

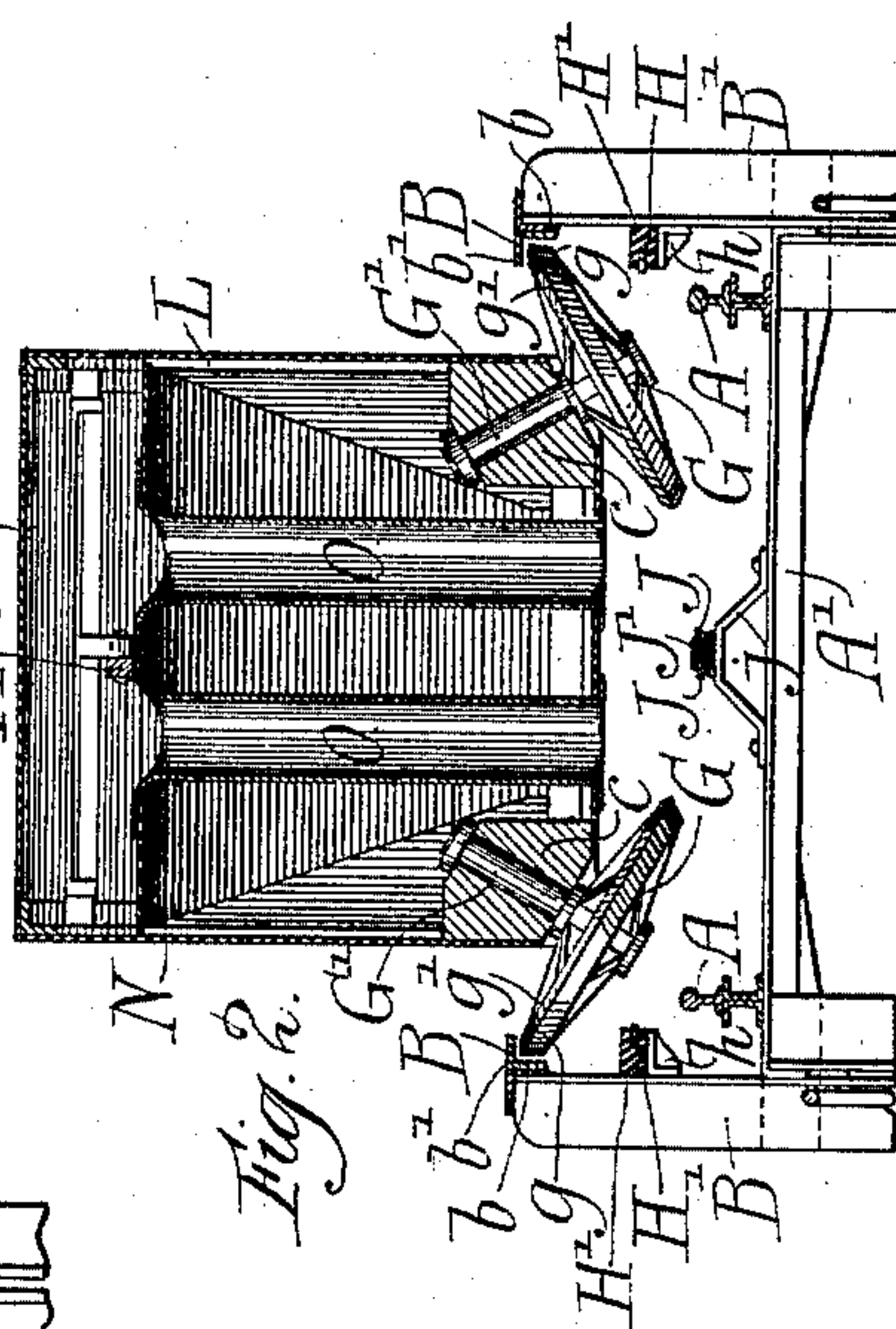
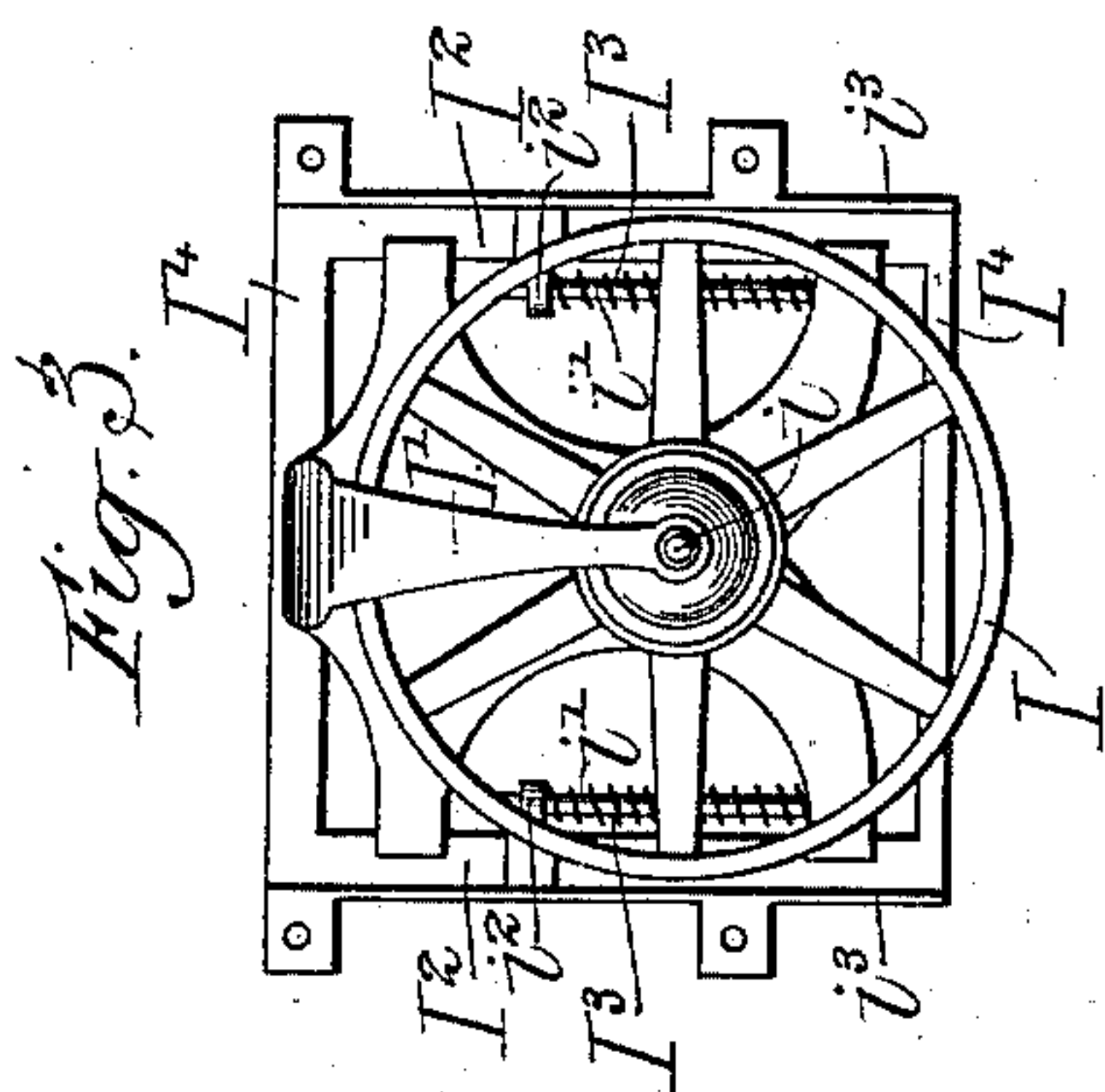
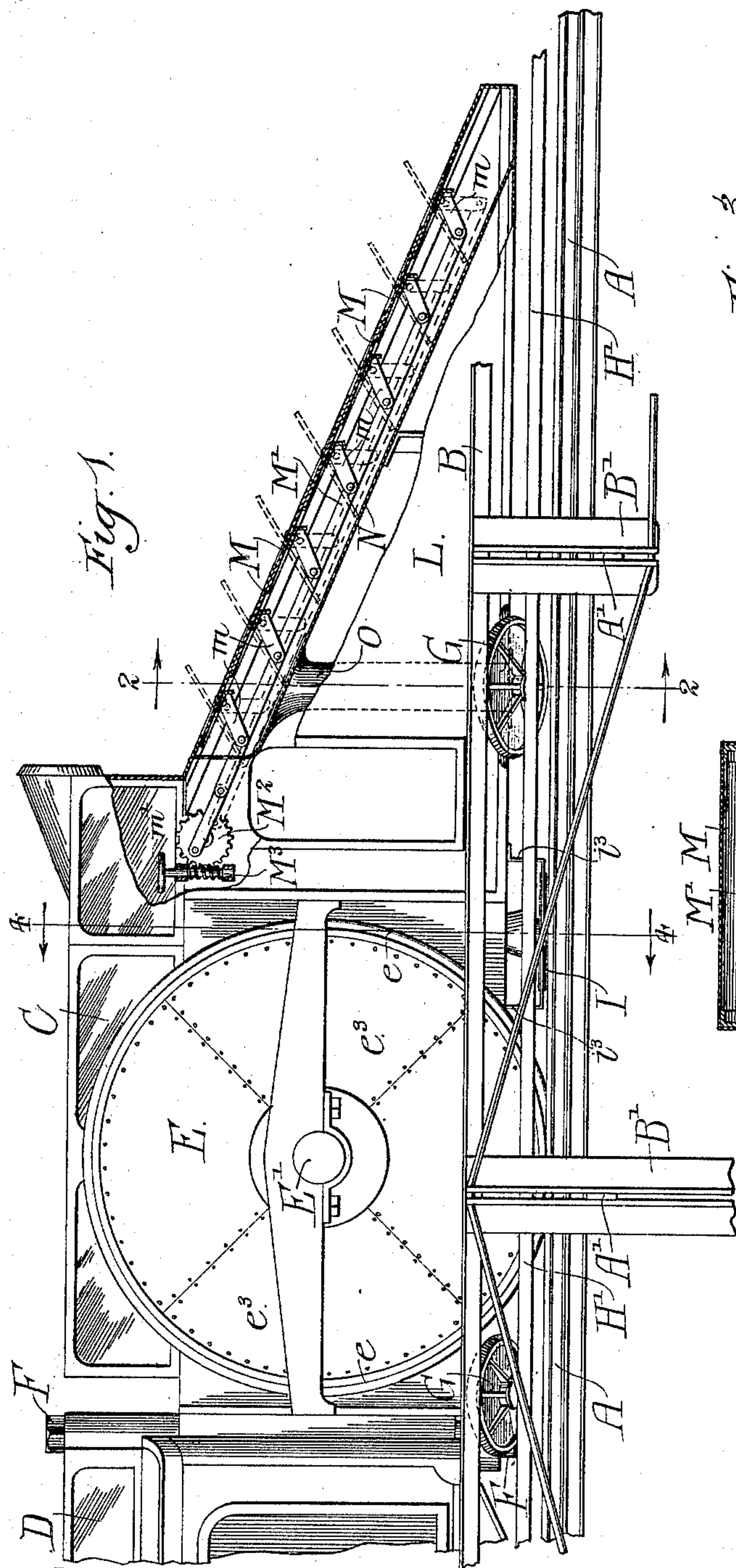
(No Model.)

2 Sheets—Sheet 1.

C. C. BURTON.
RAILWAY TRACK AND CAR.

No. 518,565.

Patented Apr. 17, 1894.



Witnesses:-
Wm. L. Fleming
Wm. M. Rheem

Inventor:-
Charles C. Burton.

by:- Clayton, Poole + Brown
His Attorneys.

(No Model.)

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Fig. 4.

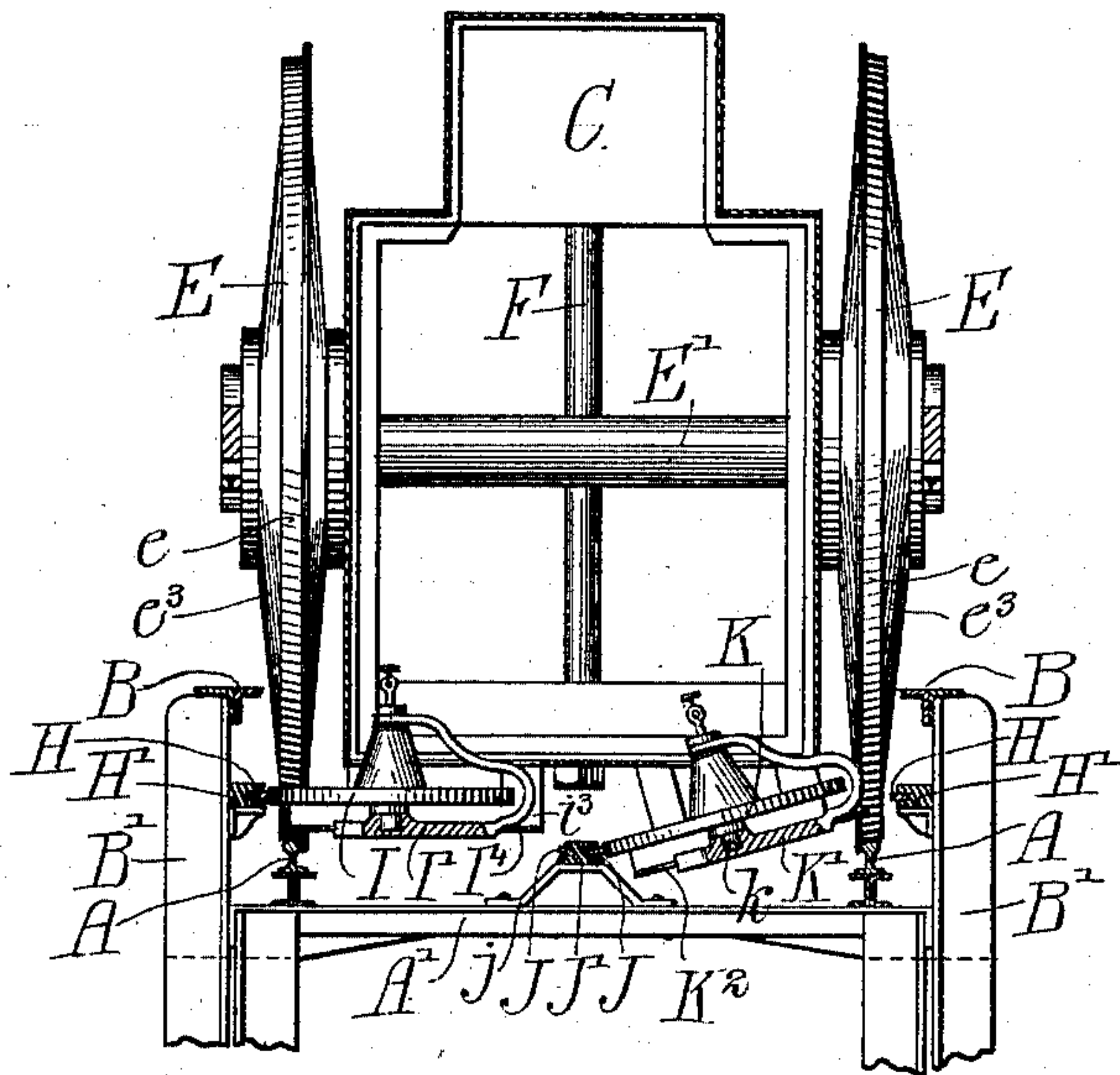


Fig. 5.

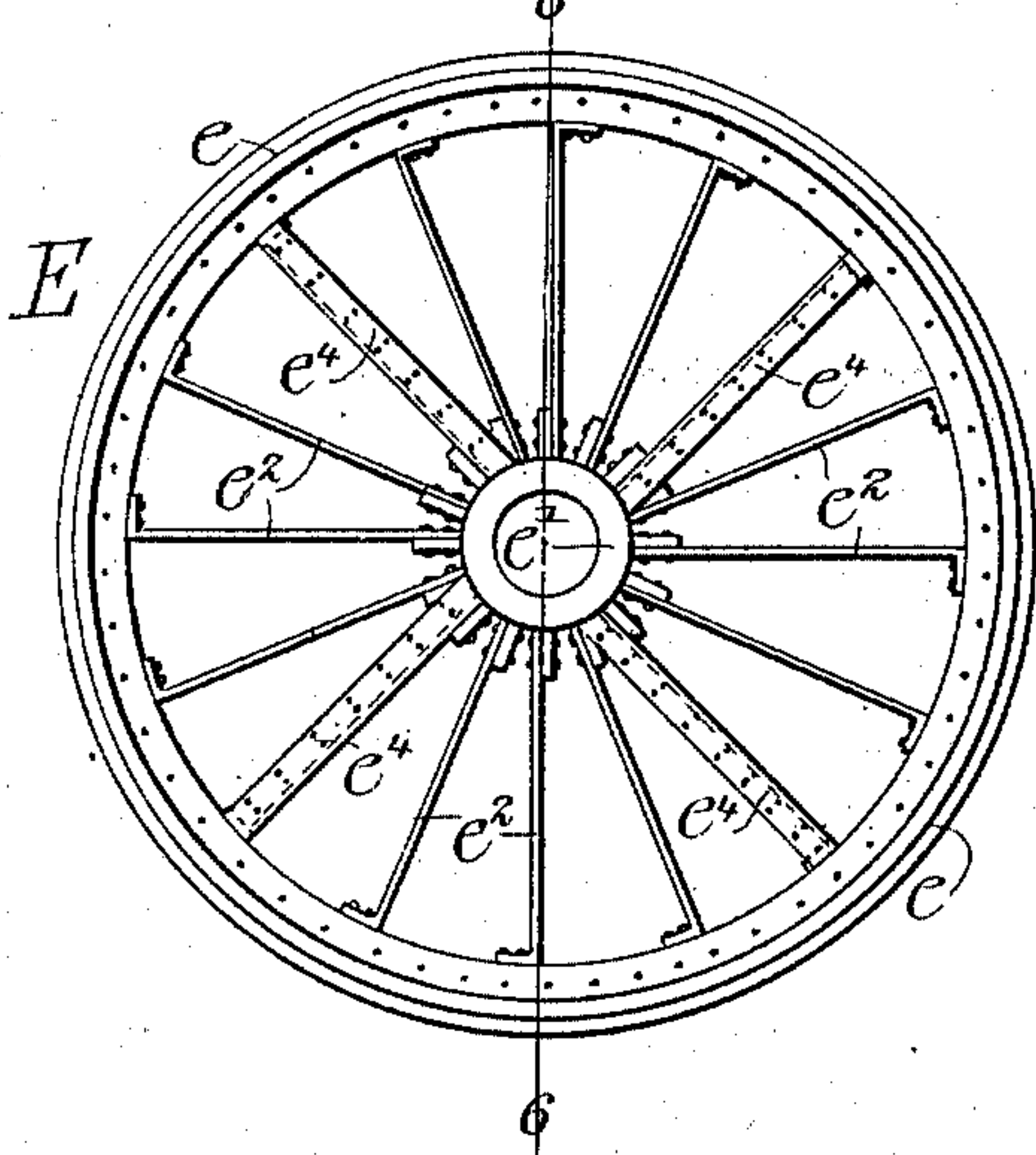
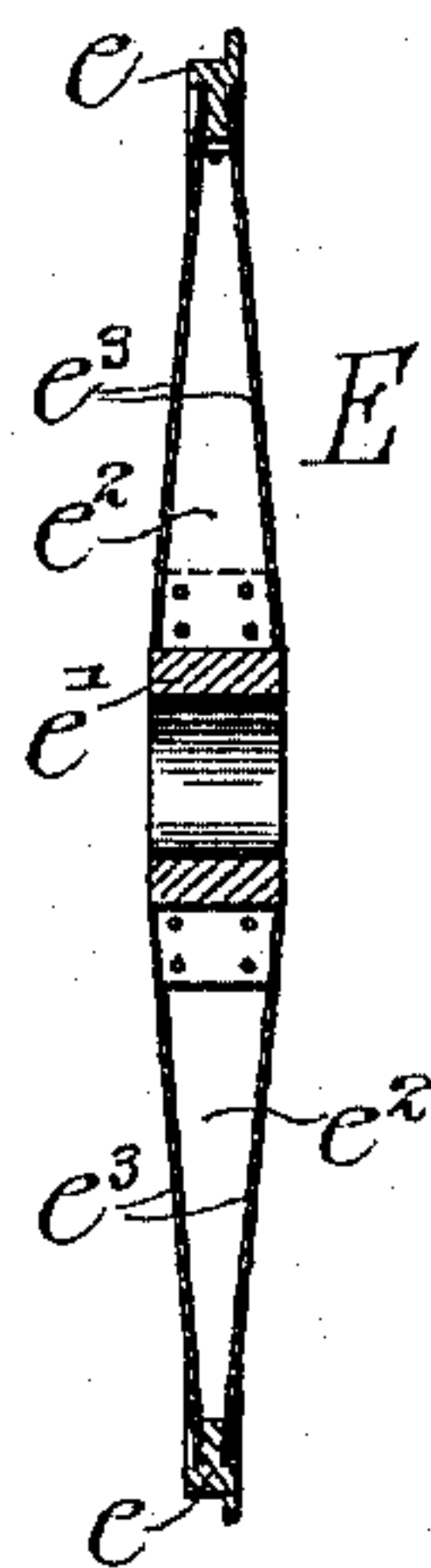


Fig. 6.



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Inventor:-
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By:- Mayton, Poole & Brown
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UNITED STATES PATENT OFFICE.

CHARLES C. BURTON, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF A PART OF HIS RIGHT TO GEORGE M. LUDLOW, OF CHICAGO, ILLINOIS, LOUIS E. HOLDEN, OF BELOIT, WISCONSIN, AND CURTIS G. HUSSEY, OF ALLEGHENY, AND JOHN C. DES GRANGES, OF PITTSBURG, PENNSYLVANIA.

RAILWAY TRACK AND CAR.

SPECIFICATION forming part of Letters Patent No. 518,565, dated April 17, 1894.

Application filed September 15, 1892. Renewed August 18, 1893. Again renewed March 12, 1894. Serial No. 503,374. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. BURTON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Railway Tracks and Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in railway tracks and cars, having reference more especially to cars designed for traveling at a high rate of speed, and wherein the track is provided with auxiliary or guide rails to hold the car from lateral displacement.

Some of the features of the present invention constitute improvements on the construction in railway cars shown in a prior Patent No. 470,617, granted to me March 8, 1892.

The invention consists in the matters hereinafter described and pointed out in the appended claims.

In the accompanying drawings illustrating my invention: Figure 1 is a view in side elevation of one end of a railway car embodying the same, together with part of the track structure, the front end of the car being shown partially in section. Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1. Fig. 3 is a view from beneath of one of the contact wheels shown in Fig. 1, together with the movable support therefor. Fig. 4 is a sectional view of the car and track taken on line 4—4 of Fig. 1. Fig. 5 is a side elevation of one of the main supporting wheels of the car, showing the side plates thereof removed. Fig. 6 is a sectional view thereof, taken upon line 6—6 of Fig. 5.

The track structure illustrated, which is adapted for use in connection with the particular form of car shown, embraces two supporting rails A A, arranged in the usual manner and two bearing rails B B, of V-shape in cross-section, located above and somewhat outside of the rails A A. The supporting and bearing rails described, are shown as sustained

by means of transverse girders A', and uprights B' B', which form part of an elevated railway structure. Said rails may, however, as far as the present invention is concerned, be otherwise sustained, the elevated structure for supporting the same forming no part of the said present invention.

C indicates an end section of my improved carriage and D the central section thereof, which central section is pivoted to and suspended between two similar end sections like that shown in said prior Patent No. 470,617. That is to say, said end section C is mounted upon main carrying wheels E E, which are attached to a shaft E' and which run upon the supporting rails A A, and the central section D is pivoted to the end sections by means of pivots F F, one located at the top and one at the bottom of the car, as clearly seen in Fig. 1; there being no wheels under the central section of the car so that said central section is suspended between and carried by two end sections, like the section C shown in the drawings.

G G indicate inclined guide wheels located at the bottom of the car adjacent to the sides thereof and extending beyond the sides of the car to engage the bearing rails B B. Said wheels G G are located one pair in advance and one pair at the rear of a vertical line passing through the axis of the main supporting wheels E E, and the axis of rotation of said bearing wheels are outwardly and downwardly inclined so that the said wheels are adapted to bear upwardly and outwardly against the said bearing rails; the wheels and rails being so constructed as to hold the car from both lateral and upward movement, or, in other words, to prevent the car being displaced either laterally or vertically.

In the particular construction shown the rail B is of L-shape in cross-section, having a vertical flange b and a horizontal flange b', while the bearing wheels are provided with angular or conical bearing surfaces g g', adapted for contact respectively with the vertical and horizontal flanges b b' of said bearing rail. Said wheels G may be mounted on the

car in any preferred manner, the construction illustrated for supporting the wheels embracing short shafts G' , mounted in bearings c c on the car, and to the outer ends of which the said wheels G G are attached.

In a car such as that shown, wherein the section C is provided with one pair of supporting wheels E E only, the bearing wheels G not only guide the car so as to hold it from lateral deflection, but tend to maintain the said section C in a horizontal position, or, in other words, to prevent either end thereof from lifting by the swinging of the section on the axle E' of the supporting wheels. Said bearing wheels E E are preferably made of large size, their diameter being approximately equal to the height of the car, and in order to secure a strong and rigid construction in a supporting wheel of this size, I employ the construction illustrated in Figs. 5 and 6. As shown in said figures, e is the rim and e' the hub of one of said wheels. These parts are connected by radial spokes e^2 , made of flat strips of metal arranged with their flat sides parallel with the central axis of the wheel or at right angles to the face of the wheel and being wider at their inner than at their outer ends. These spokes are conveniently attached to the rim by having their outer ends bent at right angles and riveted or bolted to the inner surface of the rim, while they are attached to the hub at their inner ends by being bolted to radial lugs on said hub, in the manner illustrated. The skeleton wheel thus formed by means of the rim, hub and connecting spokes, is completed by the addition of slightly conical plates or disks e^3 e^3 of sheet metal, which are bolted or riveted at their outer edges to the rim and provided with central apertures fitting over the projecting parts of the hub. The disks e^3 e^3 consist of a plurality of segmental plates which are secured together and to the wheel at their radial edges by means of flanges e^4 e^4 (Fig. 5) on certain of the spokes e^2 , to which flanges the margins of the segmental plates are riveted.

The car illustrated is intended more particularly for actuation by an electric motor, and for the purpose of making electric connection between the track and car devices are provided as follows:

H H are electric conductors having the form of strips of metal mounted in strips or bars H' of insulating material and located one at each side of the track between the supporting rails A A and bearing rails B B , and outside of the supporting rails. The strips H' H' may be supported in any suitable manner, depending on the character of the track structure, the means shown for supporting them consisting of brackets h h , attached to the uprights B' B' of the elevated structure.

I is a contact wheel arranged horizontally beneath the car body and adapted to bear against the inner edge of the conductor H . Said contact wheel I as seen in Figs. 3 and 4, is mounted on a short vertical shaft i , having

bearings at its upper and lower ends in a sliding frame I' , which is supported upon transversely arranged guides I^2 I^2 , secured to the lower surface of the car, said guides being adapted to afford free inward and outward movement in the frame I' and the contact wheels carried thereby. The said contact wheel is held normally outward or pressed yieldingly against the conductor H by means of a spring or springs suitably applied to the frame I' ; the construction for this purpose herein shown consisting of two coiled springs I^3 I^3 , surrounding guide rods i' i' , which are secured in the frame I and pass through guide lugs i^2 i^2 on the guides I^2 I^2 . Said guides I^2 I^2 are shown as formed upon a rectangular frame I^4 , which is secured to the bottom of the car by means of integral depending parts or brackets i^3 i^3 , which are bolted at their upper ends to the bottom of the car.

I have shown in the accompanying drawings only one contact wheel I' , but it will of course be understood that two such wheels will be used, one upon each of the end sections C of the car.

For the purpose of enabling telegraphic or other messages to be transmitted to the car, I have provided at points between the supporting rails other conductors J J , and placed upon the car a contact wheel K , adapted to bear thereon. The conductors J J are shown as consisting of metal strips inserted in a continuous longitudinal bar J' , of wood or other insulating material, laid lengthwise of the track between the supporting rails A A , the strips being arranged to project slightly beyond the opposite side faces of the said insulating strip so that the contact wheel may easily act thereon. In the particular construction illustrated, said strip J' is shown as supported by means of metal brackets j , which are secured to the cross-pieces A' A' of the elevated track structure, but said strip may be otherwise supported when the track structure is otherwise made. The contact wheel K is shown as attached to a short shaft k , mounted in a sliding frame K' , which is adapted to slide on stationary guides K^2 K^2 , in the same manner as hereinbefore described in connection with the main contact wheel I .

The section C of the car is shown as provided at its forward end with a prolongation or prow, indicated as a whole by L , having an inclined top surface extending from the upper part of the car downwardly to a point near the bottom thereof and forming under ordinary circumstances an inclined deflecting surface adapted to lessen the resistance to the forward movement of the car occasioned by atmospheric pressure. The forward end of said prow is preferably made somewhat narrower than the width of the car, as seen in Fig. 2, but this construction is not essential.

The main part of the inclined top surface of the prow L is formed by means of a plurality of transverse slats or blades M M M ,

which are pivotally connected at their ends with the frame of the car and are adapted to overlap or join each other at their edges when thrown into the same plane with the stationary surface of the prow or to be thrown into an upwardly and outwardly inclined position, as seen in dotted lines in Fig. 1, and to thereby present a large surface to the action of the air, which by its pressure on the said blades will greatly retard the forward movement of the car and thus constitute an atmospheric brake. To increase the efficiency of the slats or blades the car is provided beneath the same with a continuous wall or partition N, inclined to correspond with the top surface of the prow and located at such distance from the same that when the slats or blades are opened their inner or lower edges will be adjacent to or come in contact with the said wall or partition, thereby preventing the escape of the air caught by the blades downwardly between the same, or, in other words, forming with the blades a plurality of pockets to catch the air and thereby enhance the efficiency of the device as an atmospheric brake. The partition N obviously forms in effect the upper wall or roof of the forward compartment of the car or that within the prow L. The said prow may be constructed in any suitable manner, but as herein shown is made of sheet metal supported on an iron frame, the partition N being similarly made of sheet metal.

As a means of actuating the several slats or blades M, the latter are shown as provided adjacent to their pivots with a single actuating rod M', through the medium of which all of the slats are operated at once. Any suitable means for giving endwise movement to the said bar M' may be employed, that herein shown consisting of a crank-disk M² with which the said bar M' is connected, said crank disk being actuated by means of a worm-shaft M³, adapted to engage spurs or teeth on the crank-disk M², and provided with a hand wheel m', by which it may be actuated.

While I have shown the pivoted slats M M constituting the atmospheric brake as located in the upper inclined surface only of the prow, yet it is obvious the same feature of construction may be applied also to the side walls of the prow in case additional resistance surface is found necessary or desirable.

O O, Figs. 1 and 2, indicate vertical tubes passing from the upper part of the partition N downward to the bottom of the car and opening through the said partition and bottom of the car. The tubes thus arranged form an outlet at the upper end of the compartment or pocket formed by the partition to allow the escape therefrom of any snow which may accumulate in the pockets and thus prevent choking of the same.

The downwardly and forwardly inclined flat surface of the prow L which, as before described, is made practically of the full width of the prow, not only serves to lessen

resistance to the forward movement of the car, but the pressure of the air thereon acts to force downwardly the section C and thus increase the adhesion of the driving wheels to the rails; the air pressure on the said inclined surface when the car is in rapid movement thus having the same effect as would a greater weight carried on the driving wheels, to increase the pressure of the wheels on the rails and by securing greater frictional engagement of the wheels with the rails, increase the tractive power of the wheels.

I claim as my invention—

1. The combination with a track having supporting rails and external guide or bearing rails located above the same, of a car provided with supporting wheels and with guide wheels mounted on inclined axes and bearing upwardly and outwardly against the said bearing rails, substantially as described.

2. The combination with a car consisting of two end sections provided with supporting wheels and a middle section pivoted to and suspended between the end sections, of a track structure embracing supporting rails, and bearing rails located above and outside of the supporting rails, and guide wheels on the end sections of the car, arranged at front and rear of the supporting wheels and bearing upwardly and outwardly against the said bearing rails, substantially as described.

3. The combination with a track structure comprising supporting rails and bearing rails located outside of and above the supporting rails, said bearing rails being provided with vertical and horizontal flanges, of a car provided with supporting wheels and with guide wheels mounted on inclined axes and provided with V-shaped rims adapted to extend into the angle formed by said vertical and horizontal flanges of the said bearing rails, substantially as described.

4. The combination with a track structure embracing supporting rails, and bearing rails located above and outside of the same, of electric conductors extending along the rails between the bearing and supporting rails and above the latter, a car provided with supporting wheels and bearing wheels, and yieldingly supported contact wheels on the car, arranged to bear outwardly against the said conductors, substantially as described.

5. The combination with a track structure embracing supporting rails and bearing rails located above and outside of the same, of a conductor located between the supporting rails, a car provided with supporting wheels and with guide wheels acting upwardly and outwardly against the said bearing rails, and a contact wheel on the bottom of the car acting against said conductor, substantially as described.

6. The combination with a car provided with a prow having an inclined surface, of a plurality of transversely arranged pivoted strips or slats, and means for actuating the same, substantially as described.

7. The combination with a car having a
prow provided with inclined surfaces, of a
plurality of transversely arranged slats or
blades pivoted to the said prow, and an inner
5 wall or partition closing the spaces between
the blades when the latter are open, substan-
tially as described.

8. The combination with a car provided
with a prow having an inclined surface, of a
10 plurality of transversely arranged blades piv-
otally connected with the prow, and means
for actuating said blades comprising arms
rigidly attached to the same, a rod connect-
ing all of said blades with each other and
15 means for giving endwise movement to the
said rod, substantially as described.

9. The combination with a car or motor, of
a prow thereon having a wide downwardly
and forwardly inclined top surface operating
20 to deflect the air in the forward movement of

the car and also to increase the pressure of
the traction wheels of the car against the rails,
substantially as described.

10. The combination with a car having a
prow provided with inclined surfaces, of a 25
plurality of transversely arranged slats or
blades pivoted to the prow, an inner wall or
partition for closing the spaces between the
blades when the latter are open, and discharge
tubes extending from said partition down- 30
wardly through the bottom of the car, sub-
stantially as described.

In testimony that I claim the foregoing as
my invention I affix my signature in presence
of two witnesses.

CHARLES C. BURTON.

Witnesses:

C. CLARENCE POOLE,
GEORGE W. HIGGINS, Jr.