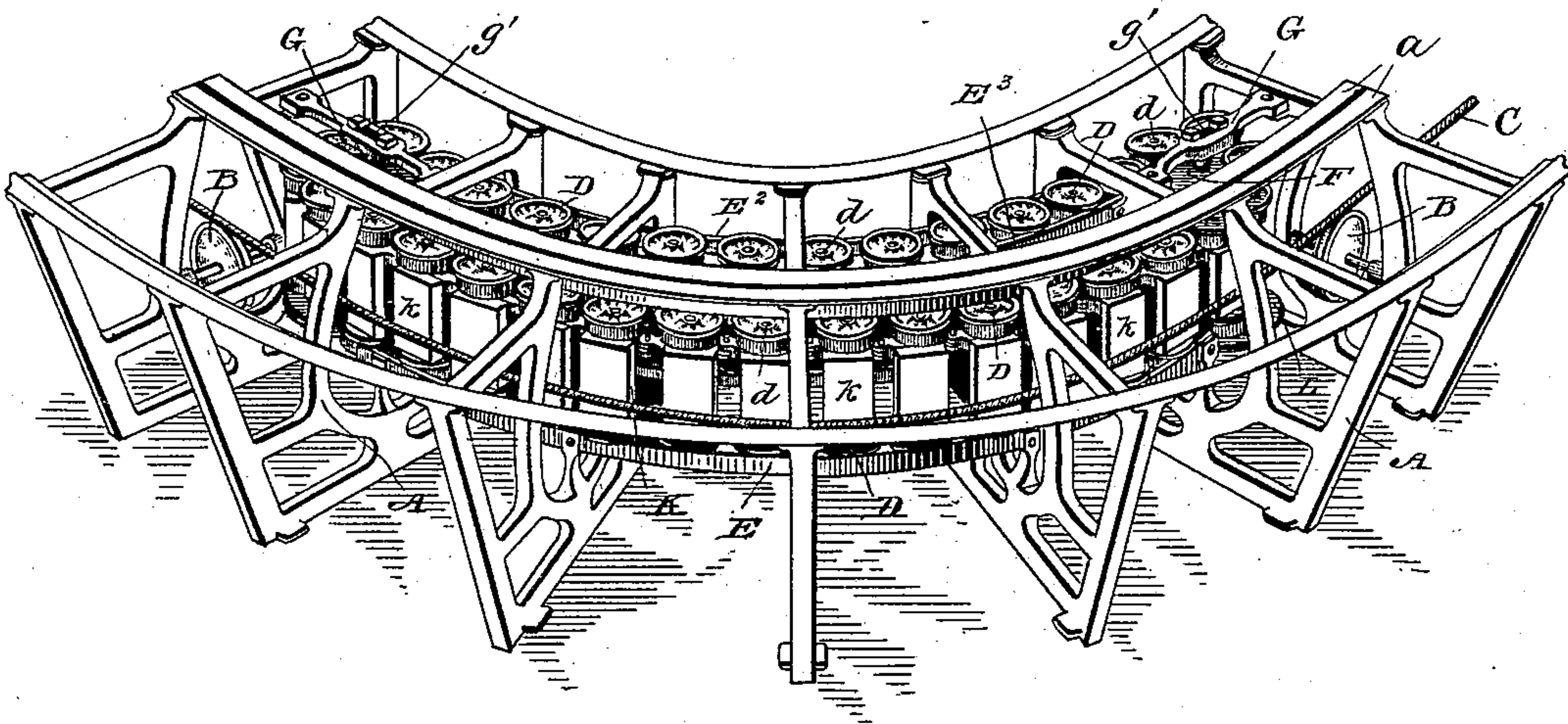


2 Sheets—Sheet 1.

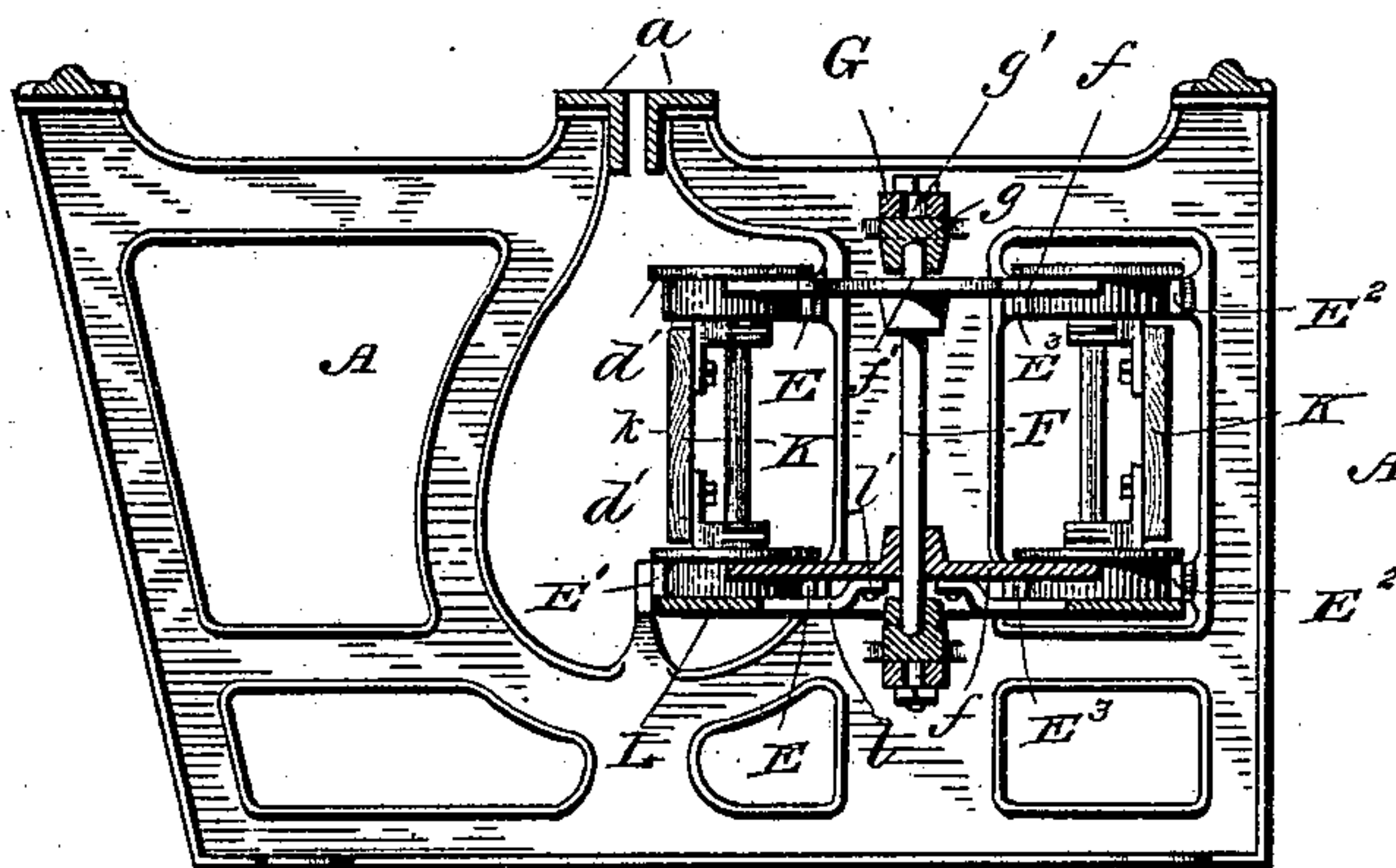
CURVE FOR CABLE RAILWAYS.

Patented Jan. 8, 1889.

FIG. 1



SECRET



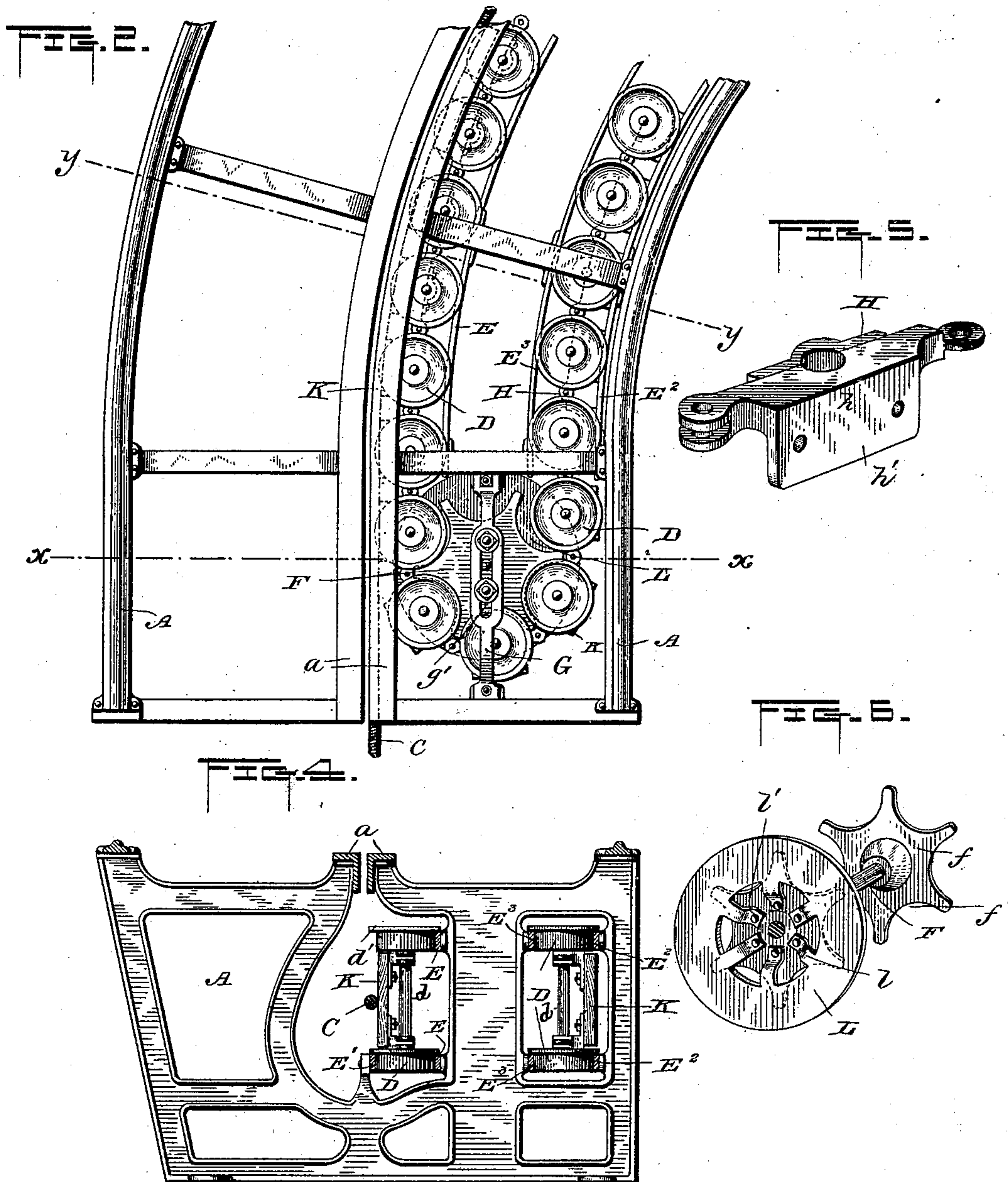
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C. L. SNYDER.
CURVE FOR CABLE RAILWAYS.

No. 396,054.

Patented Jan. 8, 1889.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES L. SNYDER, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF
TO ISAAC M. RIDGE, OF SAME PLACE.

CURVE FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 396,054, dated January 8, 1889.

Application filed March 7, 1888. Serial No. 266,406. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. SNYDER, of Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Curves for Cable Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in cable-railway curves.

The object is to provide means for carrying both the cable and the grip around the curve without subjecting either to frictional wear.

A further object is to provide carrying mechanism which shall be free from liability to get out of order and in which the wearing friction of the movable parts shall be reduced to a minimum.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of the curve in perspective. Fig. 2 is partial top plan view. Fig. 3 is a vertical transverse section on line xx of Fig. 2. Fig. 4 is a vertical transverse section on line yy of Fig. 2. Fig. 5 is a detail view of one of the links, and Fig. 6 is a detail view of one of the end spindles and guide-plates.

A represents one of a series of skeleton brackets such as are commonly employed to support the tracks and form a conduit for the cable and its supporting-pulleys B.

The brackets herein shown are so arranged as to form a curve corresponding to an angle at the center of about ninety-degrees, such as would be employed in turning from one street into another street at right angles thereto. My invention, however, contemplates curve-turning mechanism equally well adapted to curves of all the different angles required.

The slot-irons are represented by a , between which is located the slot for the passage of the grip, as is usual.

The cable-supporting pulleys B are located at the base of the conduit, one at each end of

the curve, as shown. Between the two supporting-pulleys B the cable C is supported in a curved position corresponding to the curved slot between the slot-irons by an endless carrier constructed and mounted as follows: An endless series of travelers, each consisting of a pair of flanged wheels, D, secured to the ends of a vertical axle, d , is disposed along the inside portion of the curve, the travelers being held against lateral displacement by curved tracks E E' and E² and E³, bolted or otherwise secured to the brackets or to suitable supports attached to the brackets. The tracks E form an upper and a lower guide and support for the inner faces of the outer line of travelers, the annular flanges d' of which overlap the upper edges of the said tracks, while the peripheries of the wheels of the travelers engage the outside faces of the tracks. The track E' forms a lower guide and support for the outer line of travelers, and is located along the outer faces of the lower wheels on the travelers. The tracks E² form an upper and a lower guide and support for the inner faces of the inner line or return-line of travelers, and the track E³ an upper guide and support for the outer faces of the inner line of travelers.

In order to prevent any possible cramping at the ends of the advance and return lines of travelers, and at the same time to prevent any unnecessary frictional wear, a pair of traveler-carrying spindles, F, is journaled one at each end of the endless series of travelers, and provided with scalloped-edged disks f at their ends in position to receive the peripheries of the wheels of the travelers as they begin to sweep around from the advance to the return line, or vice versa, each scallop f' being constructed to receive and retain with a loose fit about one-third of the periphery of the wheel and carry them around into position to engage the tracks on the other line. The tracks stop short just before they reach the end spindles.

The spindles F are journaled at their upper and lower ends in bridge-trees G, secured between two consecutive brackets, as shown, and provided with journal-boxes g , adapted to be adjusted lengthwise of the bridge-trees,

preferably in slots g' , formed in the bridge-trees.

The travelers are connected by links II, the central portions of which loosely embrace the axles of the travelers, the ends of two consecutive links being so connected as to admit of the links being turned freely in the plane of their longitudinal axes. The particular construction of the hinge-joint between the links is immaterial, so that they are allowed the required flexibility. In the present instance one of two adjacent ends is bifurcated to admit the end of the adjacent link, and the ends are perforated to receive a pintle to lock the parts together. The central portions of the links are provided on their outer faces with flat seats h to receive the backs of bearing-blocks K, and are provided, further, with flanges h' , perforated to receive fastenings to secure the said blocks in position.

The blocks K are preferably made of wood, and their outer faces, k , are intended to lie in a curved plane slightly inward of the vertical plane of the slot between the slot-irons, and the cable C is intended to rest in extended contact with their outer faces.

As the travelers leave the ends of a set of tracks and are carried around into position to engage the ends of the other set of tracks, there is a slight tendency of the travelers to sag, so that the flange of the wheel of the traveler would be liable to enter behind the track instead of on its upper edge, as is intended. In order to effectually guard against any injurious results from such a tendency, a circular guide-plate, L, is provided. It is preferably formed skeleton, as shown, to render it lighter, its radial arms l being provided on their ends with upturned flanges l' , through which the plate is secured to the lower face of the scallop-edged disk f at the lower end of the spindle F. The rim of the plate L projects beyond the edge of the disk f , and its upper side forms a rest for the lower wheels on the travelers as they are being carried around by the spindle F and delivers them without any possible displacement with their flanges resting on the upper edges of the tracks. As thus constructed the cable has an extended contact with each one of the blocks K as they are presented along the curved track within the conduit, and the bearing-faces of the blocks and travelers to which they are attached are caused to travel along with the cable, the extended bearing of the cable with the blocks effectually preventing the least tendency of the cable to slide on the blocks, and hence the said bearing-faces become essentially fixed relatively to the cable.

It is plain that the blocks must necessarily present their broad faces to the cable, since their connection with the links is rigid, while the axles of the travelers are free to rotate in their bearings in the links. As the grip comes along it in turn rests in contact with the faces of the blocks and is carried without any sliding friction whatever along the length of the

endless carrier from one end spindle to the other. The wear on the pulleys (which in the ordinary construction are either very soon cut through themselves or cut the cable) is thus avoided, as well as the loss of power and wear on the grip caused by the guard-rail. As the travelers leave the cable and turn the end, and as they turn the opposite end to engage the cable, they are carried bodily by the end spindles and suffer no frictional wear.

It is evident that the travelers might be disconnected and held in position solely by the tracks and the meeting edge of the blocks K, and that numerous slight changes in the form and arrangement of the several parts might be resorted to without departing from the spirit and scope of my invention, and hence I do not wish to limit myself strictly to the construction herein set forth; but,

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

1. In a cable railway, the combination, with a cable, of an endless carrier composed of a plurality of wheeled travelers for carrying the cable or grip, the cable or grip bearing faces of the travelers being substantially fixed in a plane parallel to the path of the travelers, substantially as set forth.

2. In a cable railway, the combination, with a cable, of an endless carrier composed of a plurality of wheeled travelers linked together, the cable or grip bearing faces of the travelers being substantially fixed in a plane parallel to the path of the travelers, substantially as set forth.

3. In a cable railway, the combination, with a cable, of an endless carrier composed of a plurality of travelers the axles of which are linked together, the cable or grip bearing portions of the travelers being secured to the links, substantially as set forth.

4. In a cable railway, a traveler forming one of the elements of an endless carrier, the said traveler consisting, essentially, of a block, a pair of wheels secured to one side of the block to rotate freely relatively thereto, and bearings provided with laterally-extended seats h h' for securing the block to the wheels, substantially as set forth.

5. In a cable railway, a traveler forming one of the elements of an endless carrier, the said traveler consisting, essentially, of a block, an upper and a lower bearing separable from each other and secured to one side of the block, and a pair of wheels journaled in the bearings, the said bearings being provided with laterally-extended seats for the blocks and with transverse eyes at their ends, substantially as set forth.

6. In a cable railway, the combination, with an upper track and a lower track, of a series of travelers forming an endless carrier for the cable or grip, each traveler consisting of a pair of wheels provided with flanges to rest on the upper edges of the tracks and a bearing-block attached to the wheel-bearings to

travel in a plane parallel with the tracks, substantially as set forth.

7. In a cable railway, the combination, with an advance-track, a return-track, each track
5 consisting of an upper and a lower rail, and a series of travelers forming an endless carrier suspended on said tracks, the wheels of the carrier having flanges on their upper
10 edges, of an end spindle provided with scalloped-edged disks adapted to engage the faces of the wheels below the said flanges and carry them bodily around the ends, substantially
as set forth.

8. In a cable railway, the combination, with
15 an advance-track, a return-track, and a series of travelers forming an endless carrier suspended on said tracks, of an end spindle for carrying the travelers around from one track to the other and a guide-plate attached to the
20 spindle to form a support for the travelers around the end, substantially as set forth.

9. The combination, with suitable supporting-brackets forming a conduit for the cable and grip, of a set of tracks secured to the supporting-brackets within the conduit, a set of
25 tracks secured to the brackets at one side of the conduit, a pair of end spindles journaled in suitable bearings attached to the brackets, and a series of travelers forming an endless
30 carrier mounted on the tracks and spindles, each traveler having an extended bearing-surface presented toward the center of the conduit as it travels along the conduit, substantially as set forth.

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

CHARLES L. SNYDER.

Witnesses:

E. C. SEWARD,

GEO. H. PARMELEE.