

No. 843,116.

PATENTED FEB. 5, 1907.

G. STRAMBINI.
AERIAL CABLE.

APPLICATION FILED SEPT. 5, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

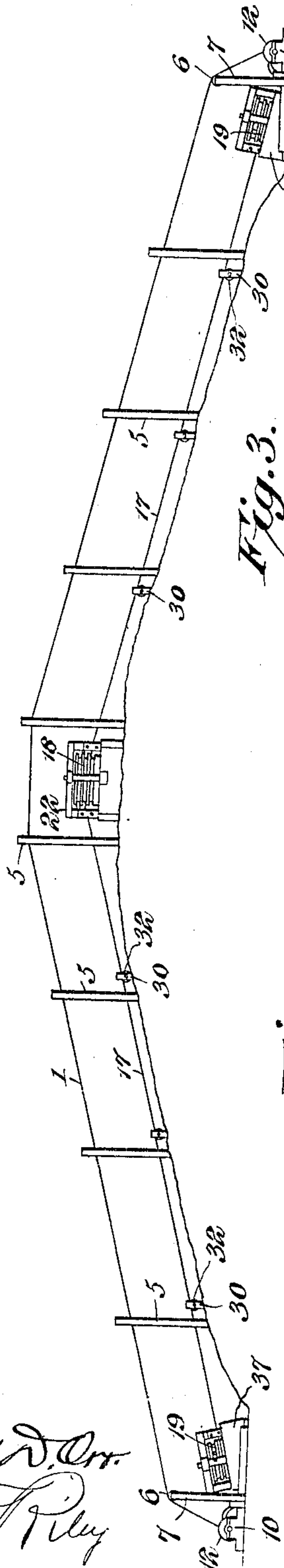


Fig. 3.

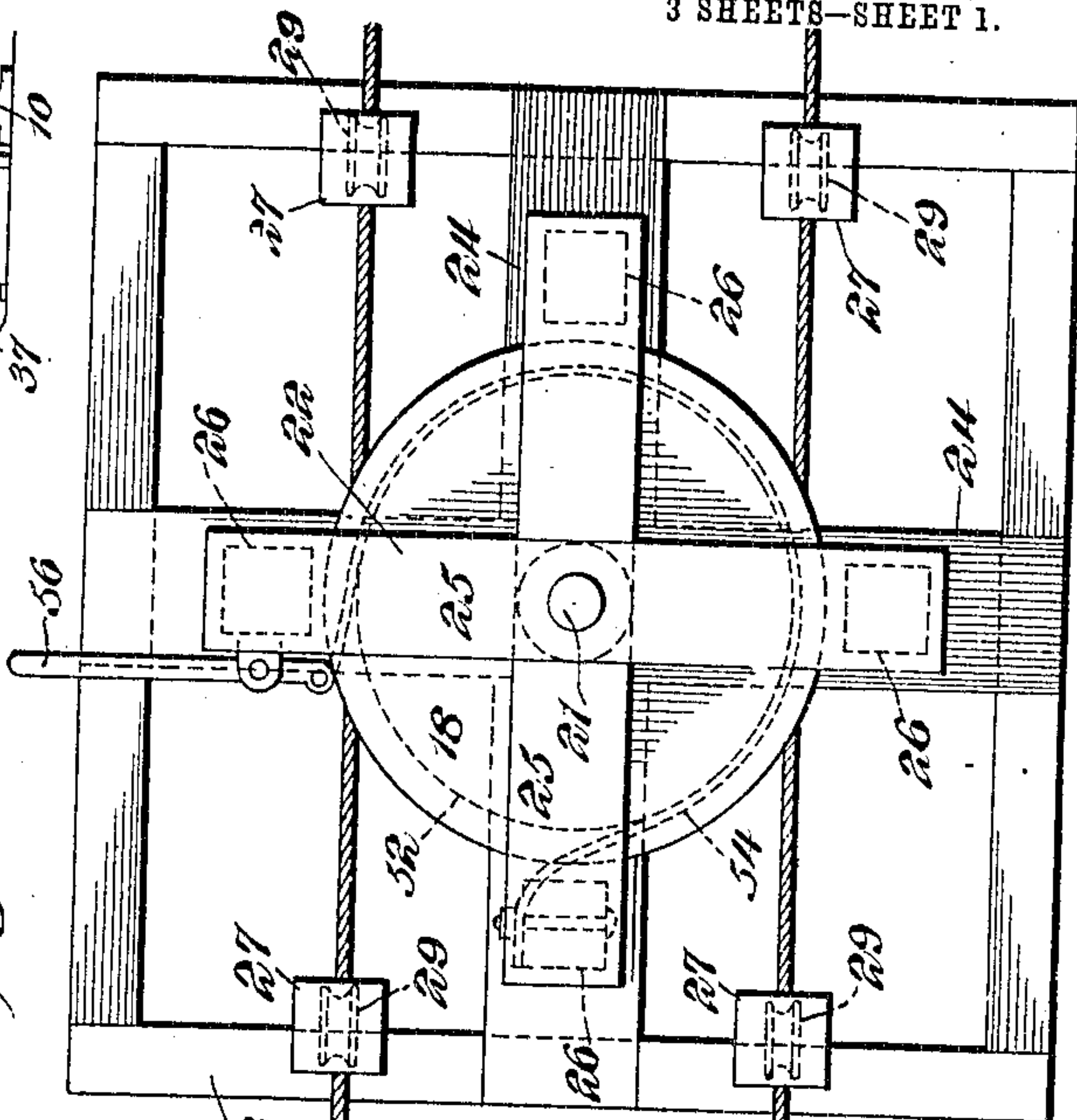
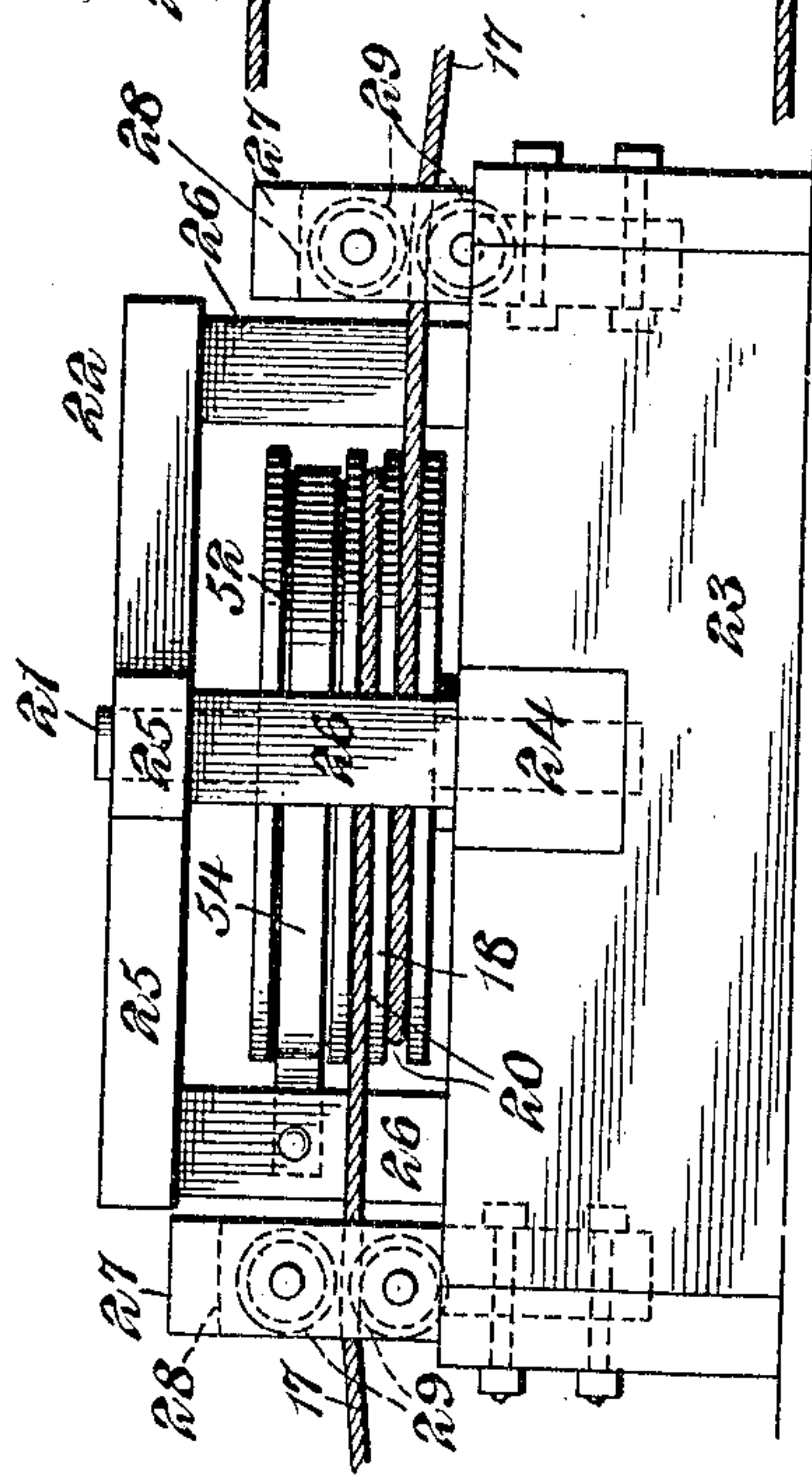


Fig. 2.



Witnesses
Howard D. Orr.
J. J. Riley

Inventor,
Giovanni Strambini,
By
C. G. Siggers.
Attorney

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3 SHEETS—SHEET 2.

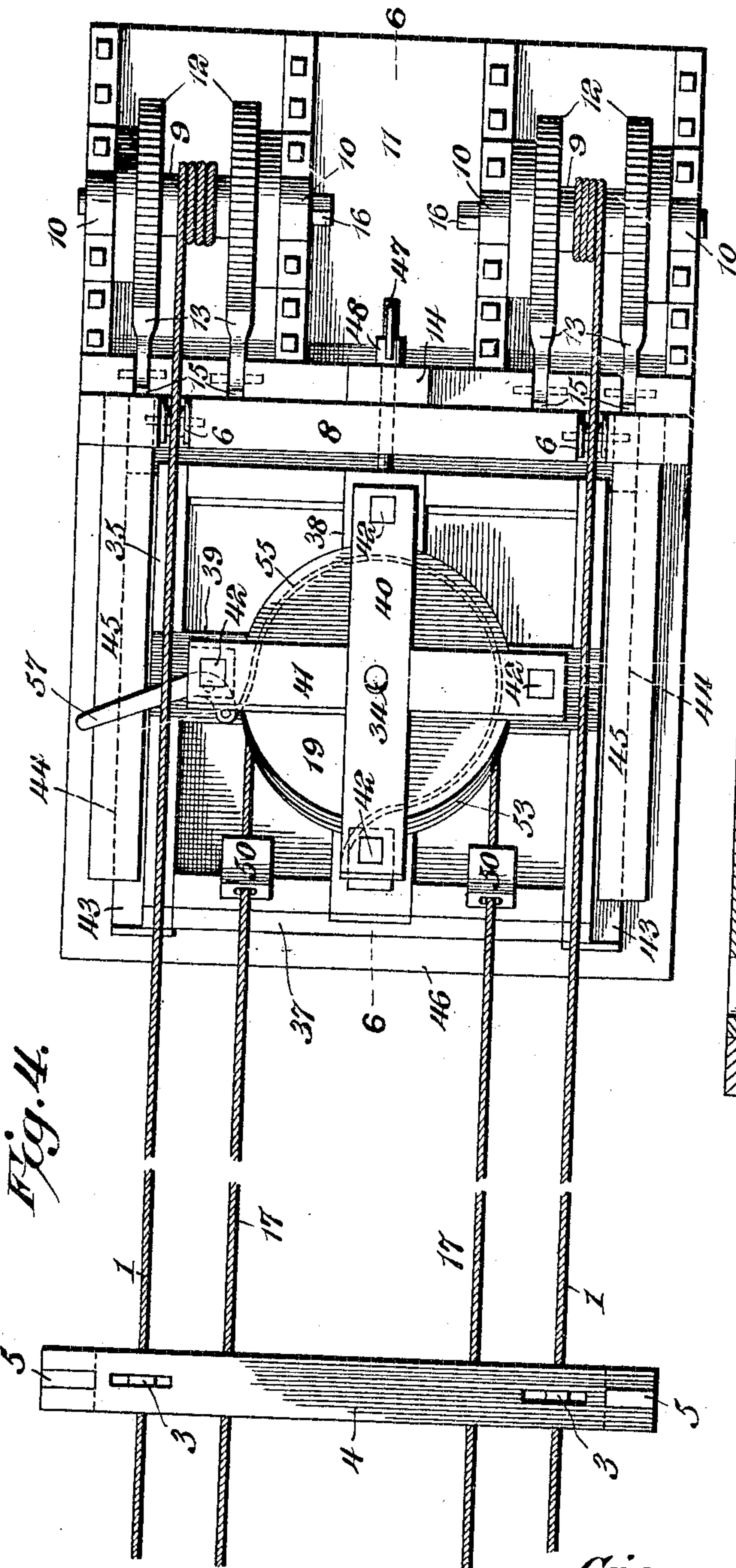


Fig. 4.

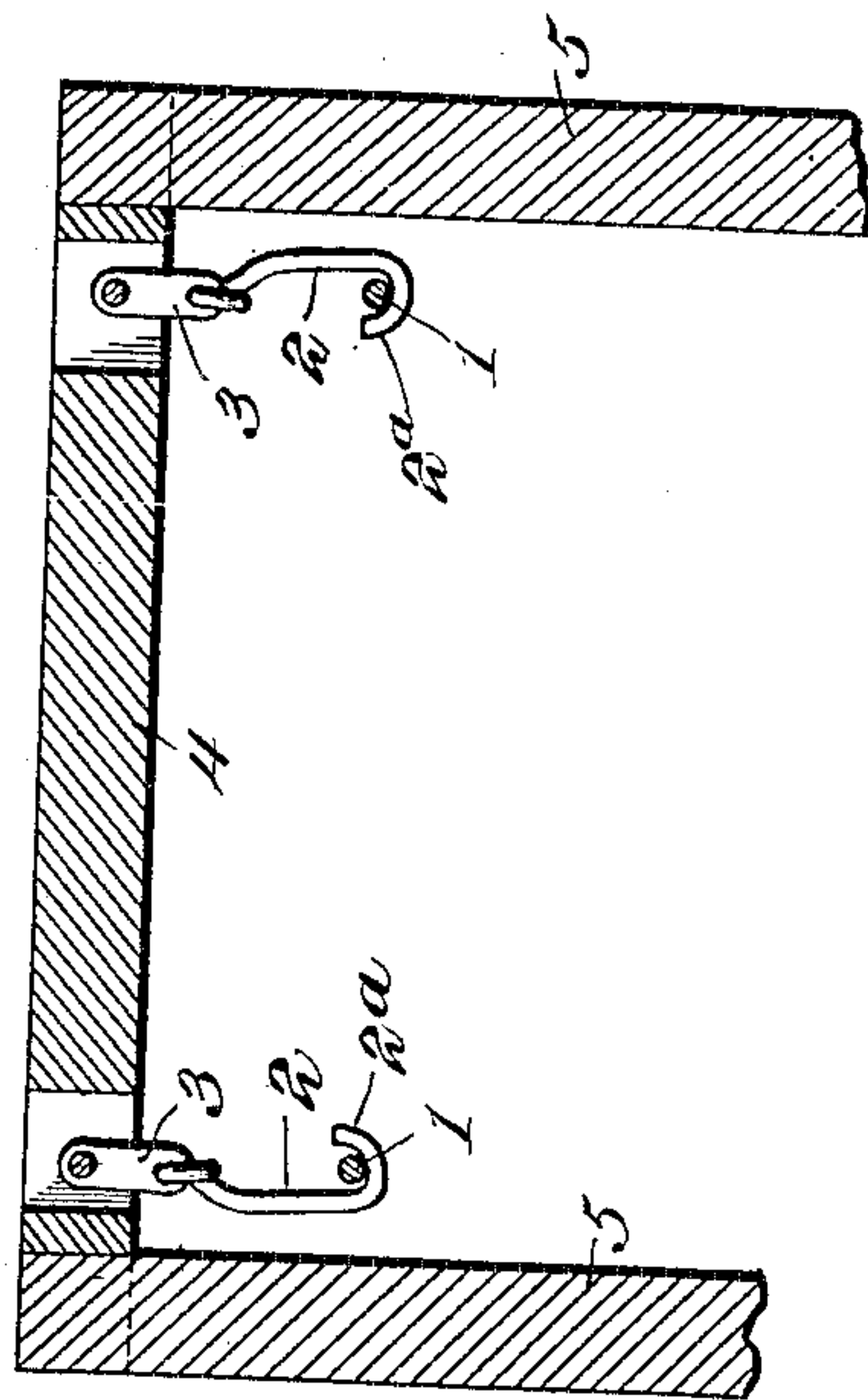


Fig. 9.

Witnesses
Howard D. Carr.
J. F. Riley

Giovanni Strambini, Inventor,
By
C. G. Siggers, Attorney

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3 SHEETS—SHEET 3.

Fig. 5.

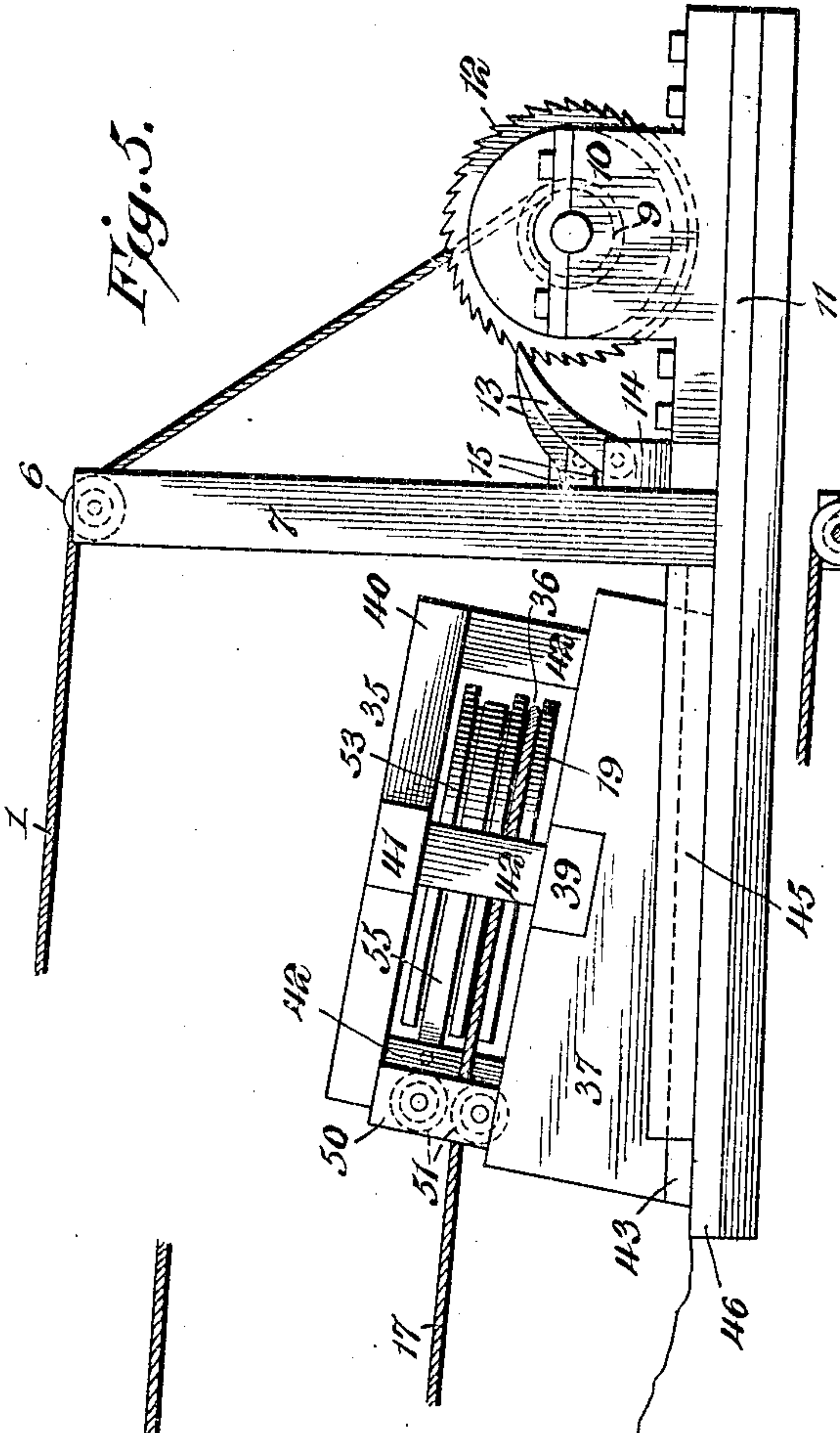


Fig. 6.

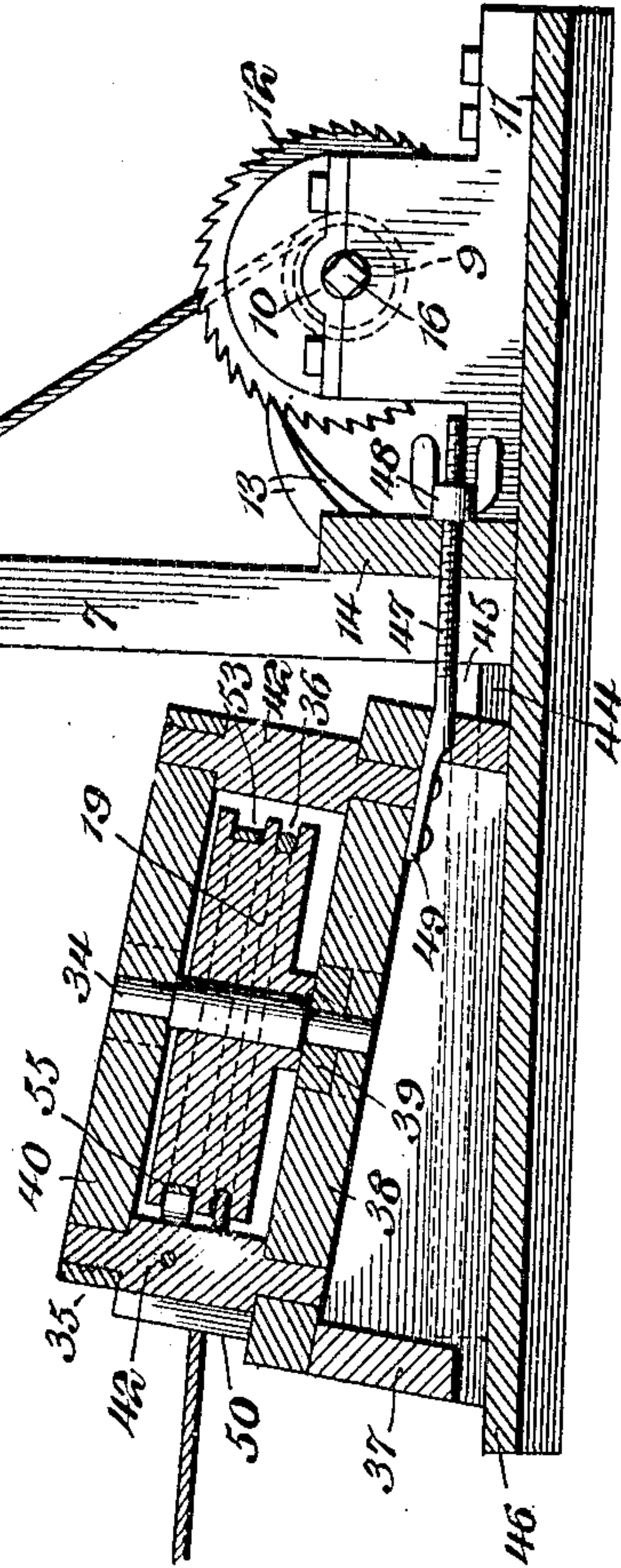
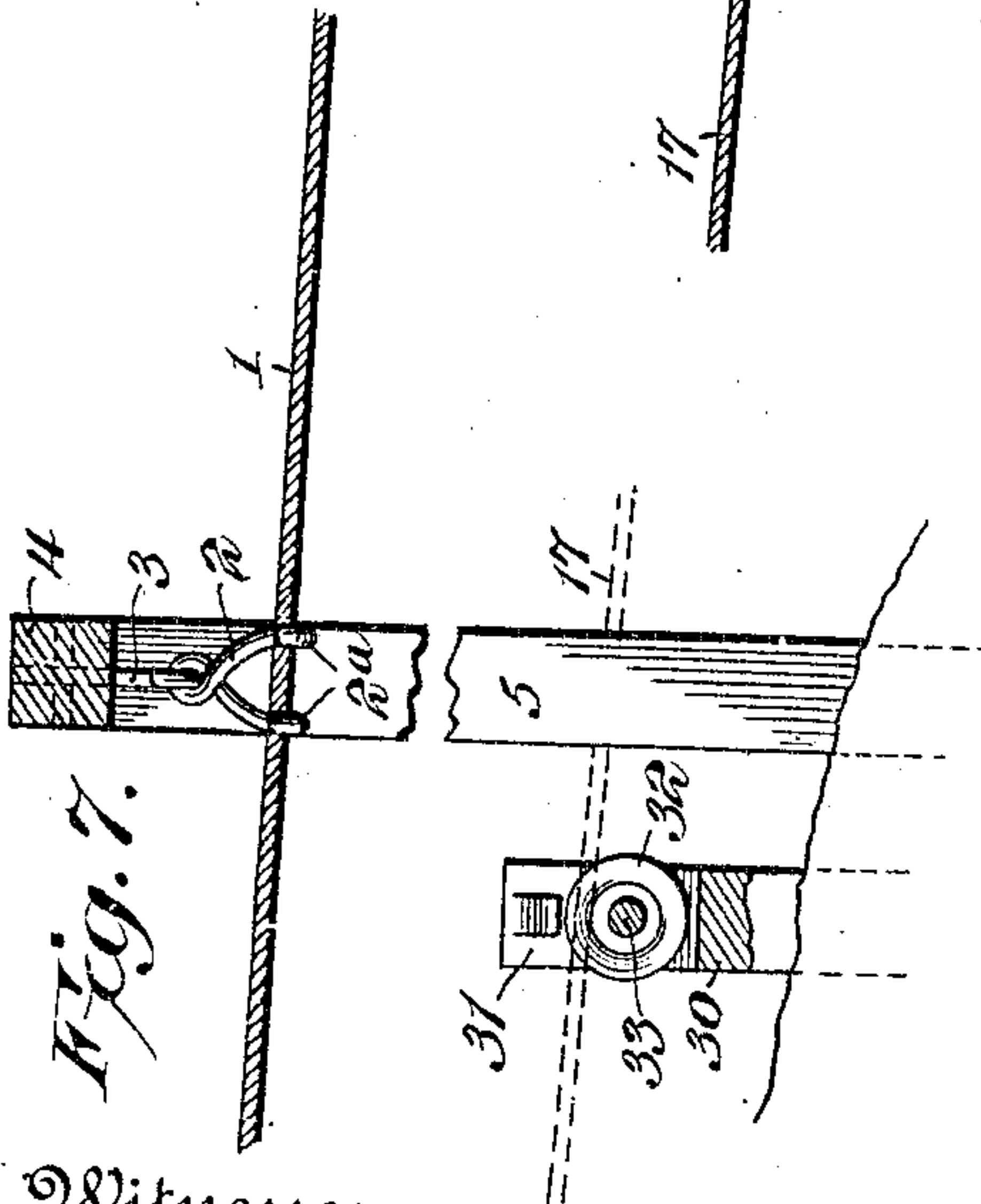


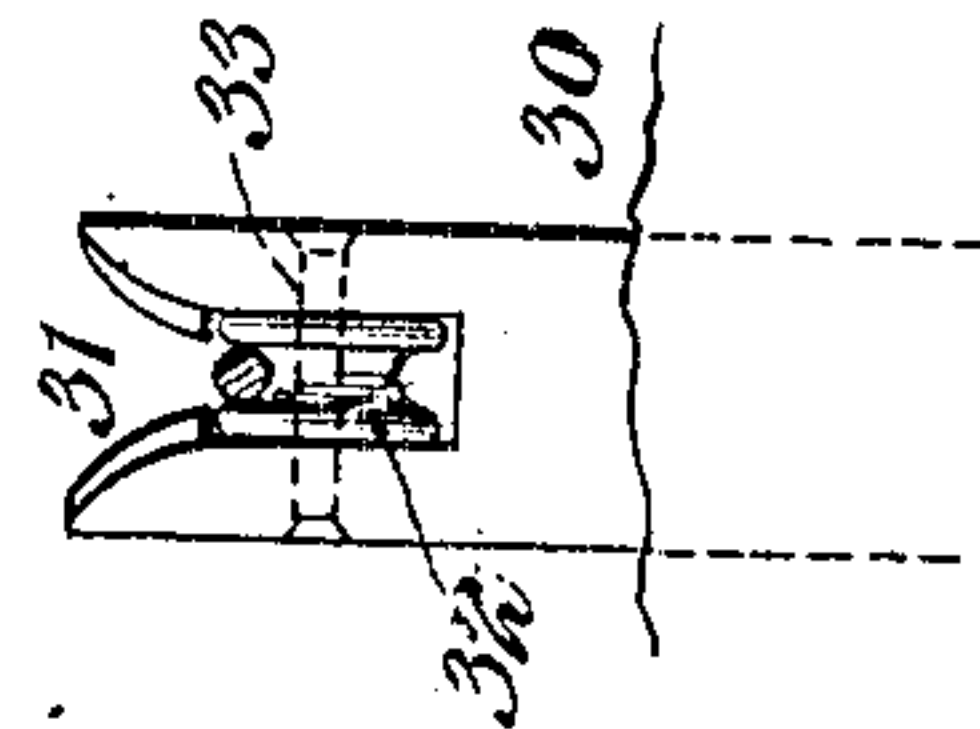
Fig. 7.



Witnesses

Howard D. Orr.
J. F. Piley

Fig. 8.



Giovanni Strambini, Inventor,
By

C. F. Siggers.
Attorney.

UNITED STATES PATENT OFFICE.

GIOVANNI STRAMBINI, OF TRUCKEE, CALIFORNIA.

AERIAL CABLE.

No. 843,116.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed September 5, 1906. Serial No. 333,296.

To all whom it may concern:

Be it known that I, GIOVANNI STRAMBINI, a subject of the King of Italy, residing at Truckee, in the county of Nevada and State of California, have invented certain new and useful Improvements in Aerial Cables, of which the following is a specification.

The invention relates to improvements in aerial cables.

The object of the present invention is to provide a simple and comparatively inexpensive aerial cable designed for use in lumber districts and various other places and adapted for transporting heavy loads—such as coal and other mineral, wood, logs, and the like—long distances and from high to low places, and vice versa.

A further object of the invention is to provide an aerial cable of this character adapted to be employed by railways for operating street-cars in city and suburban routes.

Another object of the invention is to provide an aerial cable having a pair of track-cables and a pair of actuating-cables and provided with terminal tension devices adapted to maintain the track and the load-actuating cables at the desired tension.

With these and other objects in view the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims here-to appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a diagrammatic view of an aerial cable constructed in accordance with this invention and illustrating the arrangement of the track and actuating cables and the means for supporting the same. Fig. 2 is a side elevation of the intermediate pulley for supporting the actuating-cables. Fig. 3 is a plan view of the same. Fig. 4 is an enlarged plan view of one end of the apparatus. Fig. 5 is a side elevation of the same. Fig. 6 is a longitudinal sectional view taken substantially on the line 6 6 of Fig. 4. Fig. 7 is an enlarged detail view illustrating the manner of supporting the track and actuating cables. Fig. 8 is a detail view of one of the devices for supporting the actuating-cables. Fig. 9 is a vertical

sectional view of the upper portion of one of the intermediate supports of the track-cables.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 1 designate aerial track-cables, which are designed to be constructed of twisted wire and which are supported at intervals above the ground by means of hangers 2. The hangers 2, which are provided at their lower ends with hooks 2^a to receive the track-cables, are connected by links 3 with horizontal supporting-bars 4, which are supported at their ends by poles 5 and which extend across the track formed by the spaced aerial cables. The supports formed by the poles and the connecting top bars may be arranged at any suitable intervals and are designed to prevent the cables from sagging and approaching too near the ground. Each hanger consists of a vertical stem portion and a pair of hooks 2^a, which extend from opposite sides of the stem and which loosely receive the track-cable to permit the latter to be readily strained to the desired tension, as hereinafter fully explained. The track-cable is designed to receive a suitable load-receiving hanger or carrier, which in practice will be provided with a suitable wheel or wheels to run on the track-cable. Any preferred form of load-supporting hanger or carrier may be employed, or a car may be suspended from the cable.

The terminal portions of the track-cables pass over grooved pulleys 6 of the terminal supports 7, consisting of side poles or uprights and a top connecting cross-bar 8, which is recessed to receive the grooved pulleys 6; but the latter may be mounted in any other desired manner, as may be readily understood. The ends of the track-cables are wound around windlass shafts or drums 9, journaled in suitable bearings 10 of a base 11 and provided with ratchet-wheels 12, arranged in pairs and forming heads or flanges for the windlass shafts or drums and adapted to be engaged by pawls or dogs 13. The base 11 is provided with an inner transverse flange or piece 14, having recesses 15 to receive the pawls or dogs 13, and the latter extend upwardly and outwardly from the transverse flange or piece 14 and engage the teeth of the ratchet heads or flanges 12 of the windlass shafts or drums. The inner ends 16 of the windlass shafts or drums are squared

and are designed to receive cranks or other suitable means for rotating them to stretch the track-cables to the desired tension. The track-cables, which slide through the supporting means, may be readily stretched and held taut by the terminal tension devices.

The track-cables are designed in practice to be arranged at an inclination; but they may be disposed horizontally, and when necessary the cars or other loads are actuated by a pair of cables 17, arranged upon intermediate and end pulleys 18 and 19 and having opposite portions or stretches extending between the intermediate and end pulleys and moving in opposite directions. The side portions or stretches of the actuating-cables are arranged in convenient position to be connected with the cars or loads supported by the track-cables, and as they move in opposite directions they will carry the cars of one track-cable in one direction and those of the other track-cable in the opposite direction. Any suitable means may be employed for coupling the cars or loads to the actuating-cables.

The intermediate pulley 18, which is located at the center of the railway, (shown in Fig. 1,) is arranged horizontally and is designed to be of sufficient diameter to space properly the sides or stretches of the actuating-cables and is provided with grooves 20 for the reception of the cables 17. Steam or any other suitable means may be employed for actuating the cables 17, and the engine or other motor may be arranged either at the central stretch for actuating the intermediate pulley or a pair of engines may be employed at the terminal stations for rotating the pulleys 19. The pulley 18 is mounted on a vertical shaft 21, which is journaled in suitable bearings of a frame 22. The frame 22 is provided with a rectangular base 23, composed of sides and ends and connected by diametrically-arranged beams 24, which are crossed at the center of the base 23 and which receive the lower end of the vertical shaft 21. The frame 22 is provided with a top portion composed of diametrically-arranged bars 25, located above the beams 24 and supported by posts 26. The hollow rectangular base is adapted to provide ample spaces for enabling any suitable motor-gearing to be connected with the shaft 21 of the intermediate gear.

The base 23 of the frame 22 is provided with projecting guides 27, consisting of posts arranged in pairs and bolted to the base at opposite sides of the longitudinal diametrically-arranged bars 25 and provided with openings 28, through which the actuating-cables pass. Upper and lower grooved wheels 29 are mounted within the openings 28 of the guides 27 for holding the actuating-cables in proper position with relation to the grooves of the intermediate pulley. These

guides are adapted to effectually prevent the cable from leaving the intermediate pulley.

The actuating-cables are supported at intervals between the intermediate and terminal pulleys by guides 30, consisting of short posts provided at their upper portions with slots or bifurcations 31 and having grooved pulleys or wheels 32 mounted therein and receiving the actuating-cables. The slots or bifurcations allow the actuating-cables to be lifted from the guides to permit a car or load to pass the same, and their upper portions are flared for guiding the cables to the grooved pulleys or wheels 32. The grooved pulleys or wheels 32 are mounted on suitable axles or spindles 33, which span the slots or bifurcations.

The terminal pulleys 19, which are set at a slight inclination, are mounted on inclined shafts or spindles 34, journaled in suitable bearings of the slidable frame 35 and having a groove 36 to receive the actuating-cable. The frame 35 is provided with a rectangular base 37, having inclined upper edges and supporting diametrically-arranged sills 38 and 39. The top of the frame is composed of diametrically-arranged bars 40 and 41, supported by posts 42. The sides of the base are provided with laterally-projecting flanges 43, which slide in grooves or ways 44 of guide-bars 45, and the latter are mounted on a platform or foundation 46, consisting of an extension of the base 11. The slidable terminal frames 35 are connected with adjusting devices consisting of screws 47 and adjusting-nuts 48. The screw 47 is provided with a shank 49, and it pierces the transverse piece 14, against which the adjusting-nut bears. The shank 49 of the screw 47 is secured by suitable fastening devices to the lower face of the longitudinal sill or piece 38, and the nut may be constructed in any desired manner to enable it to be conveniently rotated for stretching the actuating-cables to the desired tension. Also any other suitable adjusting device may be employed for moving the slidable frame 35 outwardly or inwardly to adjust the actuating-cables.

The terminal frames 35 are provided at opposite sides of the center with guides 50, consisting of short posts projecting from the base and having slots in which are mounted upper and lower grooved pulleys 51. The grooved pulleys 51 receive the contiguous stretches of the actuating-cable and guide the same to the terminal pulley and prevent the cable from leaving the grooves thereof.

The intermediate and terminal pulleys are provided at their upper portions with grooves 52 and 53, which receive metallic straps 54 and 55 of band-brakes. The metallic straps are secured at one end to one of the posts of the frames, and suitable operating-levers 56 and 57 are connected with the free ends of the straps for operating the same. These band-brakes are adapted to be oper-

ated to stop the actuating-cables when desired. The levers 56 and 57 are fulcrumed intermediate of their ends on side posts of the frames 22 and 35, and any suitable means may be employed, if desired, for locking the levers to hold the straps or bands in engagement with the intermediate and terminal pulleys.

The apparatus, which is designed particularly for use in lumber-camps and analogous places, is adapted to be advantageously employed for transporting loads long distances, and when the track-cables are arranged at a sufficient inclination the loads will slide down the inclined tracks formed by the cables and will not require any other motive power than gravity for actuating them. The actuating-cables may then be employed for returning the cars and other objects to the points from where the loads are shipped. Instead of employing a plurality of actuating-cables a single actuating-cable and a pair of pulleys may be used.

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

1. In an apparatus of the class described, the combination with opposite tracks, of a pair of actuating-cables having opposite sides or stretches traveling in opposite directions and arranged in position for moving the cars or loads along the tracks in opposite directions, terminal pulleys receiving the outer portions of the actuating-cables, and an intermediate pulley receiving the inner or proximate portions of both of the actuating-cables.

2. In an apparatus of the class described, the combination with supports, of hangers mounted on the supports, a track-cable supported by the hangers, and a terminal tension device comprising a windlass shaft or drum provided with spaced ratchet heads or wheels and receiving the track-cable, and pawls or dogs engaging the ratchet heads or wheels.

3. In an apparatus of the class described, the combination of intermediate supports

having hangers, a terminal support provided with pulleys, track-cables supported by the hangers and arranged on the said pulleys, and a terminal tension device comprising windlass shafts or drums receiving the track-cable and provided with spaced ratchet heads or wheels, and pawls or dogs engaging the ratchet heads or drums

4. In an apparatus of the class described, the combination with opposite tracks, of intermediate and terminal pulleys, actuating-cables arranged on the pulleys and having opposite sides or stretches traveling in opposite directions and arranged with relation to the said tracks for actuating loads supported by the same, guides arranged in pairs at the said pulleys and receiving the stretches of the actuating-cables, and intermediate guides open at the top to permit the actuating-cables to be lifted from them.

5. In an apparatus of the class described, the combination with track-cables, of fixed and slidable frames, pulleys mounted in the said frames, and actuating-cables arranged on the pulleys and having opposite sides or stretches traveling in opposite directions, and means for adjusting the slidable frame.

6. In an apparatus of the class described, the combination with track-cables, of a terminal tension device having shafts or windlasses connected with the track-cables, an actuating-cable having side stretches traveling in opposite directions, a slidable frame carrying a pulley receiving the actuating-cable, and adjusting means connecting the slidable frame with the tension device.

7. In an apparatus of the class described, the combination with a track-cable and an actuating-cable, of a pulley receiving the actuating-cable and provided with a groove, and a band-brake having a strap or band arranged in the groove of the said pulley.

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

GIOVANNI STRAMBINI.

Witnesses:

GEO. POLL,
SABROTORE COLLETTI.