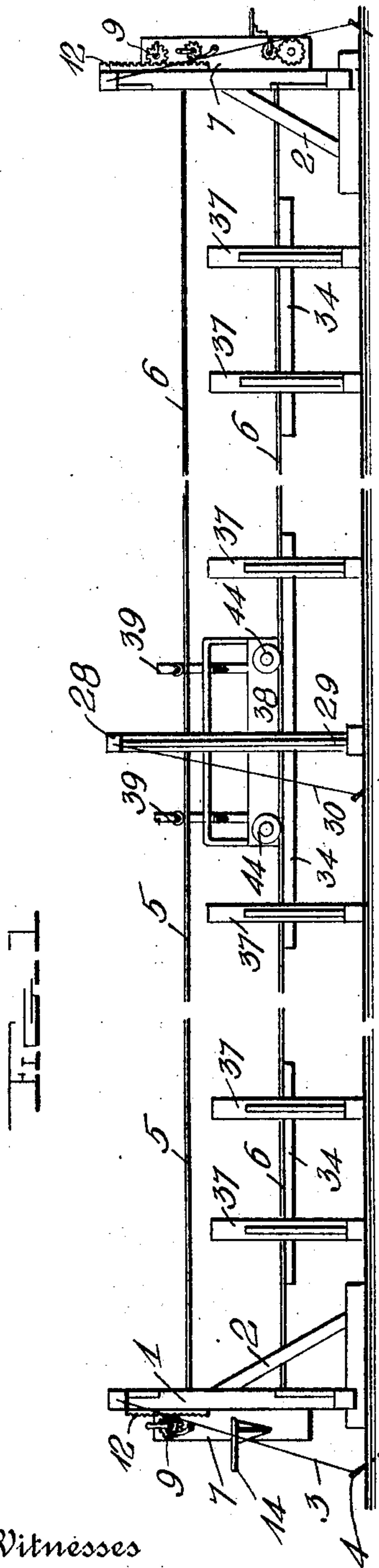


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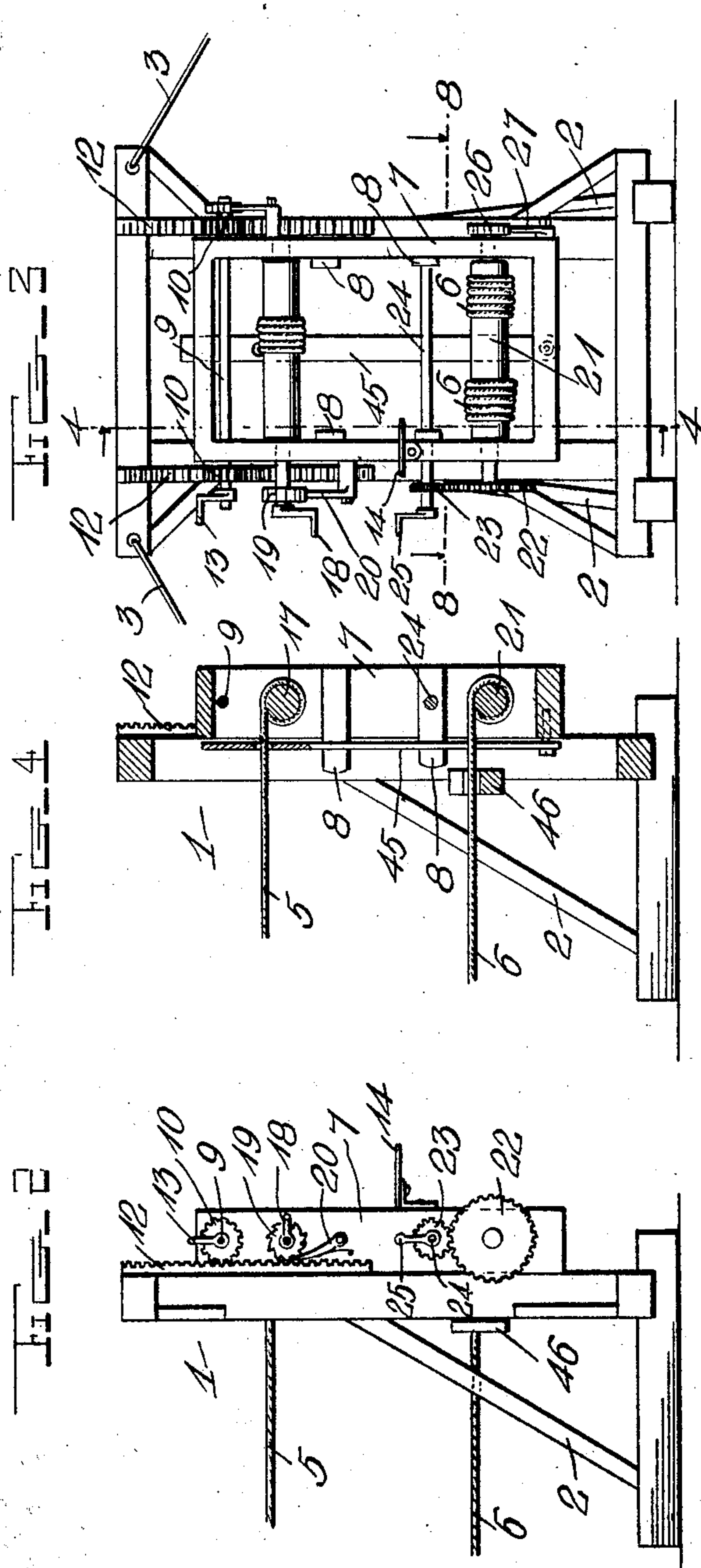
3 SHEETS—SHEET 1.



Witnesses

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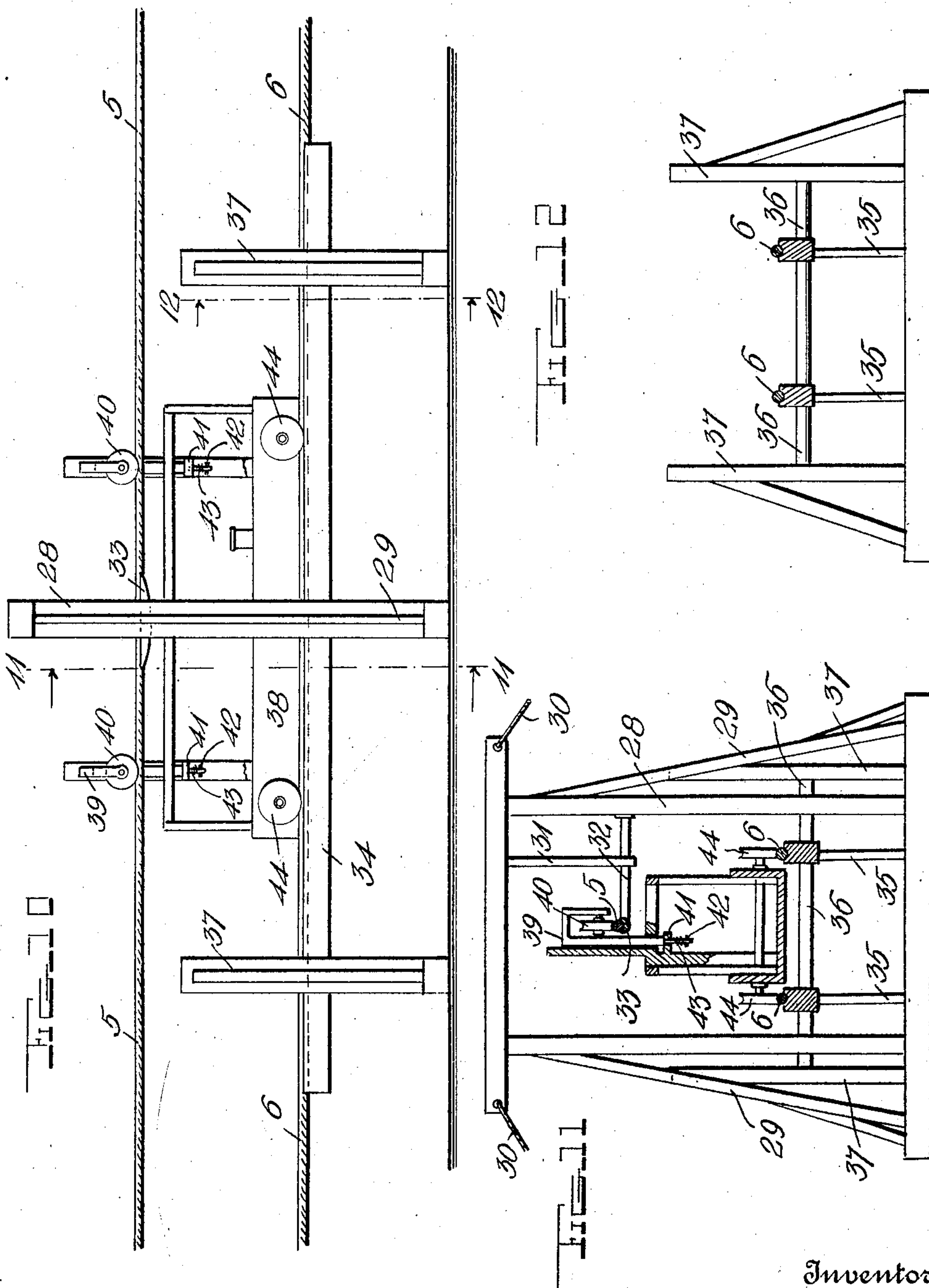
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ISRAEL D. DAVISON, OF LITTLE, OKLAHOMA.

SUSPENDED RAILWAY.

No. 929,196.

Specification of Letters Patent.

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Application filed April 5, 1909. Serial No. 487,998.

To all whom it may concern:

Be it known that I, ISRAEL D. DAVISON, a citizen of the United States, residing at Little, in the county of Seminole and State of Oklahoma, have invented certain new and useful Improvements in Suspended Railways; 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.

This invention relates to improvements in suspended railways.

The object of the invention is to provide a device of this character by means of which passengers or freight may be readily transported over bodies of water and which may be also employed as a means of elevated, overland transportation.

A further object is to provide a device of this character in which the cars may be operated by power or by gravity.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangements of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a diagrammatic view of a suspended railway constructed in accordance with my invention; Fig. 2 is a side view of one end of the device; Fig. 3 is an end view of the same; Fig. 4 is a vertical sectional view through said end on the line 4—4 of Fig. 3. Fig. 5 is a side view of the opposite end from that shown in Figs. 2 and 3; Fig. 6 is an end view of the same; Fig. 7 is a vertical sectional view on the line 7—7 of Fig. 6; Fig. 8 is a horizontal sectional view on the line 8—8 of Fig. 3; Fig. 9 is a detail perspective view of the cable guiding and spacing bar; and Fig. 10 is a side view of a portion of the track, with the car arranged thereon, and showing the means for supporting the track wires; Fig. 11 is a vertical sectional view on the line 11—11 of Fig. 10; Fig. 12 is a similar view on the line 12—12 of Fig. 10. Fig. 13 is a horizontal sectional view through the car; Fig. 14 is a vertical sectional view through the lower portion of the car on the line 14—14 of Fig. 13 showing the arrangement of the engine.

At each end of my improved suspended railway, I provide supporting standards, 1, which are here shown as open frames which

are suitably secured to the ground and braced by inclined brace bars, 2, and which have connected to their upper ends guy ropes or cables, 3, the outer ends of which are secured to trees or to suitable anchoring devices 4. The supporting standards or frames, 1, may be arranged at any distance apart or on opposite sides of a river or other body of water and between said standards or frames is stretched an upper track wire or cable, 5, and a pair of lower track wires or cables, 6. Slidably mounted on the outer side of the supporting frames or standards are adjustable cable holding frames, 7, said frames being provided with rearwardly projecting guide lugs, 8, which engage the inner side of the frame, 1, and hold said cable frames in slidable engagement therewith.

The frames, 7, are each provided with an adjusting shaft 9, said shafts being revolubly mounted in suitable bearings on the frames and have fixedly mounted on their outer ends spur gear pinions, 10, which are operatively engaged with toothed rack bars, 12, secured to the outer side of the frames or standards. On one end of the shafts, 9, is secured a crank handle, 13, by means of which the shafts and the pinions, 10, are revolved and said pinions engage with the rack bars, thereby raising or lowering the cable holding frames to elevate or lower the ends of the cable. On one side of the frames, 7, at a suitable elevation is secured a platform, 14, on which an operator can stand to reach the crank handle and operating mechanism on the frames.

The upper and lower track cables are secured to the holding frames of one of the standards, 1, in any suitable manner, said cables being here shown as secured to an eye, 15, on cross bars, 16, of the frame, 7. The opposite end of the upper track cable, 6, is secured to and adapted to be wound upon a winding shaft or drum, 17, which is revolubly mounted in the upper end of one of the holding frames, 7. On one end of the shaft or drum, 17, is secured a crank handle, 18, while on its opposite end is secured a ratchet wheel, 19, which is adapted to be engaged by a locking pawl, 20, pivotally mounted on one side of the frame, 7, whereby the winding drum is held in locked position and the upper track cable, 6, is held taut.

Revolubly mounted in the lower end of the holding frame 7, below the drum, 17, is a lower track wire or cable winding drum,

21, on one end of which is fixedly mounted a spur gear wheel, 22, which is adapted to be engaged by a spur pinion, 23, on a shaft, 24, revolubly mounted in said frame, 7. On the outer end of the shaft, 24, adjacent to the pinion, 23, is fixedly mounted an operating crank, 25, by means of which said shaft and pinions are revolved and through the same gear wheel, 22, and the lower winding drum are operated to wind the lower track cables thereby stretching and holding said cables taut. On the opposite ends of the drum shaft is fixedly mounted a ratchet wheel, 26, which is engaged by a locking pawl 27, to hold the drum in a locked position.

By means of the stretching and holding mechanism herein shown and described, the cables or track wires may be held tightly stretched and all slack which may occur therein may be readily taken up. The upper and lower track cables or wires are supported at intervals between the standards, 1, and prevented from sagging by means of supporting frames, 28, which are suitably braced by inclined brace bars, 29, and by guy ropes, 30. To the top and one side of the frame, 28, is connected a hanger, 31, having a laterally projecting arm, 32, to the outer end of which is secured a cable supporting shoe, 33, by means of which the upper track cable or wire is supported and prevented from sagging. Between the lower portions of the frame, 28, are arranged lower supporting bars, 34, with which the lower cables are engaged and supported. The bars, 34, are held in position by standards, 35, arranged beneath the same and are spaced apart by spacing rods, 36, which are connected at their outer ends to outer standards, 37, said standards being suitably braced as shown. The cable supporting bars, 34, are also preferably arranged adjacent to each of supporting standards at the ends of the track cables to steady the car when being loaded.

Constructed to travel upon the track wires or cables is a car, 38, which may be of any suitable construction and is provided adjacent to its opposite ends with hanger bars 39, at the bifurcated upper ends of which is revolubly mounted a grooved cable engaging wheel, 40. The lower ends of the hanger bars project through guide lugs, 41, arranged on the frame work of the car and are provided with stop pins 42 adjacent to their lower ends. Between the stop pins, 42 and the lugs, 41, are arranged stiff coil springs 43 whereby a yielding connection is provided in the lower ends of the hanger bars and the car frame. On the opposite sides of the car adjacent to its opposite ends are revolubly mounted grooved track or cable engaging wheels 44, which are adapted to engage the lower track cable or wires 46

between which the car travels. If desired, the car may be provided with a suitable motor, 45, and with an operating shaft 46 which is connected to the motor by a reversing mechanism, 41. On the operating shaft, 46, is mounted a sprocket wheel, 42, which is connected by a drive chain 43 to a sprocket wheel 44 on the shaft of the lower track engaging wheel 44' at one end of the car, whereby said wheel may be driven in the proper direction to propel the car along the supporting or track wires.

The reversing mechanism is provided with a suitable lever whereby the same may be operated to cause the motor to drive the operating shaft in one direction or the other, so that the drive wheels of the car will be run to operate to propel the car in the desired direction. When the car is provided to transport passengers, the same is provided with suitable number of seats which are preferably arranged so that they may be reversed in either direction in which the car is traveling.

In the standard, 1, adjacent to the cable holding frame on which the cable winding drums are mounted, is arranged a cable guiding bar, 45, having in its upper ends a guide passage through which the upper cable or track wire passes before it winds upon the drum, 17. In the lower portion of this standard is also arranged a horizontally-disposed cable guiding and spacing bar, 46, having formed therein guide passages through which the lower track wires or cables pass before they wind upon the lower drum, 31, thus holding said cables spaced apart in proper position.

By means of a suspended railway construction, such as herein shown and described, passengers, freight or stock may be safely transported across bodies of water or over ravines or uneven ground. While the car is herein shown and described as being provided with a motor for propelling the same, it is obvious that by raising the ends of the supporting track cables or wires at one end of the railway in the manner herein described, and lowering the ends of the cables at the opposite end of the railway, that the car may be caused to travel down the inclined track or cables by gravity and when the lower end is reached, the ends of the cables may be reversed and the car caused to travel back to its starting point in the same manner.

From the fore-going description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages

tages of this invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent is:

1. A suspended railway comprising main supporting standards or frames, upper and lower track cables arranged between said frames, means to raise or lower the opposite ends of said cables on said frames, and means to stretch said cables.

2. A suspended railway comprising main supporting standards, track cables arranged between said standards, cable holding frames slidably mounted on said standards, means to adjust said frames on said standards whereby the ends of the cables may be raised or lowered, and stretching devices arranged in said holding frames whereby the cables may be held taut.

3. A suspended railway comprising main supporting standards or frames, cable holding frames slidably mounted on said main frames or standards, adjusting racks arranged on said main frames, rack engaging pinions mounted on said cable holding frames whereby said frames may be raised and lowered to raise or lower the opposite ends of said cables, means to lock said raising and lowering mechanism, cable winding drums revolubly mounted in said holding frames at one end of the railway, means to operate said drums, and means to support said cables between the ends of the railway.

4. A suspended railway, comprising end supporting frames, cable holding frames adjustably mounted on said end frames, winding drums revolubly mounted in one of said holding frames, an upper supporting track or cable, and parallel lower supporting cables connected at their opposite ends to said holding frames and adapted to be stretched by said winding drums, means to support said cables between the ends of the railway, a car adapted to travel on said cables, hanger bars yieldingly connected to said car, grooved cable wheels arranged in said

hanger to engage the upper cable, and lower cable engaging wheels arranged on the opposite side of the car.

5. In a suspended railway, main supporting frames arranged at the ends of the railway, supporting cables or track wires arranged between said supporting frames, means to adjustably secure the opposite ends of said cables to said frames, a car adapted to travel on said cables, hangers arranged on said car and projecting above the same, a yielding spring connected between the lower ends of said hangers and the car, upper cable engaging wheels revolubly mounted in the upper ends of said hangers, lower cable engaging wheels mounted on the lower portion and, at opposite ends of the car, a motor arranged in the car means to operateatively connect the motor with one of the shafts of said lower cable engaging wheels whereby the car is propelled and a reversing mechanism connected with said driving mechanism.

6. In a suspended railway, main supporting frames, an upper track cable and parallel lower track cables arranged between said frames, a car adapted to travel on said cables, a series of upper cable supports arranged between said frames, lower cable and car supporting bars whereby the lower cables are held up and the car supported at the ends of the railway, cable raising and lowering devices arranged in said main supporting frames whereby one end of the cables may be raised and the opposite end lowered thus enabling the car to travel by gravity from one end of the railway to the other.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ISRAEL ^{his} D. DAVISON.
mark

Witnesses:

J. C. LILLARD,
A. C. BRYANT.