

(No Model.)

4 Sheets—Sheet 1.

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TELPHER SYSTEM.

No. 496,329.

Patented Apr. 25, 1893.

Fig. 1.

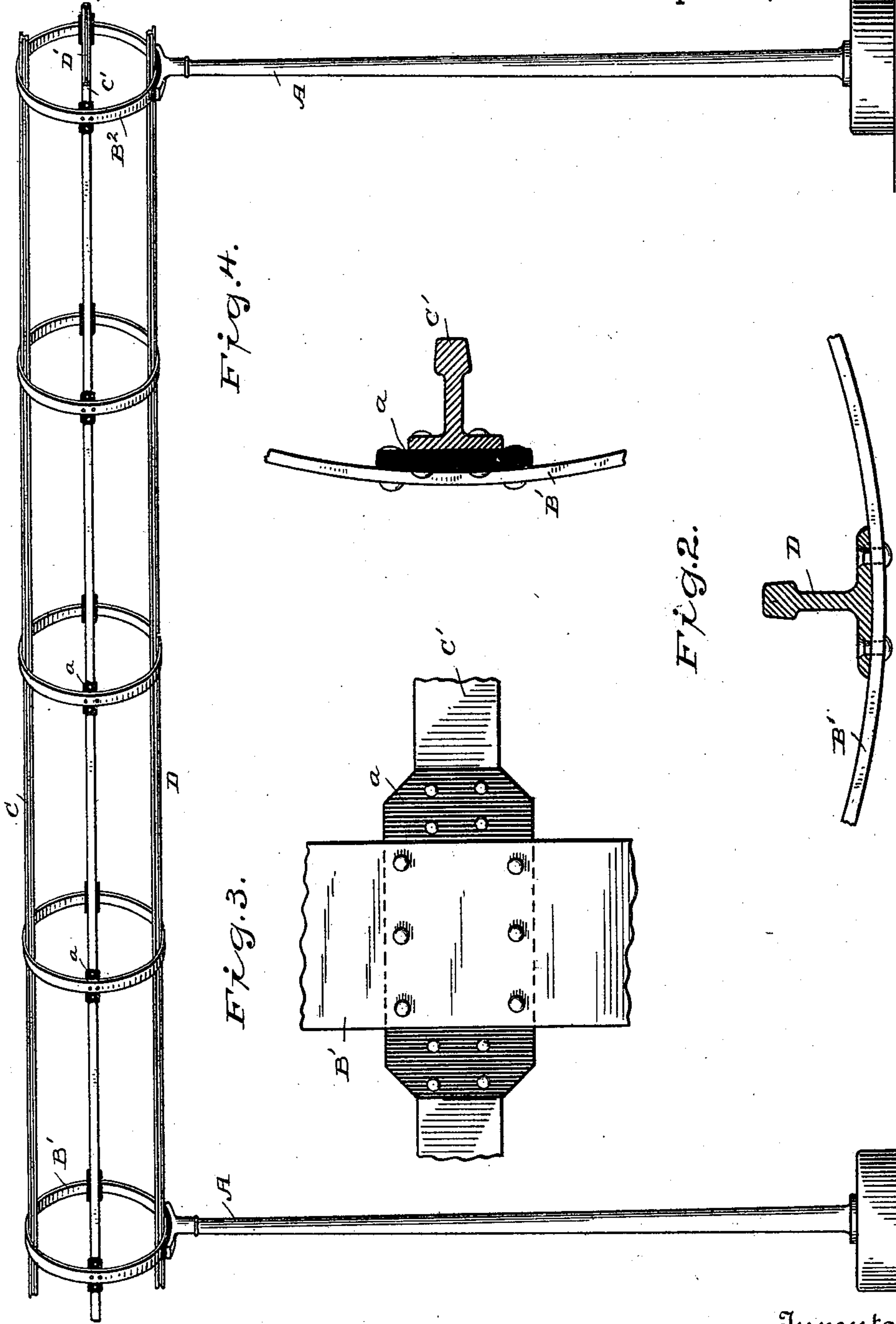


Fig. 4.

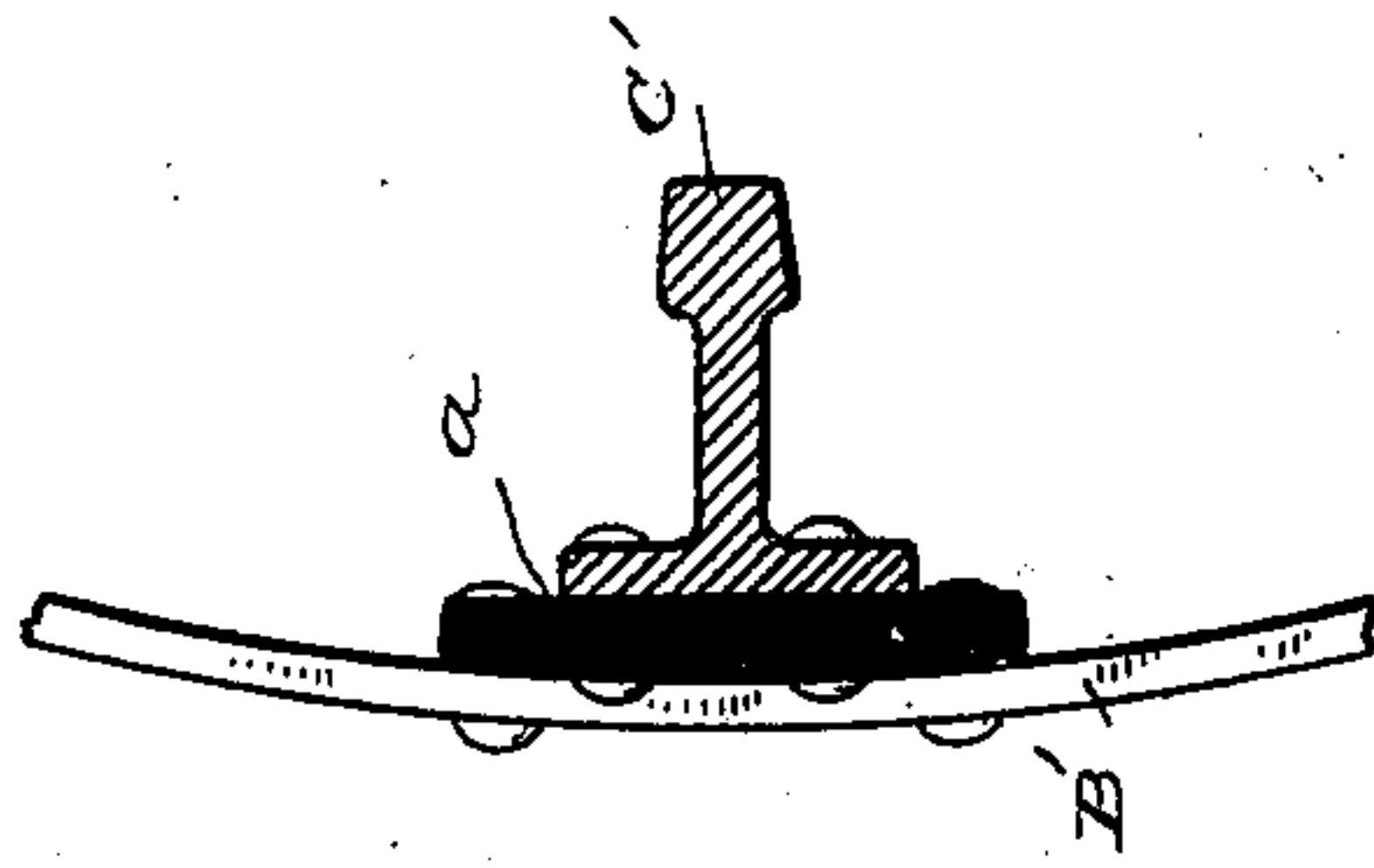


Fig. 2.

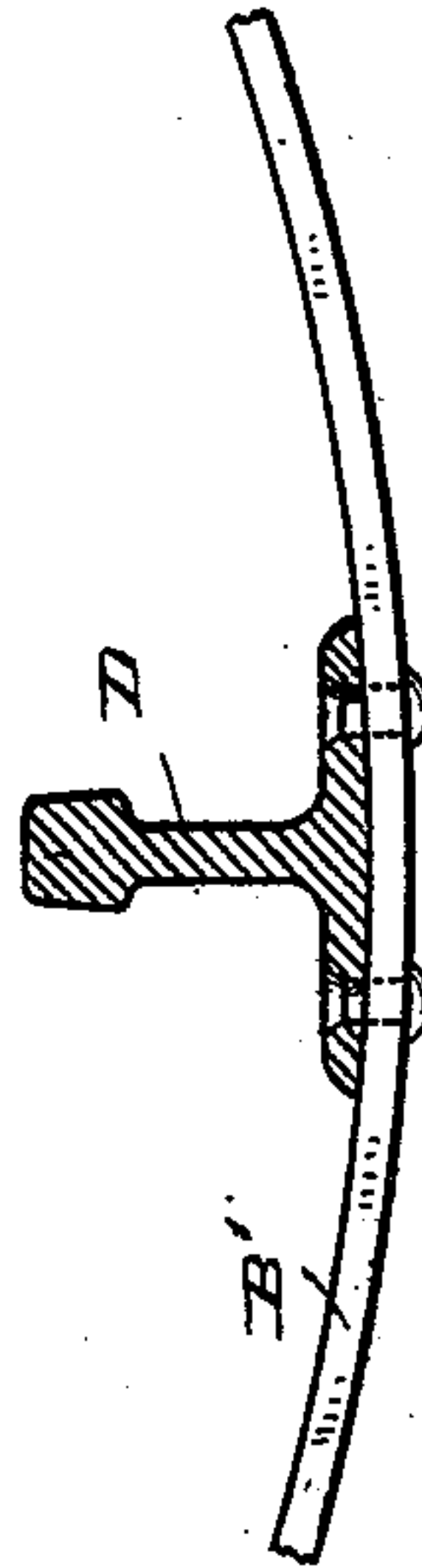
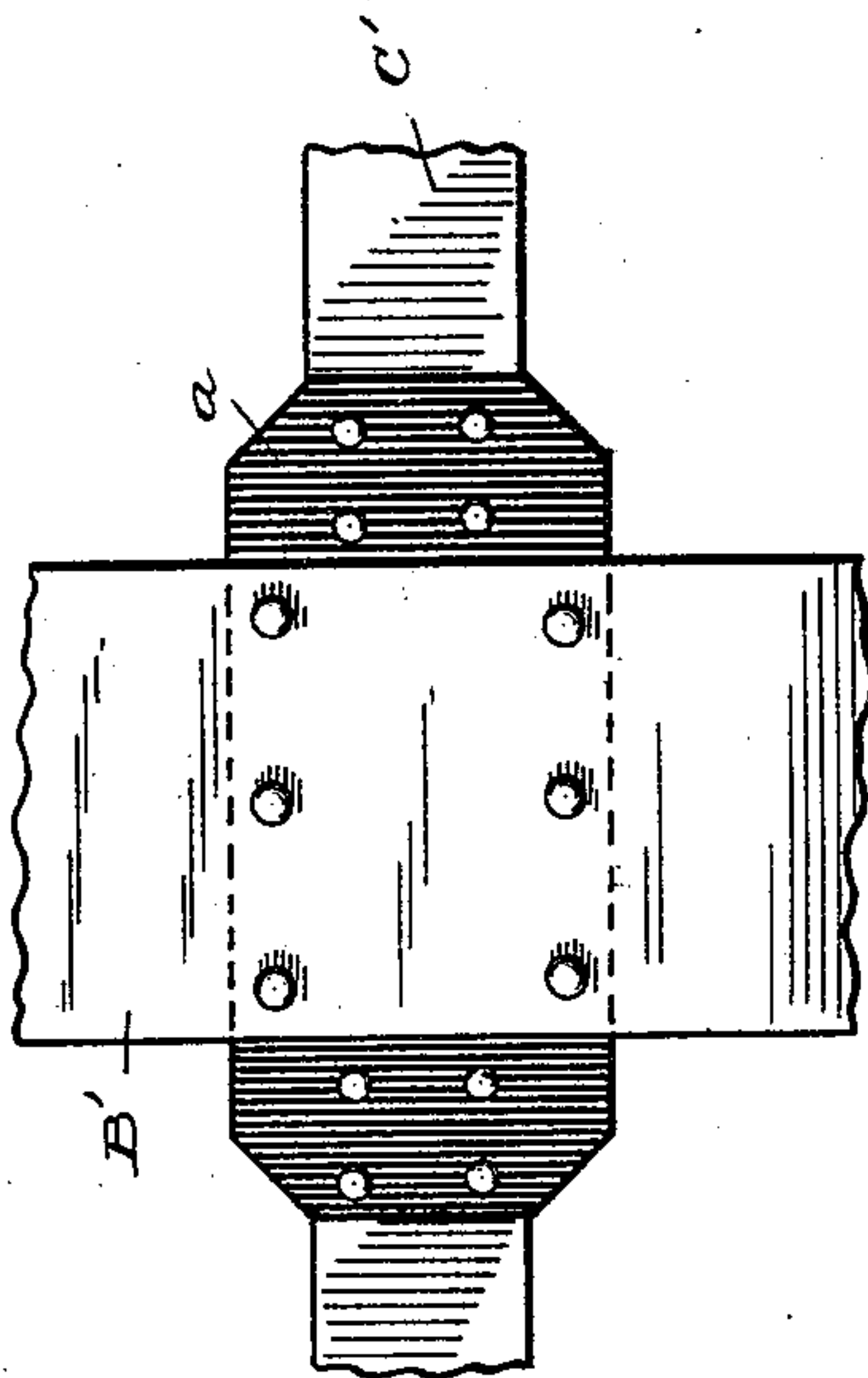


Fig. 3.



Witnesses

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Fig. 7.

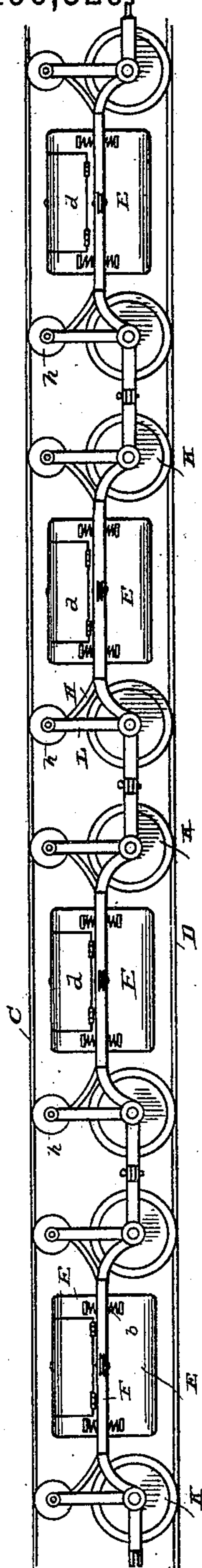


Fig. 5.

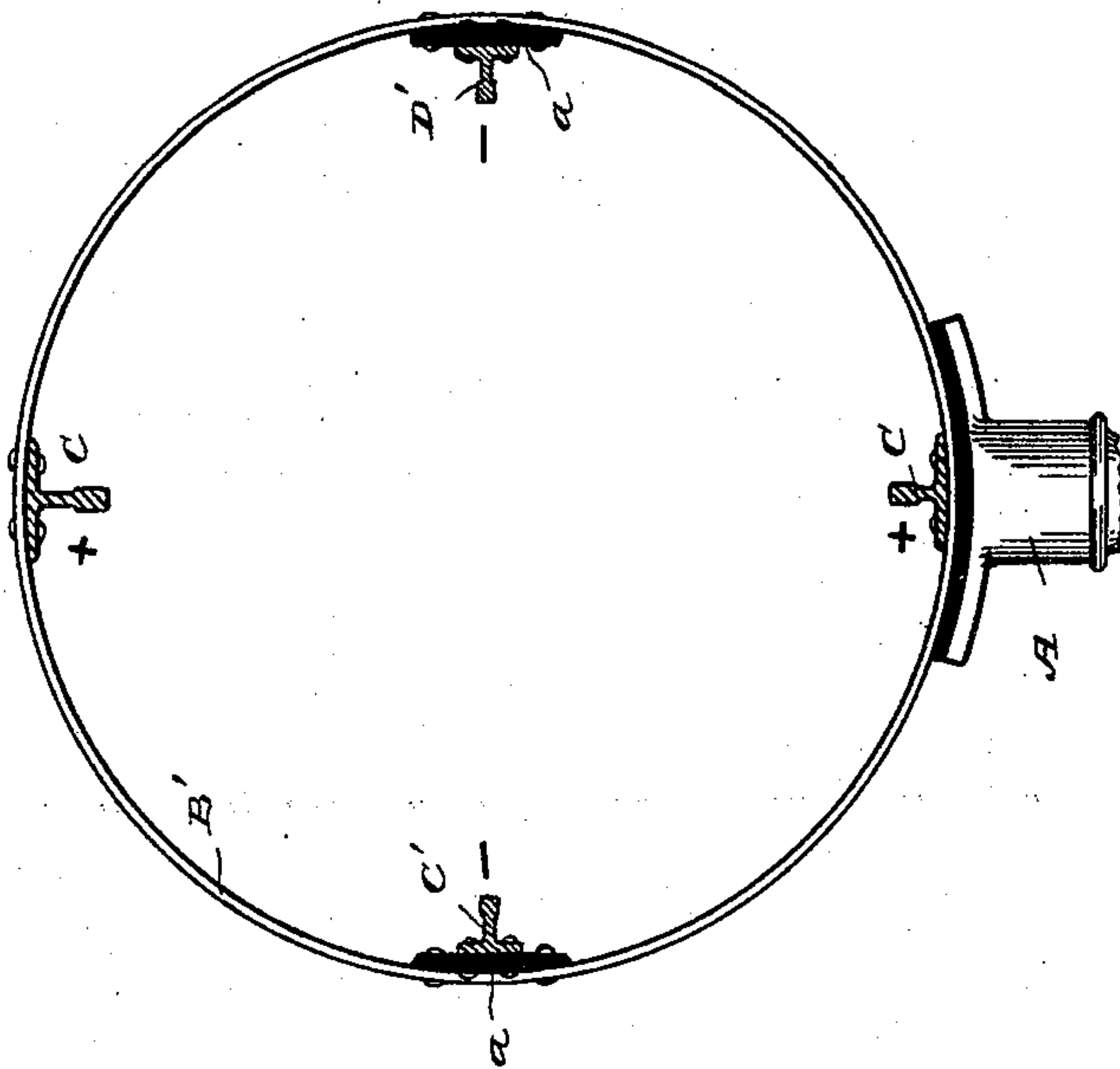
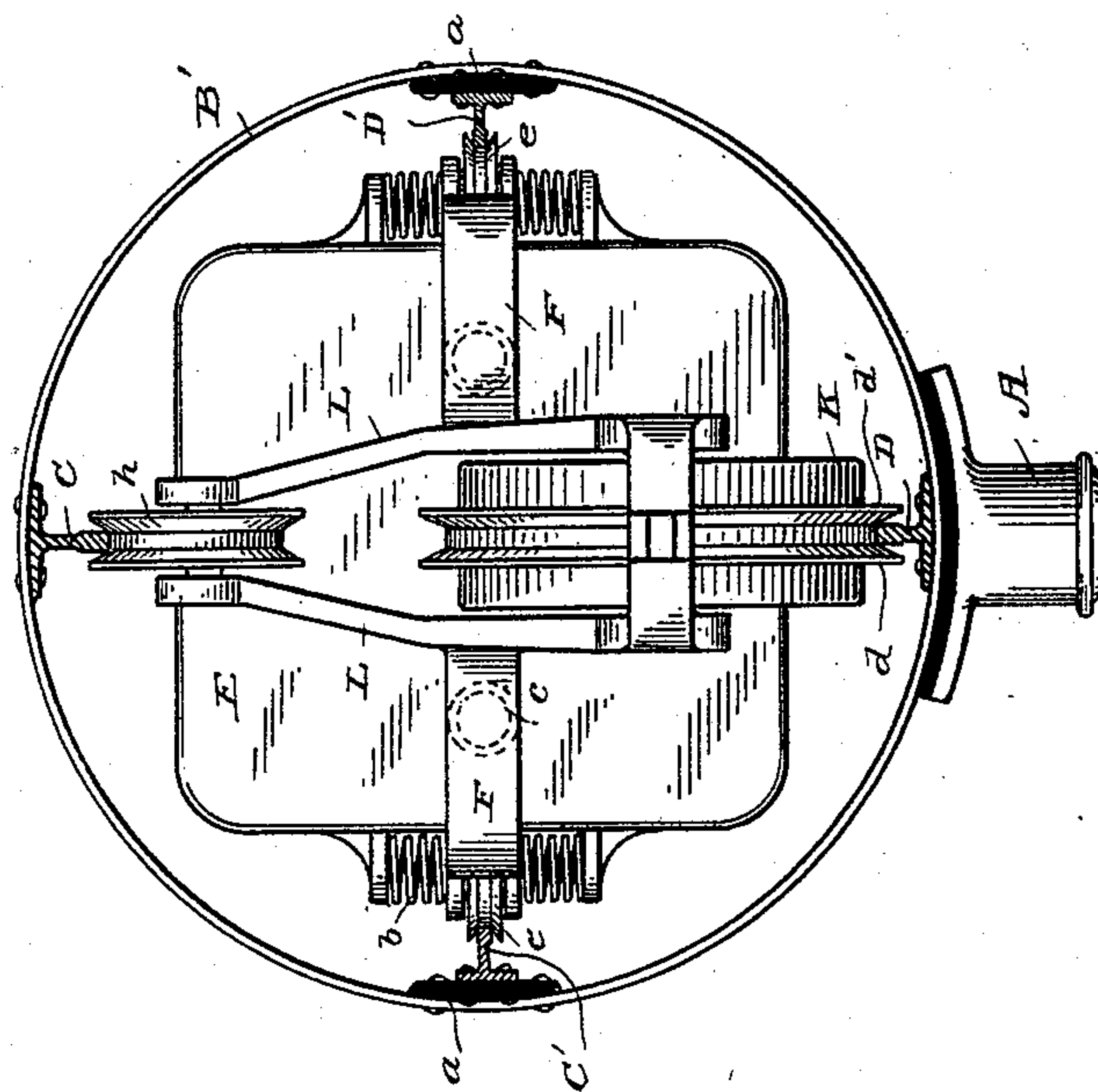


Fig. 6.



Witnesses

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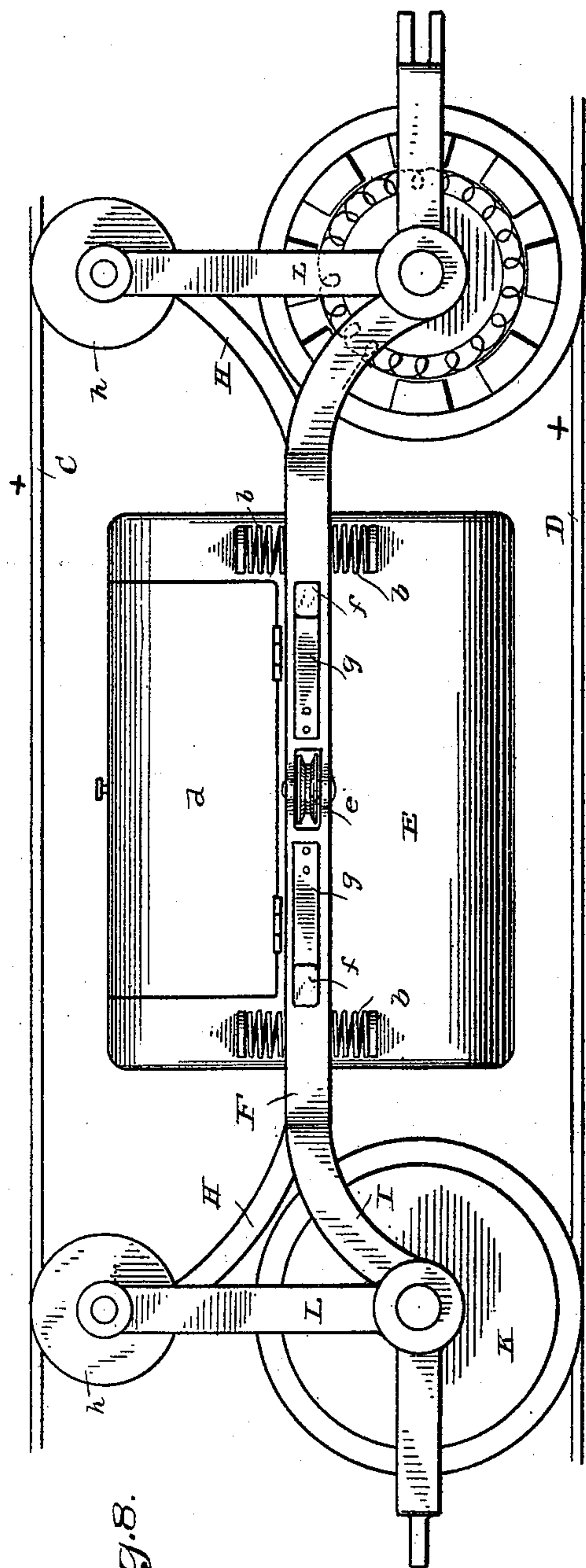


Fig. 8.

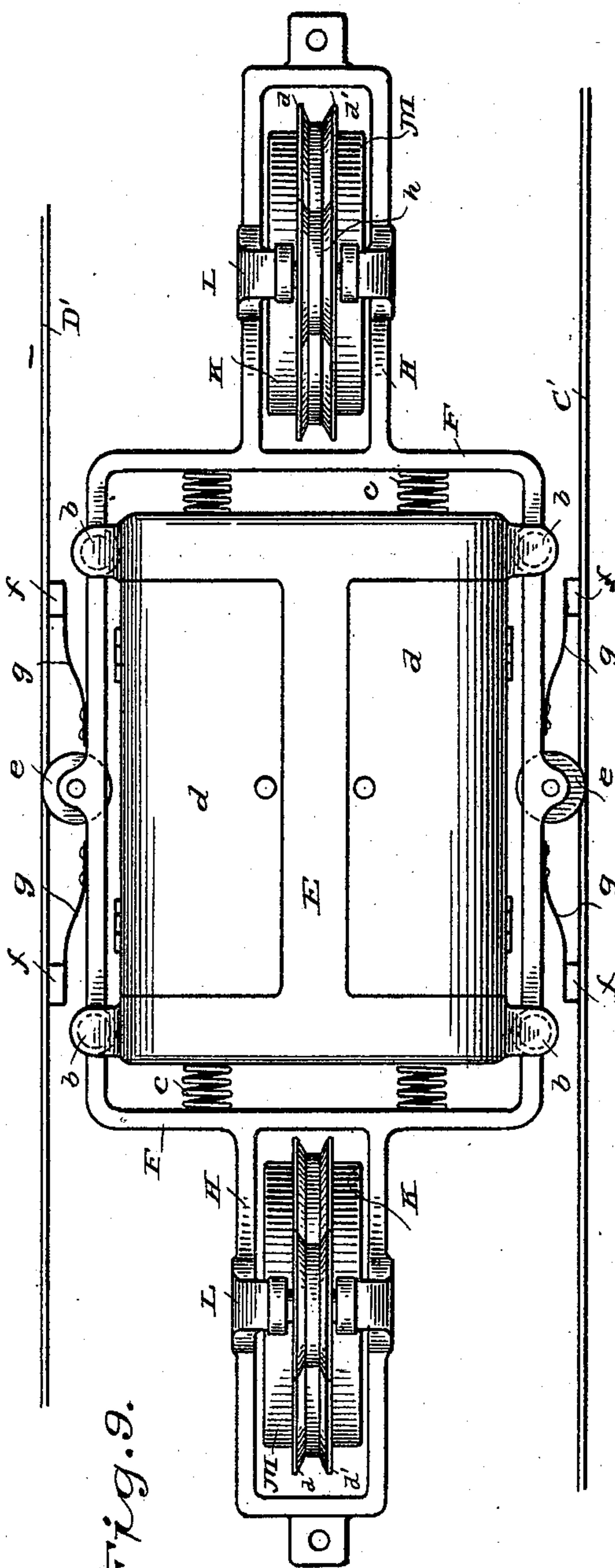


Fig. 9.

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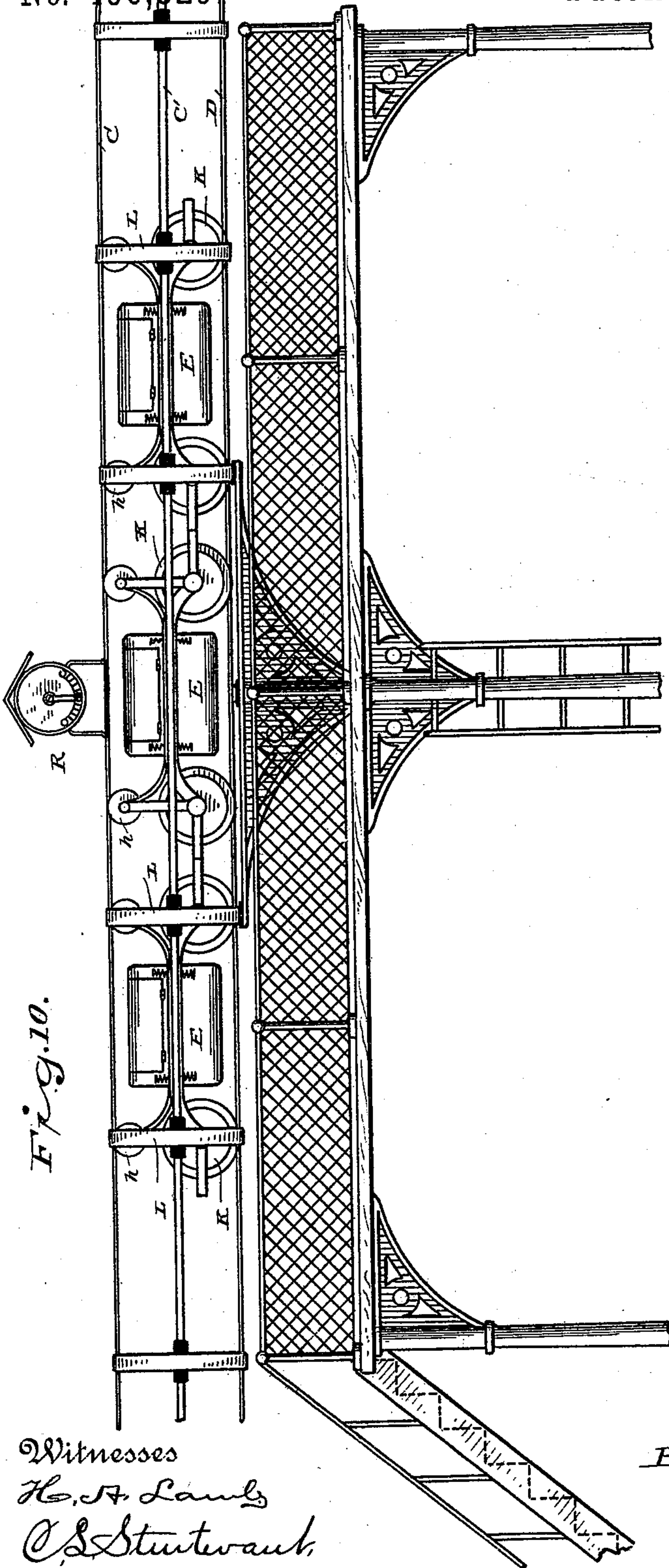
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Witnesses
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C. S. Sturtevant

Fig. 12.

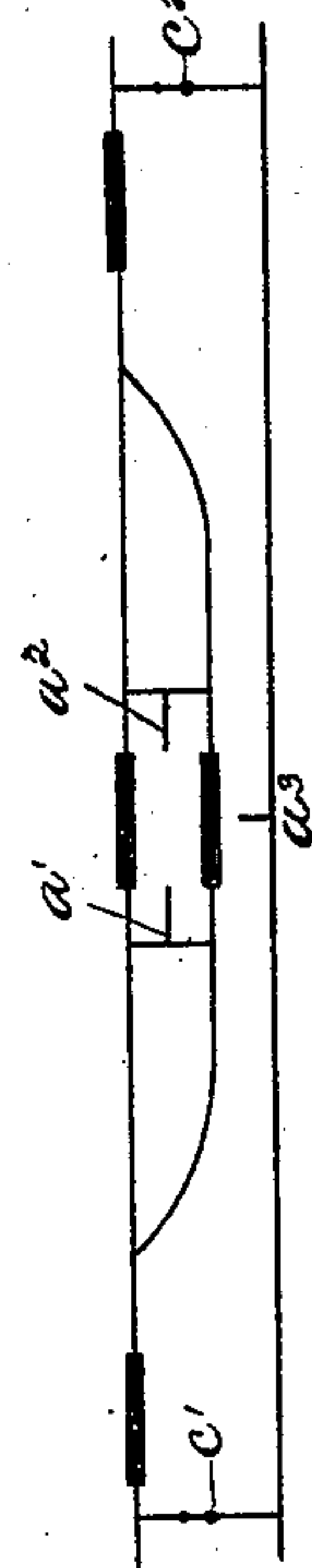
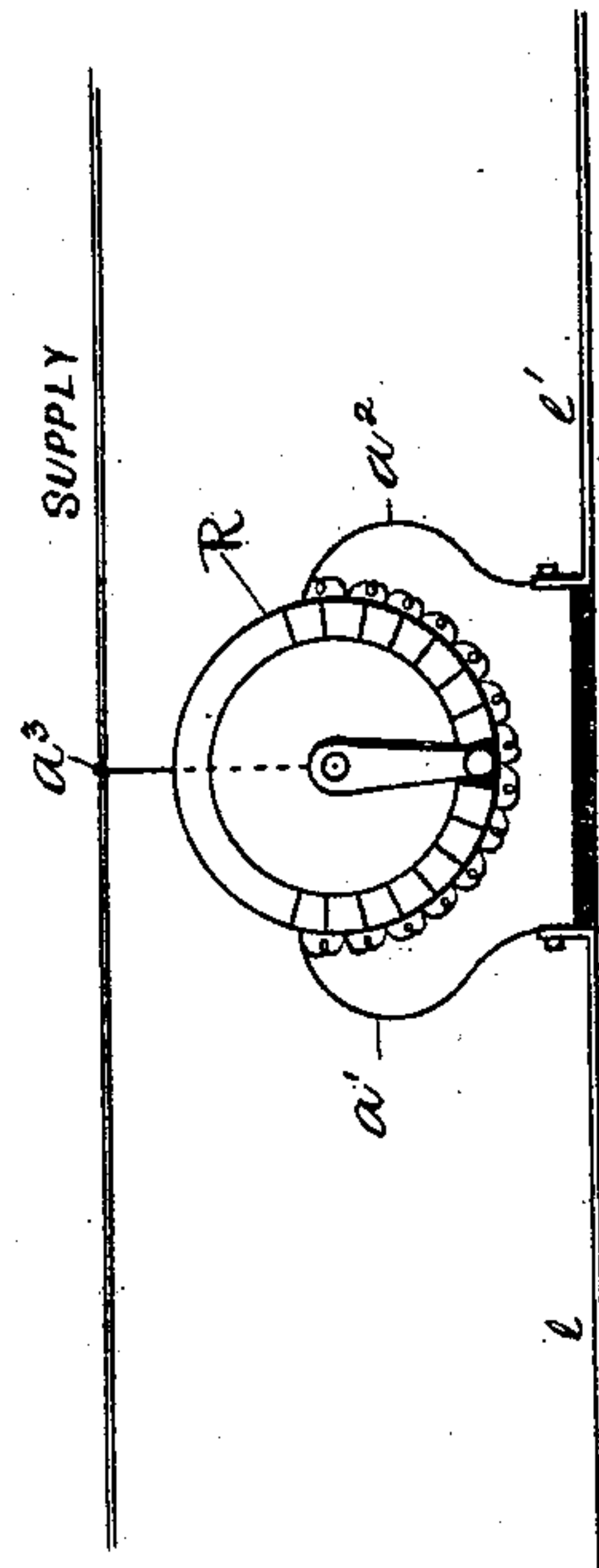


Fig. 11.



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UNITED STATES PATENT OFFICE.

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TELPHER SYSTEM.

SPECIFICATION forming part of Letters Patent No. 496,329, dated April 25, 1893.

Application filed May 15, 1891. Serial No. 392,892. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. VAN DEPOELE, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Telpher Systems, of which the following is a description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to improvements in telpher systems in which a number of carriages or cars for holding mail or freight are propelled along a way from point to point and automatically stopped or started.

In a prior application filed February 28, 1891, Serial No. 383,189, I have shown a general system of telpherage including the construction of track for the cars, the cars themselves, the locomotive, the brakes, and other features applicable to such a system.

The present invention consists in various details of construction of certain parts of the system all hereinafter described and referred to in the appended claims.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 represents in perspective a portion of a permanent way for use with my system. Fig. 2 is an end view partly in section showing the mode of attachment of the bottom and top rails to the rings. Fig. 3 is a side view and Fig. 4 an end view, showing the manner of attaching the side rails to the rings. Fig. 5 is an end view of the entire way. Fig. 6 is a similar view showing a car in position on the same. Fig. 7 is a side elevation of a train of cars. Fig. 8 is a similar view of a single car. Fig. 9 is a top view of the same. Fig. 10 is a side elevation of an elevated station where the cars are intended to be emptied and reloaded for service. Fig. 11 illustrates an arrangement of the insulated branch conductors. Fig. 12 illustrates a means for controllably supplying the branch wires with current.

In the improved system of telpherage described in the application above referred to,

the material to be transported is carried in cars which by preference are in cylindrical form and provided with carrying wheels above and below and at their sides. These cars are drawn along the permanent way by a locomotive which also has points of traction above and below and at its sides, the vehicle and cars corresponding in this respect. The permanent way consists of a tubular track, that is to say, a track having top, bottom, and side rails, the four rails being placed equidistant and all supported and joined together by strong metallic yokes or frames, and said frames are mounted upon supports, which should be of such height as to present no obstruction. The present invention is similar in general features to that above described except, however, that each car is designed to be a motor car and various minor details of construction differ from the invention described in connection with the above application.

Referring now to Fig. 1, A, A, are posts which directly support circular frames B, B. Between these circular frames is located a series of concentric rings B', B², &c., held in position by means of longitudinal rails C, D, C', D', placed on top and bottom and sides of the way, thereby forming a permanent way the strength of which will depend upon the distance between the supporting posts, and the weight to be carried. These concentric rings serve to bind together the structure, composed of the rails and rings. The bottom and top rails are riveted to the rings as shown in Fig. 2, without the insertion of insulation, so that the whole forms one side of a circuit. The frames B, are desirably insulated from the supporting posts A, and the side rails are insulated from the rings in any convenient manner. As shown in Figs. 3 and 4, however, an insulating block *a*, is riveted to the ring the rivets being carried beyond the reach of the rail and being also wider than the periphery of the ring, thus affording a place for the rails to be riveted to the insulating block. The rails are made of such cross section as to form a web of considerable strength in sup-

porting the structure in a horizontal plane without deflection even when under load. It will thus be seen that by this arrangement of top, bottom, and side rails, the top and bottom rails form one side of the electric circuit, while the side rails form the other part.

In Fig. 7 is shown a train of cars and in Figs. 8 and 9, side and plan views respectively of a single car. As herein shown, each car is composed of a suitable casing or box E, suspended by suitable side springs *b*, from a frame F. To take up end shocks springs *c*, are also inserted between the front and rear of the box and the supporting frame. This box is provided with a suitable cover or covers *d*, to permit ready access to the interior of the casing or box.

The supporting frame F, is composed of a widened rectangular portion G, upon the sides and ends of which is supported the package carrying box or casing in the manner above described. Upon the sides of this frame are journaled the grooved wheels *e*, *e*, adapted to bear against the side rails of the track. In order to provide for better electrical contact, friction blocks *f*, *f*, are attached to the frame by springs *g*, *g*, bearing on the side rails adjacent to the wheels *e*, *e*. The frame F, is provided with downwardly and upwardly curved bars H, and I, the former supporting the axle of the main driving wheels K, K, of the car, which travel on the bottom rail of the track, and the latter serving to support the upper wheels *h*, *h*, bearing upon the top rail, suitable bars L, L, extending vertically between the ends of the upper and lower curved bars H, and I.

Each driving wheel K, K, is constructed in the manner described in connection with the locomotive referred to in my previous application. As shown, each consists of a suitable casing M, constructed in two halves, having flanges *d*, *d'*, the space between the flanges forming a groove which runs astride of the bottom rail of the track. This casing forms part of the motor, which is of the type referred to in Letters Patent No. 413,986, granted to me on the 29th day of October, 1889, and need not be hereinafter specifically described. The frame F, is provided at its extremities with suitable draw-heads and couplings whereby the cars may be connected together to form a train.

Current for driving the motors is derived from any suitable source and is supplied through the side rails of the track to the motor or driving wheels through the wheels *e*, *e*, and friction blocks *f*, frame F, and motor casing M, thence out through the upper friction wheel and tread of the motor wheel to the top and bottom rails which form the return.

In Fig. 10 is shown in side elevation an elevated station where the cars are run off on a side way for the purpose of allowing the cars to be emptied and reloaded. This consists of an elevated platform supported upon col-

umns, with steps leading from the ground and having a suitable railing. The branch way is supported upon the main platform in any suitable manner and may be arranged as shown in Fig. 12, *a'*, *a''*, being conductors connecting the insulated sections of the branch to the supply through the rheostat, and C' C² serving to connect the working circuit to the supply conductor *a*³. The rheostat R, is omitted from this figure but is illustrated in Fig. 11.

In order to regulate the current supplied to the cars, a rheostat R, bridging two insulated sections of the track rails, is provided, thus controlling the starting and stopping of the train. A form of this device is shown in detail in Fig. 11 in which *a*³, is the supply conductor, R, is the rheostat, and *a'*, *a''*, are the conductors extending from the terminals of the rheostat to the insulated sections *l* and *l'* of the branch. The rheostat handle stands normally so that no current passes from the supply conductor to the insulated sections *l*, *l'*. Any cars upon these sections would therefore remain at rest. Should it be desirable to move the car or cars upon section *l*, it is only necessary to turn the rheostat handle so that current will pass through conductor *a'* to that section. A similar movement of the handle in the opposite direction would supply current through conductor *a''* to section *l'*.

Automatically operated electric brakes, such as shown in my prior application above referred to, may obviously be provided though it has not been thought necessary to illustrate the same in the drawings.

I do not claim in this application the general features of the telpher system, as those have been fully included in the claims of my application above referred to.

The gist of the present invention consists in the construction of the whole system comprising a number of concentric rings and longitudinal rails of webbed cross section which will strengthen the structure and make it a strong unit able to stand very severe usage and to be constructed at reasonable cost. Another feature is, that every one of the cars has its own power wheels, thus avoiding the necessity of causing extra friction in order to secure the necessary traction, enabling a train to start quickly as well as to climb high grades. By making the permanent way secure, it will be possible on down grades to let the cars take their own speed without producing any bad results provided there are no sharp curves on the road, so that the only attempt at regulating the speed of the system shown will be on down grades.

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

1. In an electric railway, a suitable track having upper and lower and side rails, a series of concentric rings surrounding said rails, an insulating block between the rings and side rails, the rails being secured to the rings, con-

tact wheels running on the rails, and spring contact blocks also bearing on the side rails, substantially as described.

2. In an electric railway, a suitable track having upper and lower and side rails, a series of concentric rings surrounding said rails, the upper and lower rails being secured directly to the rings, the side rails being secured to a block of insulating material, the latter secured to the rings, and contact wheels running on the rails, substantially as described.

3. In an electric railway, a suitable track having upper and lower and side rails, a series of concentric rings surrounding said rails to which they are connected, cars traveling on said way, each having upper and lower and side contact wheels, and separate motors for each car, substantially as described.

4. In an electric railway a suitable track having upper and lower and side rails, a series of concentric rings surrounding said rails, the upper and lower rails being secured to the rings and the side rails being also secured thereto but insulated therefrom, substantially as described.

5. In an electric railway a suitable track having upper and lower and side rails, and a series of concentric rings surrounding and supporting said rails, a car running on said track comprising a suitable frame having side and top wheels running on the side and upper rails and a lower wheel running on the lower rail, said lower wheel being provided with a motor, substantially as described.

6. In an electric railway, a suitable track having upper and lower and side rails and a series of concentric rings surrounding and supporting said rails, a car running on said track comprising a suitable frame supporting side and top wheels running on the side and upper rails, friction blocks spring-supported

upon said frame, also bearing on the side rails, and a lower wheel running on the lower rail, said lower wheel being provided with a motor, substantially as described.

7. In an electric railway system, the combination with the main way of a branch way consisting of insulated sections of track, and a rheostat bridging two of said sections and having a connection to the main way thereby controlling the starting and stopping of the train, substantially as described.

8. In the herein described railway system, a vehicle comprising a suitable rectangular frame, a box or casing spring-supported on said frame, wheels journaled in the sides of said frame adapted to run on the side rails of the way, and upwardly and downwardly curved bars attached to said frame and supporting upper and lower wheels adapted to run on the upper and lower rails of the way, substantially as described.

9. The herein described vehicle comprising a rectangular frame, a box or casing spring-supported thereon, wheels journaled in the sides of said frame, friction blocks spring-supported from the sides of said frame, said wheels and blocks being adapted to bear on the side rails, said frame being provided with downwardly and upwardly curved bars H, and I, motor wheels journaled in the former, contact wheels h, supported by the latter, and bars L, L, extending vertically between the ends of said bars H, and I, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES J. VAN DEPOELE.

Witnesses:

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