

No. 742,426.

PATENTED OCT. 27, 1903.

J. J. HILL.
ELECTRIC CARRYING APPARATUS.

APPLICATION FILED JUNE 22, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

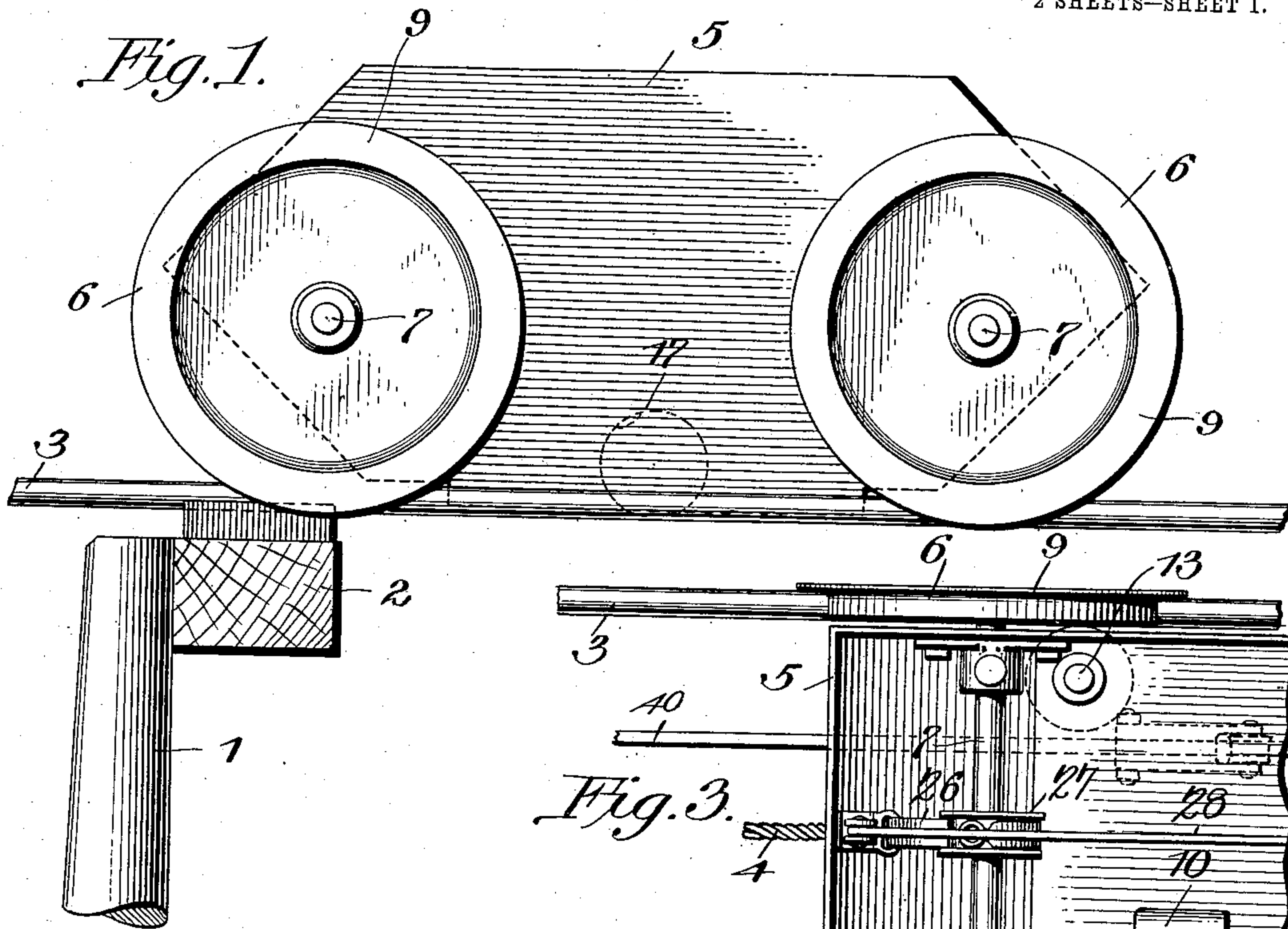


Fig. 3.

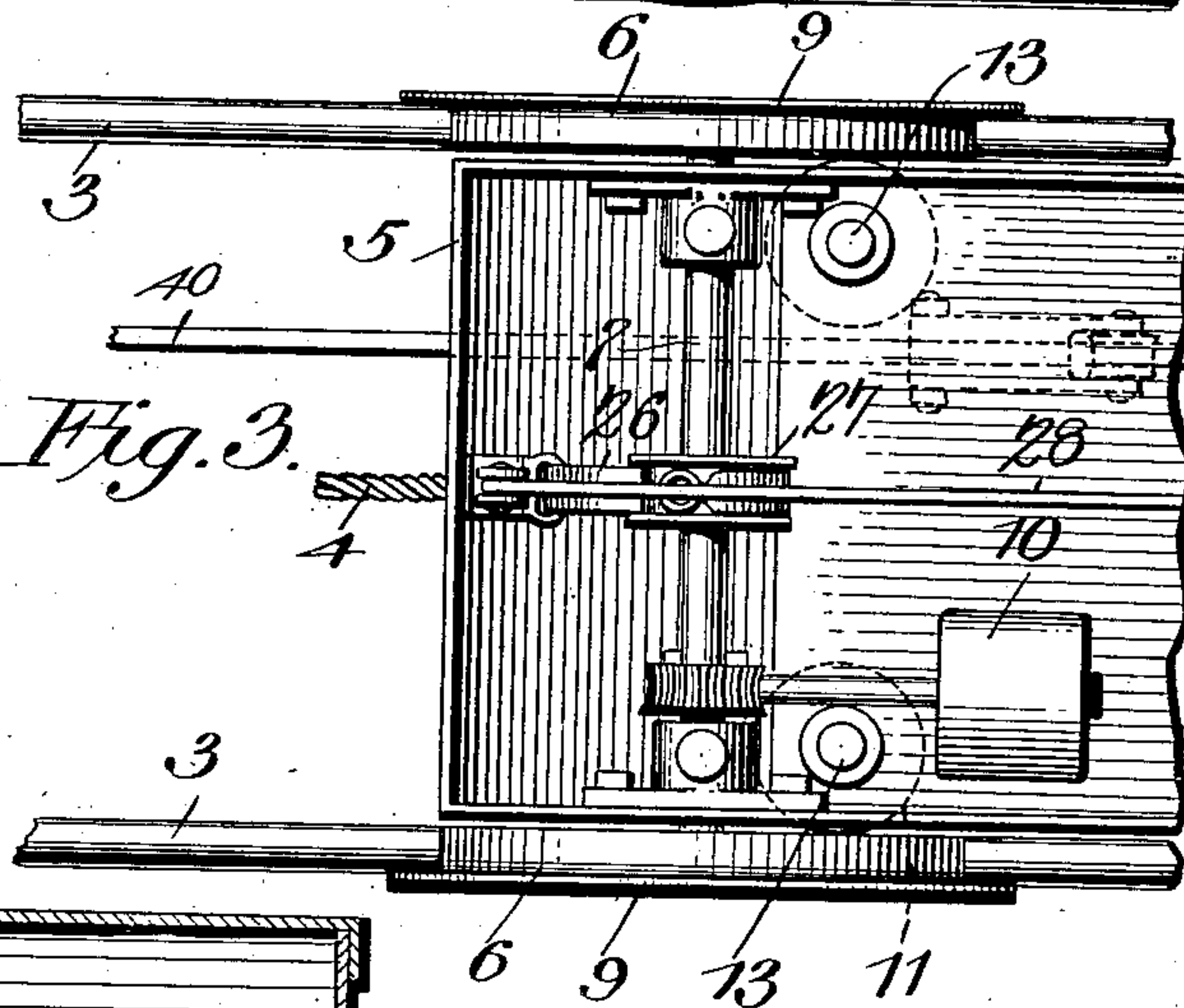


Fig. 2

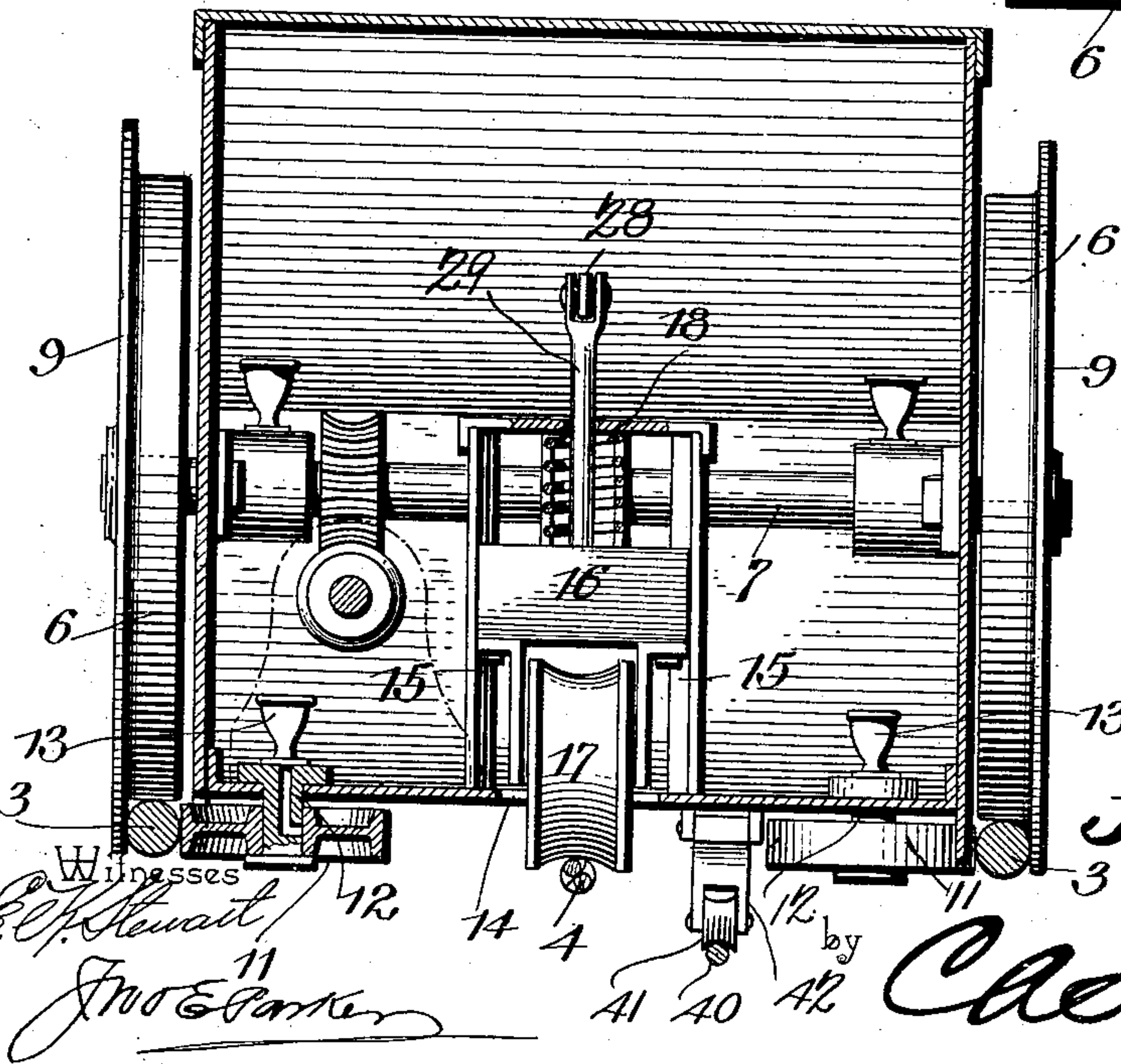
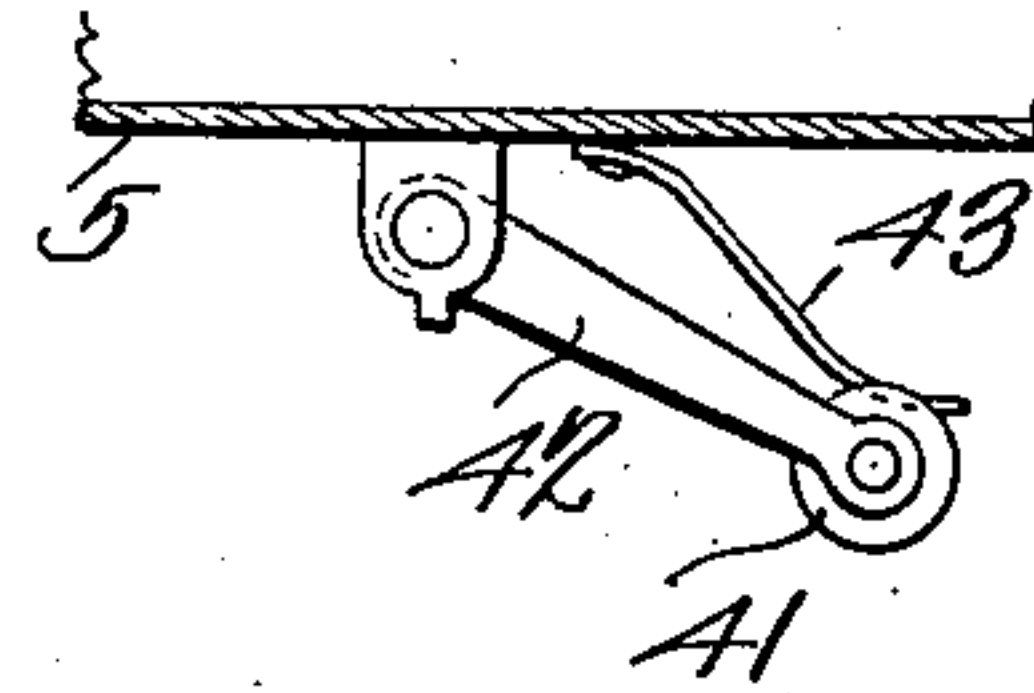


Fig. 7.



Witnesses

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2 SHEETS—SHEET 2

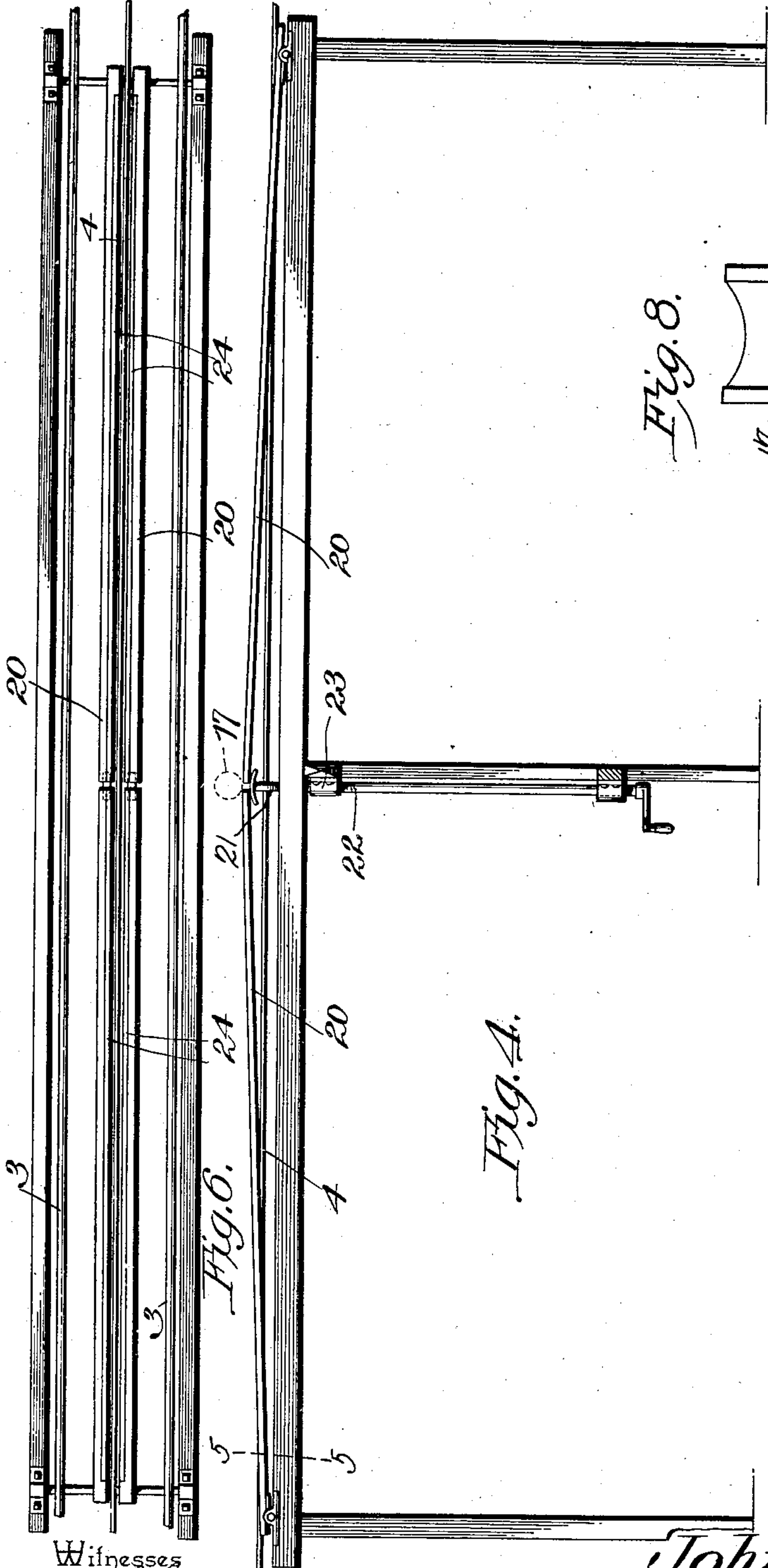


Fig. 4.

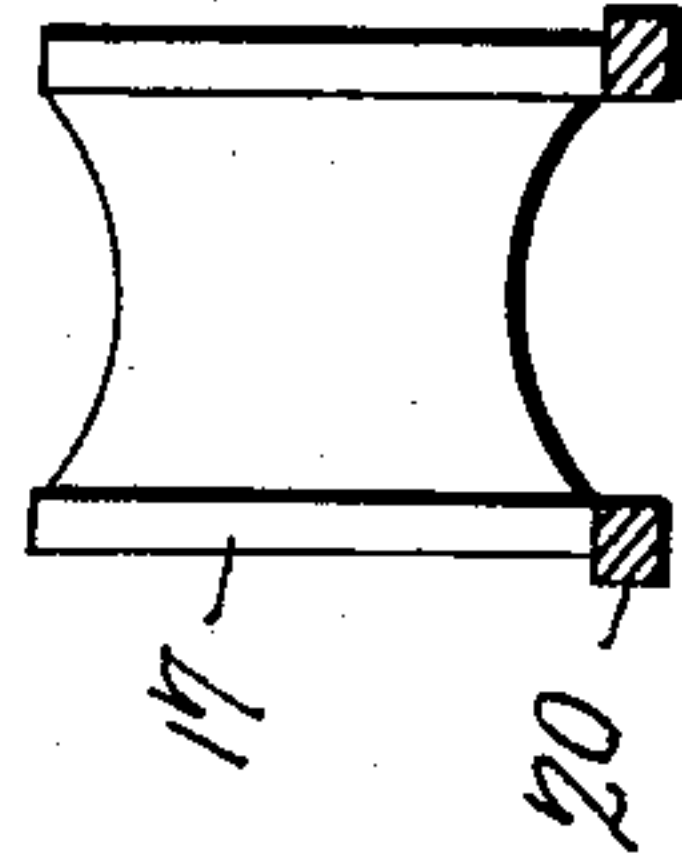


Fig. 8.

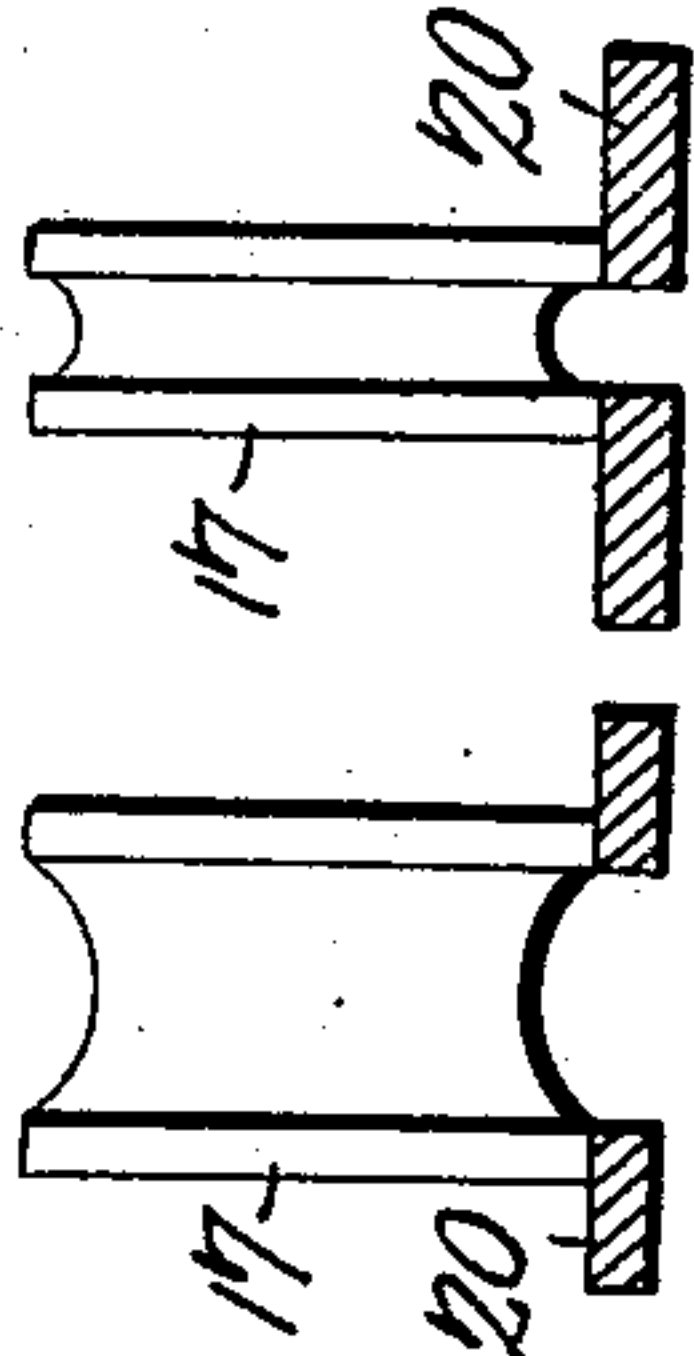


Fig. 9.

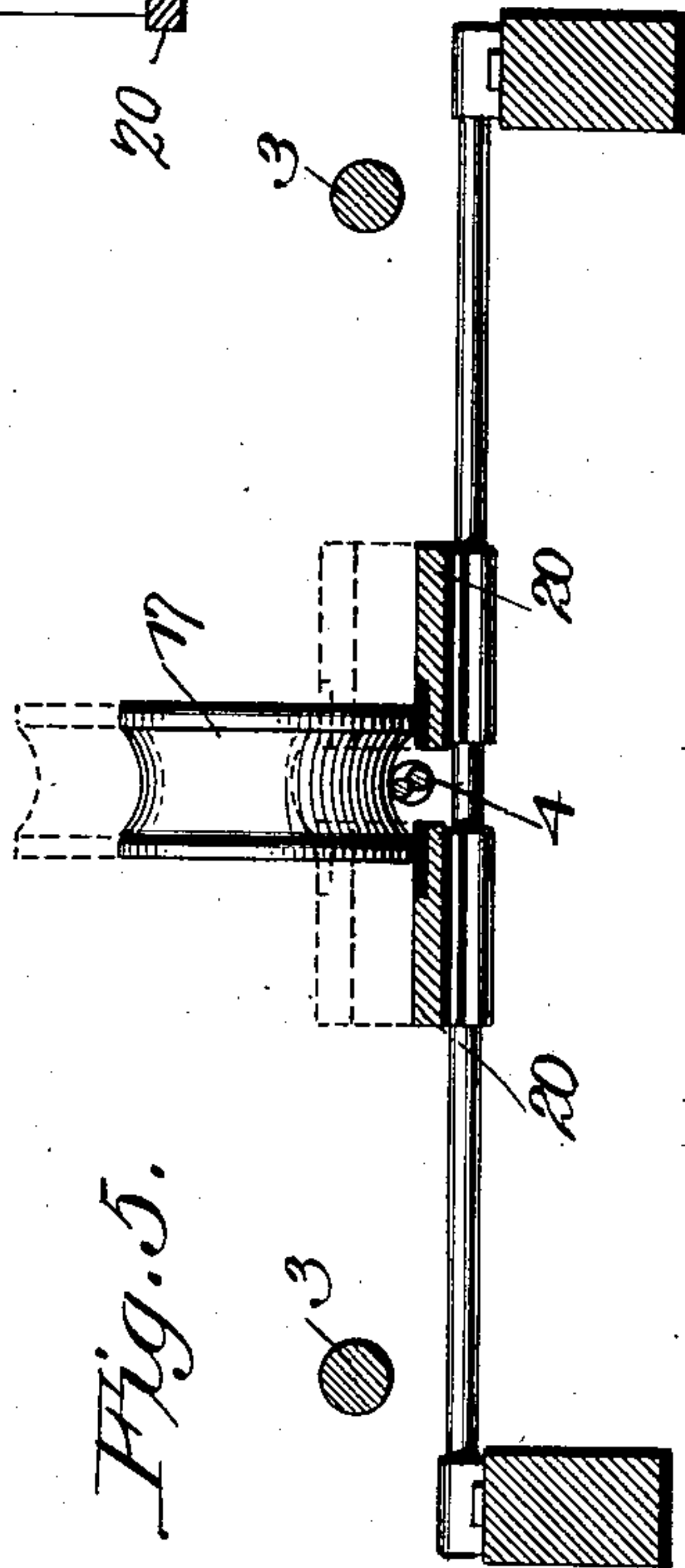


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN JACOBS HILL, OF ROSE MILLS, VIRGINIA.

ELECTRIC CARRYING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 742,426, dated October 27, 1903.

Application filed June 22, 1903. Serial No. 162,679. (No model.)

To all whom it may concern:

Be it known that I, JOHN JACOBS HILL, a citizen of the United States, residing at Rose Mills, in the county of Nelson and State of Virginia, have invented a new and useful Electric Carrying Apparatus, of which the following is a specification.

This invention relates to certain improvements in electric carrier apparatus, and has for its principal object to provide a simple and economical system for the transportation of mail or merchandise carried in small quantities.

A further object of the invention is to provide a system of this character which may be installed at comparatively low cost and in which the cars or carriers may be run at any desired speed without danger of leaving their supporting rails or cables.

A still further object of the invention is to provide a device of this class in which the cars or carriers may be readily checked and stopped at stations along the line in order to permit the delivery of their contents or the insertion of fresh mail matter or packages to be carried.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a portion of a system constructed in accordance with my invention, illustrating a construction of car or carrier which it is preferred to employ. Fig. 2 is a transverse sectional elevation of the car, drawn to an enlarged scale. Fig. 3 is a plan view, partly in section, showing the construction of one end of the car or carrier. Fig. 4 is a detail sectional view showing the mechanism at the station for controlling and stopping the carrier. Fig. 5 is a transverse sectional elevation of the same on the line 5 5 of Fig. 4. Fig. 6 is a plan view of a portion of the station mechanism.

Fig. 7 is a detail view of the brake. Figs. 8, 9, and 10 are detail views illustrating the employment of trolley-wheels and station strips at different distances from each other in order to determine the points at which the car shall stop.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The apparatus forming the subject of the present invention is designed principally to facilitate the transportation of mail or small packages, although it is well adapted for use as a cash or merchandise carrier for stores or on a more extensive scale for the transportation of freight or passengers.

In carrying out the invention poles 1 of suitable size are placed at intervals along the line, and on top of these poles are bolted or otherwise secured transversely-disposed arms 2, which serve to carry the cables or rails 3 for the cars, and a current-conductor 4, the latter being formed, preferably, of a strand of copper and a strand of steel or iron twisted together and connected to any suitable source of electrical energy. The rails 3 may be of circular or any other form and of a diameter proportionate to the load which they are to support, and such rails may be either rigid or in the form of comparatively flexible bars, strands, or cables, as may be desired.

The cars 5 are formed of strong sheet metal and may be pointed at one or both ends, as shown, in order to lessen atmospheric resistance. Each of the cars is provided with two sets of supporting-wheels 6, mounted on axles or shafts 7, which extend through the body of the car, suitable bearing-boxes and lubricating-cups being employed at each side of the car.

The wheels 6 are of comparatively large diameter, and their outer edges are provided with flanges 9 in order to prevent spreading and lessen the liability of the car leaving the track. The shafts or axles 7 are driven by electric motors 10, arranged within the cars and coupled to the shaft in any suitable manner. On the bottom of each of the cars are two sets of guiding wheels or disks 11, of comparatively small diameter, engaging the inner sides of the rails 3, so that contact of the car with the rails is prevented, and the

rails, if flexible, are kept at the proper distance apart. These small guiding-wheels are arranged on vertical pins 12, depending from the under side of the car, and each of the pins is preferably provided with a lubricating-cup 13 of any desired character.

In the bottom of each car is a slot 14, and immediately above the slot are arranged guideways 15 for the reception of a vertically-movable block 16, carrying at its lower end a trolley-wheel 17, which is pressed into contact with the current-conducting wire 4 by means of a suitable compression-spring 18, the spring yielding in order to compensate for irregularities in the cable. This trolley-wheel is grooved and preferably of a width somewhat greater than that usually employed in connection with electric cars in order to provide for the automatic separation of the wheel from the conducting-wire when the car arrives at a station. At each of the stations along the line is arranged a car checking and stopping device of the character best shown in Figs. 4, 5, and 6 and comprising means for raising the trolley-wheel from the current-conducting wire in order to cut off the current and means for gradually checking the speed of the car. On the opposite sides of the current-conducting wire 4 are arranged strips or planks 20, the strips being disposed in pairs and all of such strips being connected together by a block 21, which may be moved vertically in order to change the angle of the strips when it is desired to stop or start the car. The outer ends of the strips are pivoted to fixed supports, as shown more clearly in Fig. 4, and to the under side of the block is swiveled a screw 22, extending through a fixed nut 23 and provided at its lowest end with a hand wheel or crank, which may be turned to vertically adjust the block. These strips 20 are covered by strips of glass or other insulating material, as indicated at 24, and are arranged in close proximity to the current-conducting wire, so that when the connected ends of the strips are elevated and arranged in planes crossing that of the wire the trolley-wheel will be caught by the strips and raised out of contact with the wire, and thus cut off the current to the motor or motors.

As the cars are run at high speed, it becomes necessary to employ a checking and stopping means, and this may take the form of a band-brake 26, extending around a grooved friction-wheel 27 on one or both of the shafts 7. One end of the band-brake is secured to the casing and the other is connected to one end of a lever 28, the opposite end of said lever being connected to a vertical pin 29, that projects upward from the block 16, so that once the trolley-wheel is raised by engagement with the strips 20 the brake will be forcibly applied to the friction-wheel, and thus stop the car. The car may then be opened by the station-master for the removal of the mail or other contents and insertion of any new matter which it is desired to forward.

To again start the car in motion, it is simply necessary to lower the strips 20 until the trolley-wheel is again in contact with the current-conductor, this movement releasing the band-brake 26 and allowing the car to start.

The arrangement of the stations is such that a through car may be allowed to continue from end to end of the route, or the stations may be normally kept in such position of adjustment as to stop every car traveling along the same, or by changing the width of the trolley-wheels and the distance between the strips express-cars may be allowed to travel past the stations, the wheels being sufficiently narrow to avoid striking the strips, while the local cars, having wider wheels, will engage with the strips and stop. This selective mechanism of stopping the cars may be further carried out by arranging the strips at different stations at varying distances apart and providing the cars with wheels of a corresponding width, so that only selected cars will stop at the desired stations, as shown in Figs. 8, 9, and 10.

In order to control the speed of travel of the car, especially on downgrades, a braking-strip in the form of a wire 40 is placed at downgrades parallel with and between the two main rails or supporting-wires 3. This brake-wire is arranged at one side of the center, preferably near the right-hand wire, and is engaged by a grooved roller 41, carried by a pivoted arm 42 on the car. The periphery of this roller is preferably engaged by a spring 43, exercising retarding action and tending to prevent travel of the car at excessive speed. As both the braking roller and wire are arranged to one side of the center, it follows that a car traveling upgrade would move with its braking-roller toward the left-hand side of the road and out of contact with the wire 40.

Having thus described the invention, what is claimed is—

1. The combination with the rails or cables, of an electric conductor, a car having wheels traveling on the rails or cables, a trolley-wheel in engagement with the electric conductor, and a station mechanism including means for engaging and moving the trolley-wheel from contact with the current-conductor.

2. The combination with the rails or cables, of an electric conductor, a car having supporting-wheels running on the rails or cables, a trolley-wheel in engagement with the current-conductor, and station means including adjustable strips for engaging and lifting the trolley-wheel from contact with the current-conductor.

3. The combination with the rails or cables, of a current-conductor, a car having wheels traveling on the rails or cables, a trolley-wheel in contact with the current-conductor, and a station means including a plurality of sets of strips adapted for contact with the trolley-wheel, and means for adjusting the positions of said strips.

4. The combination with the rails or cables, of a current-conductor, a car having wheels traveling on the rails or cables, a plurality of sets of strips having insulating covers and
5 adapted for engagement with the trolley-wheel, and a vertically-adjustable block to which the adjacent ends of said strips are connected for simultaneous movement, thereby to permit of the raising of the wheel of a
10 car approaching the station in either direction.

5. The combination with the rails and cables, of a current-conductor, a car having wheels traveling on the rails or cables, a
15 yieldably-mounted trolley-wheel, spaced strips for engaging and raising the trolley-wheel, and means for engaging and checking the movement of the car.

6. The combination with the rails or cables,
20 of a current-conductor, a car having rails traveling on the rails or cables, a yieldably-mounted trolley-wheel in engagement with the current-conductor, spaced strips for engaging and moving the trolley-wheel from
25 the current-conductor, the width of the trolley-wheels and the width of the spaces between the strips being arranged in accordance with the stopping-points of the cars.

7. A car having a trolley, a current-con-
30 ductor, means for moving the trolley from

engagement with the current-conductor, and a braking mechanism operable by the movement of the trolley from the conductor.

8. A car, a wheeled driving-shaft, a friction-disk secured to the shaft, a band-brake 35 engaging the disk, a trolley, a guided block supporting the trolley, means for connecting the block to the band-brake, and means for moving the trolley to inoperative position.

9. In a system of the class described, the 40 combination with the rails or cables, of an auxiliary braking wire or cable disposed close to and parallel with one of said rails, and a car having a braking member adapted to engage said braking-wire. 45

10. In a system of the class described, a pair of rails or cables, a braking-wire arranged on downgrades at points adjacent to one of the rails or cables, an arm pivoted to the car, a roller carried by the arm and adapt- 50 ed to engage the braking-wire, and a spring for retarding movement of said roller.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN JACOBS HILL.

Witnesses:

WILLIAM N. HILL,
QUINTUS C. BOWNE.