

No. 768,239.

PATENTED AUG. 23, 1904.

M. C. RICHARDS.  
SWITCH FOR CARRIER SYSTEMS.

APPLICATION FILED MAR. 2, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

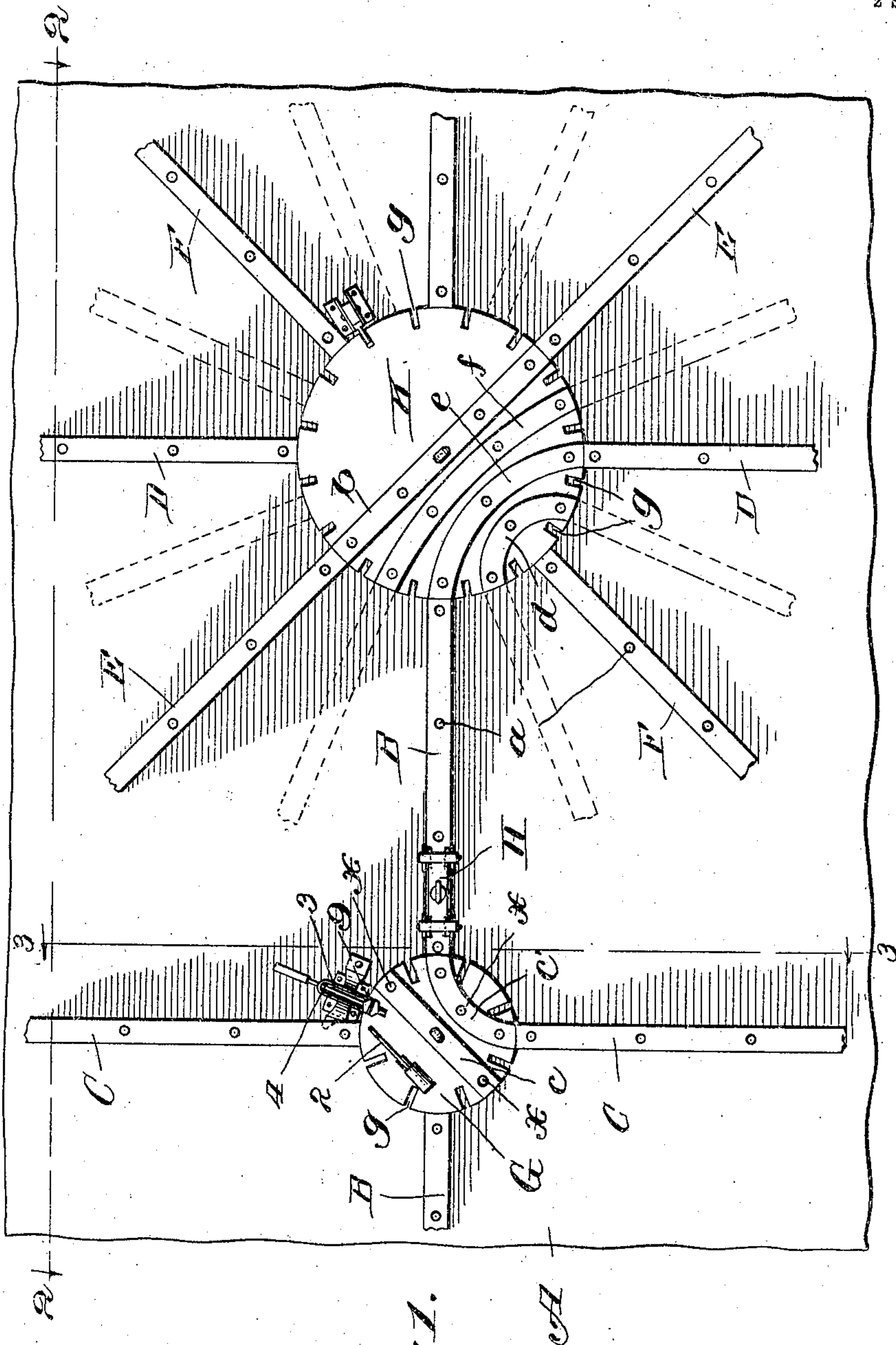


Fig. 1.

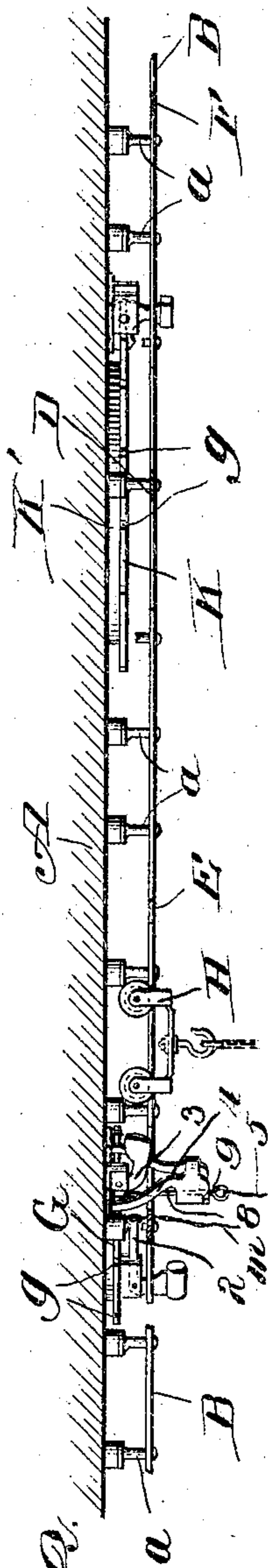


Fig. 2.

Witnesses;  
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Inventor;  
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by Frank D. Thompson  
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2 SHEETS—SHEET 2.

Fig. 3.

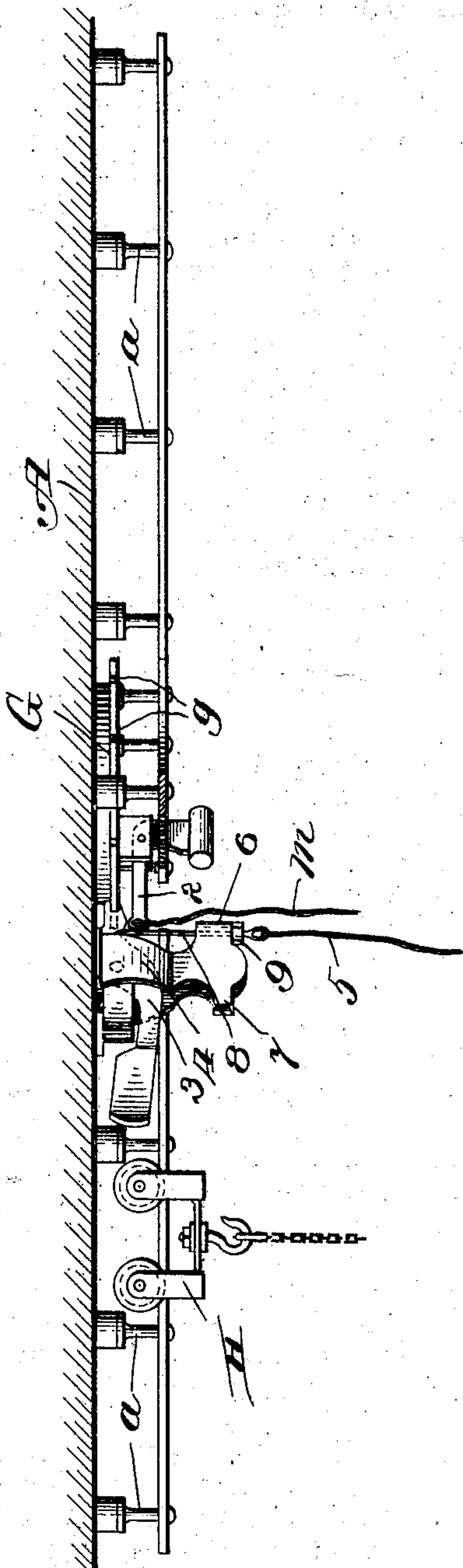
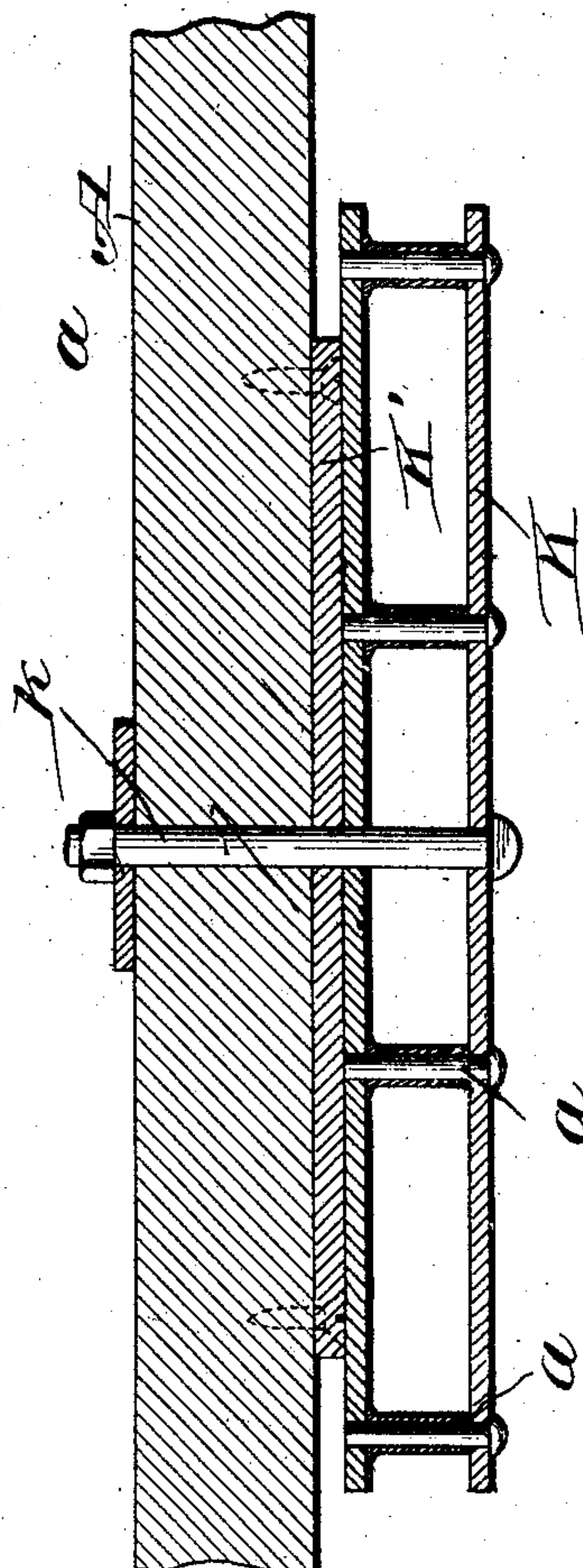


Fig. 4.



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# UNITED STATES PATENT OFFICE.

MARCIUS C. RICHARDS, OF AURORA, ILLINOIS.

## SWITCH FOR CARRIER SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 768,239, dated August 23, 1904.

Application filed March 2, 1903. Serial No. 145,772. (No model.)

*To all whom it may concern:*

Be it known that I, MARCIUS C. RICHARDS, a citizen of the United States, and a resident of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Switches for Carrier Systems, of which the following is a full, clear, and exact description.

My invention relates to carrier systems; and its object is to provide a simple, inexpensive, and easily-manipulated means whereby without stopping the carriers can be switched from one track to a cross track or tram or from a main tram to any one of a number of tracks or trams radiating from said switch and which avoids the necessity of subjecting the pivoting devices of the switch to the great strain to which the weight of the vehicle on it would subject it and likewise the arduous task of turning the switch when so laden. This I accomplish by the means hereinafter fully described and as particularly pointed out in the claims.

In the drawings, Figure 1 is a plan view of a portion of an overhead carrier system having my improvements applied thereto. Fig. 2 is a longitudinal vertical section taken on dotted line 2 2, Fig. 1, looking in the direction indicated by the arrows. Fig. 3 is a transverse vertical section taken on dotted line 3 3, Fig. 1, looking in the direction indicated by the arrows and drawn to a larger scale. Fig. 4 is a vertical section of the larger switch shown taken on the plane of the straight track extending diametrically across the face of the same.

In the drawings, A represents the ceilings of the building or room to which the trams or tracks B, C, D, E, and F of the overhead carrier system, to which preferably my invention is applied, are suitably secured. These trams may be of any suitable construction; but for the convenience of description I employ a simple form consisting of a flat bar of suitable width, which is suspended from said ceiling or other superstructure by means of hanger-bolts *a*, located at suitable intervals apart, the lower headed ends of which pass through the center of width of said bars.

Track B may be considered as the main track of the system and extends longitudinally and centrally the entire length of the portion of the ceiling A shown in Fig. 1 of the drawings, and C represents a track, located near the left-hand end of said ceiling arranged at right angles to track B, and D represents a cross-track, also intersecting track B at right angles, which is located nearer the right-hand end of said ceiling. Tracks E and F are straight tracks arranged in a radial plane to the intersection of tracks D and B and at an angle of forty-five degrees to the same and at about ninety degrees to each other.

At the intersection of tracks B and C, I pivot in any suitable manner a plate or frame G, which is preferably of a circular form and has suspended from it a straight diametrically extending track *c* and a curved track *c'*, conforming in curvature to a quarter of a circle and so located that when plate or frame G is in the position shown in Fig. 1 a continuous track is formed for the carrier H to travel when switching from the portion of main track B extending to the right of plate or frame G to track C. The tracks *c* and *c'* are constructed in the same manner as tracks B and C and are suspended from the plate G by hanger-bolts *x x*, similar to bolts *a* except shorter in length, this being necessary in order to bring the tread of said tracks all on the same horizontal plane.

The carrier H referred to may be of any suitable construction, although in the drawings it is shown to comprise a truck made of two U-shaped frames connected at their centers of length by a horizontal reach from which the carrying devices depend. The wheels of this carrier are journaled in the ends of the U-frames and travel upon the upper longitudinal marginal surfaces of tracks. This construction, however, may be departed from according to the changed construction of the track or because of other considerations.

In order to turn plate G, an ordinary rope or cable *m* may be attached thereto and depend therefrom. I prefer, however, to connect said rope to the horizontal arm 2 of an inverted-L-shaped lever, which is fulcrumed



at its angle to suitable lugs depending from said plate and which has the lower end of the vertical arm thereof weighted. The advantages of this construction are that when the switch-plate has been moved into position and the hold on the rope or cable is released the weighted arm or the lever will restore the latter to its normal position, as shown in Fig. 3, and raise the dangling end of said rope up out of the way. When the switch-plate has been moved to the desired position, either by means of the rope *m* or in any other manner, it is desirable to lock it in such position quickly and easily. This I accomplish by providing the edges of said switch-plate or frame with a series of suitably-located notches or recesses *g* when said plate is circular and engaging these recesses by the end of a shorter branch of a lever 3, which latter extends in a plane radial to the center of plate *G* and is fulcrumed mediate its ends between the legs or branches of a suitable hanger 4. The longer arm of this lever farthest from plate *G* is weighted, and the gravity of this arm keeps the extremity of the shorter arm normally bearing upward against the notched edge of said plate, so that when in the same vertical plane it will automatically engage the same and hold said plate stationary. This lever is disengaged from plate *G* by means of a cord or rope 5, depending downward from the shorter arm thereof to within easy reach of the operator. In order to avoid awkward manipulation and the necessity of two men, one to hold lever 3 down and the other to turn plate *G*, I have extended the legs of hanger 4 down below the fulcrum of lever 3 and provided the same with parallel arms 6 6 and 7 7, which extend in the same vertical plane as the lever 3. A rod 8, with a nut 9 on it, is secured to and in its natural position, depends down from the shorter arm of said lever 3 between arms 6 6, and in this position, which permits the extremity of the shorter arm of the lever 3 to enter the notches of plate *G*, the nut will catch under the lower edges of arms 6 6 and prevent said shorter arm from moving upward too far. When it is desired to move the lever so that its shorter arm will not engage plate *G*, the rod 8 is moved so that the nut 9 will catch under the lower edges of arms 7 7 of the hanger, substantially as shown.

At the point of intersection of tracks *B*, *D*, *E*, and *F*, I pivot a switch-plate *K*, which is similar in principle and construction to plate *G* and may be moved or turned and retained in its adjusted position by the same or any other means desired. In order to prevent this plate wobbling, I prefer to secure to the ceiling just above said plate *K* a bearing-plate *K'*, up through which the pivotal bolt *k* extends. Switch-plate *K* has a diametrically-extending straight track *b*, which can be used to connect any two alining sections of track,

and on one side of this track *b* has three curved sections of switch-track *d*, *e*, and *f*, which are respectively of such curvature that the track *d* of the shortest radius can be used to connect straight converging tracks *B* and *F*, or *F* and *D*, or *D* and *E*, &c., arranged at an angle of but forty-five degrees to each other. The switch-track *e* of next greatest radius is designed to connect said converging tracks arranged at an angle of ninety degrees to each other, and the next track *f* (having the greatest radius) is designed to connect tracks arranged at an angle of one hundred and thirty-five degrees to each other. With these four switch-tracks *b*, *d*, *e*, and *f* switch-plate *K* can be used to connect any two of either eight or sixteen converging tracks. In the latter event the additional eight tracks would be arranged and converge toward the center of plate *K*, as shown in dotted lines in Fig. 1.

What I claim as new, and desire to secure by Letters Patent, is—

1. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a curved track suspended from said plate and means engaging the notches in said plate for locking the said plate in any operative position to which it may be adjusted.

2. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a curved track suspended from said plate and automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

3. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a curved track suspended from said plate and gravity-operated automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

4. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a curved track suspended from said plate alongside said straight track, and means engaging the notches in said plate for locking said plate in any operative position to which it may be adjusted.

5. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a curved track suspended from said plate alongside said straight track, and automatic means engaging the



notches in said plate for locking said plate in any operative position to which it may be rotated.

6. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a curved track suspended from said plate alongside said straight track, and gravity-operated automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

7. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a curved track suspended from said plate located at one side of and conforming to a portion of a circle struck from a point intersected by a plane at right angles to said straight track and touching the center of length thereof, and means engaging the notches in said plate for locking the said plate in any operative position to which it may be adjusted.

8. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom, and extending diametrically across the same, a curved track suspended from said plate located at one side of and conforming to a portion of a circle struck from a point intersected by a plane at right angles to said straight track and touching the center of length thereof, and automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

9. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a curved track suspended from said plate located at one side of and conforming to a portion of a circle struck from a point intersected by a plane at right angles to said straight track and touching the center of length thereof, and gravity-operated automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

10. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a series of curved tracks suspended from said plate, and means engaging the notches in said plate for locking said plate in any operative position to which it may be adjusted.

11. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametric-

ally across the same, a series of curved tracks suspended from said plate, and automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

12. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a series of curved tracks suspended from said plate, and gravity-operated automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

13. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a series of curved tracks of different radii suspended from said plate alongside said straight track, and means engaging the notches in said plate for locking the said plate in any operative position to which it may be adjusted.

14. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a series of curved tracks of different radii suspended from said plate alongside said straight track, and automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

15. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a series of curved tracks of different radii suspended from said plate alongside said straight track, and gravity-operated automatic means engaging the notches in said plate for locking said plate in any operative position to which it may be rotated.

16. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a series of curved tracks of different radii suspended from said plate along one side of said straight track, each of which conform to a portion of a circle struck from a point intersected by a plane at right angles to said straight track and touching the center of length of the same, and means engaging the notches in said plate for locking the said plate in any operative position to which it may be adjusted.

17. A switch for an overhead carrier system comprising a pivoted plate having notches in the circumference thereof, a straight track suspended therefrom and extending diametrically across the same, a series of curved tracks of different radii suspended from said plate along one side of said straight track, each of



which conform to a portion of a circle struck  
from a point intersected by a plane at right  
angles to said straight track and touching the  
center of length of the same, and automatic  
5 means engaging the notches in said plate for  
locking said plate in any operative position to  
which it may be rotated.

18. A switch for an overhead carrier system  
comprising a pivoted plate having notches in  
10 the circumference thereof, a straight track  
suspended therefrom and extending diametric-  
ally across the same, a series of curved tracks  
of different radii suspended from said plate  
along one side of said straight track, each of

which conform to a portion of a circle struck 15  
from a point intersected by a plane at right  
angles to said straight track and touching the  
center of length of the same, and gravity-op-  
erated automatic means engaging the notches  
in said plate for locking said plate in any op- 20  
erative position to which it may be rotated.

In testimony whereof I have hereunto set  
my hand this 19th day of February, 1903.

MARCIUS C. RICHARDS.

Witnesses:

LOUIS F. MUELLER,  
E. K. LUNDY.