

APPLICATION FILED JUNE 18, 1908.

925,179.

Patented June 15, 1909.

2 SHEETS--SHEET 1.

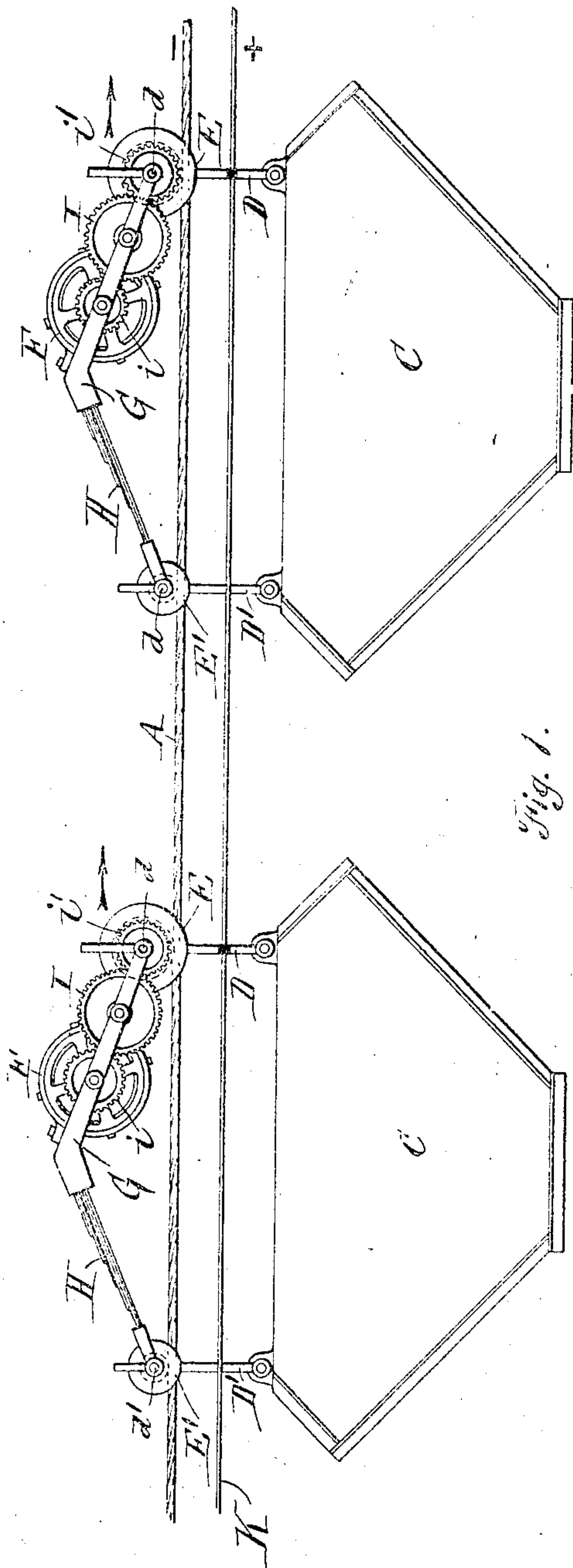


Fig. 1.

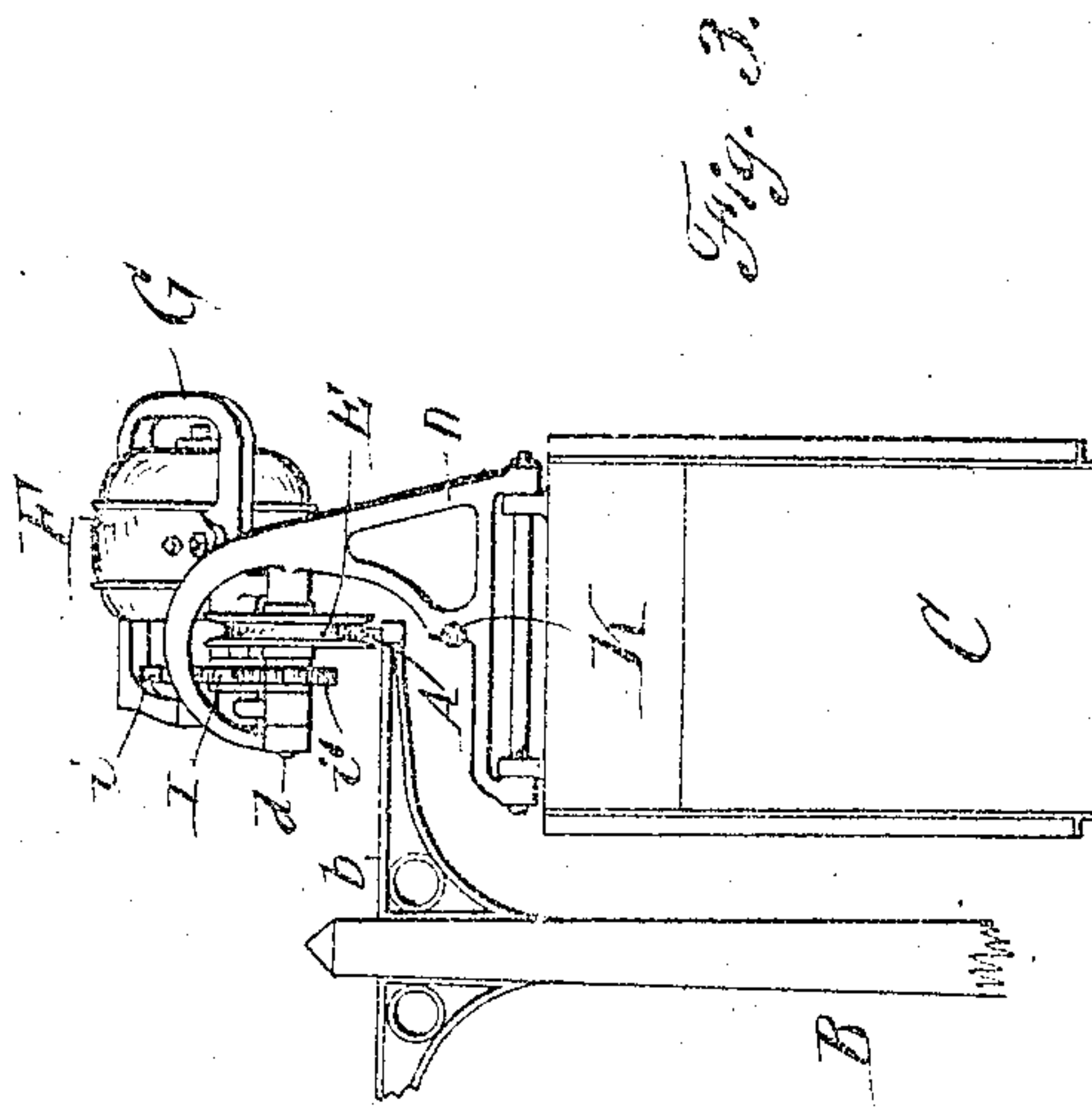
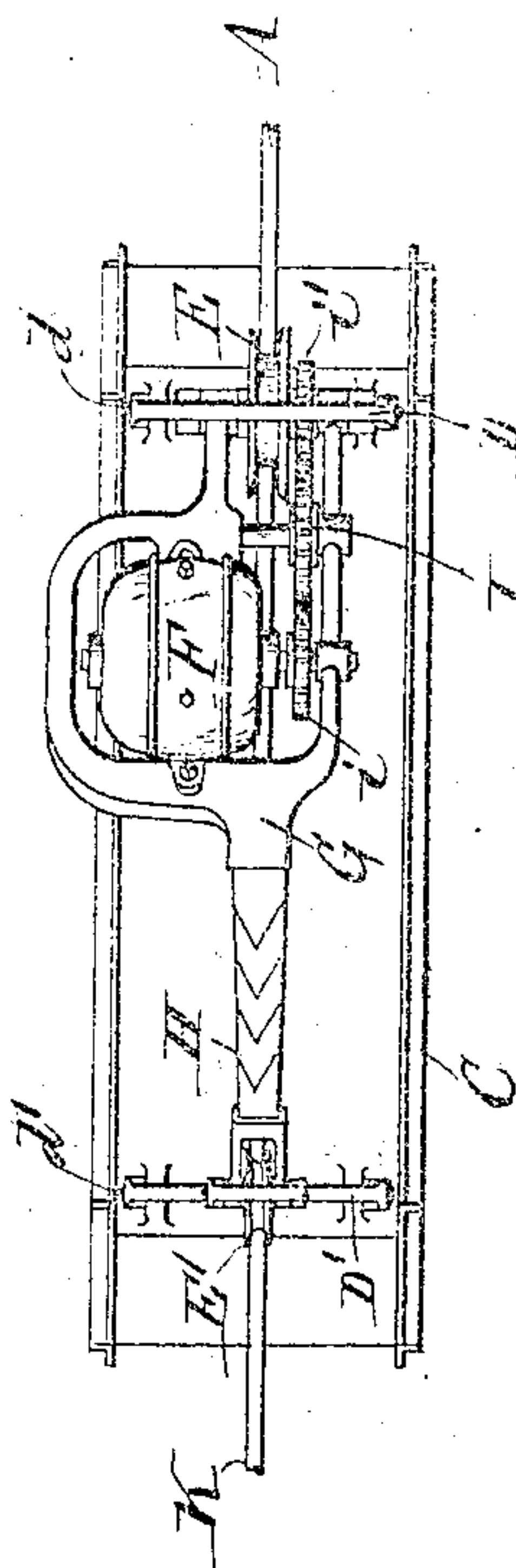


Fig. 2.



218

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TELPHER SYSTEM.

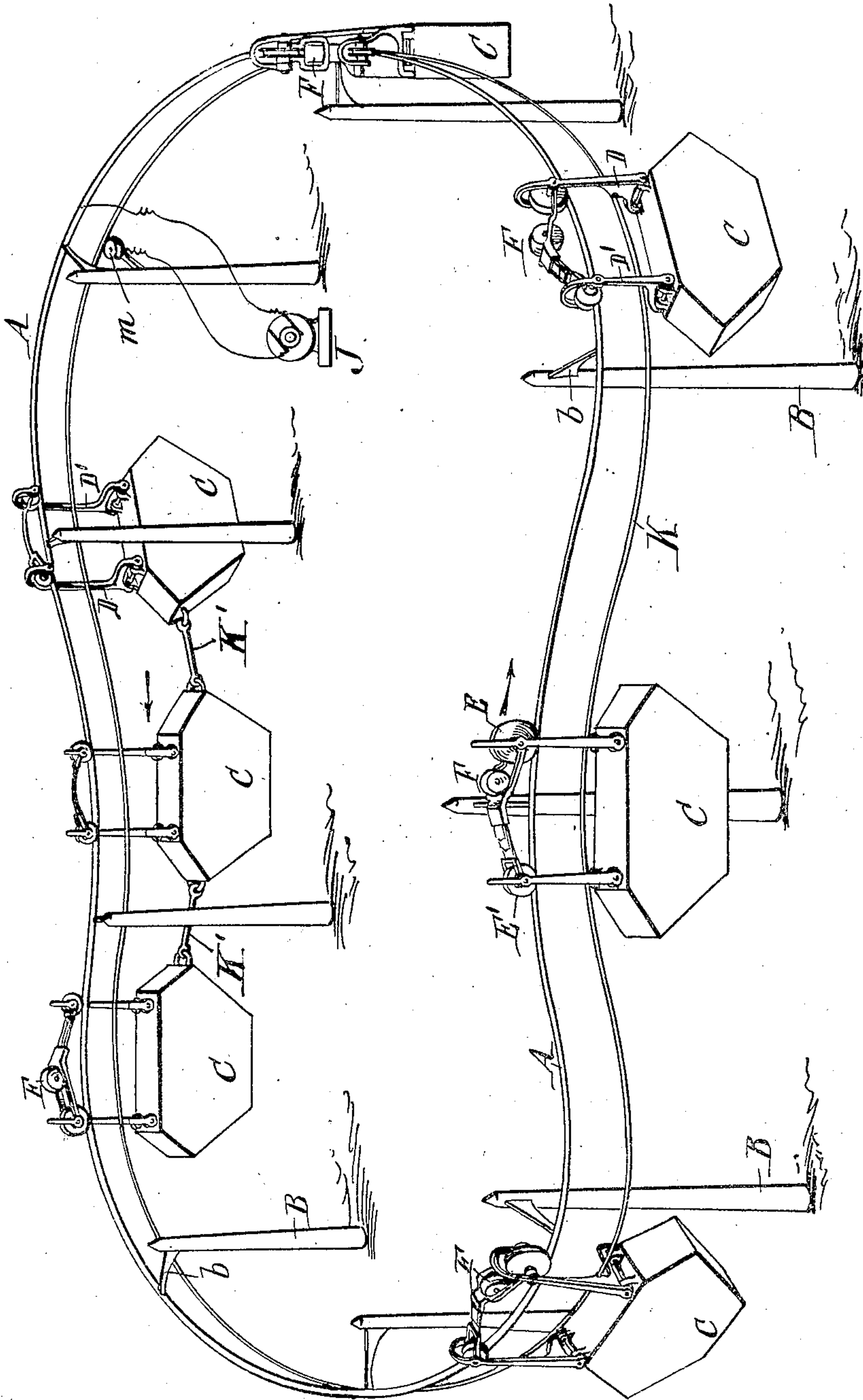
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2 SHEETS—SHEET 2.

Fig. 4.



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# UNITED STATES PATENT OFFICE.

BARNETT W. HARRIS, OF BUFFALO, NEW YORK, ASSIGNOR TO AMERICAN TELPHER COMPANY, OF BUFFALO, NEW YORK, A CORPORATION OF NEW YORK.

## TELPHER SYSTEM.

No. 925,179.

— Specification of Letters Patent.

Patented June 15, 1909.

Application filed June 18, 1908. Serial No. 439,199.

*To all whom it may concern:*

Be it known that I, BARNETT W. HARRIS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Telfer Systems, of which the following is a specification.

This invention relates to a telfer system in which the cars or trains are propelled by individual electric motors.

In the telfer systems heretofore in use the cars or trains were disconnected from each other which is objectionable because one car or train is liable to travel faster than another and cause a collision and a break down of the system. Furthermore, cars or trains which are unconnected require motors of sufficient power to draw each of them up the steepest grade which involves unnecessary expense for equipment particularly when the main part of the line is comparatively level.

The object of this invention is the production of a telfer system of this character in which collisions are impossible and which can be installed at less cost and operated with less power than has been necessary in the systems heretofore in use.

In the accompanying drawings consisting of 2 sheets: Figure 1 is a fragmentary side elevation of my improved telfer system showing two cars and the means for supporting and operating the same. Fig. 2 is a top plan view of one of said cars. Fig. 3 is an elevation of the cars and the supporting and operating means. Fig. 4 is a diagrammatic perspective view of a telfer system embodying my invention.

Similar letters of reference indicate corresponding parts throughout the several views.

In its general organization my improved telfer system comprises a plurality of cars or trains some or all of which are provided with electric motors which are distributed among the several cars or trains so that the load is divided among the same and power is applied at intervals for drawing the load, means for mechanically coupling the several cars or trains so that together they form an endless system of carriers, an endless track upon which said cars or trains run, and which forms one of the conductors whereby the electric current is supplied to the several motors, an electrical connection carried by

said cars or trains and forming the other conductor for supplying the electric current to said motors, and an electric generator connected on opposite sides with said conductors for operating said motors. A telfer system thus organized permits of utilizing electric motors of much smaller horse power than has been necessary heretofore, inasmuch as the cars moving up grade are assisted by gravitation of other cars going down grade, so that the track as a whole is practically reduced to a level because each up grade is offset by a corresponding down grade. It will thus be apparent that only so much power is required as would be necessary to move a load on a level at a predetermined speed and that the cost of installation can therefore be materially reduced. Inasmuch as the cars or trains are all coupled with one another it will also be apparent that the same cannot approach each other but are positively held apart, thereby absolutely preventing collisions between cars and insuring the system against break down or interruption from this cause.

A represents the continuous or endless track which may be of any suitable form and arranged either overhead, underground or on the surface of the ground, but as shown in the drawings the same consists of a wire cable and is supported above the ground by means of arms *b* projecting laterally from posts or poles *B* set in the ground. Upon this track are supported the cars or trains which run on the same. The body *C* of each car is preferably suspended at its opposite ends by hangers or links *D*, *D'* from the axles *d*, *d'* of wheels *E*, *E'* which latter are provided with peripheral grooves whereby the same run on the cable track.

F represents the electric motors whereby the cars and trains are driven. If desired, each of these cars may be provided with an individual electric motor which forms part of the electric translating means for operating the entire system, such an arrangement being shown in the lower part of Fig. 4, or a car having a motor may be coupled with one or more trailing cars which are unprovided with motors, as shown in the upper part of the same figure. When a car is provided with a motor the latter is preferably mounted on a saddle which yieldingly connects the axles of the car and which preferably consists of a rigid arm *G* carrying



the motor and pivotally connected with one of the axles of the respective car and a leaf spring H pivotally connected with the other axle of the same car and connected with the arm G. This motor is operatively connected with the supporting wheel E, so that when the motor operates it turns said wheel and thus aids in propelling the car and the parts connected with the same. The means shown in the drawings for transmitting motion from the motor to the driving wheel E consists of an intermediate gear wheel I pivoted on the arm G and meshing with gear wheels  $i$ ,  $i^1$  secured to the shaft of the motor armature and the axle  $d$  of the wheel E. The latter is preferably made of metal and electrically connected with one side of the motor and the track serves as an electrical conductor which is connected with one terminal of an electric generator J which is located at any suitable place. The other side of the motor is connected with an endless conductor K which is supported by the several cars, and which moves in contact with a brush or wheel  $m$  connected with the other terminal of the electrical generator. The electrical conductor K may be secured to one of the hangers of the car, as shown in Figs. 3 and 4, and is preferably made sufficiently strong so as to serve as the mechanical connector or coupling between adjacent cars or trains but if desired the same may be utilized solely for conducting the electric current and separate means may be employed for connecting the cars or trains, such for instance as the links  $K^1$  which connect the car bodies on the upper part of Fig. 4.

In the operation of this system the cars or trains may be run continuously and their loads discharged automatically at predetermined places or the same may be stopped whenever it is desired to take on or put off a cargo in any one or more of the cars or trains.

By thus distributing the electric motors among the cars and trains at intervals along the entire line, power is applied to the system at a plurality of points, whereby the strain upon the connections between the several cars or trains is distributed uniformly over the same and renders it unnecessary to make this connection unduly heavy as would be the case if the power were applied

only at one point which would make it necessary to increase the strength of the cable or connection in proportion to the length of the trains or cars and the load carried by the same.

I claim as my invention:—

1. A telpher system comprising a plurality of cars connected with each other in an endless series, an electric motor arranged on one or more of said cars, a track upon which said cars run and which forms one of the electric conductors for said motor or motors, an electric conductor carried by said cars, and an electric generator having its terminals connected with said conductors.

2. A telpher system comprising a plurality of cars connected with each other in an endless series, an electric motor arranged on one or more of said cars, a track upon which said cars run and which forms a stationary electric conductor for said motor or motors, a movable conductor supported by said cars, and an electric generator having one of its terminals connected with the stationary conductor while its other terminal is connected with a brush which engages the movable conductor.

3. A telpher system comprising a plurality of cars connected with each other in an endless series, an electric motor arranged on one or more of said cars, a track upon which said cars run and which forms a stationary electric conductor for said motor or motors, a movable conductor connecting the several cars, and an electric generator having its terminals electrically connected with said stationary and movable conductors.

4. A telpher system comprising a track forming an electrical conductor, wheels running on the track, hangers suspended from the axles of said wheels, a body carried by said hangers, a saddle having an arm connected with the axle of one wheel and a spring connected with the axle of the other wheel, and an electric motor mounted on said arm and operatively connected with the adjacent wheel.

Witness my hand this 12th day of June, 1908.

BARNETT W. HARRIS.

Witnesses:

THEO. L. POPP,  
E. M. GRAHAM.