No. 776,339. PATENTED NOV. 29, 1904.

C. MESSICK, Jr.

ELECTRIC CABLEWAY CONVEYER.

APPLICATION FILED SEPT. 7, 1904.

NO MODEL. 4 SHEETS—SHEET 1.

Fig. 1.

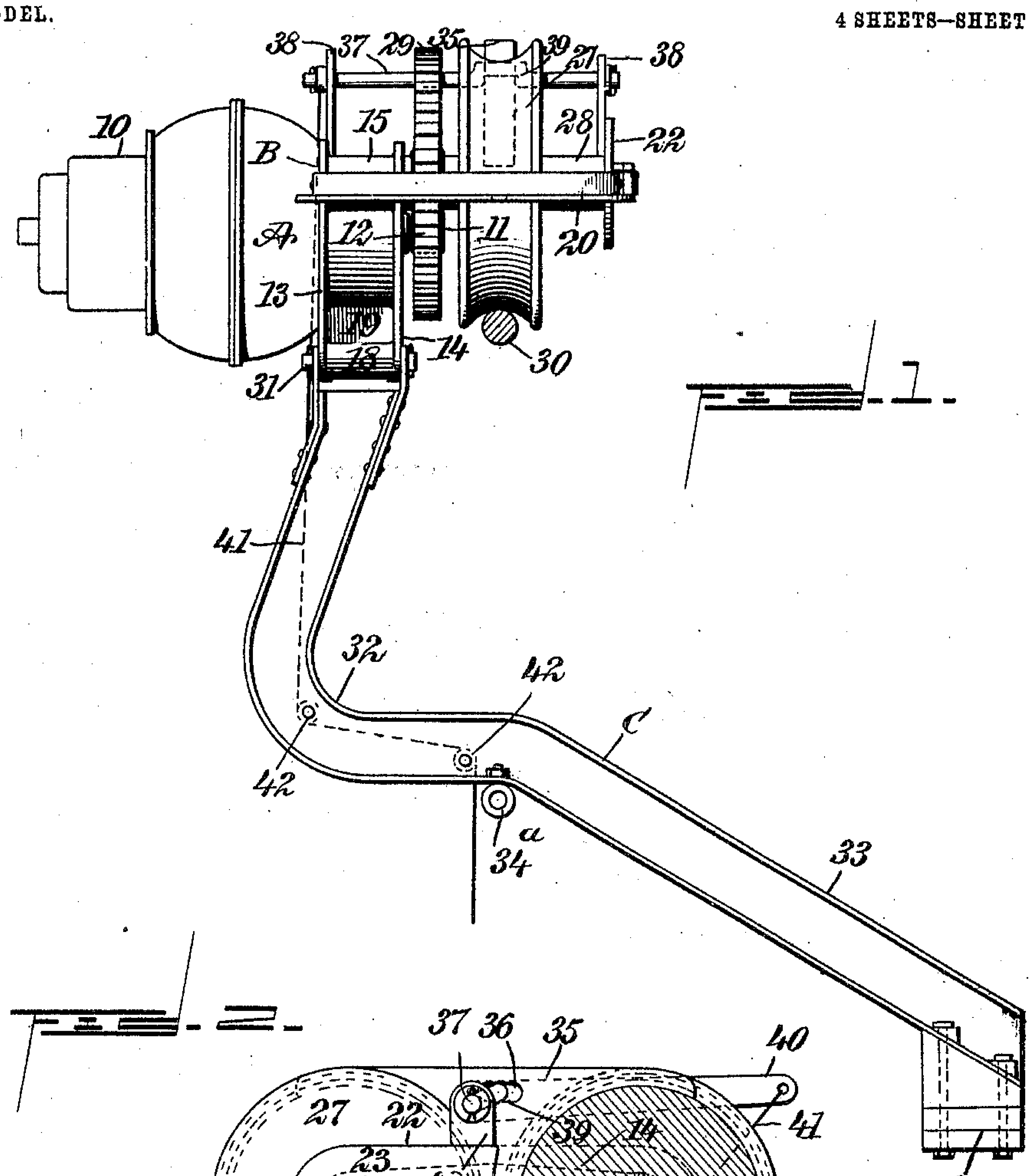
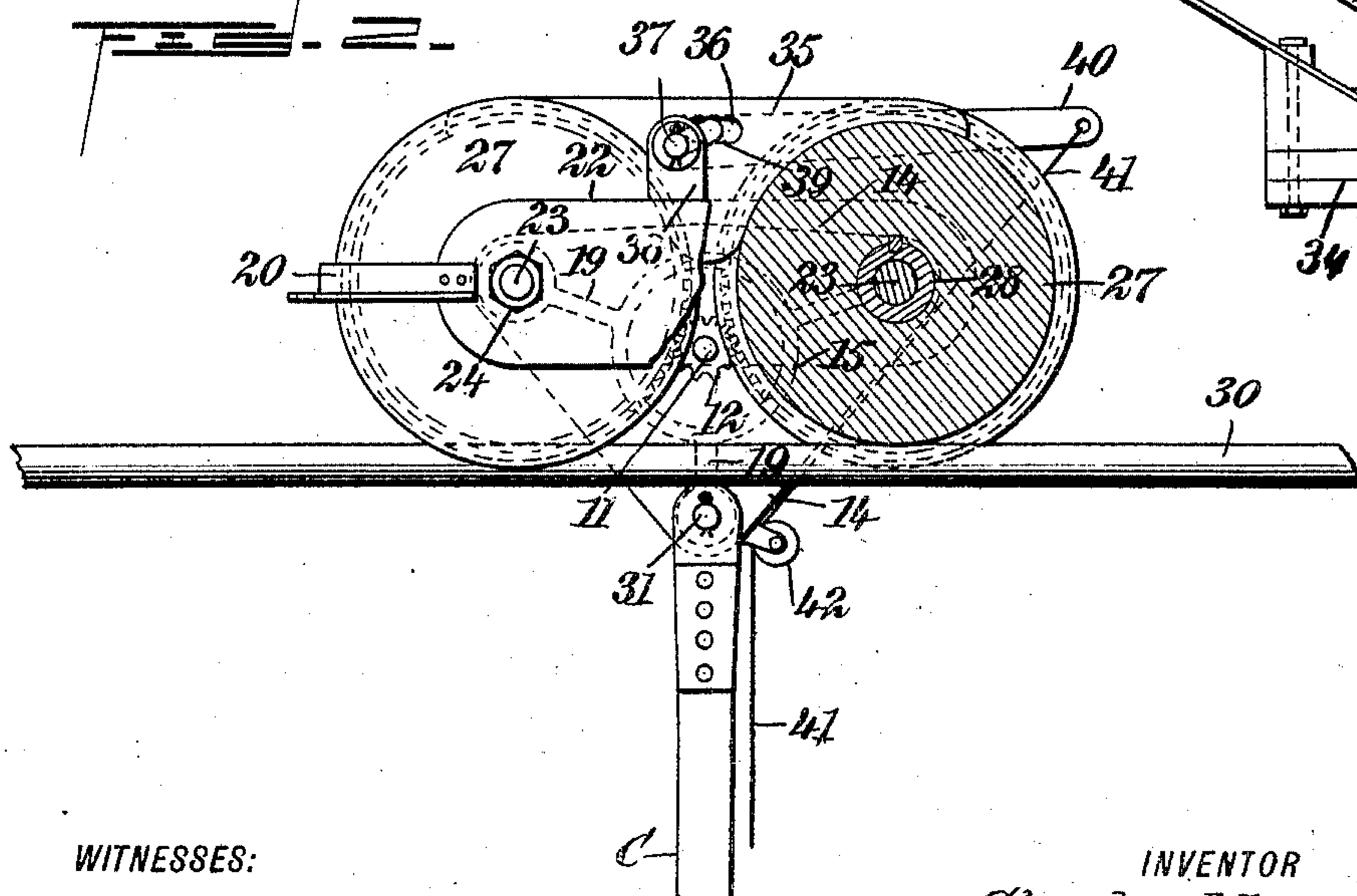


Fig. 2.



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NO MODEL. 4 SHEETS—SHEET 2.

Fig. 3.

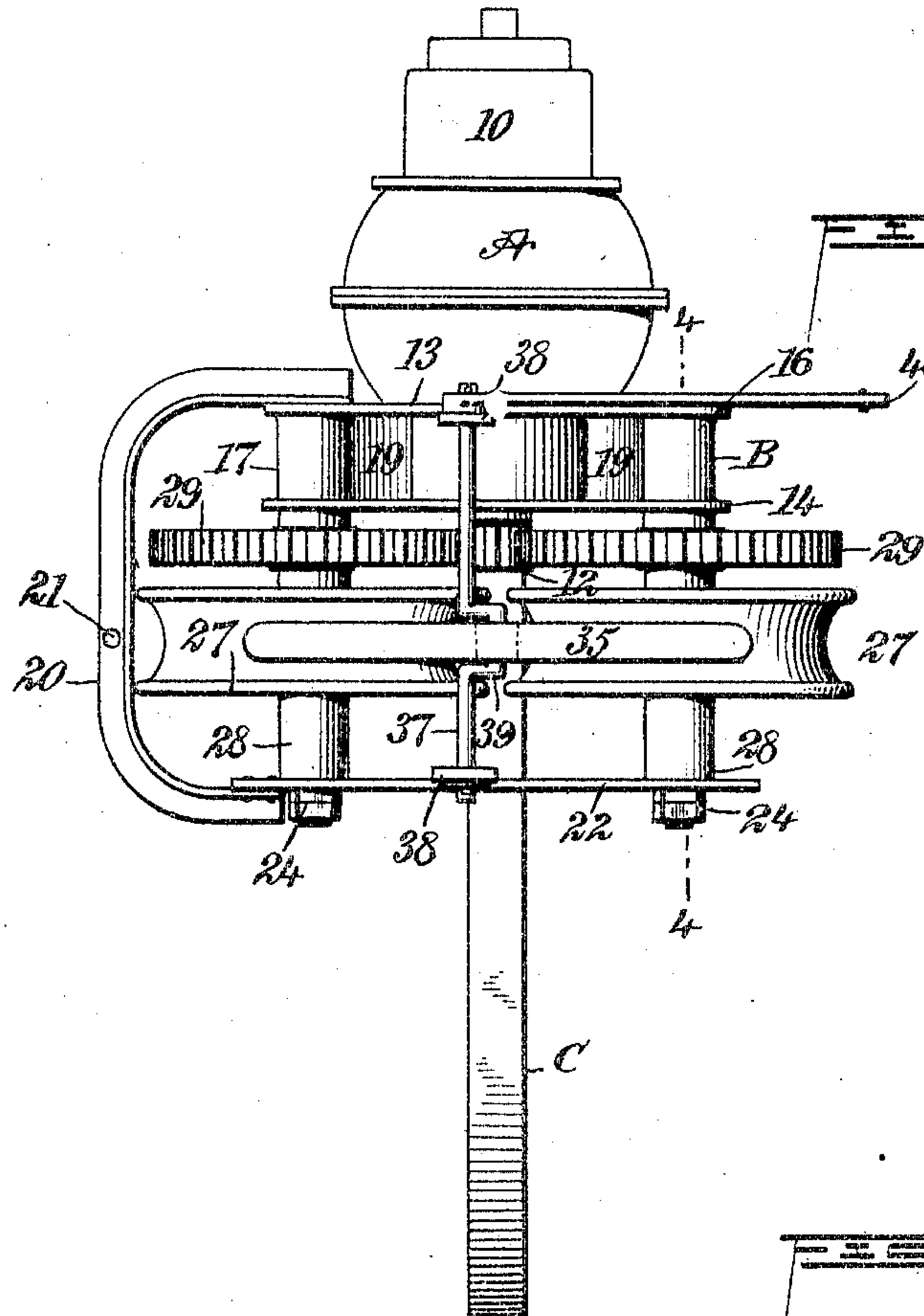
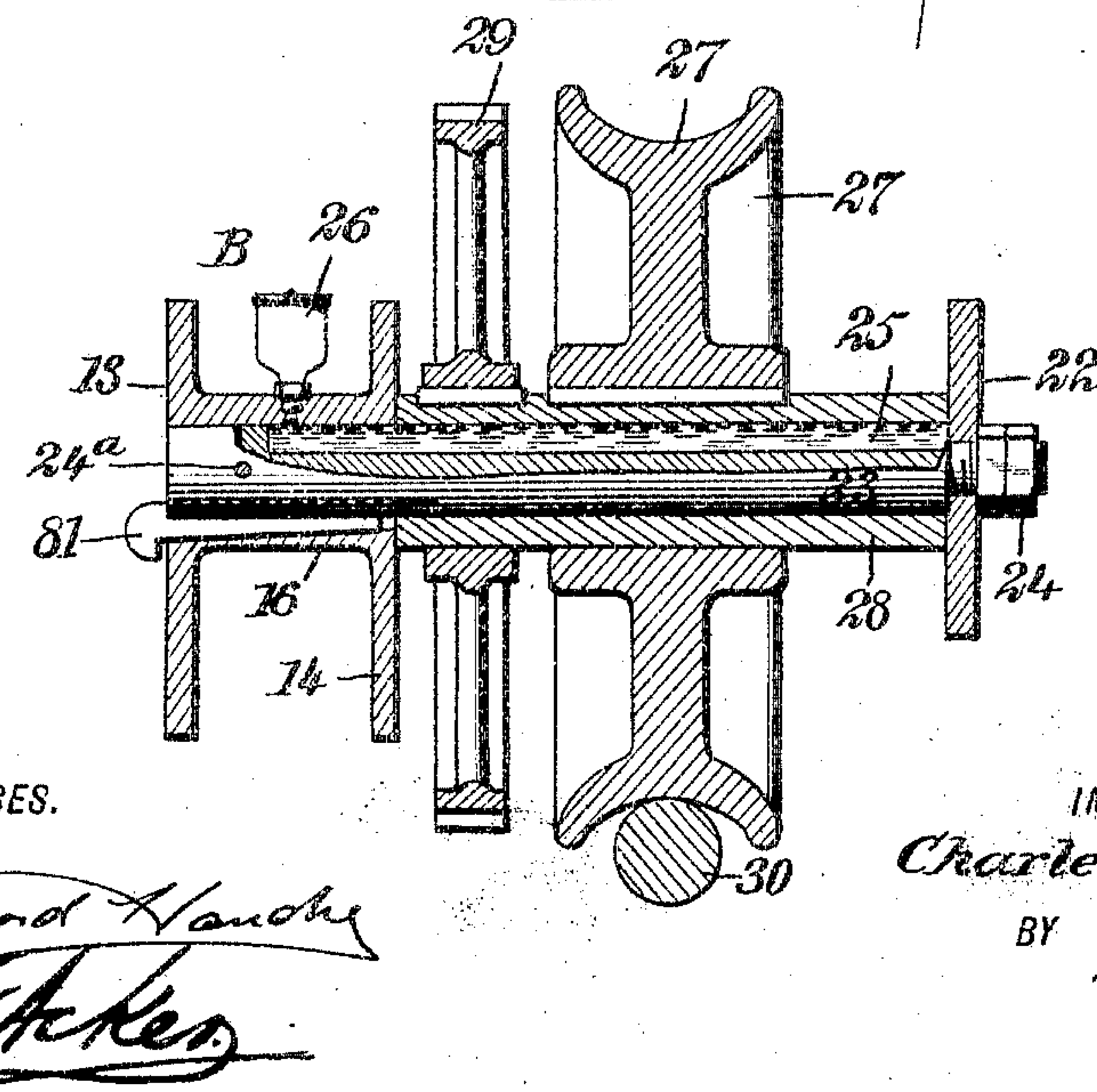


Fig. 4.



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NO MODEL. 4 SHEETS—SHEET 3.

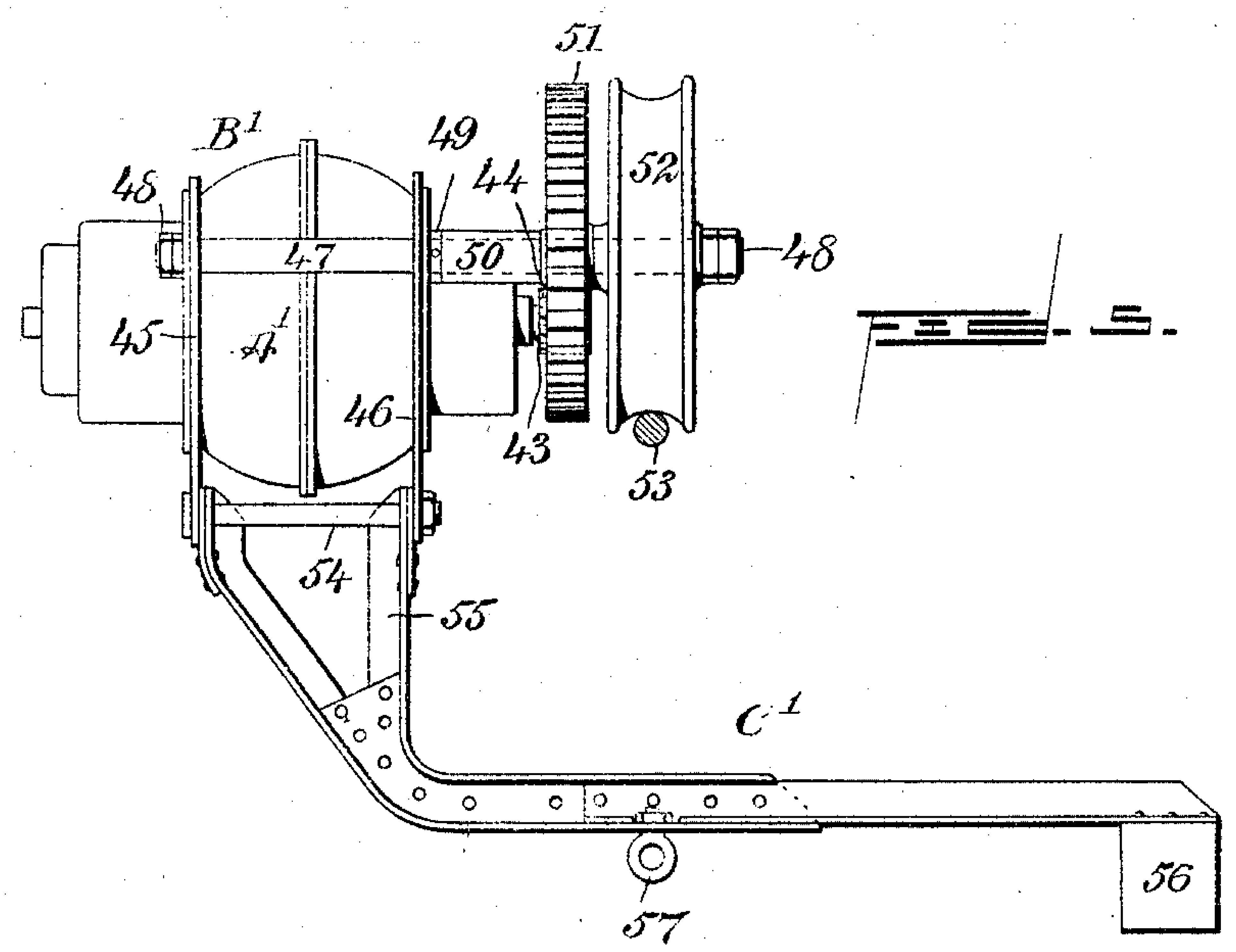

FIG. 5.

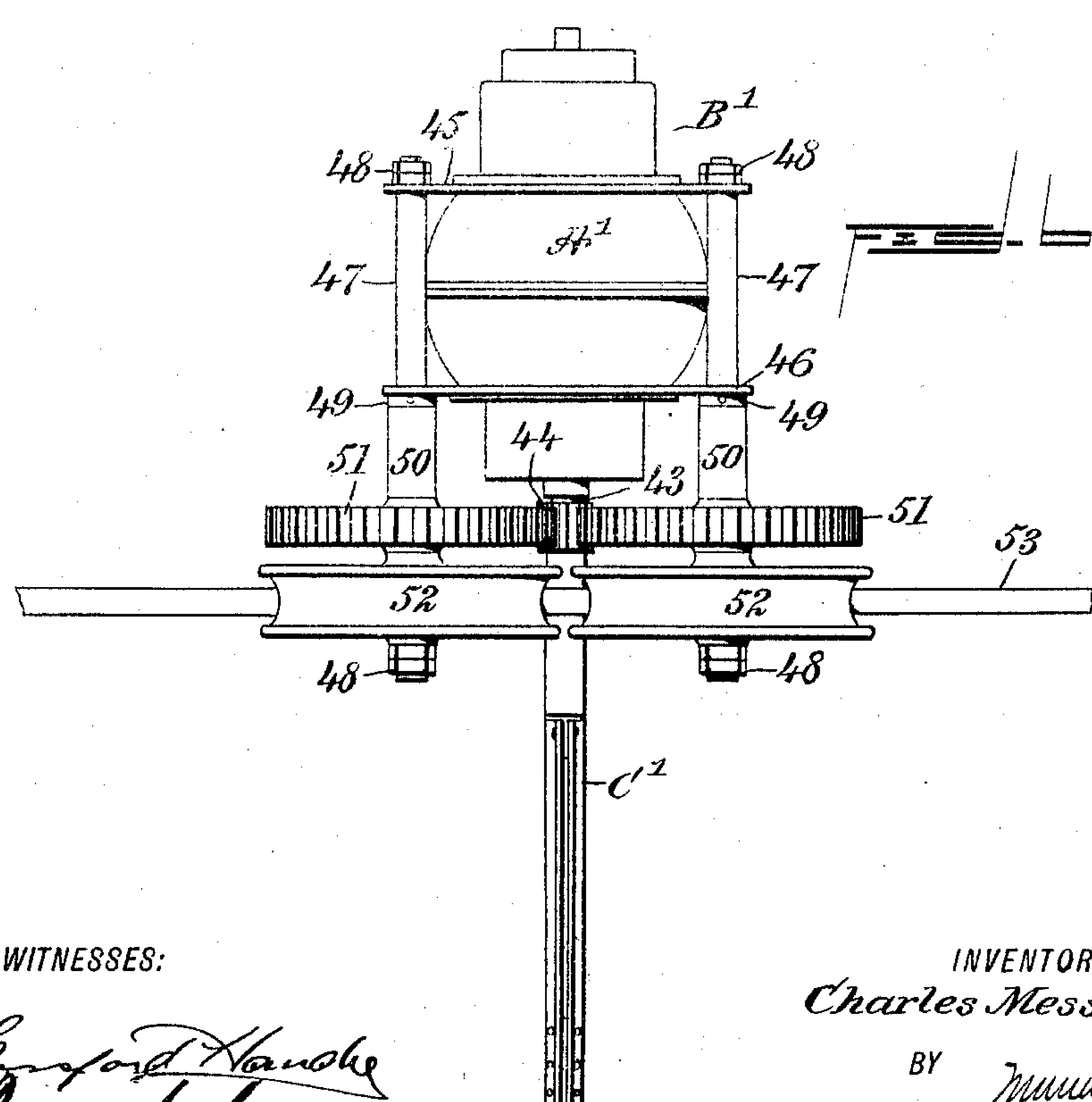

FIG. 6.

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APPLICATION FILED SEPT. 7, 1904.

NO MODEL. 4 SHEETS—SHEET 4.

FIG. 7.

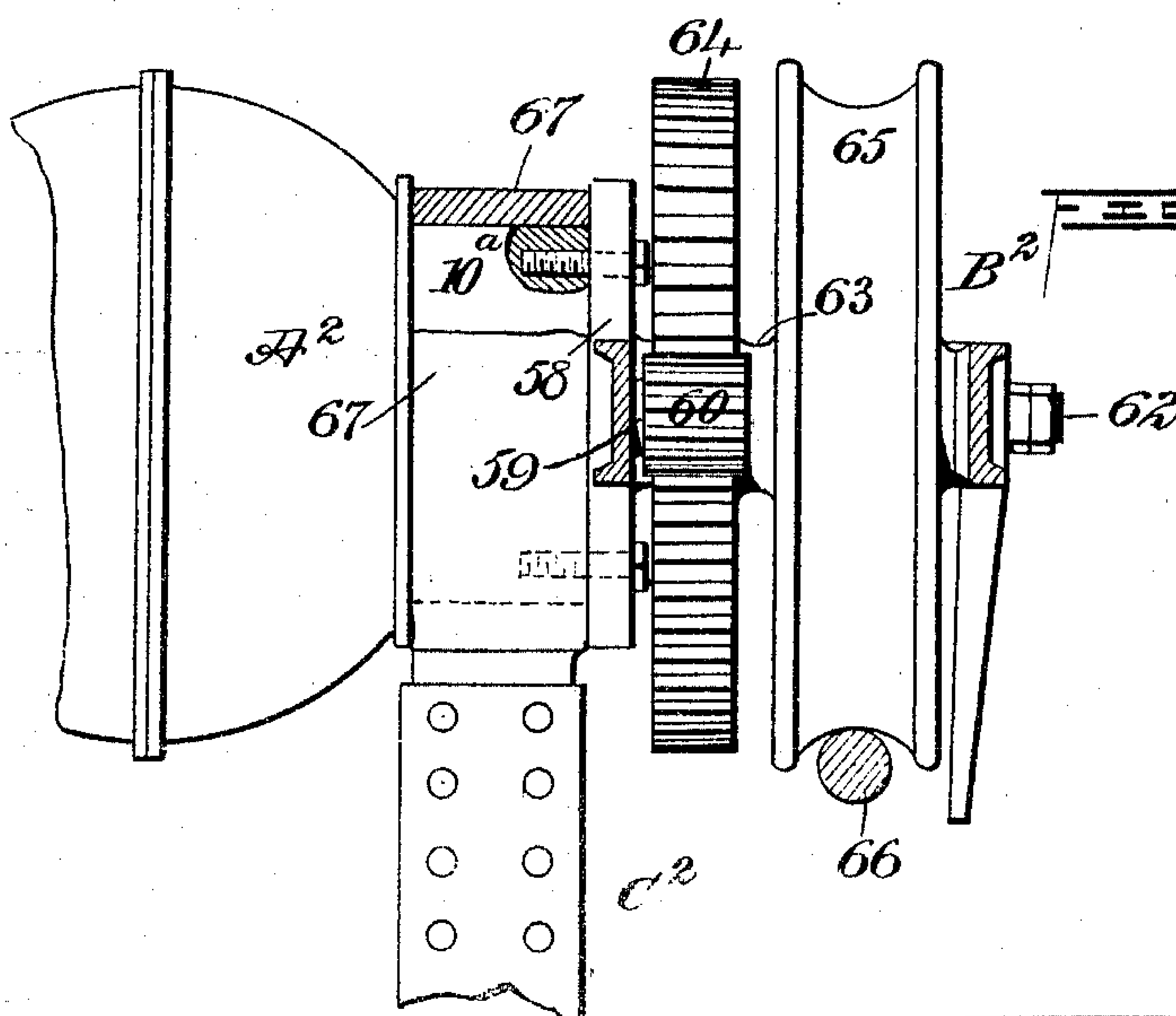
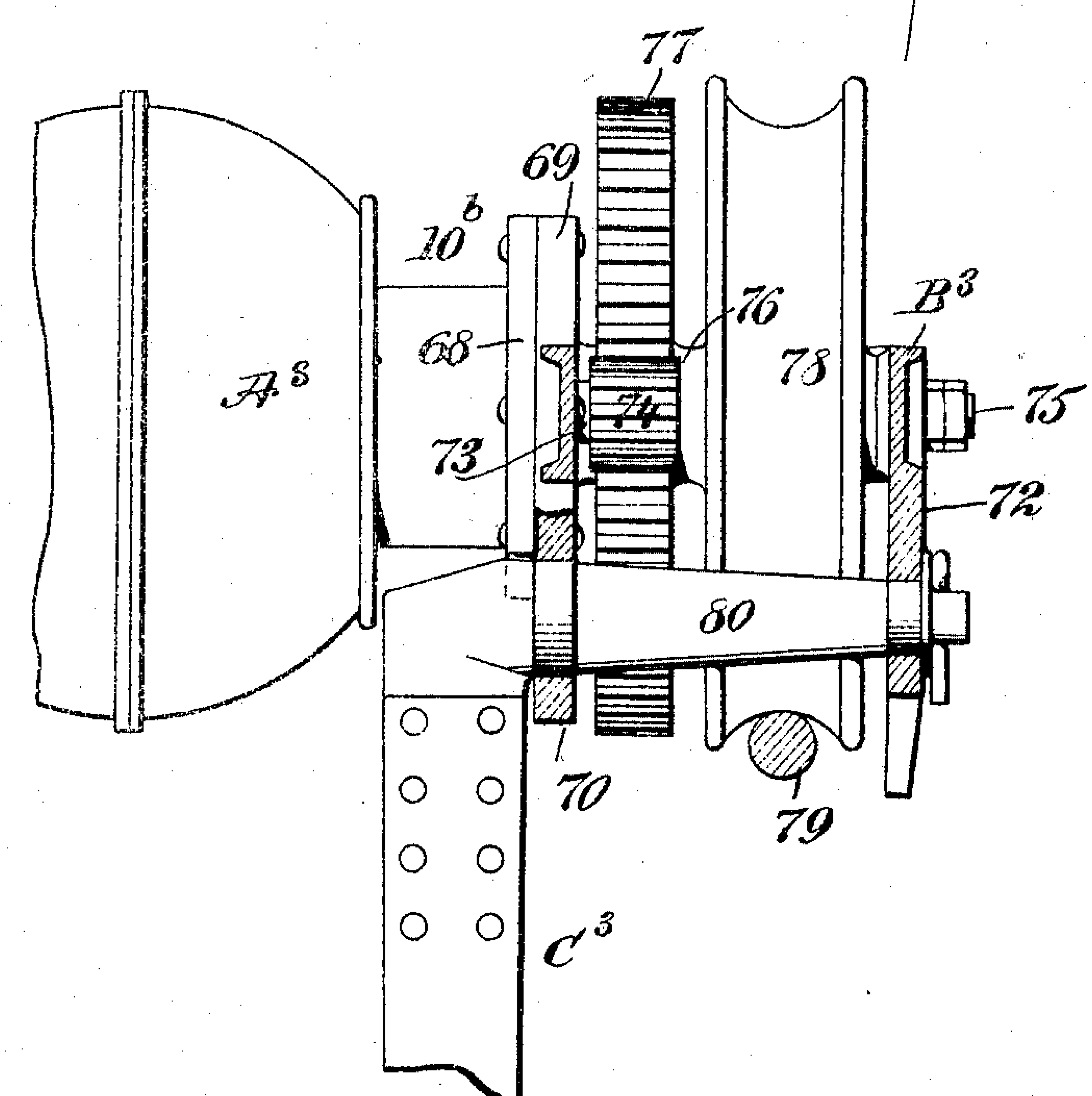


FIG. 8.



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No. 776,339. Patented November 29, 1904.

UNITED STATES PATENT OFFICE.

CHARLES MESSICK, JR., OF HACKENSACK, NEW JERSEY.

ELECTRICAL CABLEWAY-CONVEYER.

SPECIFICATION forming part of Letters Patent No. 776,339, dated November 29, 1904.

Application filed September 7, 1904. Serial No. 223,587. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MESSICK, Jr., a citizen of the United States, and a resident of Hackensack, in the county of Bergen and State of New Jersey, have invented a new and Improved Electrical Cableway-Conveyer, of which the following is a full, clear, and exact description.

My invention relates to electrical cableway-conveyers, sometimes known as "telphers."

The purpose of the invention is to provide a telpher of economic and durable construction capable under all ordinary conditions of traveling at the required rate of speed—namely, about six hundred feet per minute—which device is provided with grooved wheels of sufficiently large diameter to have a good bearing-surface on the cable being driven by an electric motor of normal speed and to provide a pivot as near as possible to the level of the track which will allow the telpher to accommodate itself to the vertical variation, especially in a cable-track, due to its only having supports at intervals, without causing the load to sway longitudinally as the telpher ascends in approaching and descends in receding from a support.

A further purpose of the invention is to provide a special construction of "down-come" whereby side swaying of the machine will not cause the down-come to interfere with the horizontal supports for the track-brackets.

Another purpose of the invention is to provide a simple, durable, quick-acting, and readily-replaceable brake for the device.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an end view of the device, the cable being in section. Fig. 2 is a side elevation, parts being broken away to show the action of the brake. Fig. 3 is a plan view of the device. Fig. 4 is a transverse section taken practically on the line 4 4 of Fig. 3. Fig. 5 is an end view of a slightly-modified form of the device. Fig. 6 is a plan view of the form of the device shown in Fig. 5. Fig. 7 is an enlarged transverse section through the device differing in some details from the construction shown in the other figures; and Fig. 8 is a view similar to that shown in Fig. 7, but illustrating another manner of pivoting the down-come to the body of the device.

A represents an electrical motor having a hub or head 10 at its end; but the hub or head may be substituted by any equivalent projection. The motor is provided with the usual drive-shaft 11, upon which a pinion 12 is secured. In connection with the motor a main frame B is used, which main frame is usually in one casting and is made as light as possible consistent with strength. It comprises two parallel substantially triangular plates 13 and 14, the pointed portions of the plates being at their lower ends and the widest portions at the top. These plates in casting are connected by a central sleeve 15, the plates having openings corresponding to the sleeve and the said sleeve comprising one head or hub 10 of the motor, and it is secured to the motor-field frame in any suitable manner. Two other sleeves, 16 and 17, are located at the upper end portions of the plates, connecting the same at such points, and the plates are provided with corresponding openings, while another sleeve, 18, is located at the lower pointed portion of the plates, connecting them there and registering with suitable openings in the plates. The entire frame structure just described is more or less strengthened by webs 19, extending from plate to plate and from one sleeve to another, as is particularly shown by dotted lines in Fig. 2.

An arched bar 20 is attached to the upper portion of the main frame B at one end and is curved outwardly and then inwardly parallel with the main frame B. This end arched bar 20 is attached to an end of a front plate 22, which is parallel with and opposite to the outer plate 14 of the main frame B. The arched bar 20 is usually provided with an aperture 21, whereby two frames may be coupled together, or a rope or cable may be attached to the frame.

A shaft 23 is passed through each of the sleeves 16 and 17, as is shown in Fig. 4, and is held in the said sleeves by suitable set-screws 24ª and drive-keys 81. The said shafts are reduced at their outer ends and threaded, and the reduced and threaded portions of the shafts are passed out through openings in the plate 22 and held in position by suitable nuts 24.

Each shaft 23 is preferably provided with a longitudinal groove therein adapted to contain oil, and an oil-wick and suitable oil-cups 26 are carried by the main frame B. A sleeve 28 is mounted to turn on each shaft 23 between the main frame B and the outer plate 22, and on each sleeve a pulley 27 is secured in any suitable or approved manner, so as to turn with the sleeve. These pulleys are peripherally grooved and are quite wide, as the grooved portions of the pulleys are adapted to engage with the cable 30, and the width of the peripheries of the pulleys is such that the pulleys are not liable to leave the cable. Each sleeve 28 has likewise attached thereto a gear 29, and these gears 29 mesh with the pinion 12, carried by the drive-shaft 11.

The down-come C is pivoted to the main frame B at the sleeve 18 by means of a suitable pivot-pin 31. This down-come is constructed of angle-iron, preferably an **I**-beam, which is bent upon itself from its pivotal connection with the main frame downward beneath the motor and then horizontally to a point just below the cable 30 and in vertical alinement therewith, forming an upper arched or curved section 32, and then the said beam is bent downward and outward, forming an inclined section 33, which is provided with a weight 34, adapted to counterbalance the motor A, the cable 30 acting as a fulcrum.

By giving the downward inclination to the foot-section 33 of the down-come the greatest possible leverage of the weight is obtained, as in turning curves the weighted end of the down-come will be carried away from a central line drawn vertically through the cable, and also when the down-come is inclined, as shown in Fig. 1, when the device sways it will not have a tendency to come in engagement with the supports for the track-brackets, while the curved upper section 32 of the down-come permits the said down-come to provide ample room for any supports, brackets, or the like which may perchance project beneath the cable 30.

The car is suspended from the down-come in any suitable or approved manner, but preferably through the medium of an eye 34ª, which is secured to the lower edge of the down-come where the two sections 32 and 33 meet, which eye is in vertical alinement with the aforesaid cable 30.

In connection with the grooved wheels 27 I employ a brake-beam 35. This brake-beam, as is best shown in Fig. 2, has its lower edge curved, so as to fit to the upper peripherally-grooved surface of the wheels 27, and is provided with a central downwardly-extending section which fits to the opposing side faces of the grooves in the two wheels, as is also shown in Fig. 2. This brake-beam 35 is provided with a longitudinal slot 36 centrally located, and a shaft 37 is journaled at its ends in uprights 38, extending upward from the main frame B and the front plate 22, near the central portion of these two parts, and the said shaft 37 is provided with a crank-arm 39, and this crank-arm passes through the slot 36 in the brake-beam 35.

At one end of the shaft 37 a lever 40 is secured, and this lever extends out beyond one end of the device, as is shown in Figs. 1, 2, and 3, and a chain or cable 41 is attached to the free end of the lever 40, which chain or cable 41 is passed downward over suitable guide-pulleys 42, carried by the down-come, and the said cable or chain extends down sufficiently to be within reach of the occupant of a car, as usually each car has an attendant. Thus by pulling down on the cord or cable 41 the brake-beam is brought into such forcible engagement with the grooved wheels 27, traveling on the cable, as to almost instantly stop the machine.

In Fig. 1 it will be observed that the plate 22 extends down below the end portion 20 of the frame, thus forming a pocket which serves to catch the cable 30 in the event the wheels should by any means jump the cable.

Under the construction shown in Figs. 5 and 6 the motor A′ is of the same type as that which has been described and is provided with a drive-shaft 43, carrying a pinion 44. The frame B′ under this construction consists of two parallel plates 45 and 46, which are slipped over the head or hub 10 of the motor to an engagement with the ends of its body portion and extend down below the body of the motor, as is illustrated in Fig. 5. These plates 45 and 46 are held in position by shafts 47, passed through the said plates 45 and 46, one at each side of the body of the motor, as is shown in Fig. 6, and these shafts extend some distance beyond what may be termed the "forward" plate 46. The shafts are provided with nuts 48 at each end, the nuts 48 at the rear ends of the shafts engaging with the rear plates 45, while collars 49 are slipped over the said shafts and brought to an engagement with the front face of the front plate 46. These collars are then secured to the shafts 47 in any approved manner. Each shaft at its outer end is provided with a sleeve 50, mounted to turn loosely thereon, and each sleeve 50 carries a gear 51. The said gears 51 mesh with the pinion 44. Each sleeve 50 is further provided with a broad peripherally-grooved track-wheel 52, adapted to travel on the cable 53. At the lower central portions of the plates 45 and 46 of the frame B′ a pin 54 is located, and on this pin the upper bi-

furcated portion 55 of a down-come C′ is pivoted, the foot member of which down-come is shown horizontal or straight and is provided with a counterweight 56 at its free end. The foot portion of the said down-come is likewise provided with a device 57, usually in the form of an eye, and this eye 57 is in vertical alinement with the cable 53.

Under the construction shown in Fig. 7 the motor A^2 is of the usual type; but one head 10^a of the motor has a plate 58 bolted or screwed thereto, extending beyond the periphery of the head, and the said motor, as usual, is provided with a drive-shaft 59, on which a pinion 60 is located. The frame B^2 is indicated as being of rectangular form, although it may be of any desired shape, and is secured to or may be integral with the plate 58. At opposite sides of the pinion 60, which occupies practically a central position within the frame, two parallel horizontal fixed shafts 62 are secured in the frame, and on each of these shafts a sleeve 63 is mounted to turn. Each sleeve 63 carries a gear 64, meshing with the pinion 60 and likewise a track-wheel 65, adapted to travel on the cable 66. Under this construction of the device the down-come C^2, which may be of any desired shape, is pivoted on the motor by forming a ring or band 67 at the upper end of the down-come, which is mounted to turn on the said head 10^a.

Under the construction shown in Fig. 8 the motor A^3 is of the customary type, and one head, 10^b, has a plate 68 secured thereto corresponding to the plate 58 above mentioned. An auxiliary plate 69 is secured to the initial plate 68, the auxiliary plate 69 being carried down below the initial plate 68, and the frame B^3, which is practically of the same type as that shown in Fig. 7, is made integral with or is attached to the auxiliary plate 69, and at its forward end is provided with a downwardly-extending member 72 parallel with the lower portion 70 of the auxiliary plate 69. The motor A^3, as is customary, is provided with a driving-shaft 73 and a pinion 74. Fixed shafts 75 are located in the frame B^3 near each end of the frame, and a sleeve 76 is mounted to turn on each fixed shaft 75. A gear 77 and a grooved track-wheel 78 are secured upon each sleeve 76, the track-wheels being adapted to travel on the cable 79 and the gears 77 meshing with the pinion 74. In this case the down-come C^3 is provided with a horizontal tapering head 80 at an angle to the upright portion of the body, and this tapering head 80 is passed through suitable openings in the downward extensions 70 and 72 of the frame B^3 and is held in place by cotter-pins.

Where the word "curve" is employed, referring to the down-come, it is intended to express a bend or elbow which may be more abrupt or less so than shown in the drawings.

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

1. In electrical cableway-conveyers, a frame, a motor carried by the frame, track-wheels supported by the frame, gears connected with the track-wheels, a driving connection between the motor and the said gears, a down-come having longitudinal pivotal relation to the motor and frame, and a counterweight carried at the free end of the down-come, balancing the motor and frame, the said down-come extending beyond the point at which the load is carried.

2. In electrical cableway-conveyers or telphers, a frame, a motor carried by the frame, shafts also carried by the frame, grooved track-wheels mounted to turn on said shafts, a gear connection between the wheels and the motor, and a counterweighted down-come having longitudinal, pivotal, swaying relation to the frame and the motor.

3. In electrical cableway-conveyers or telphers, a frame, a motor carried by the frame, shafts in parallel order also carried by the frame, grooved track-wheels mounted to turn on said shafts, a drive-shaft for the motor, a pinion on said drive-shaft, gears meshing with the pinion and connected with the track-wheels, a down-come having longitudinal, pivotal, swaying relation to the motor and frame, the foot-section of which down-come extends beyond the point at which the load is carried, a brake for the track-wheels, means for operating the brake, and a counterweight at the foot of the down-come, which balances the motor and frame.

4. In electrical cableway-conveyers or telphers, a frame, a motor, grooved track-wheels, supports therefor, gearing for driving the wheels from the motor, and a counterweighted down-come having longitudinal, pivotal, swaying connection with the frame, the free end of which down-come is inclined downward from the point at which the load is carried.

5. In electrical cableway-conveyers or telphers, a frame, a motor, grooved track-wheels, supports therefor, gearing for driving the wheels from the motor, and a counterweighted down-come having longitudinal, pivotal, swaying connection with the frame, the free end of which down-come is inclined downward from the point at which the load is carried, and is likewise curved in direction of the motor at the opposite side of the said load-carrying point.

6. In electrical cableway-conveyers or telphers, a motor geared to the track-wheels, a down-come adapted for longitudinal, pivotal, swaying connection with the device, the foot of which down-come extends to the point at which the load is carried.

7. In electrical cableway-conveyers or telphers, a down-come adapted for longitudinal, pivotal, swaying connection with the device, the foot of which down-come extends beyond the point at which the load is carried and is

downwardly inclined at such extending portion, and a counterweight at the outer end of the foot.

8. In electrical cableway-conveyers or telphers, a down-come adapted for pivotal and swaying connection with the device, the foot of which down-come extends beyond the point at which the load is carried, being downwardly inclined at such extending portion, and a counterweight at the outer end of the foot, the said down-come having its body portion laterally and upwardly curved at the opposite side of the load-carrying point.

9. In electrical cableway-conveyers or telphers, a frame, a motor, track-wheels carried by the frame and operated from the motor, a brake-shoe fitted to the upper peripheral surfaces of the wheels and extending downward between them to an engagement with their opposing peripheral surfaces, the said brake-shoe being provided with a longitudinal slot, a shaft mounted in the frame, crossing the said brake-shoe and provided with a crank-arm which enters the said slot, a lever attached to the said shaft, and means for operating the said lever.

10. In electrical cableway-conveyers or telphers, a frame, a motor carried by the frame, track-wheels supported by the frame, gears connected with the track-wheels, a driving connection between the motor and said gears, and a down-come having longitudinal, pivotal relation to the motor and frame, a brake member engaging the grooved peripheries substantially at the top of both track-wheels, and a crank passing through a slot in said brake member, having stationary supports and adapted to apply said brake by turning of said crank, and means for turning the crank.

11. In electrical cableway-conveyers or telphers, a frame, a motor carried by the frame, track-wheels supported by the frame, gears connected with the track-wheels, a driving connection between the motor and said gears, and a down-come having a counterweight at one end and having longitudinal, pivotal relation to the motor and frame, said down-come having a downward inclination toward its lower end where the counterweight is carried.

12. In electrical cableway-conveyers or telphers, a frame, a motor carried by the frame, track-wheels supported by the frame, gears connected with the track-wheels, a driving connection between the motor and said gears, and means having longitudinal pivotal relation with the motor and frame to suspend the load beneath the track.

13. In a telpher, a driving-motor, a pinion on the motor-shaft, a frame for the telpher carrying the motor on one side, two grooved wheels within the frame, gears to drive the grooved wheels and positively connected thereto, meshing with the motor-pinion, a pin practically parallel with the motor-shaft and grooved wheel-shafts, said pin being close to the motor, a down-come depending from said pin carrying the load at a point on the down-come located vertically under the track, and a counterweight at the extension of the down-come.

14. In a telpher, a motor, a frame at the pinion end of the motor, carrying the motor, said frame also carrying two stationary shafts with revoluble sleeves thereon, grooved wheels to run on the track, and gears to mesh with the motor-pinion, both mounted on said sleeves, a down-come swiveled to the frame to swing longitudinally under the track, a load-carrier connected with the said down-come, which down-come is downwardly bent at its lower end beyond the said load-carrying device, and a counterweight at the lower end of the down-come, to balance the motor, the load-carrying device being directly under the track.

15. In electrical cableway-conveyers, a frame, a motor carried by the frame, track-wheels supported by the frame, gears connected with the track-wheels, a driving connection between the motor and said gears, and a down-come having a counterweight-carrying end downwardly curved from the point at which the load is suspended.

16. In a freight-carrying telpher, grooved wheels within a frame, gears connected with same driven by a motor with a pinion to drive said gears, said motor located on one side of and carried by the frame, curved suspension means connected to the frame, extending from the frame under the track on which the grooved wheels travel, and a load depending from said suspension means and balancing the motor.

17. In a freight-carrying telpher, grooved wheels within a frame, gears connected with same driven by a motor with a pinion to drive said gears, said motor located on one side of and carried by the frame, curved suspension means connected to the frame extending from the frame under the track on which the grooved wheels travel, a load depending from said suspension means, and a counterweight located on an extension of the said suspension means.

18. In a freight-carrying telpher, grooved wheels within a frame, gears connected with same driven by a motor with a pinion to drive said gears, said motor located on one side of and carried by the frame, curved suspension means connected to the frame extending from the frame under the track on which the grooved wheels travel, and a load depending from said suspension means, the suspension means being downwardly curved beyond the load, and a counterweight near the lower extremity.

19. In a telpher, grooved wheels within a frame, gears connected with same driven by a motor with a pinion to drive said gears, said motor located on one side and carried by the frame, curved suspension means connected to the frame extending from the frame under the track on which the grooved wheels travel, a load depending from said suspension means,

and a counterweight located on an extension of the said suspension means.

20. In a telpher, grooved wheels within a frame, gears connected with same driven by a motor with a pinion to drive said gears, said motor located on one side and carried by the frame, curved suspension means connected to the frame, extending from the frame under the track on which the grooved wheels travel, and a load depending from said suspension means, the suspension means being downwardly curved beyond the load, and a counterweight at its lower extremity.

21. In a telpher, a motor with a frame at the pinion end of the motor, carrying the motor; said frame also carrying two stationary shafts with revoluble sleeves thereon, grooved wheels to run on the track and gears to mesh with the motor-pinion, both mounted on said sleeves, a down-come swiveled to the frame to swing longitudinally under the track, a load-carrier connected with said down-come, and a counterweight at the end of same to balance the motor and the frame.

22. In a telpher, a motor with a frame at the pinion end of the motor carrying the motor, said frame also carrying two stationary shafts with revoluble sleeves thereon, grooved wheels to run on the track and gears to mesh with the motor-pinion, both mounted on said sleeves, a down-come swiveled to the frame to swing longitudinally under the track and a weight carried by said down-come to balance motor and the frame on the track.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES MESSICK, JR.

Witnesses:
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JNO. M. RITTER.