

No. 698,197.

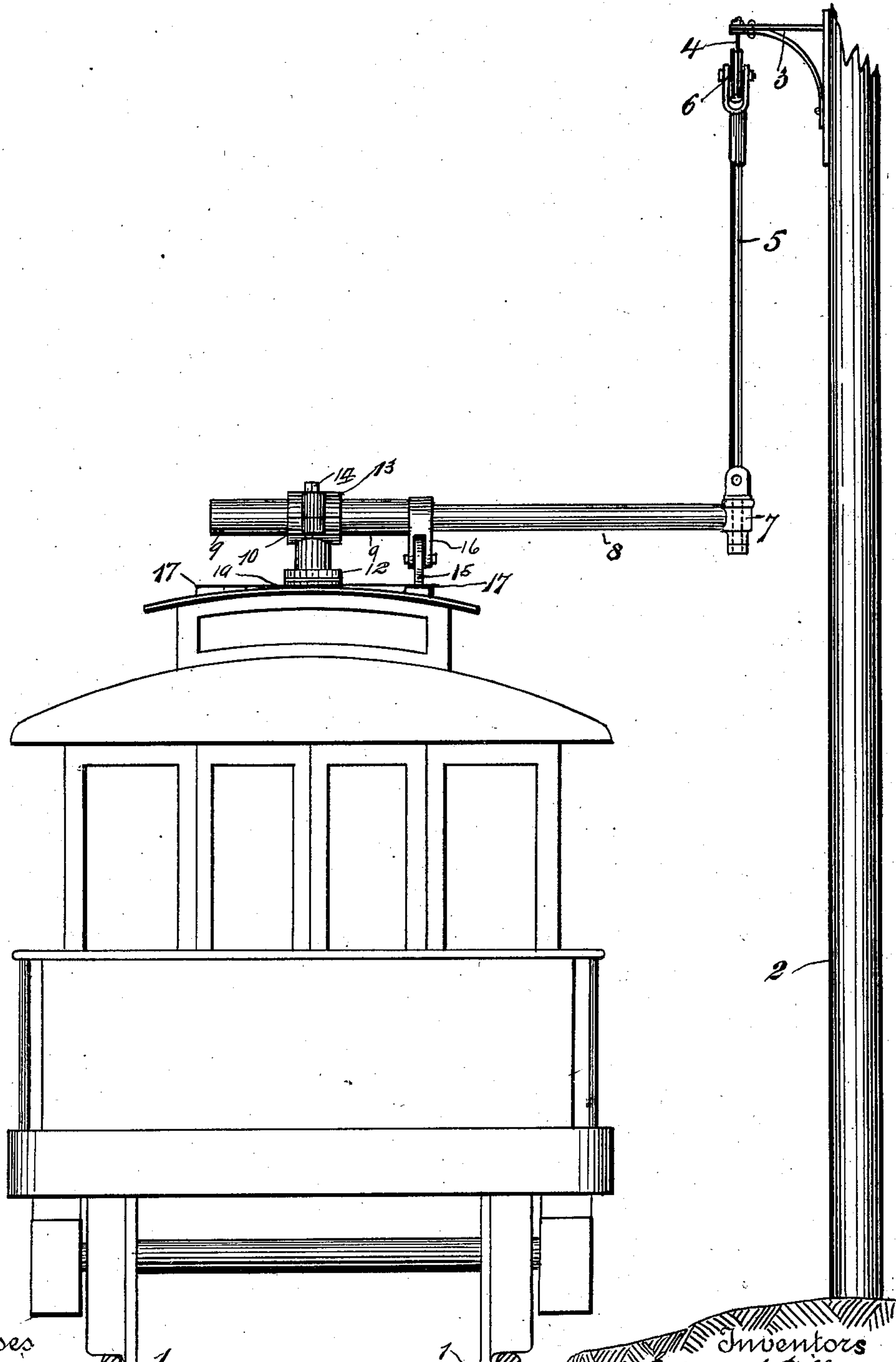
Patented Apr. 22, 1902.

T. E. STUCKY & E. HILL.
ADJUSTABLE TROLLEY SUPPORTER.

(Application filed July 8, 1901.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses

S. L. Houston

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Fig 1

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4 Sheets—Sheet 2.

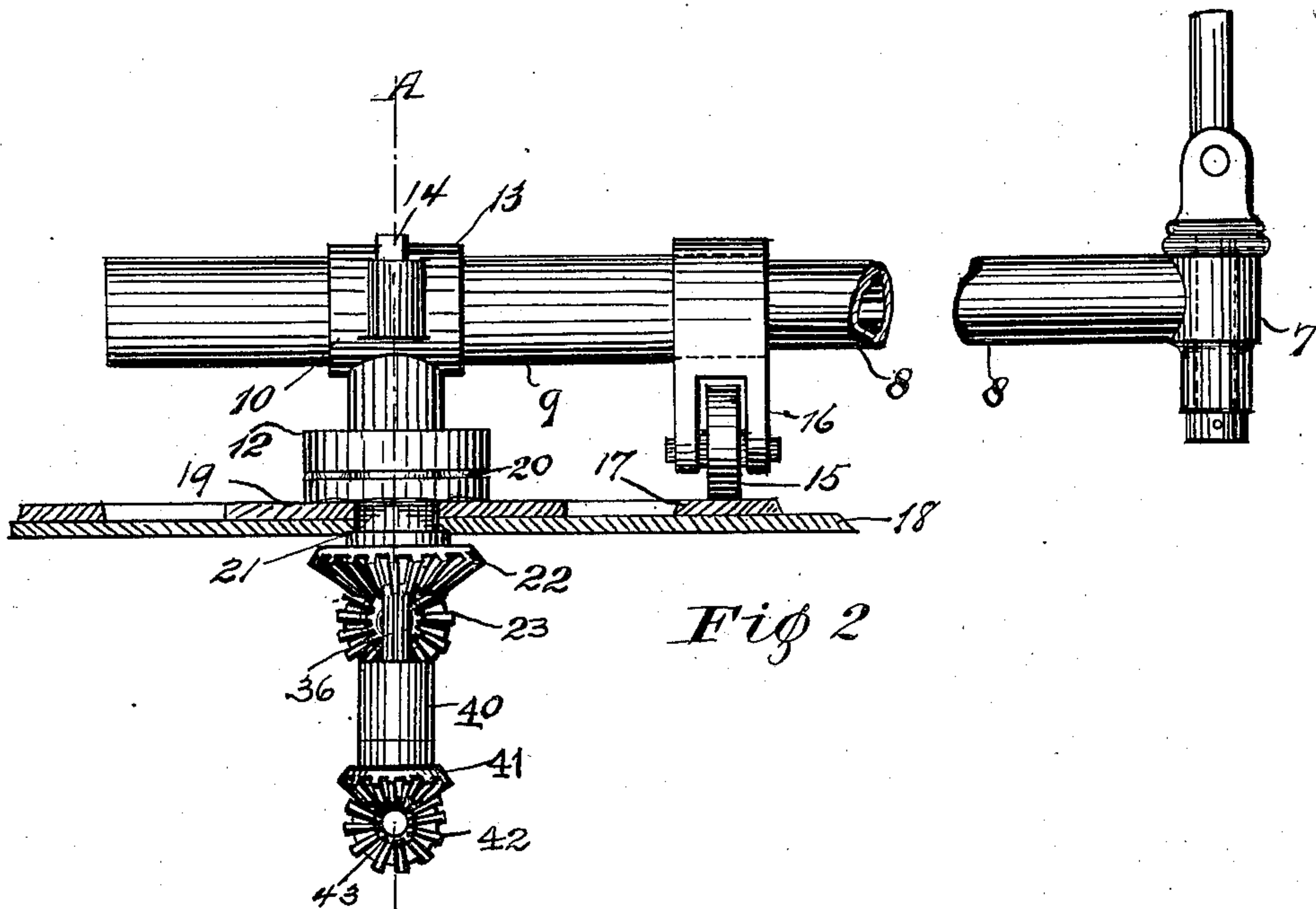


Fig 2

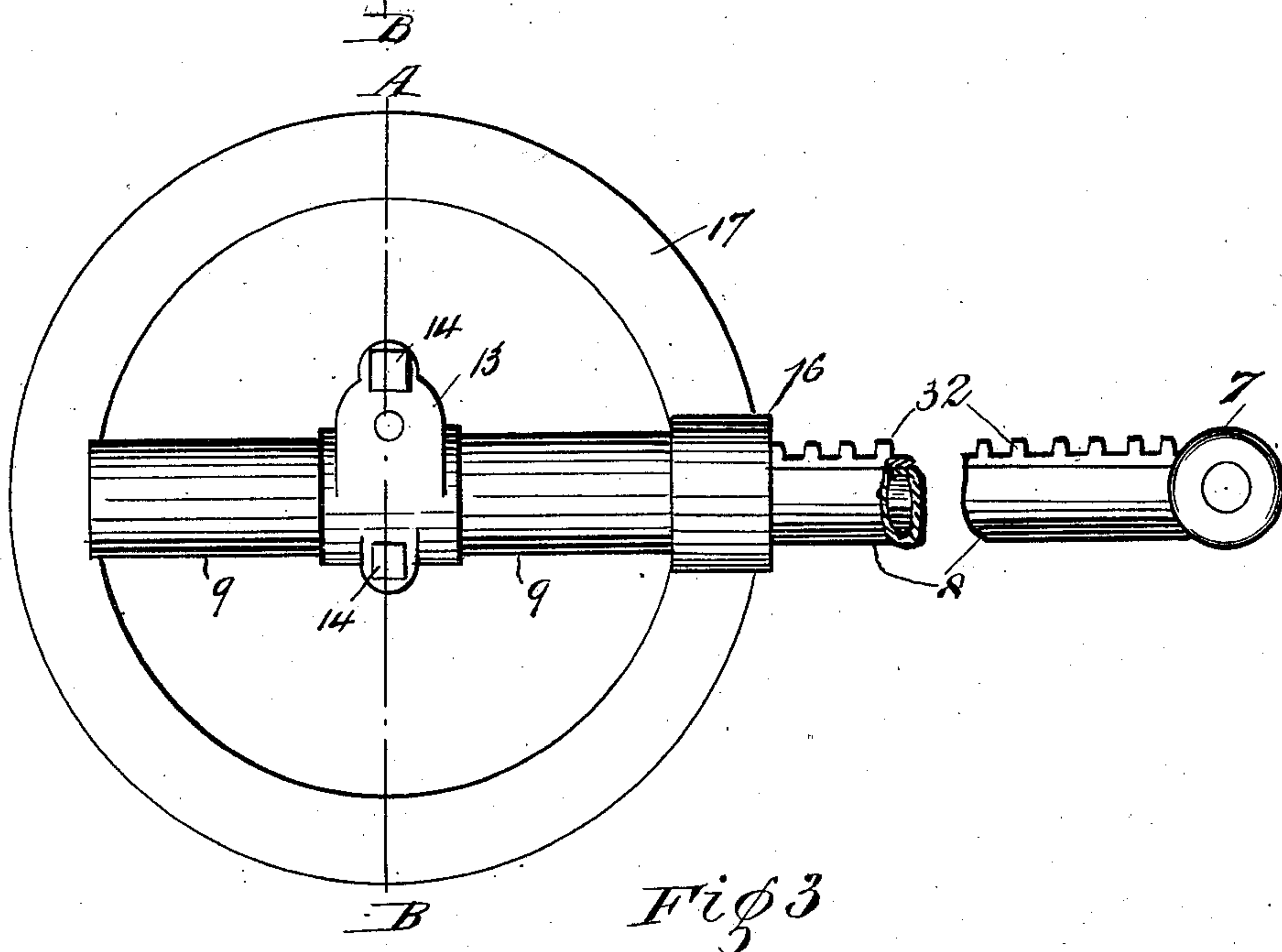


Fig 3

Witnesses

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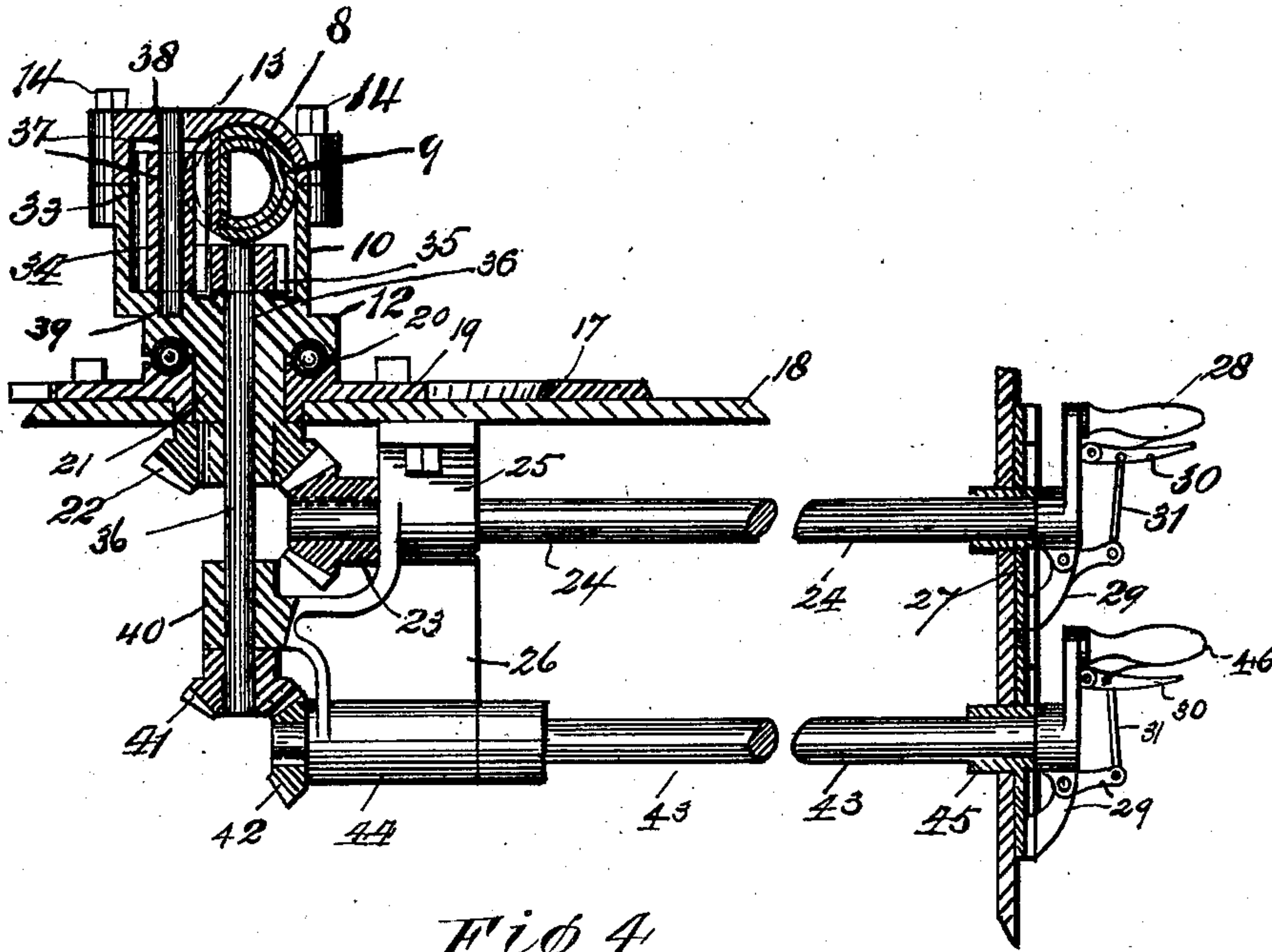


Fig 4

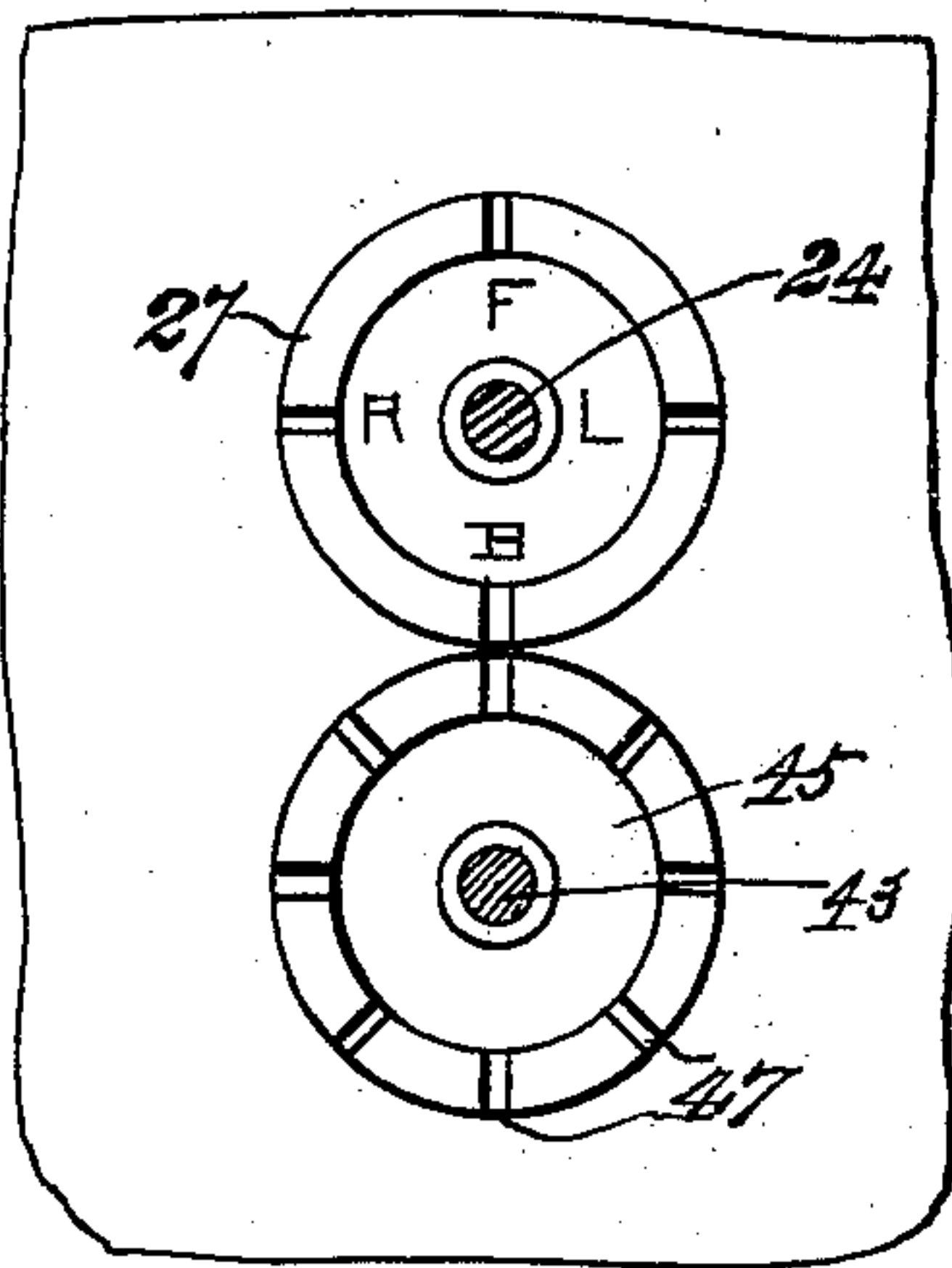


Fig 5

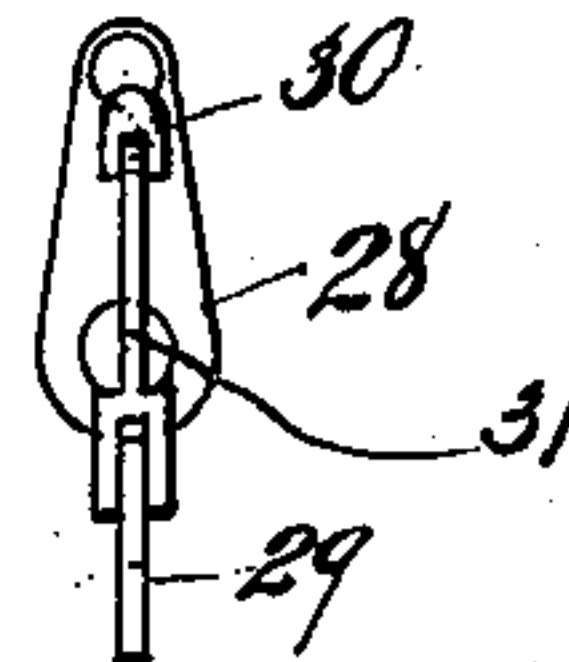


Fig 6

Witnesses

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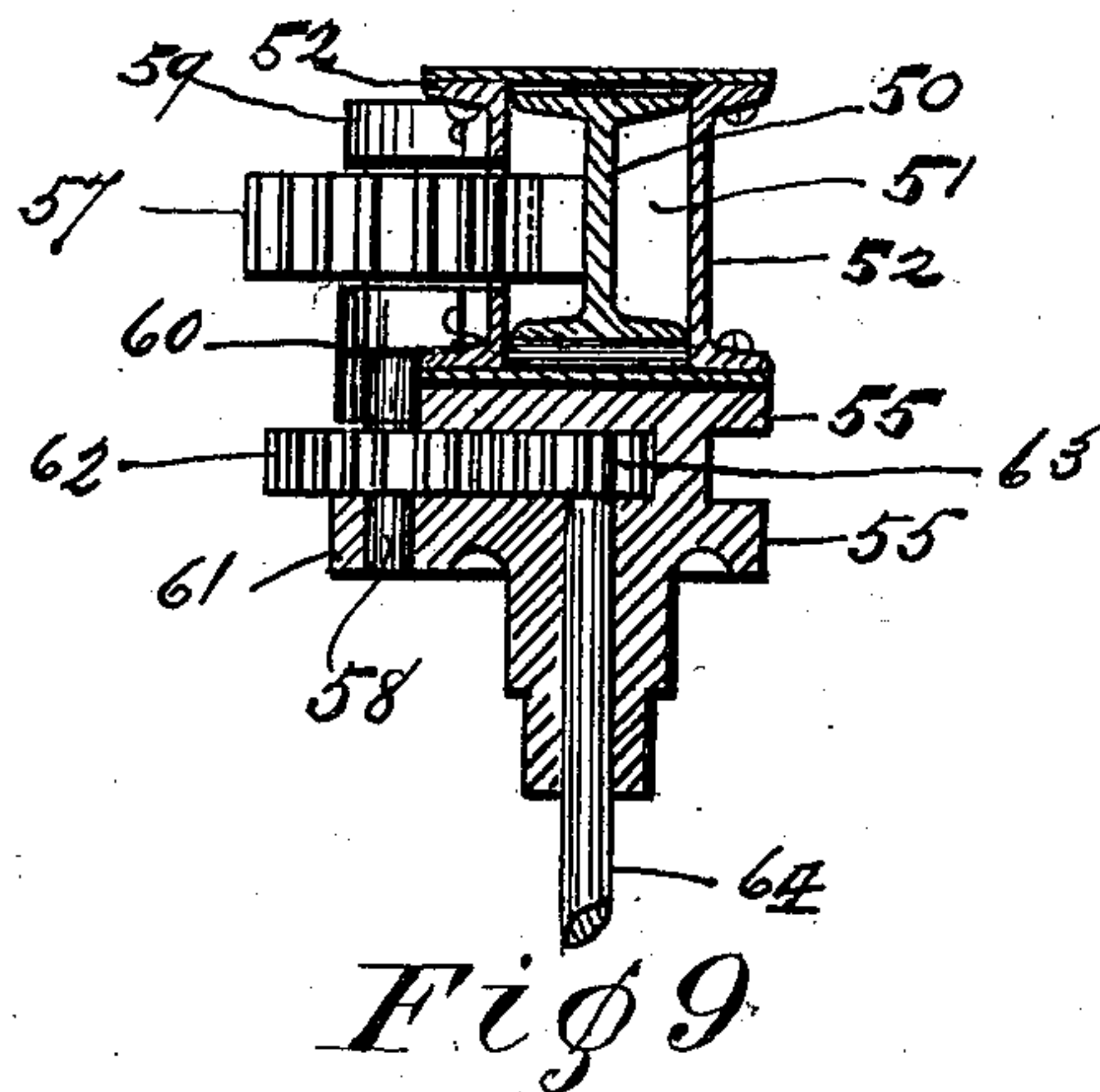
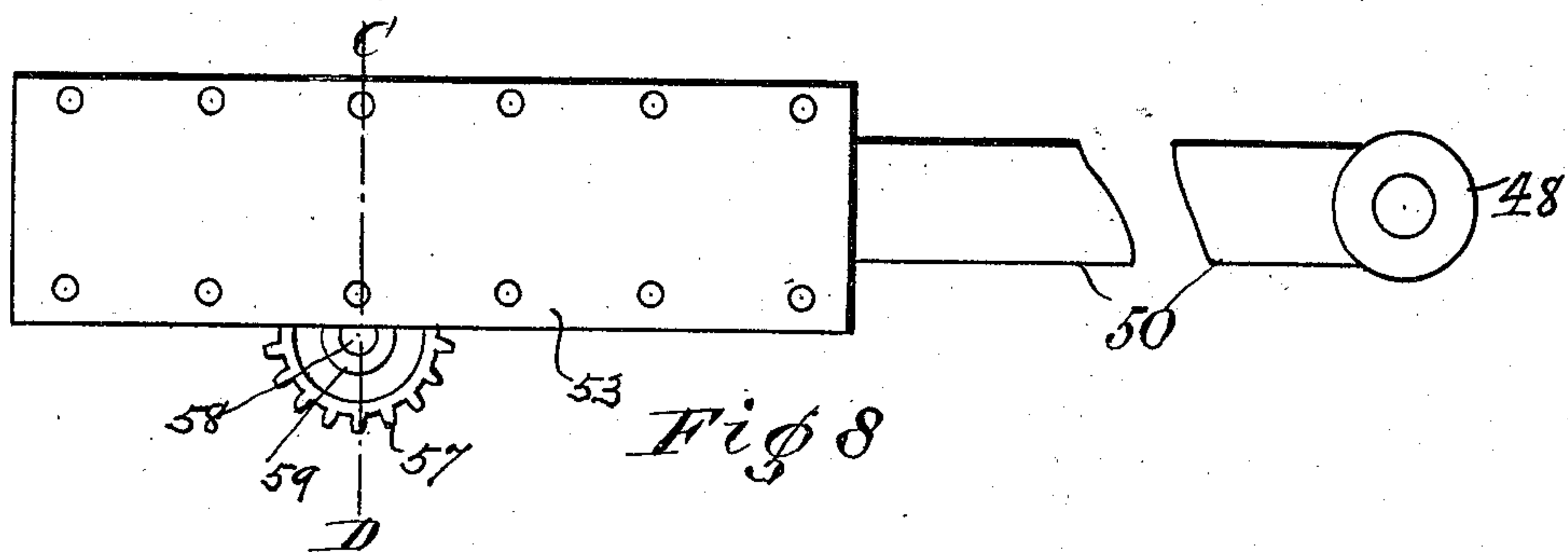
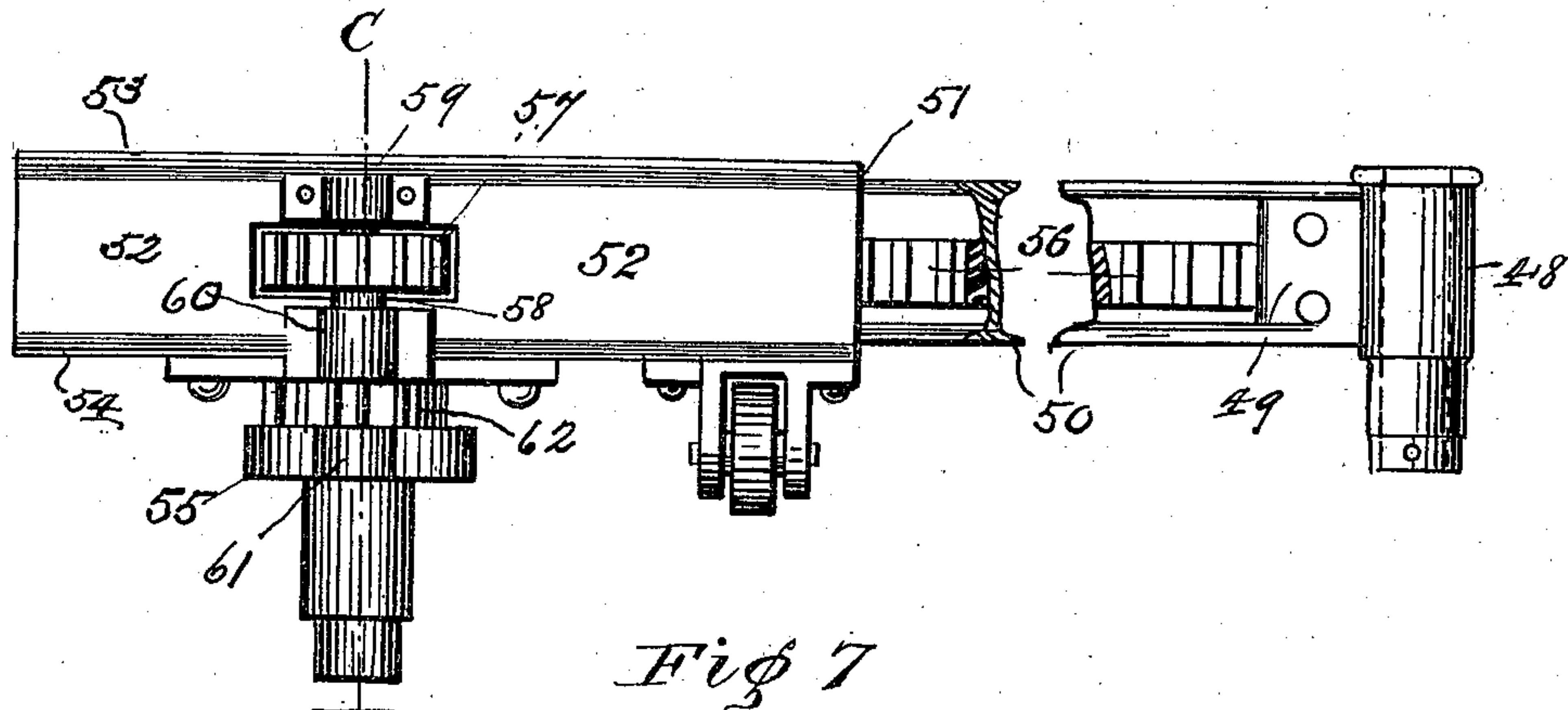
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4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

THOMAS E. STUCKY AND EDWARD HILL, OF INDIANAPOLIS, INDIANA.

ADJUSTABLE TROLLEY-SUPPORTER.

SPECIFICATION forming part of Letters Patent No. 698,197, dated April 22, 1902.

Application filed July 8, 1901. Serial No. 67,423. (No model.)

To all whom it may concern:

Be it known that we, THOMAS E. STUCKY and EDWARD HILL, citizens of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented new and useful Improvements in Adjustable Trolley-Supporters, of which the following is a specification.

Our invention relates to a new system of electric railroad whereby the conducting wire or wires are supported and carried on poles situated on either side of the track and the means whereby the current is collected and conveyed from said side conductor to the moving vehicle.

The objects of our invention are, first, to provide a system of side conductors that may be connected to and supported by the ordinary telegraph-poles extending along the side or sides of railroads on which steam-propelled vehicles run and by the addition of such means either electrically-propelled or steam-propelled vehicles may be operated on the same railroad-line; second, to provide means whereby contact with the side conductor is established and maintained and the electric current is conveyed to the moving vehicle; third, to provide means whereby said electrically-propelled vehicle may be employed on electric roads equipped with either the common overhead trolley system of conductors or the side system above referred to, and, finally, to provide means whereby the apparatus for supporting the current-conveying means may be readily and rapidly adjusted to any position relatively to the vehicle to move said current-conveying means into position so as to be equally applicable to either the overhead or the side system of conductors of electric railroads. We attain these objects by means of the apparatus and the electric conducting system illustrated in the accompanying drawings, in which similar numerals of reference designate like parts throughout the several views.

Figure 1 is a transverse sectional view of an ordinary railroad, showing an electric conductor secured to and supported by the ordinary electric telegraph-poles and also showing an end elevational view of an electric car equipped with our apparatus for supporting the current-conveying means and

maintaining the same in contact with the continuous side conductor. Fig. 2 is a broken view of the adjustable arm for supporting the trolley-pole or other means for conveying the current from the conductor to the vehicle. Fig. 3 is a broken plan view of the same. Fig. 4 is a broken transverse sectional view of the apparatus, taken through the line A B. (See Figs. 2 and 3.) Fig. 5 is a broken-off portion of the forward end of the vehicle, showing the indicating and stop disks. Fig. 6 is a detail view of one of the adjusting-handles. Fig. 7 is a broken side view of another form of construction of the arm of the apparatus for supporting the electric-current-conveying means or trolley-poles. Fig. 8 is a plan view of the same; and Fig. 9 is a transverse sectional view of the same, taken through the line C D. (See Figs. 7 and 8.)

1 designates any or the usual railroad-track, on which either electrically-propelled or steam-propelled vehicles run, and 2 designates a telegraph-pole situated at the side of the track or roadway. Supporting arms or brackets 3 are secured on the sides of the poles 2 toward the track, and to these are secured the conductors or trolley-wires 4. A trolley-pole 5, carrying the trolley 6, is pivotally mounted at its base or lower end in the socket 7, secured on the free end of the overhanging arm 8. The arm 8 is adapted to telescope in the socket or sleeve 9, and the said sleeve is secured and clamped at a portion intermediate between its ends in the top portion 10 of the turn-table 12 by the clamping-cap 13, which is secured thereto by the screws 14.

A supporting-pulley 15 is journaled in the fork 16, secured on the end of the sleeve 9, into which the arm 8 telescopes, and the said pulley is adapted to run on the supporting-track 17, secured on the top of the vehicle 18, and by these means the overhanging weight of the extension-arm 8 and the parts secured thereto is supported. The turn-table 12, as well as the face of the bearing-plate 19, is provided with a ball-bearing raceway in which the ball-bearings 20 are adapted to work, and the said ball-bearings are provided for the purpose of reducing the frictional resistance between said turn-table 12 and the bearing-plate 19 in order that the said turn-table be

the more easily manipulated. The pivotal center 21 of the turn-table 12 is turned truly to fit and freely work in the bore of the bearing-plate 19, and on the projecting end thereof is keyed or otherwise secured the bevel-wheel 22. A bevel-wheel 23, secured on the end of the shaft 24, meshes with the bevel-wheel 22. The hand-shaft 24 is journaled in the bearing 25, formed integral on the hanger 26 at one end and at its forward end in the central bore of the dial-plate 27 at the front end of the vehicle, and on the forward projecting end of said shaft is secured the manipulating-handle 28, by which said shaft is turned to revolve the turn-table 12 when it is required to revolve the arm 8 into a new position either to the right or left of the vehicle or any intermediate position in the cycle. A latch 29, connected to the latch-lever 30 by the connecting-rod 31, is provided to engage either of the notches "B," "R," "F," "L," of the dial-plate 27, according as it is desired to maintain the arm 8 in a position either backwardly, forwardly, to the right, or the left of the car, as designated and indicated by the initial letters of these words marked on the said dial.

One of the sides of the arm 8 is rolled to form a flat bearing-surface (see Figs. 3 and 4) against which the rack 32 is fitted and secured by suitable rivets or bolts, and the said rack extends along the entire length of the arm 8, so that the latter may be readily traversed in its sleeve 9 to either extreme inner or outer positions. A pocket or chamber 33 is formed integral on one side of the top portion 10 of the turn-table 12, in which is inclosed and journaled the rack-pinion 34. The rack-pinion 34 meshes with the rack 32, and said pinion is prolonged to extend downwardly in the chamber 33 to engage or mesh with the center pinion 35, which is keyed or otherwise secured on the upper end of the central vertical shaft 36. The pinion 34 is secured on its shaft 37, which latter is journaled at its top and bottom ends in the bearings 38 and 39. The vertical shaft 36 is adapted to turn in the central bore of the turn-table 12 and is prolonged to extend downwardly therethrough to and beyond its lower bearing 40, formed integral on the hanger 26, and on the lower projecting end of said shaft is keyed or otherwise secured the bevel-wheel 41, which meshes with the bevel-wheel 42, secured on the inner end of the shaft 43. The hand-shaft 43 is journaled at its back or inner end in the bearing 44, formed integral on the hanger 26, and said shaft 43 is journaled at its front end in the central bore of the dial-plate 45, situated at the front end of the vehicle and beneath the dial 27. A manipulating-handle 46 similar in every respect to the handle 28 is secured on the forward end of the shaft 43, and its latch 29 is adapted to engage the notches 47, formed in the face of the disk plate 45, to retain the arm 8 in position.

When great strength and rigidity are neces-

sary, the arm 8 may be of a special form or shape—as, for instance, it may be constructed of an I-beam shape, and with this object in view we provide the construction of supporting-arm illustrated in Figs. 7, 8, and 9, in which the socket 48 similar to the socket 17 is provided with the foot 49, which foot is securely bolted or riveted to the free end of the arm 50, which latter is of an I-beam shape and is adapted to telescope into the rectangular chamber or box 51. The rectangular chamber 51 has its ends open and is constructed of the side channel-beams 52 and the top and bottom plates 53 and 54, all of which are securely riveted together, as shown particularly in Fig. 8, to form a rigid structure. The rectangular chamber 51 is secured at its central portion to the turn-table 55, the construction of which latter is very similar to that of the turn-table 12 and performs the same function. The rack 56 is secured to the side of the web of the arm 50 by any suitable securing means, as rivets or bolts, and said rack is adapted to mesh with the pinion 57, secured on the vertical shaft 58. The shaft 58 is adapted to turn in the top bearing 59, the intermediate bearing 60, and the lower bearing 61. The top and intermediate bearings 59 and 60 are secured to the web of the channel-beam 52, and the lower bearing 61 is formed integral on the turn-table 55. The vertical shaft 58 has the pinion 62, situated between the intermediate bearing 60 and the lower bearing 61, at which portion of said shaft it is securely keyed, and said pinion 62 is adapted to mesh with the pinion 63, secured on the vertical shaft 64, which shaft is similar to the vertical shaft 36. The remaining portion of the mechanism is similar to that hereinbefore described in connection with the tubular form of arm 8.

When it is desired to apply a system of electric transmission to ordinary steam-railroads, suitable conductors are suspended from the telegraph-poles, which are usually arranged in a row along and some distance from the side of the railroad-tracks, and owing to this method of suspending said conductors or trolley-wires, which are situated at a greater or less and variable distance from the side of the vehicle, it is necessary that a suitable supporting means be provided on the vehicle and a means that is capable of being extended beyond the side of the vehicle for supporting the current-conveyer and maintaining the latter under and in contact with the side conductor. The operator or motorman changes the position of the arm 8 from either right to left, or vice versa, according as the side conductor is situated at either the right or left hand side of the vehicle, by means of the adjusting-handle 28, which movement or operation of turning being completed the latch 29 of said handle will drop into the notch corresponding with the position at which the arm 8 is set, to lock the mechanism and to retain said arm in its changed or adjusted position. The operator

or motorman now moves the arm 8 inwardly or outwardly in its sleeve 9, according as the side conductor is distant nearer to or farther from the side of the vehicle, by means of the
 5 adjusting-handle 46 to adjust the current-conveyer or trolley in position directly under said side conductor. When it is required to run the vehicle on a track having the conductors or trolley-wires overhead or centrally
 10 above the vehicle, the turn-table 12 is rotated by the handle 28 till the arm 8 extends longitudinally over the vehicle, and the said arm 8 is next telescoped into its sleeve 9 till the trolley-supporting socket 7 is moved into its nearest position toward the pivotal center of the
 15 turn-table 12.

Having thus fully described this our invention, what we claim as new and useful, and desire to cover by Letters Patent of the United
 20 States therefor, is—

1. The combination with a railroad-track and an electrically-propelled vehicle on said track, of a current-conductor situated on one side and above the plane of said track, a current-conveyer and an extensible arm pivotally
 25 mounted on the top of said vehicle, said extensible arm extending outwardly and horizontally therefrom to support the said current-conveyer and maintain the same in contact with the conductor, and means for extending
 30 said arm.

2. The combination with a railroad-track and an electrically-propelled vehicle on said track, of a current-conductor situated at one
 35 side of and above the plane of the track a telescoping arm pivotally mounted on the top of said vehicle, and a current-conveyer mounted on the free end of said arm.

3. The combination with a railroad-track and an electrically-propelled vehicle on said track, of a current-conductor situated at one side of and above the plane of said track, a telescoping arm pivotally mounted on the top
 40 of said vehicle, a current-conveyer mounted on the free end of said arm and means for locking said telescoping arm in a fixed position.

4. The combination with an electrically-propelled vehicle of a horizontally-extending swinging extensible arm, a current-conveyer mounted on the free end of said arm,
 50 and means situated at one end of the vehicle whereby the position of the said swing-arm may be changed and whereby said arm may be locked in position.

5. The combination with an electrically-propelled vehicle and a current-conveyer, of a horizontally-extending swinging extensi-

ble arm pivotally mounted on the top of said vehicle, and independent means for swinging
 60 said arm and for extending or telescoping the same.

6. The combination with an electrically-propelled vehicle and a current-conveyer, of a horizontally-extending sleeve pivotally
 65 mounted on the top of said vehicle, an extensible arm telescoping in said sleeve, and independent means for rotating said sleeve in a horizontal plane and for extending said telescoping arm.

7. The combination with an electrically-propelled vehicle and a current-conveyer, of a horizontally-extending swinging sleeve pivotally mounted at a point intermediate between its ends, an extensible or telescoping
 75 arm projecting from one end of said sleeve, an annular track concentric with the pivotal center of said sleeve and a bearing-roller situated at the telescoping end of said sleeve and adapted to rest on and to roll on said annular
 80 track.

8. The combination with an electrically-propelled vehicle and a current-conveyer, of a sleeve-supporting table pivotally mounted on the top of said vehicle, a horizontally-extending sleeve secured on said pivotal table,
 85 an extensible arm telescoping in said sleeve, and a socket on the free end of said arm wherein said current-conveyer is pivoted, and independent means for rotating said supporting-table and for extending said telescoping arm.

9. The combination with an electrically-propelled vehicle and a current-conductor, of a sleeve-supporting table, a depending central pivotal stem integral on said table and having a central vertical bore, a horizontally-extending sleeve secured on said table,
 95 an extensible arm telescoping into said sleeve, a rack on the side of said extensible arm, a vertically-extending shaft adapted to turn in the central bore of said stem, a pinion on the upper end of said shaft, a rack-pinion adapted to engage said rack and said shaft-pinion simultaneously, and means for rotating said
 100 table and for operating said central shaft, substantially as set forth.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

THOMAS E. STUCKY.
 EDWARD HILL.

Witnesses:

H. F. STEVENSON,
 SAML. L. HOUSTON.