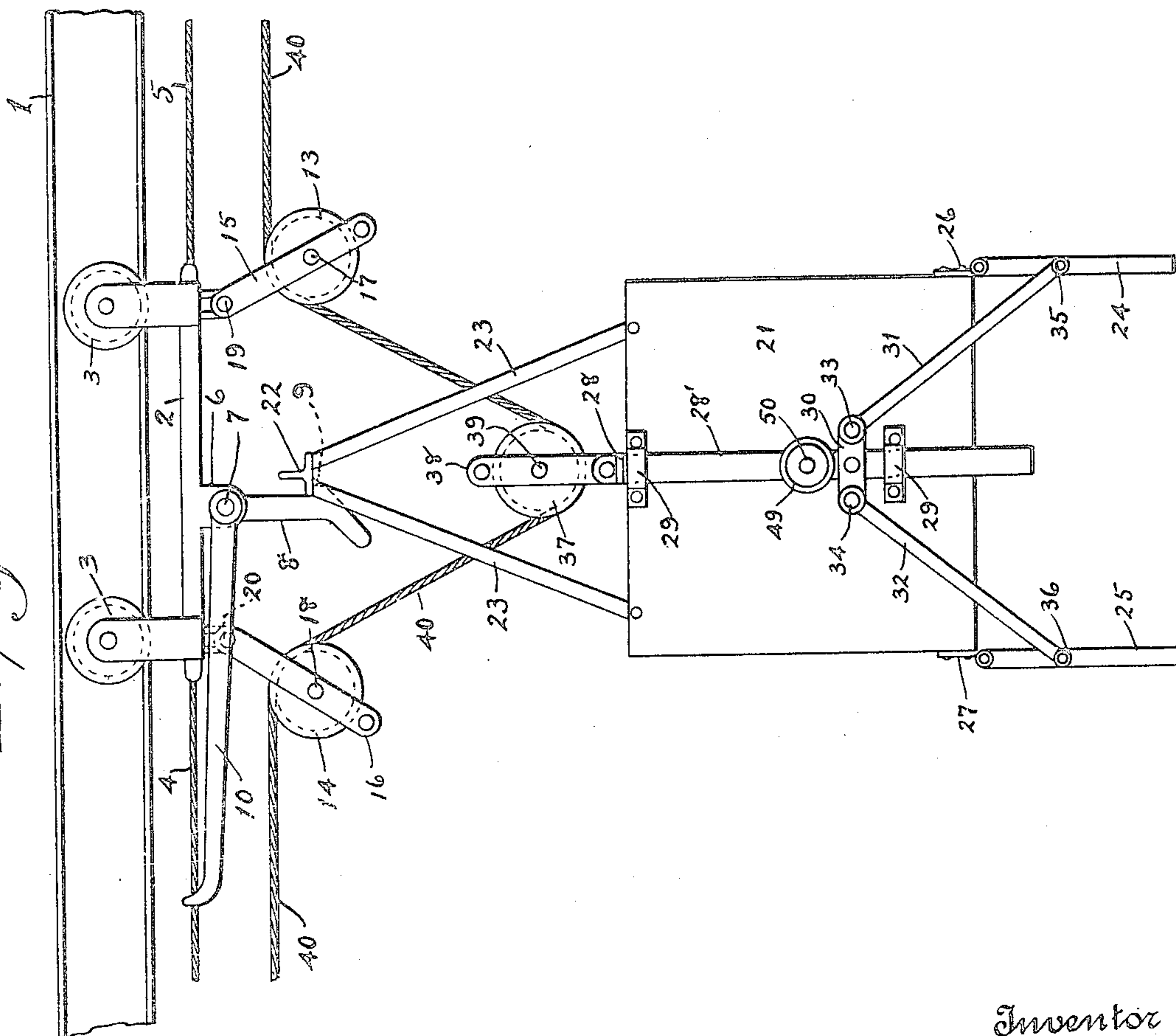


Fig. 3.



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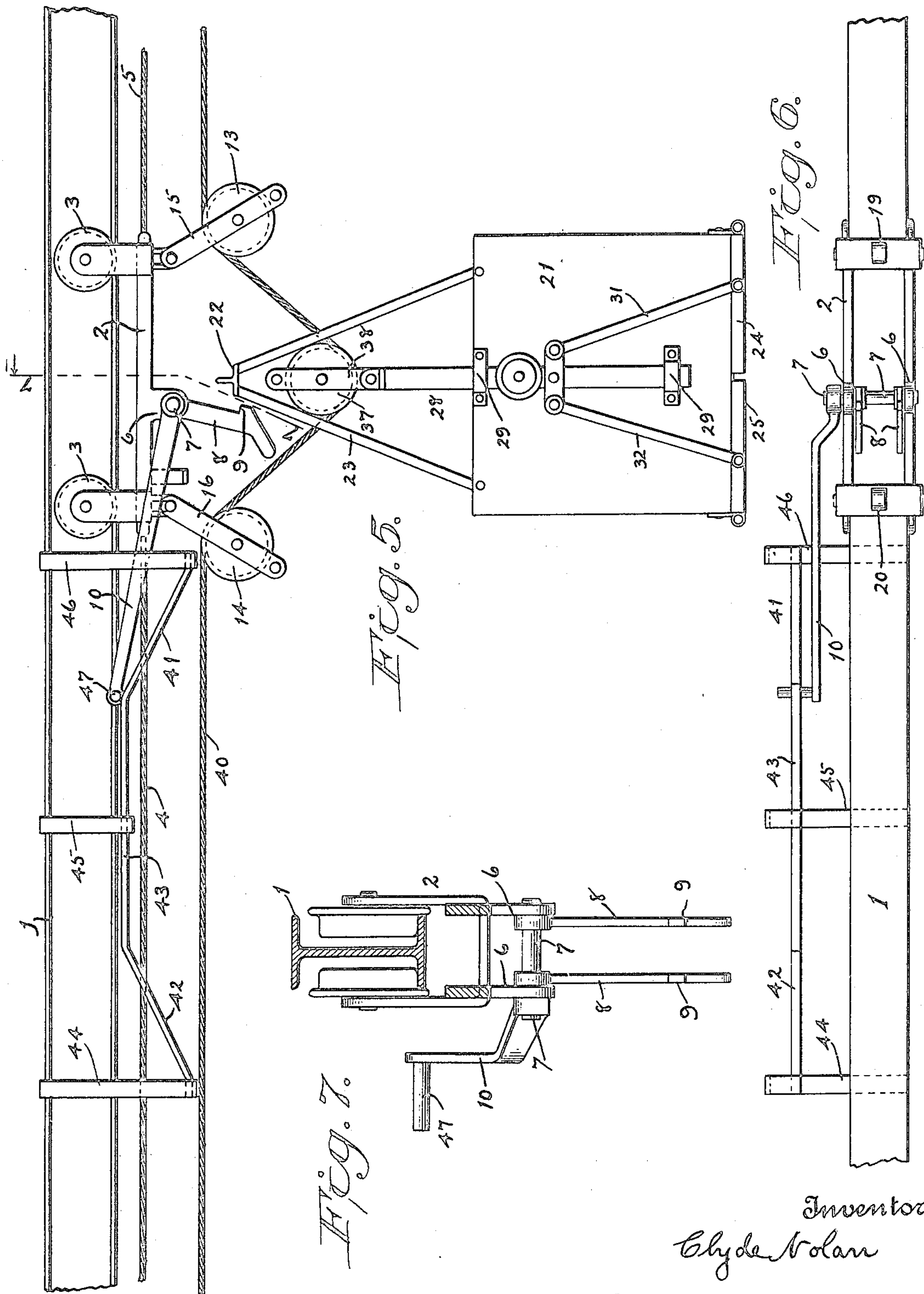
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3 SHEETS-SHEET 3



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Patented Jan. 2, 1923.

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UNITED STATES PATENT OFFICE.

CLYDE NOLAN, OF ELKHART, INDIANA.

OVERHEAD CONVEYER SYSTEM.

Application filed February 11, 1921. Serial No. 444,113.

To all whom it may concern:

Be it known that I, CLYDE NOLAN, a citizen of the United States, residing in the city of Elkhart, county of Elkhart, Indiana, have invented certain new and useful Improvements in an Overhead Conveyer System, of which the following is a specification.

This invention relates to overhead conveyers in which a bucket is moved from one place to another, and more especially to a dumping bucket and mechanism for the filling of the bucket, overhead transportation thereof and the dumping thereof.

The principal object of my invention is to provide a simple, cheap and durable overhead conveyer device to enable the transportation of coal, and the like, from one place to another not remote location, in which device or system an improved bucket filling and dumping mechanism is incorporated. Other objects of my invention are mentioned and described herein.

The preferred embodiment of my invention is illustrated in the accompanying drawings in which Figure 1 represents a side elevation of the bucket and tripping mechanism in which the latter is shown disengaged from the bucket bail; Fig. 2 shows the same members representing the bucket supported by the carriage or trolley for transportation of the loaded bucket; Fig. 3 represents the same members showing the bucket dumping doors open at the bucket dumping terminal; Fig. 4 is an end view of the members shown in Fig. 3; Fig. 5 is a view similar to Fig. 1 but showing a modified form of the tripping mechanism; Fig. 6 is a bottom plan view of the track, trolley and tripping mechanism shown in Fig. 5; and Fig. 7 is a section taken on the line 7—7 of Fig. 5.

Similar numerals of reference indicate like parts throughout the several views on the drawing.

Referring to the drawings in detail, the numeral 1 indicates a fragment of an overhead track which may consist of a single I beam suitably supported on any kind of framework—not shown. A carriage or trolley 2, having wheels 3, 3, is mounted for movement upon the track 1, to which trolley the traction cables 4 and 5 may be attached for effecting movement thereof either way on said track. Intermediate the trolley extremities a pair of depending hanger brackets 6, 6 are provided and oppositely disposed

on the trolley frame, which brackets are suitably apertured to carry the hanger supporting pin 7 disposed transversely of the trolley. A pair of spaced depending hangers 8, 8 may be mounted for oscillation upon the pin 7, each of said hangers being provided with a carrier hook 9. A trip lever or arm 10 is rigidly mounted upon one end of the pin 7 which is extended for that purpose, said lever or arm extending at substantially right angles to the hanger 8 and longitudinally of the track 1. A cam or tripping element 11 is rigidly secured to the track 1 by the braces 12, 12 adapted to be engaged by the end of the trip arm 10 for upwardly swinging the latter for actuating the hanger 8, as hereinafter described.

The numerals 13 and 14 indicate a pair of sheaves or rope wheels revolubly mounted in the frames 15 and 16, respectively, at 17 and 18, respectively, said frames being pivotally mounted on the trolley at 19 and 20, respectively. Numeral 21 indicates a bucket body which may be provided with a fixed bail composed of the transverse top bar 22 rigidly connected with the bucket by a plurality of side bars 23, 23 which connect the top bar ends with the corresponding side of the bucket. Numerals 24 and 25 indicate a pair of bucket bottom dumping doors hinged to the bucket at 26 and 27, respectively, and adapted to cooperate, as hereinafter described, to close the bucket bottom. An upright U shaped door actuating bail 28 is carried by the bucket and has its two legs 28', 28' disposed on opposite sides and exteriorly of the bucket, said bail legs being slidably arranged in a plurality of strap guides 29, 29 suitably fastened to the bucket side to enable vertical movement of said bail therein. Intermediate each set of the bail guides 29 a link carrier 30 is rigidly fastened to each leg of the bail 28. A pair of door actuating links 31 and 32 are pivotally connected with the carrier 30 at 33 and 34, respectively, the lower end of each of said links being pivotally connected with the doors 24 and 25, respectively, at 35 and 36, respectively. A sheave or rope wheel 37 is rotatably mounted in the frame 38 at 39, the lower end of said wheel frame being secured rigidly to the transverse member of the U shaped bail 28, the upper end of said sheave frame being extended upward beyond the outer periphery of said sheave, which frame extension is adapted to engage

the bail bar 22 to space the sheave therefrom.

A cable 40 engages the under side of sheave 37 and runs over each of the sheaves 13 and 14, as shown, one end of which cable may be connected with any suitable hoisting device, the other end whereof may be secured to any stationary object.

Normally, the weight of the trip arm 10 will swing the hanger 8 toward the bail 22 when the former is disengaged from the cam element 11, whereby the hook 9 may be projected beneath the bail bar 22. And, normally, the bucket doors 24 and 25 are held closed by the cable 40 when the latter is rendered taut by the operator. In practice, the bucket bail bar 22 is disengaged from the coupler or hanger hook 9 and the bucket is lowered to the filling station or terminal for filling. See Fig. 1. Thereafter, the bucket is filled and elevated by winding up cable 40 and suspended on the coupler hook 9, which engages beneath the bail bar 22, for transportation on the trolley 2 to the dumping position. See Figures 3 and 4. At this point the cable 40 is slackened which permits the weight of the bucket contents to force open the bucket doors 24 and 25, thereby dumping the bucket in mid-air. Thereafter, the bucket is returned to the filling station where the coupler 8 is disengaged from the bail bar 22 to enable the refilling of the bucket when lowered.

In Fig. 2 the bucket is shown in transit with the cable 40 taut to maintain closure of the bucket doors. In Fig. 5 a modification of the cam device is shown to enable the operation of the trolley 2 either way from a bucket filling station which may be positioned intermediate the extremities of an overhead track. In this structure a double cam element is used which may comprise the diverging cam bars 41 and 42 downwardly inclined from the extremities of the horizontal connecting bar 43, which element may be secured to the overhead track 1 by the brackets 44, 45 and 46. For adaptation to this structure the trip arm 10 may have a laterally projecting pin 47 to engage and ride upon the cam elements 41, 42 and 43.

The bucket 21 may be provided with a pair of oppositely disposed wheels or rollers 48 and 49 suitably journaled on bearing pins 50 which are rigidly mounted in and project laterally from the bail bars 28', which rollers are adapted to engage inclined tracks—not shown—for lowering the bucket into a pit—not shown—and for elevating it therefrom.

I claim:

1. In combination, a track; a trolley movable on said track; a coupling element on

said trolley; a bucket supporting bail adapted to be engaged by said coupling element; a bucket door supporting bail; a cable for supporting said door supporting bail; and means for disengaging said coupling element from said bucket bail.

2. In combination, a movable trolley; a coupler element carried by the trolley; a bucket supporting bail adapted to be engaged by said coupler element; a bucket door supporting bail; and a cable for supporting said door supporting bail.

3. In combination, a movable trolley or carriage; a coupler element mounted upon the trolley; a bucket provided with a bucket supporting bail, the latter being adapted to be engaged by said coupler element for supporting the bucket; a bucket door supporting bail; a sheave carried by said bucket door bail; and a cable engaging said sheave for supporting said door bail.

4. In combination, a movable trolley or carriage; a coupler element mounted upon the trolley; a bucket provided with a bucket supporting bail, the latter being adapted to be engaged by said coupler element for supporting the bucket; a bucket supporting bail; a sheave carried by said door bail; a plurality of cable supporting sheaves mounted on said trolley, and a cable engaging all of said sheaves for supporting said door bail.

5. In combination, a movable trolley or carriage; a coupler element mounted upon the trolley; a bucket provided with a bucket supporting bail, the latter being adapted to be engaged by said coupler element for supporting the bucket; a movable bucket door supporting bail; a sheave mounted upon said door supporting bail; stop means to space said sheave from said bucket supporting bail when the door bail is elevated; and a cable engaging said sheave for supporting said door bail.

6. In mechanism of the class described, an overhead track; a trolley or carriage mounted for movement upon said track; a plurality of spaced coupler elements pivotally mounted upon said carriage and depending therefrom; a bucket provided with a bucket supporting bail, said bail being adapted to be engaged by said coupler elements for supporting the bucket on the carriage; an oscillatory arm connected with said coupler elements; and means for oscillating said arm to disengage said coupler elements from said bucket bail to enable the lowering of the bucket.

In testimony whereof I have hereunto affixed my signature this 8th day of February, 1921.

CLYDE NOLAN,