

No. 711,137.

Patented Oct. 14, 1902.

G. E. TITCOMB.

CABLE CARRIER FOR CONVEYING AND HOISTING MACHINES.

(Application filed July 22, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. I

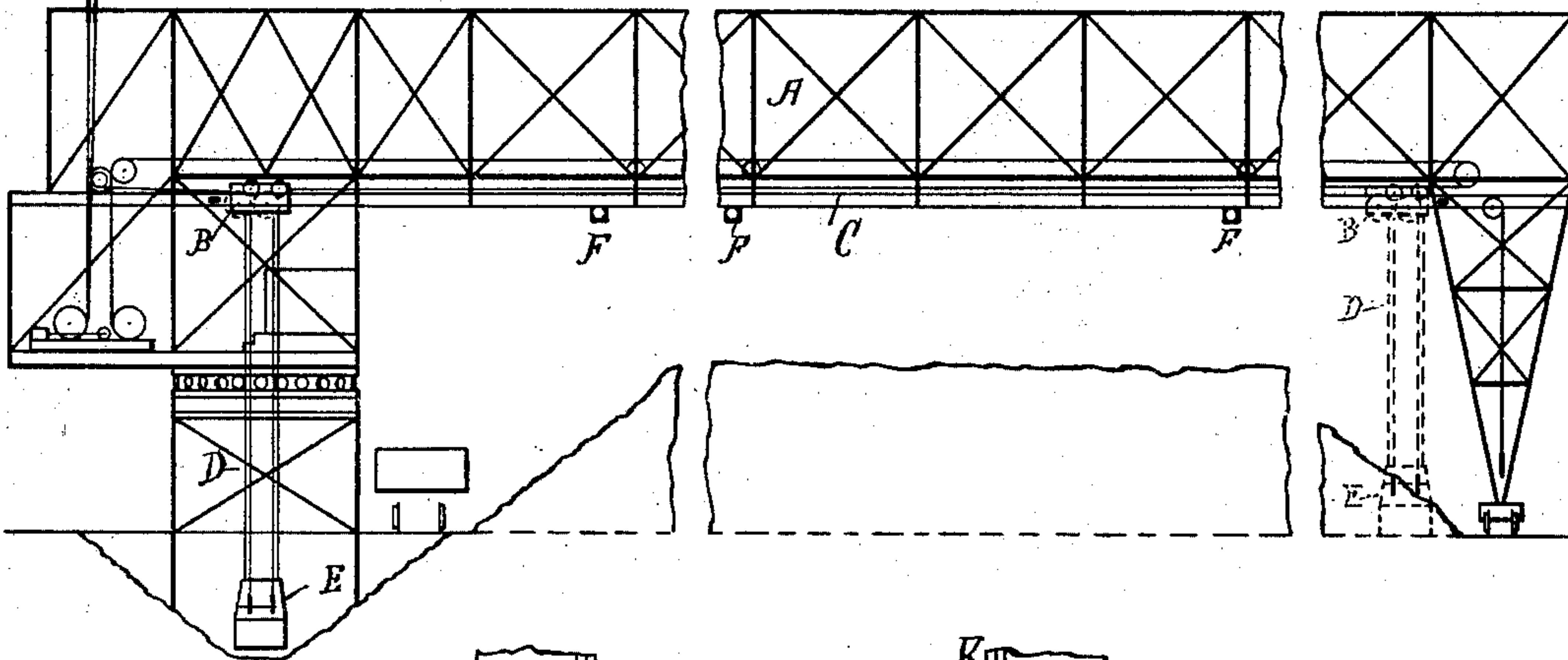


Fig. IV

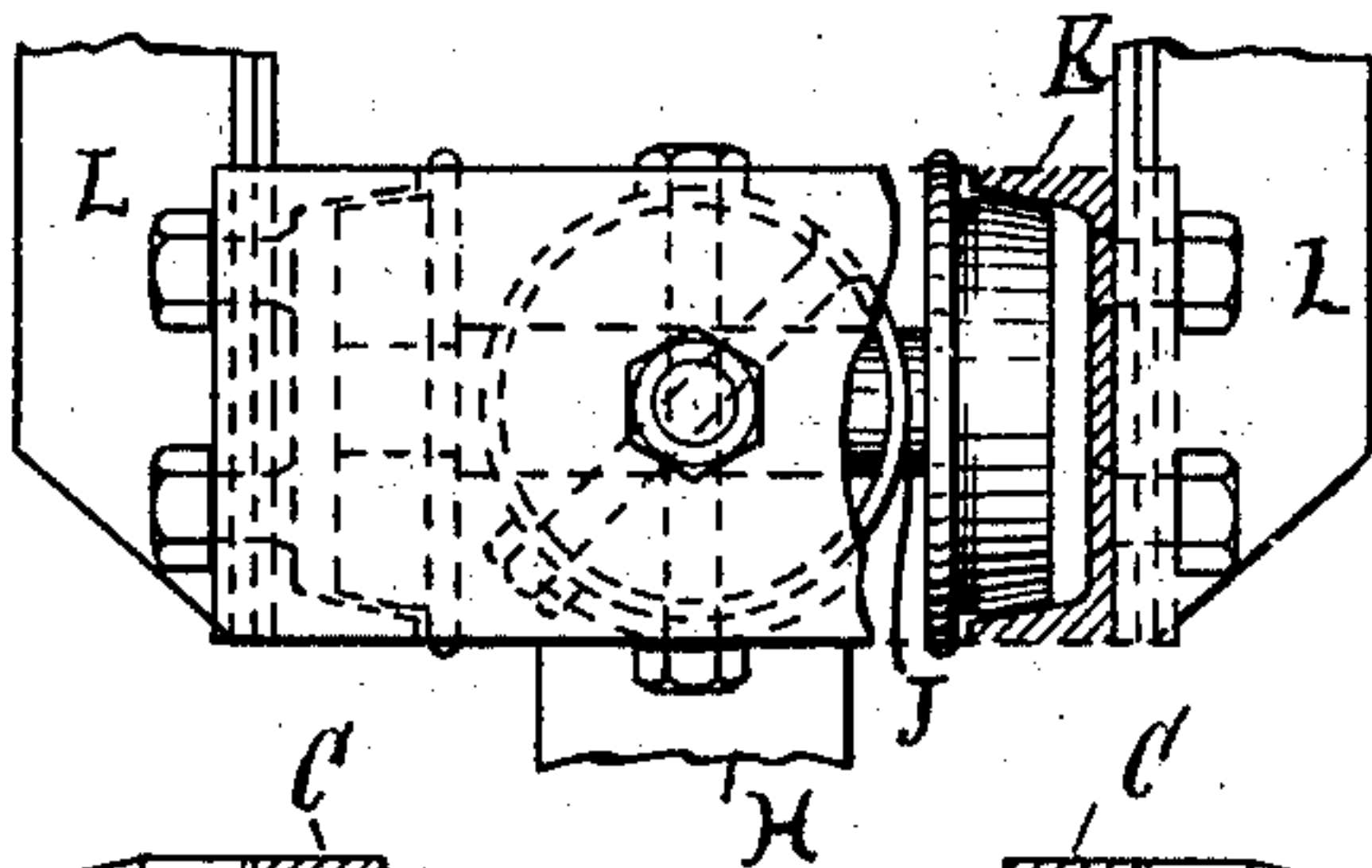
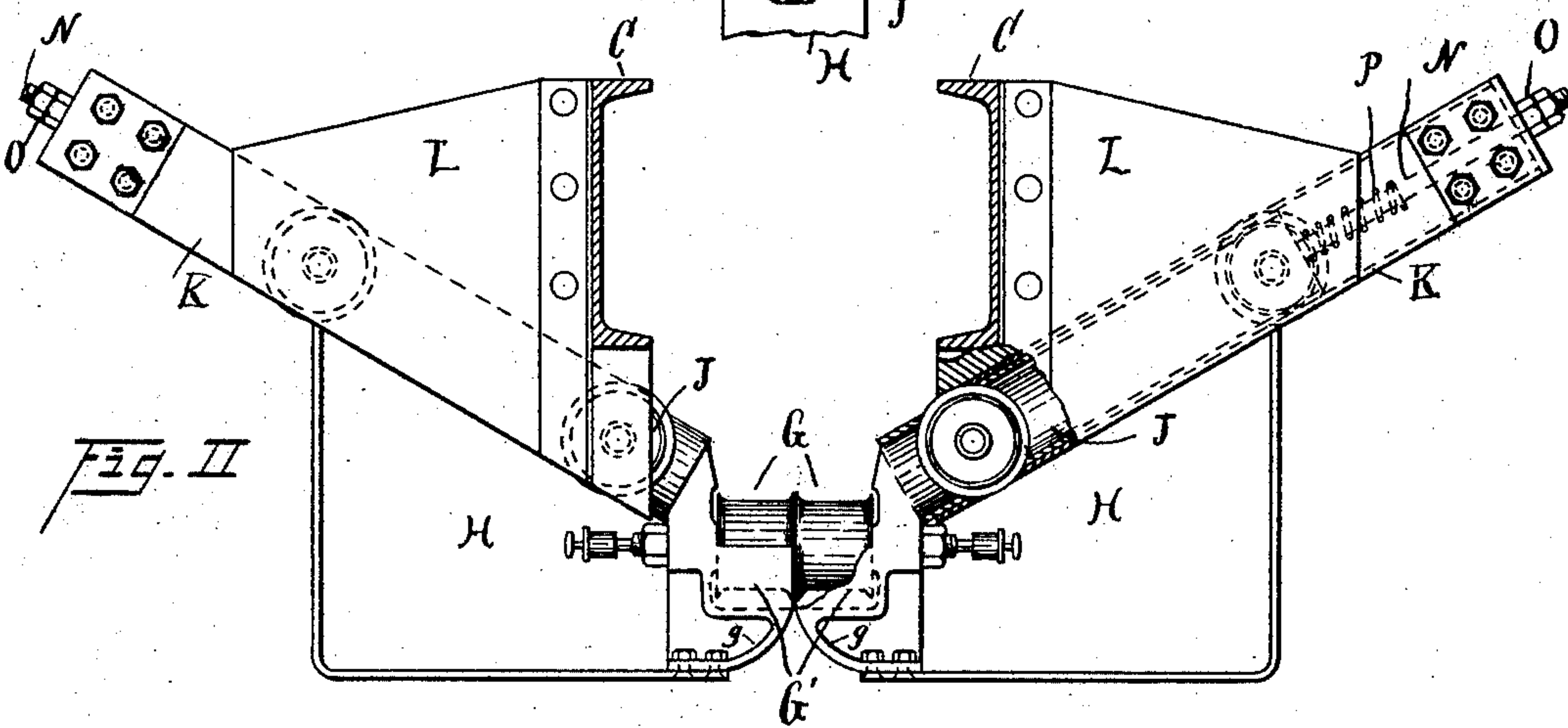


Fig. II



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Inventor:

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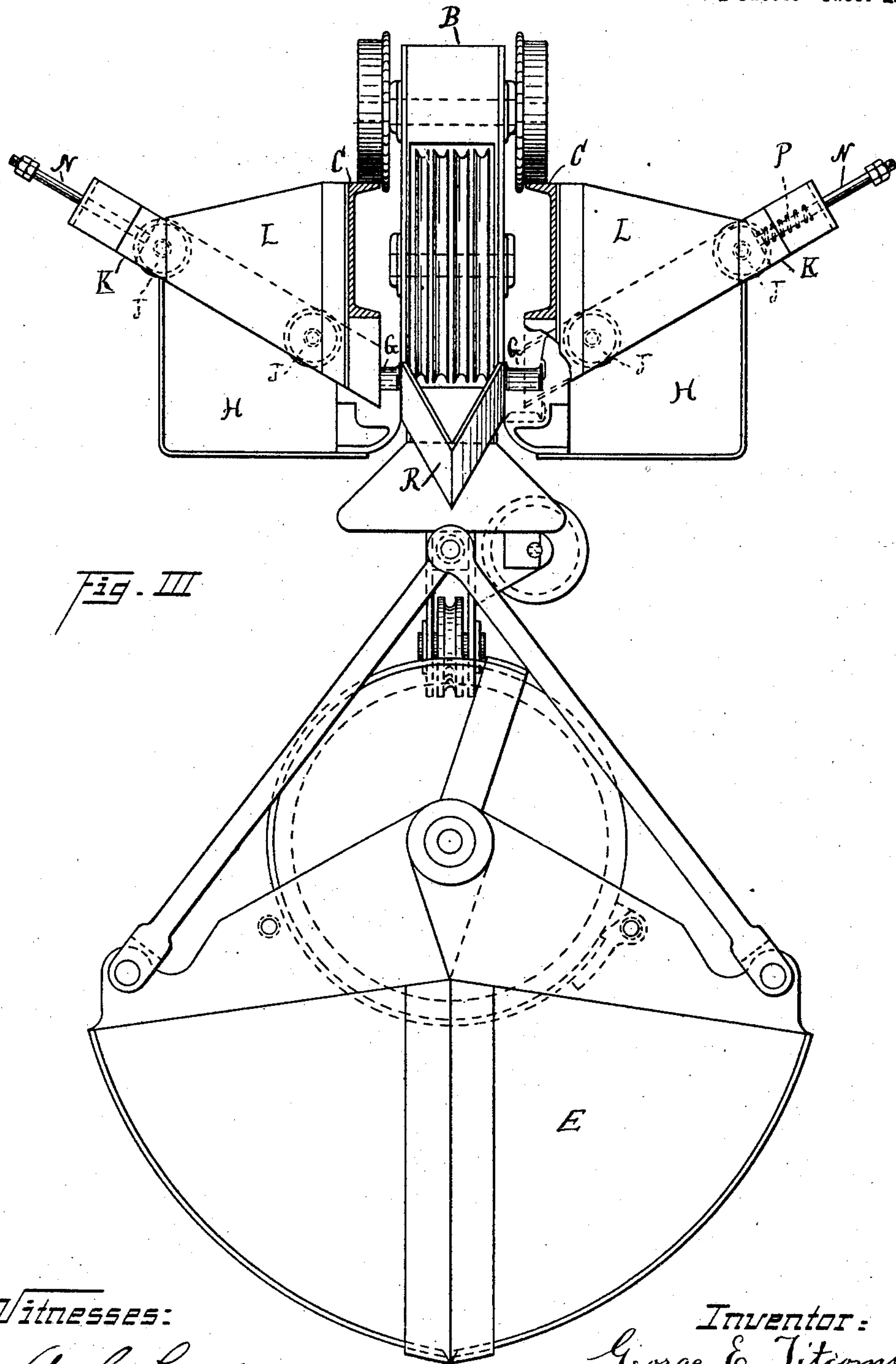


Fig. III

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UNITED STATES PATENT OFFICE.

GEORGE E. TITCOMB, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO
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CABLE-CARRIER FOR CONVEYING AND HOISTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 711,137, dated October 14, 1902.

Application filed July 22, 1901. Serial No. 69,272. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. TITCOMB, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Cable-Carriers for Conveying and Hoisting Machines; and I 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 pertains to make and use the same.

My invention relates to rope or cable carriers or supports for use in connection with long crane-arms or bridges, upon which the carriers of loading and unloading machines are supported and run.

My invention is more especially designed to be used in connection with automatic buckets of that type constructed with two or more jaws which open to engage the load and close to retain and carry it and again open to unload it.

My invention consists in the peculiar construction of the carriers or supports whereby their action is more positive, their strength greater, and their operation more speedy than that of other devices for like purpose, all of which will be hereinafter fully set forth and claimed.

In the drawings, Figure I is a view in side elevation of a device embodying my invention, illustrating diagrammatically a hoisting and conveying apparatus to which my invention is applicable. Fig. II is a sectional view taken crosswise through a crane-arm or bridge at a point where a carrier or supporter made according to my invention may be located. This figure also illustrates in section at the right-hand side thereof the lower end of an inclined way which forms a guide controlling the movement of the carrier or supporter. Fig. III is a view in front elevation of a carriage with buckets supported thereby and illustrating the action of the carrier in opening and passing between the cable carriers or supports and also the construction of my preferred means for engaging said carriers or supports at the approach of and during the passage of the carriage. Fig. IV is a sectional view illustrating more clearly the details of the inclined way which guides and

controls the movement of the cable carriers or supports.

It is well known that it is practically impossible to control the cables on bridges or long spans unless the same are supported at predetermined intermediate points. The difficulty encountered in supporting the cable at intermediate points along the spans has been that the supporters interpose themselves along the line of way of the carriage and that they must be removed automatically by the said carriage upon its approach, so as to allow of the passage of said carrier. It is also necessary that the subsequent closing of the carriers or supporters shall be quick and effective in engaging and supporting the cables after the carrier has passed and that if from any cause the carrier should miss one or more of the cables the tension of said cables when the slack is taken up shall act to replace the cable upon the carrier or support. Another very important feature in connection with cable carriers or supports of this type is that there should be the least possible chance of "fouling" the cable or of the cable catching in any part of the carrier or supporting mechanism.

Having all the above essential requisites in view, I have devised a cable carrier or support which fully embodies them and which is constructed as follows:

In Fig. I, A represents the bridge of a loading and unloading or storing mechanism, which embodies a moving carriage B, tracks or way C, and cable D, upon which is suspended the loading, conveying, and unloading bucket E. Along the bridge A at predetermined intervals are located my cable or rope carrier and supports F, the same being more or less in number, according to the length of the span. This bridge A is suitably supported, and the whole mechanism comprises the necessary adjuncts for a perfect hoisting and conveying or loading and unloading apparatus.

As illustrated in Figs. II and IV of the drawings, the cable support or carrier is secured to the tracks C C, at the sides thereof, by any suitable means. These supports or carriers comprise two oppositely-operating sections, each of which is provided with a roller G,

preferably formed with flanged ends. The rollers G are mounted and incased within guard-boxes G', the lower ends of which are both curved downward and outward and extend into like downward and outward curved ribs g, thus forming an inverted-V-shaped recess which has its apex at the dividing-line between the rollers G. The rollers G run free and are of sufficient length or width to support a requisite number of ropes or cables which operate along the line of track. The guard-boxes G', which furnish the housing for the rollers G, are secured to hangers H, and said hangers H are attached to and depend from trucks J. The trucks J in turn are mounted upon and guided by inclined rails K on both sides, said rails K being in turn suitably secured to the way-rails C, preferably by means of bracket-plates L at either side of said way. Thus it will be seen that as the supporting-wheels G are forced apart the trucks J will ride upward on the inclined tracks and that when they are free they will by their gravity close together. In order that the rollers may assume each its proper position when the supporter or carrier is closed, I have secured to the end of the truck a check-rod N, which is made adjustable, if desired, by means of lock-nuts O. Also in order to take up the shock which may be incident to the rapid opening of the supporter by the rapid moving of the carriage along the way I have provided buffer-springs P, which are interposed between the upper end of said trucks and the upper end of the tracks K.

In Fig. III of the drawings I have illustrated what I term a "deflector-shoe," secured to the carriage B, at both ends thereof, (one end only being shown in this figure.) This deflector is formed in the shape of a wedge R, having its apex forward and centrally located and in position to engage with the curved surfaces g g, and for this purpose I form said deflector depending downward at its point and diverging in an upward direction. The angle of the incline coincides with the angle of the inclined ways K, thus first engaging the carriers or supporters at g g, sliding along the face of the guard-boxes G' and forcing said guard-boxes, with their respective rollers, sideward and upward and keeping them in this position until the carriage has passed, when the carriers will again assume their normal position, as illustrated in Fig. II.

It will be seen from the above description, taken in connection with the drawings, that as the carriage B passes along the way-track C the cable or rope supporters or carriers will be consecutively opened and closed, thus supporting the cable or ropes at both sides of said carriage and keeping the same from sagging, while at the same time supporting their weight. The under curved portions g g of the guard-boxes G' will allow any cable or rope that may have escaped the action of the carrier-pulley G to force open the carrier mech-

anism when said rope becomes again taut, thus allowing it to become replaced in position on said carrier. It will also be seen that no entanglement of the cables with the carrier mechanism is possible, because even should one or more cables escape the carrier and sag and the others remain above the carrier the carriage as it comes along will again automatically reset the cable and assemble them upon said carriers or supports in proper position.

In setting forth my invention I have shown and described certain details of construction which I prefer to employ and which to me seem best adapted to carry out the object in view; but in so doing I do not wish to be understood as limiting myself to these details or assemblages of parts, inasmuch as they may be varied and undoubtedly will be modified according to the demands or constructive features of the way-track or bridge or other circumstances which are unforeseen.

What I claim is—

1. A cable-support of the type set forth comprising means to be engaged by and support the cables, said means comprising two separate parts slidable away from each other in an upwardly and outwardly direction on inclined ways, in combination with the inclined tracks or ways, substantially as described.

2. A cable-support of the type set forth, comprising way-tracks adapted to support a carriage, cable-supports spanning the space between said tracks and comprising two separate parts slidable upwardly and outwardly away from each other at an incline to the tracks when actuated, and inclined tracks or ways on which said cable-supports travel, substantially as described.

3. In a cable-support of the type set forth, the combination with two way-tracks, of a cable-carrier comprising two parts one secured to each of said tracks and movable upwardly and outwardly at an incline to the tracks, and inclined ways or tracks on which said parts of the cable-carrier travel, substantially as described.

4. In a cable-support of the type set forth in combination with way-tracks of cable-supporting devices secured to each of said tracks and adapted to span the space between them, said supporting devices being mounted on inclined ways, for the purpose set forth.

5. In a cable-support of the type set forth, the combination with way-tracks, of a carriage mounted thereon, and adapted to traverse said tracks, and a cable-carrier mounted slidably in relation to said tracks and adapted to span the space between them, said cable-carrier comprising two parts slidably connected to the respective way-tracks and movable upwardly and outwardly at an incline thereto in unison or independently of each other, inclined tracks or ways for each of the parts of the carrier, means carried by the carriage for operating the cable-carriers to move them from their position between the way-

tracks to allow the passage of the carriage, and means connected to the carriers for returning the same to their normal position between the way-tracks after the passage of the carriage, substantially as described.

6. Cable-supports for conveying apparatuses, comprising a rope-carrier adapted to retain and support the cable or ropes, said carrier being mounted on wheels or rollers, and inclined ways in which said wheels or rollers are adapted to move in a direction substantially at right angles to the line of way, for the purpose set forth.

7. A rope or cable carrier for conveying apparatus, comprising rollers mounted within guard-boxes, trucks to which the rollers and guard-boxes are connected, and inclined ways in which the trucks move when the rollers are separated by the passage of a carriage.

8. In a rope or cable support for conveying apparatus, the combination with the way-track, of cable or rope carriers mounted upon rollers and slidable in relation to said way-track, in a direction approximately at right angles to the line of way and on an inclined track, for the purpose set forth.

9. In rope or cable supports for conveying apparatus, the combination with the line of

way, of two rope-carriers both mounted on wheels, both slidable in opposite directions to the line of way, and both slidable on inclined tracks for the purpose set forth.

10. In rope or cable supports for conveying apparatus, the combination with the line of way, of laterally-moving slidable rope-carriers connected to trucks operating in inclined ways, and buffer-springs for taking up the shock incident to the rapid opening of said carriers substantially as set forth.

11. In rope or cable supports for conveying apparatus, the combination with the line of way, of moving slidable rope-carriers comprising rollers mounted in guard-boxes having their lower ends curved downward and outward to form curved ribs, and a carriage traveling on the line of way and having a wedge-shaped deflector-shoe to engage the ribs and actuate the rollers and guard-boxes to allow the passage of the carriage.

Signed by me at Philadelphia, in the county of Philadelphia and State of Pennsylvania, this 23d day of April, 1901.

GEORGE E. TITCOMB.

Witnesses:

JOSEPH ENTWISLE,
W. J. PANCOAST.