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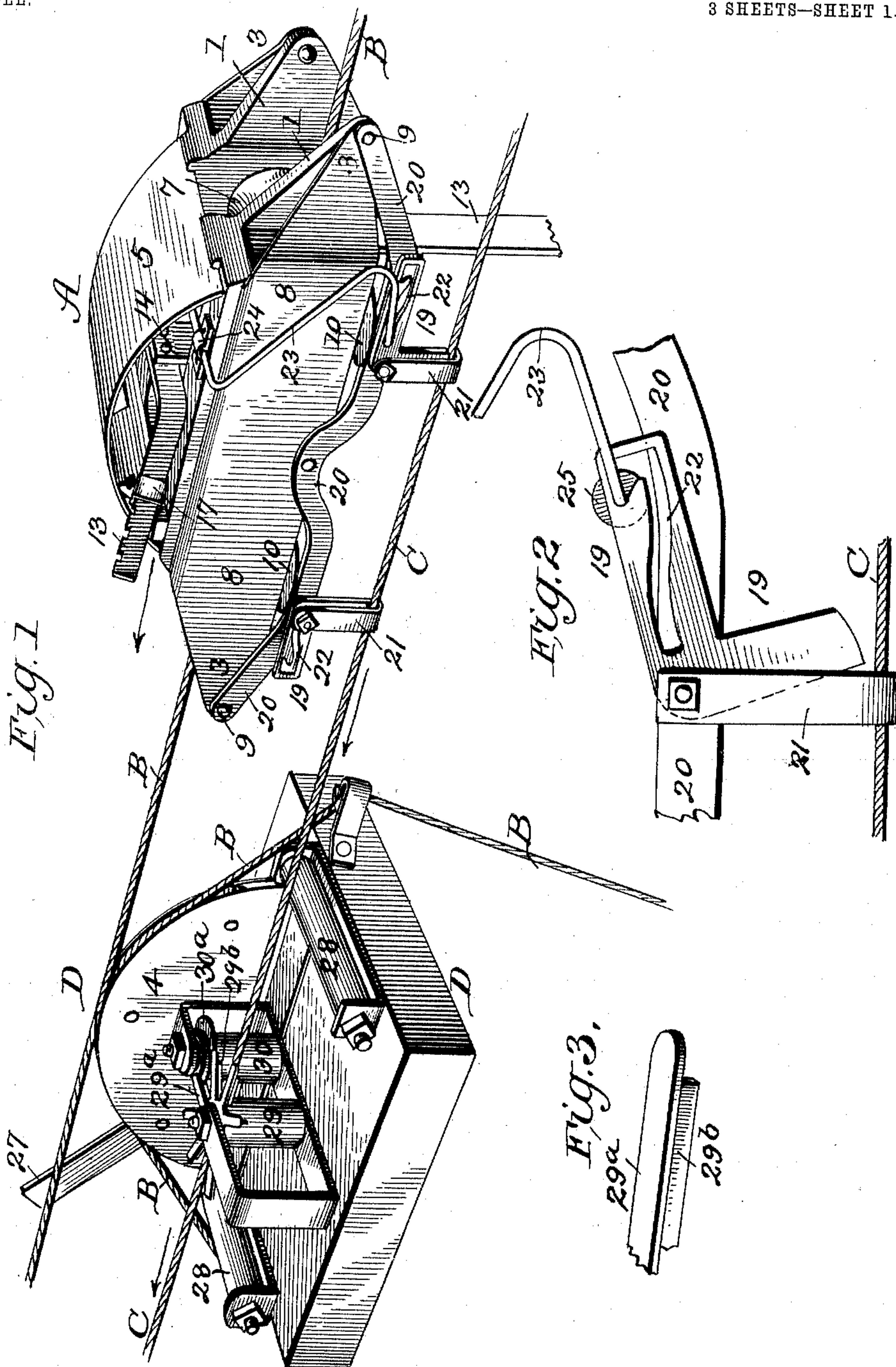
PATENTED MAY 3, 1904.

T. ALEXANDER.  
CARRIAGE FOR OVERHEAD CABLES.

APPLICATION FILED AUG. 3, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

*Jos. A. Ryan*  
*Amos W. Hart*

INVENTOR

*Tony Alexander*

BY *Munn & Co.*

ATTORNEYS.

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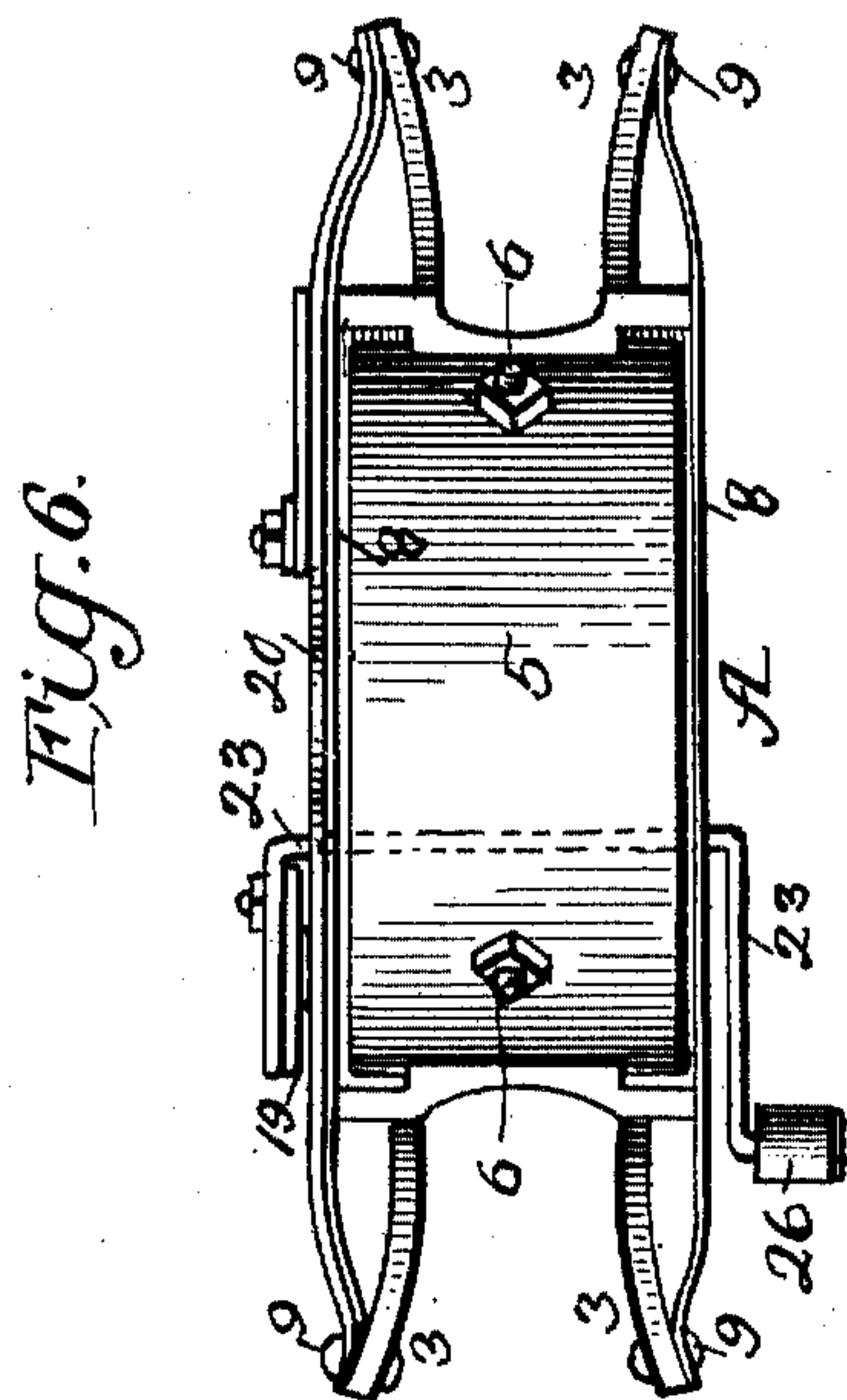
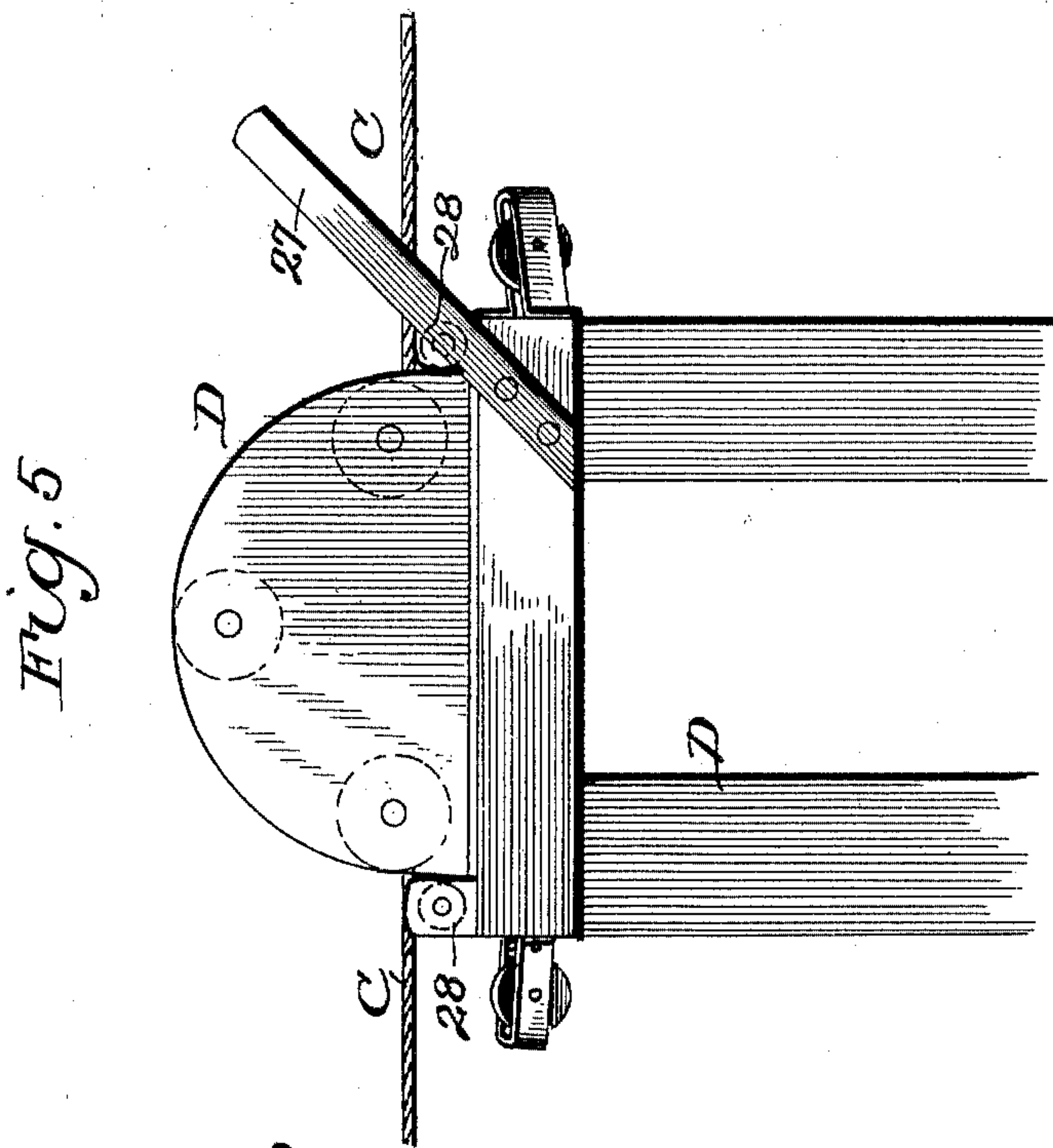
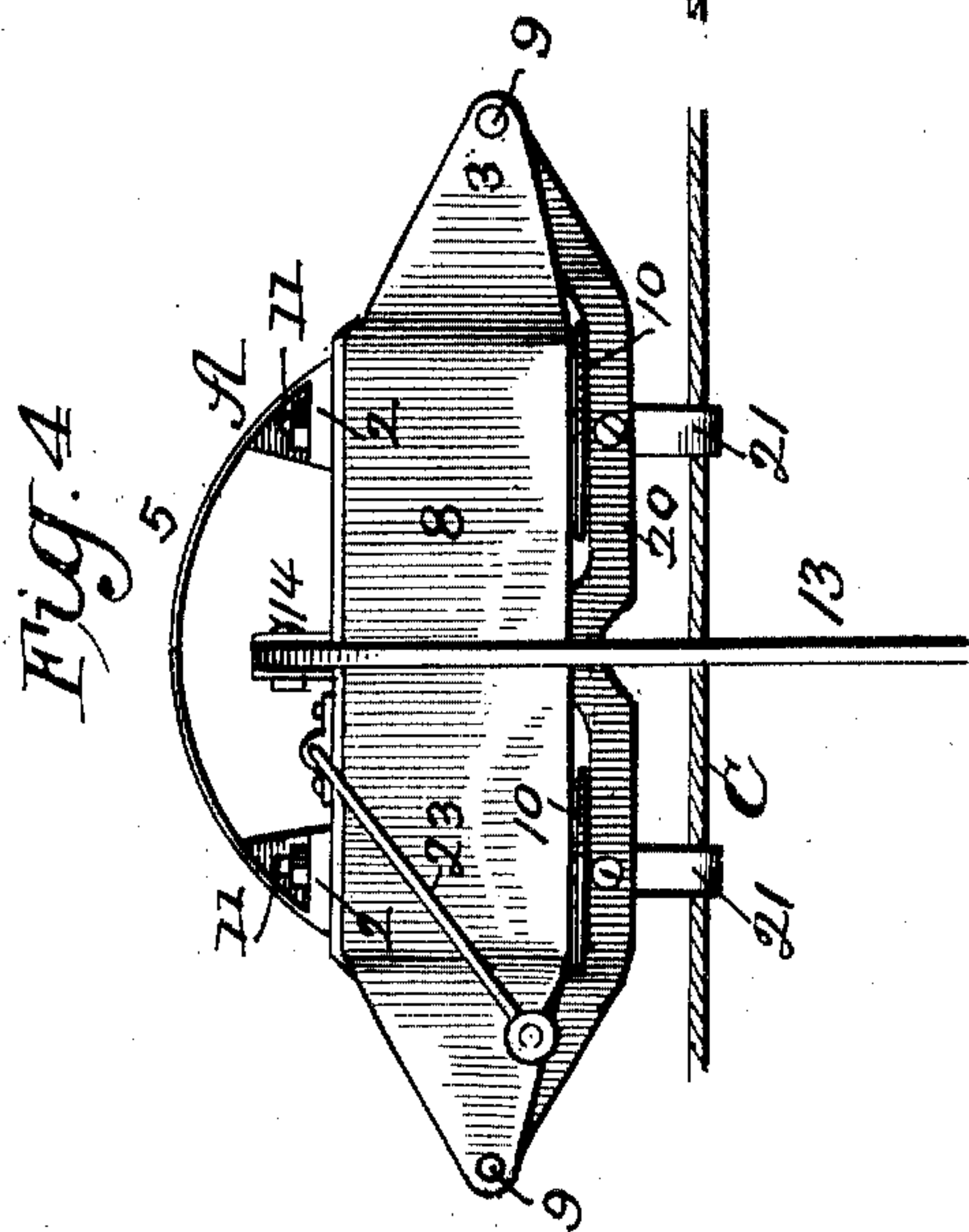
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3 SHEETS—SHEET 3.

Fig. 7.

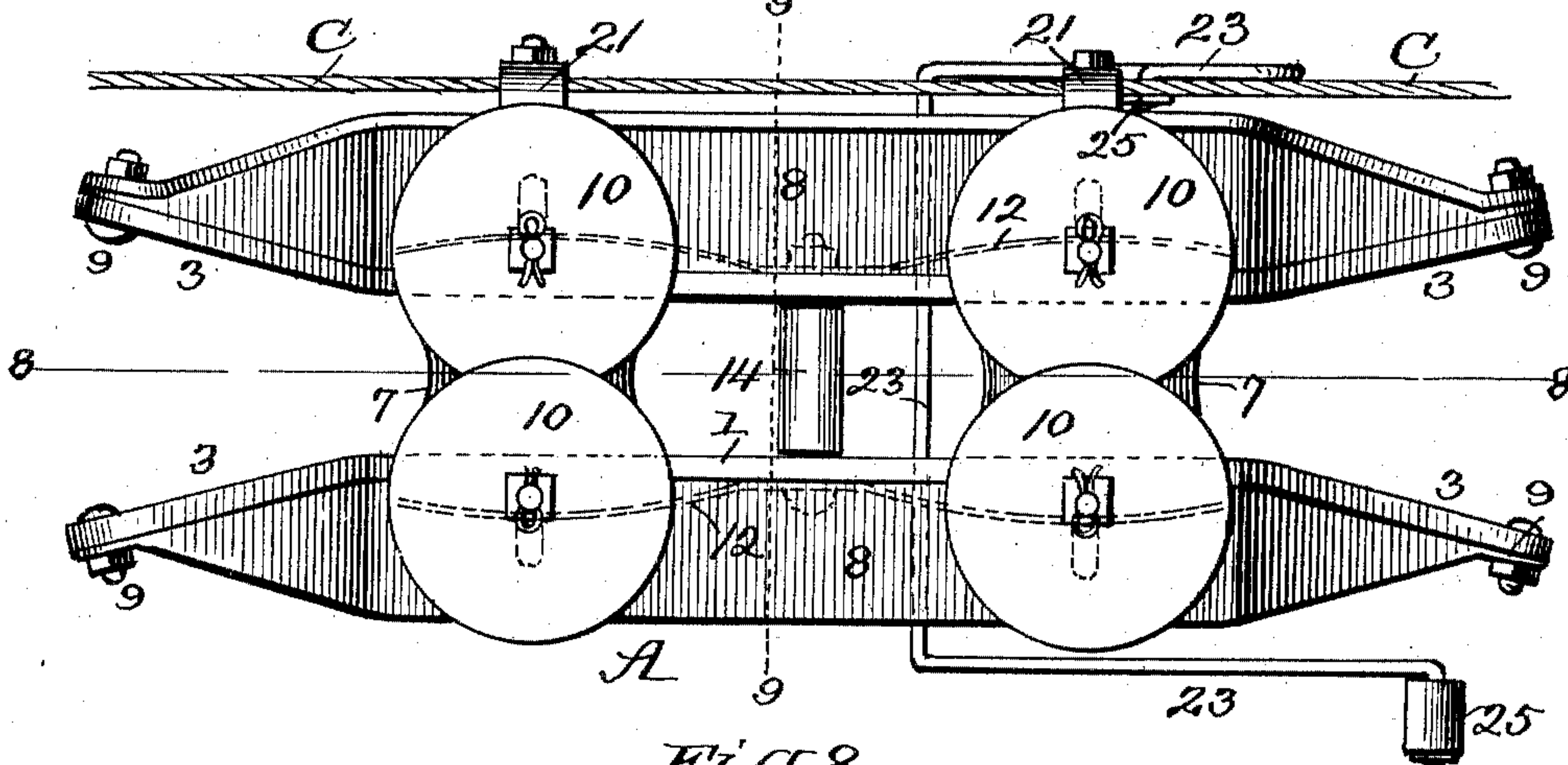


Fig. 8.

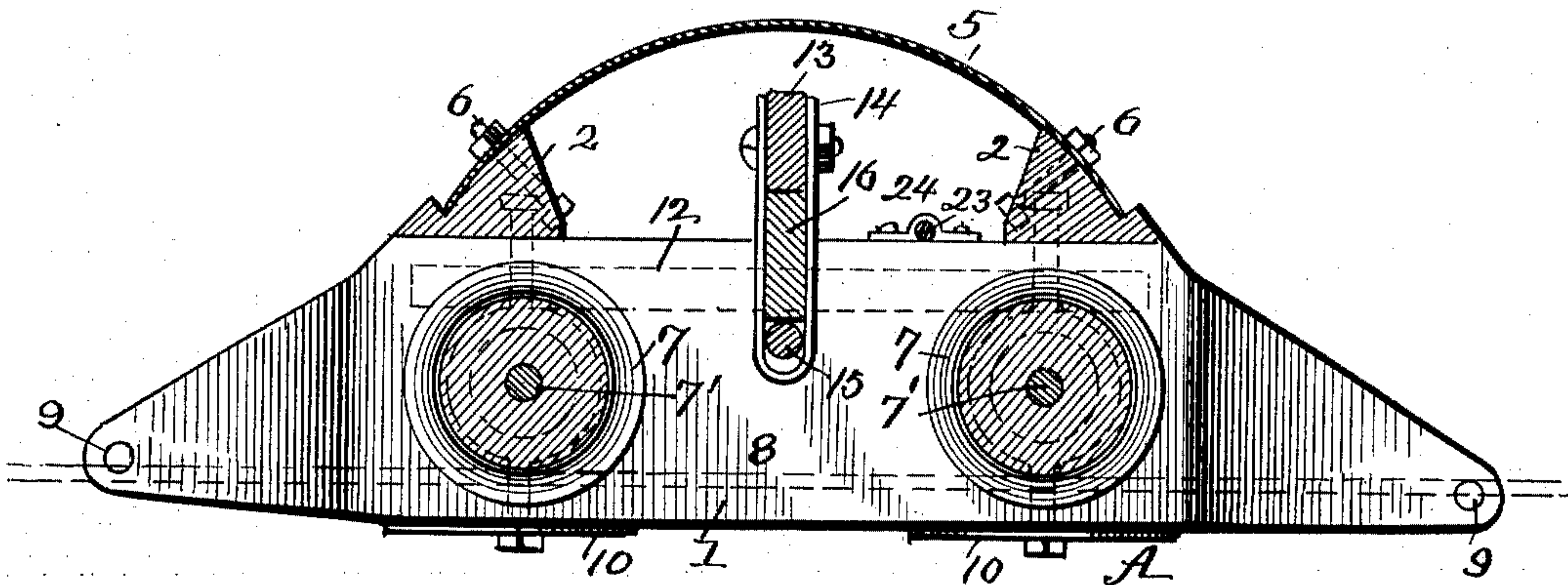
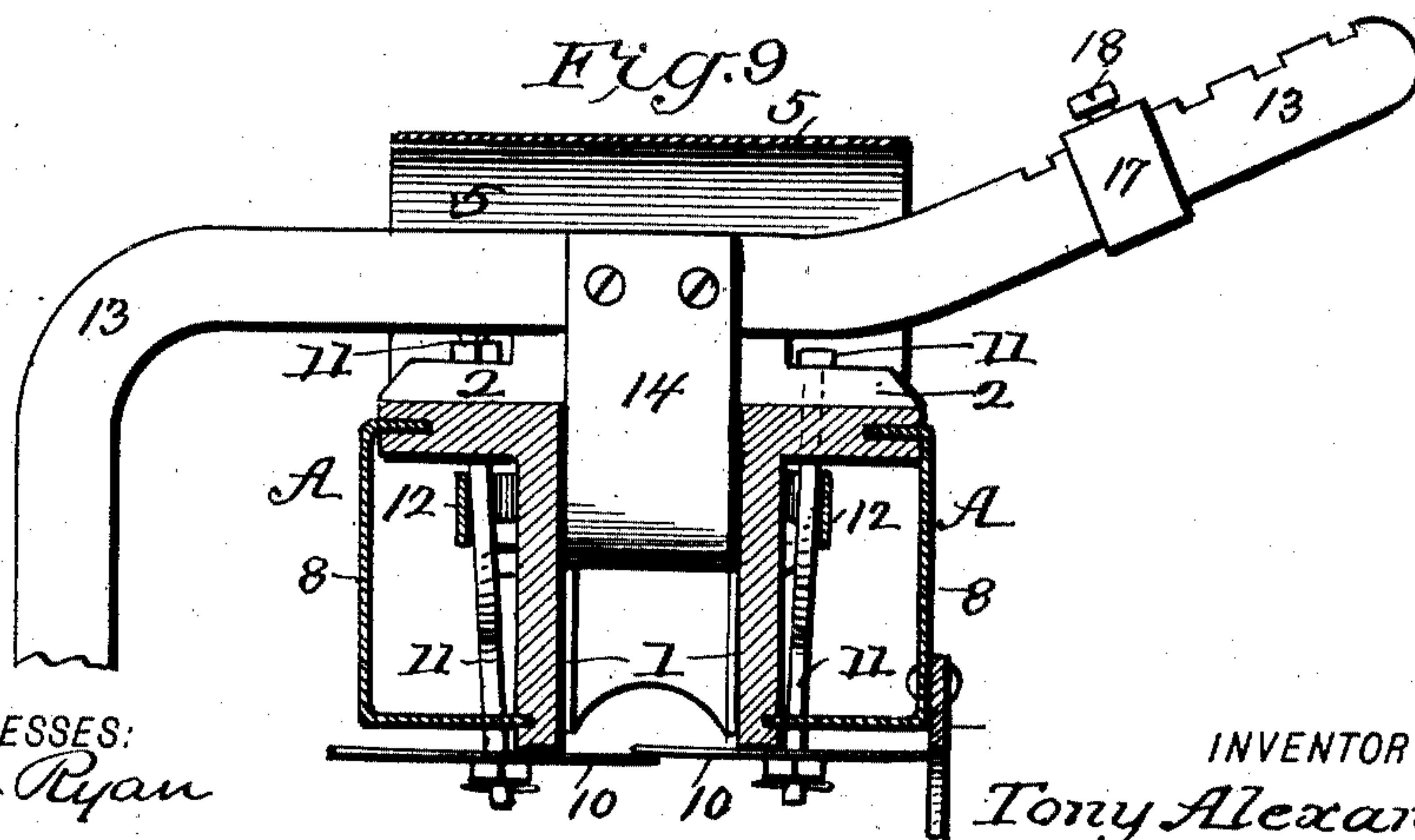


Fig. 9.



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# UNITED STATES PATENT OFFICE.

TONY ALEXANDER, OF BROOKHAVEN, MISSISSIPPI, ASSIGNOR OF ONE-HALF TO GIDEON ALEXANDER, OF NEW ORLEANS, LOUISIANA.

## CARRIAGE FOR OVERHEAD CABLES.

SPECIFICATION forming part of Letters Patent No. 759,207, dated May 3, 1904.

Application filed August 3, 1903. Serial No. 167,997. (No model.)

*To all whom it may concern:*

Be it known that I, TONY ALEXANDER, a citizen of the United States, residing at Brookhaven, in the county of Lincoln and State of Mississippi, have invented certain new and useful Improvements in Carriages for Overhead Cables, of which the following is a specification.

My invention is an improvement in the system of overhead carriage or cable transportation whereby logs or other freight are suspended from a track-carriage adapted to run upon a track rope or cable secured to vertical posts or other suitable supports.

My invention relates particularly to improvements in the construction of the track or carriage whereby improved advantages are obtained in respect to the strength, durability, and operation; also, in relation to means for dogging or locking the carriage to a hauling-rope, which runs alongside the track-rope; also, in means for supporting the load from the carriage; also, in improvements in guides and supports for the hauling-rope on the framework, to which the track-rope is secured and by which it is supported.

The invention includes various other features and details of construction, arrangement, and combination of parts, as hereinafter described.

The invention is more particularly an improvement upon an apparatus for which I have received Letters Patent No. 703,222.

In the accompanying drawings, Figure 1 is a perspective view showing my improved carriage and the track-rope or cable upon which it runs, also a portion of a vertical framework or support for the track-rope, together with the hauling-rope and guides for the same on the fixed framework. Fig. 2 is a detail side view showing one of the dogs or frictionlocks for the hauling-rope and means for supporting the dog out of action. Fig. 3 is a perspective view of one of the arms of a guide-roller for the hauling-rope. Fig. 4 is a side view of the carriage, together with a portion of the hauling-rope. Fig. 5 is a side view of the upper portion of one of the vertical frameworks for supporting the cable or track-rope. Fig. 6 is a top view of the carriage. Fig. 7

is a bottom view of the carriage, including the track-rope and hauling-rope. Fig. 8 is a central longitudinal section of the carriage on the line 8 8 of Fig. 7. Fig. 9 is a transverse vertical section of the carriage on the line 9 9 of Fig. 7.

Referring in the first instance to Fig. 1, A indicates the truck or carriage; B, the track-rope or cable upon which such carriage runs; C, the hauling-rope, which extends parallel to the track-rope B, but in a lower plane, and D, the top portion of a vertical support or framework, to which the track-rope B is suitably secured. The frame of the carriage A consists of two longitudinal members 1 and transverse connecting-pieces 2. (See Figs. 1, 7, and 8.) These parts are preferably formed of metal and integrally. The central portions of the parts 1 are parallel, as shown in Fig. 7, while their ends 3 are flared outward for the purpose of guiding the carriage to the center in case of its swaying or rocking laterally from any cause when passing the housing 4 of the cable-support proper, (see Fig. 1)—that is to say, in case the carriage is not in exact alinement with the housing 4 at the time of passing the latter the flared ends of the carriage-frame coming in contact with the housing will force the carriage into due alinement, so that it will pass safely over the housing. The said ends 3 of the carriage-frame are also sloped downward on the upper side, as shown best in Figs. 1 and 8, this form being adopted for the purpose of enabling the carriage to pass under tree-limbs or other obstructions that may chance to fall and lie upon the track-rope B. As indicated in Figs. 1 and 8, the ends of the parts 2 extend slightly below the horizontal plane of the track-rope B; but the said ends may terminate at points directly opposite or slightly above the track-rope. The top 5 of the carriage is formed by means of an arched plate whose ends abut shoulders (see Figs. 1 and 8) formed on the cross-bars 2 of the frame. This arch 5 is practically a continuation of the slope of the ends 3 of the carriage and will obviously enable the latter to pass readily under limbs and other obstructions which are lifted by the



ends and slide upward thereon. The said arch-plate 5 is secured in place upon the cross-pieces 2 by means of bolts 6. (See Fig. 8.) The rollers 7, with which the carriage-arm is provided, are grooved and run upon axles 7', whose ends are suitably secured in side portions or bars 1 of the carriage-frame. As shown in Fig. 9, the said members 1 of the carriage-frame are right-angular in cross-section, so as to present the form of an inverted L. The lateral flanges of said members are provided with lengthwise slots to receive inwardly-bent flanges of the sheet-metal casing 8, which is applied to the outer sides of the carriage-frame. Such casing 8 has a base-flange, which extends inward and enters a slot in the vertical portion of the L-shaped members 1, and the pointed ends of the casing are secured by bolts 9 to the ends 3 of the side members of the frame. The four bolts 9 serve to connect the casing 8 with the framework proper of the carriage A. I thus effect a considerable economy in the construction of the carriage, since the four bolts referred to take the place of numerous others which were required in the carriage covered by my aforesaid patent. It will be noted that the casing 8 has when viewed from the side practically the same longitudinal shape as the frame parts 1. Thus constructed the carriage-frame, with its attached parts 5 and 8, is exceedingly strong, rigid, and cheap, as well as being better adapted than the former one for its intended functions.

In my aforesaid patent right-angular pivoted arms were employed for locking the carriage to the track-rope, the angles of the arms being projected inward and held pressed together or in contact by means of springs, whereby they were adapted to yield or open in passing a housing or support for the track-rope. In my present invention I have substituted the two rotatable disks 10. (See Figs. 1, 7, and 9.) These disks are journaled upon the rods 11, whose upper ends pass through the connecting cross-pieces 2 of the carriage-frame and are secured by nuts applied to their upper ends. The said pieces and the bottom flange of the case 8 are provided with transverse slots, which allow the bars 11 to swing laterally, as represented by dotted lines in Fig. 7. The bars 11 are held normally pressed inward in the position shown by full lines, Fig. 9, by means of springs 12. The said springs may be each formed by a single narrow plate extended longitudinally of the frame members 1, as shown by dotted lines in Figs. 7 and 8, the same being secured by bolts or rivets arranged centrally. (See Fig. 8.) This arrangement allows the disks 10 to part upon coming in contact with the housing 4 of a track-rope support D. (See Fig. 1.) The circular form of the disks enables them to meet or strike the housing in such manner that the housing easily wedges itself between

them, while their adaptation to rotate upon their axes further facilitates their passing the housing with minimum shock and friction. As shown in Fig. 9, the disks 10 are so arranged as to slightly overlap, so that they form an effective guard preventing accidental dislodgment or detachment of the carriage from the track-rope. As shown in Fig. 8, the disks 10 are directly below the axles 7' of the running-wheels 7, the disk-supporting bars 11 being pivoted in the frame in the same plane with the wheel-axes. To accommodate the latter, the bars 11 are enlarged and made circular in the middle of their length, (see dotted lines, Fig. 8,) which construction allows space for the axles.

A further improvement in the carriage and its attachments pertains to the crane-hanger 13, from which the load to be carried is suspended by means of a grapple or other suitable devices. It will be understood that the lower end of the hanger 13 is bent inward so as to be in vertical alinement with the central portion of the carriage-frame, as shown in my Patent No. 703,222, above referred to. In this instance I dispense with the saddle or downwardly-bent cross-piece before employed for connecting the hanger with the carriage, and I connect the two parts by means of a cuff or clip 14, (see Figs. 8 and 9,) which consists of a metal plate bent into U shape and passing around a central cross axle or shaft 15, extending between the members 1 of the carriage-frame, the upper ends of the cuff being bolted to the hanger, as shown. A block 16 is interposed between the axle and hanger and secured in the cuff or clip 14, being held from lateral dislodgment by the opposite sides of the panel members 1. By thus connecting the parts a bearing is provided for the hanger and its load, while the carriage is permitted due freedom of oscillation. As shown in Fig. 9, the upper end of the hanger 13 is extended laterally beyond the carriage at an upward inclination, which enables it to pass the vertical supports for the track-rope without coming in contact with any portion thereof by reason of rocking or other irregular motion of the carriage in running. Upon such extended inclined portion of the hanger I apply a weight, which is adapted for adjustment along the same and is held in any required position by means of a screw 18, whose point enters notches formed in the hanger. By means of this weight the carriage may be balanced perfectly upon the line or track rope, so that the load will be borne equally and centrally by the grooved wheels of the carriage. It is obvious that the counterbalance 17 will be duly adjusted or, in other words, that the carriage will be duly balanced before a load is suspended from the hanger, and it is further obvious that the balance is not destroyed by reason of the load.

The improved means for dogging, latching,



or locking the carriage to the hauling-rope C consist of right-angular dogs 19, (see Figs. 1 and 2,) the same being pivoted at their angles to a slightly-curved bar 20, which extends 5 along one side of the carriage and is riveted thereto at its middle and also at its ends, the bolts 9, which secure together the casing-pieces 8 and the carriage-frame members 1, serving also for attaching the said bar. As 10 shown in Fig. 1, the said bar 20 extends on each side of the middle below the lower edge or flange of the casing 8. From each of the pivoted bolts of the dogs 19 is pendent a metal loop 21, which serves as a guide for the hauling-rope C, the shorter vertical arm of the dogs 15 also working in such guides, as will be readily understood. The longer arm of the dogs is provided with a lengthwise slot 22, (see Figs. 1 and 2,) the outer end of the slots being enlarged and curved in such manner that the slots as a 20 whole present practically the form of a hook or resemble the figure 7. In other words, the outer ends of the slots 22 are provided with an upward extension or offset for the purpose 25 of adapting the dogs to be held up out of action by means of a crank 23. (See Fig. 6.) This crank is preferably formed in one piece or integrally by means of a rod, its horizontal top portion being journaled at 24 (see Figs. 1 30 and 8) on the top of the members 1 of the carriage-frame. On the side of the carriage adjacent to the dog, as shown in Figs. 1 and 2, the crank is bent at an acute angle, and the disk 25 is applied to its end for the purpose 35 of holding it duly engaged with the dog 19. On the other side of the carriage (see Fig. 6) the bent arm of the crank is provided with the antifriction-roller 26.

We will now suppose that the hauling-rope 40 C is traveling in the direction of the arrow, as indicated in Fig. 1, and for this purpose it is necessary that the rear dog 19 shall be in the locking position shown by full lines—that is to say, the nose or lower end of the dog 19 is 45 pressed down into engagement with the hauling-rope C—and the nose being rounded, as shown in Fig. 2, it bites on the hauling-rope and locks it with the guide 21, so that the carriage is taken along with the rope, and 50 thereby runs on the track-rope B. Since the other dog at the other end of the carriage is arranged reversely from that on the right-hand or rear end of the carriage, it is obvious it has no operation or function save when it 55 is desired to propel the carriage in the opposite direction—that is to say, to the right. At the point where it is desired to arrest the carriage a bar 27 (see Fig. 1) is affixed to the framework or support D for the track-rope 60 B and in an inclined position—say at an angle of forty-five degrees—and as the carriage passes the housing 4 the antifriction-roller 26 comes in contact with said bar and rides upward thereon, whereby the crank 23 is rotated

and its opposite end caused to traverse the 65 slot 22 of the rear dog 19 and pass up into the offset of said slot, whereupon as the roller 26 passes off from the inclined bar 27 the dog and crank will lock in the position indicated by full lines, Fig. 2, so that the dog is held out 70 of engagement with the hauling-rope C. Thus the carriage quickly comes to rest at the desired point. It is apparent that this operation is effected entirely automatically and that 75 to restore the dog 19 to its former locking position, as shown in Fig. 1, it must be manually disengaged from the crank 23. It will be understood that when the dog is released, as before stated, the hauling-rope C will continue to play or run through the pendent 80 guides 21 of the carriage A and that when the rear dog is again dropped to the position indicated in Fig. 1 the carriage will again be caused to travel with the rope C. In case the 85 carriage should be brought to rest at a point where the cable or track-line B is inclined rearward it is apparent that the front dog will lock with the hauling-rope C, so as to prevent any backward movement of the carriage. It is further apparent that if it be desired to run 90 the carriage in the opposite direction from that indicated in Fig. 1 the hanger 23 will be shifted accordingly to the other end of the carriage-frame—that is to say, in Fig. 1 the hanger 23 is shown arranged at the right-hand 95 end of the carriage and connected with and holding down the adjacent dog, which engages the hauling-rope C, and thus locks the carriage thereto while traveling to the left or in the direction of the arrow. The other dog, 19, 100 which is at the left-hand end of the carriage A, is left free and cannot engage or bite the rope C. If the latter were to be caused to travel in the opposite direction or to the right, it would be necessary to shift the hanger 23 105 to the left-hand end of carriage A, so that the dog 19 at that end might be locked with the rope C in the same way as the right-hand dog 19 is shown locked. To permit the hanger 23 to be thus shifted conveniently and expeditiously from one end of the carriage A to 110 the other, it is obviously necessary that the half-boxes or caps 24, (see Fig. 1,) in which the said hanger is held rotatably, shall be made readily detachable and also that provision 115 shall be made at the other end of the carriage for reattachment of such bearings.

The means for guiding the hauling-rope C over and duly supporting the same where it passes the framework or supports D for the 120 track-rope B are horizontal rollers 28 (see Figs. 1 and 5) and vertical rollers 29 and 30. The latter are arranged midway between the horizontal rollers 28, and one of them, 29, is provided at the top with a series of radial 125 arms 29<sup>a</sup> (see Fig. 3) and the other, 30, with a top flange 30<sup>a</sup>. (See Fig. 1.) As shown in Fig. 3, each of the arms of the star-wheel 29<sup>a</sup>



is provided with a projection 29<sup>b</sup> on the under side, the function of which is to prevent the hauling-line C when lifted on either or both sides of the vertical support D for the track-line from rising far enough to become detached, and thus tilt the carriage, so as to endanger its safety or running position on the track-rope B. The flange 30<sup>a</sup> on the vertical roller 30 is designed to cooperate with the arms of the star-wheel to prevent the hauling-line C from becoming detached from the guides by an upward pull on a curve. In brief, it will be apparent that the rollers 28 relieve friction by duly supporting the hauling-line C, while the vertical rollers 29 and 30, with other attachments, relieve friction in a lateral direction, as when the hauling-line is passing around a curve, and also prevent the hauling-line rising, and thus getting out of parallelism with the track-rope B. It will be understood that as the carriage moves over the support D its pendent arms or loops 21 pass between the radial arms of the star-wheel 29<sup>a</sup>, the latter operating practically in the manner of a turnstile. As will be seen from Fig. 3, the upper portions of the arms 29<sup>a</sup> of the star-wheel project beyond the end portion 29<sup>b</sup> and overlap the disk or flange 30<sup>a</sup> on the roller 30. In other words, the edge of the flange or disk meets the end projection 29<sup>b</sup> of the star-wheel arms, so that there is no space between them in which the hauling-line is liable to catch. The track-rope B may be attached to the vertical supports D in any suitable manner; but I prefer instead of making the track-rope continuous to divide it into sections each of which extends only from one vertical support or framework D to another.

As indicated in Fig. 1, the track-rope B passes over pulleys in the housing 4 and extends downward therefrom at an inward inclination, the end being in practice attached to the base of the vertical framework. This system is adapted for a continuous or circular route or for an interrupted one, as the case may be.

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

1. In an overhead system of cable transportation, the combination, with the track-rope, or cable proper, a hauling-rope adapted to travel, and a support for such track-rope, of means thereon for guiding and holding the hauling-line in due parallelism to the track-rope, a carriage adapted to run on the track-rope and having means for locking it to the hauling-rope and for passing between the vertical guides on the track-rope support, substantially as shown and described.

2. The combination, with a suitable support and a track-rope secured thereto, of means for guiding and holding the hauling-rope, the same

consisting of horizontal rollers, and vertical rollers arranged intermediately and provided with extensions at the top, substantially as shown and described.

3. The combination, with a track-rope and a support therefor, of vertical guides on such support the same being spaced apart to allow passage of the hauling-line and one of them provided with a star-wheel adapted to rotate in the manner shown and described.

4. The combination, with the track-rope and a vertical support, guides adapted to permit passage of a hauling-line between them, one of said guides having a projecting top flange, substantially as shown and described.

5. The combination, with the track-rope and a vertical support therefor, of guides and holders for the hauling-line, the same consisting of vertical members between which the hauling-line is adapted to run, and one of them provided with a rotatable star-wheel and the other with a radially-projecting flange, substantially as shown and described.

6. The combination, with the track-rope, the hauling-line, a support for the track-rope, and guides for the hauling-line arranged thereon and consisting of vertical rollers spaced apart and provided with a star-wheel and flange respectively, of the carriage adapted to run on the track-rope and provided with pendent arms and means for dogging the hauling-line, said arms being adapted to pass between the arms of the star-wheel and rotate the same as the carriage progresses, substantially as shown and described.

7. The combination, of a track-rope, the hauling-line and support for the track-rope, means on said support for guiding the hauling-line, the same comprising a rotatable device having a series of arms projecting horizontally over the space in which the hauling-line runs, and a carriage adapted to travel on the track-rope and provided with pendent portions having means for dogging the hauling-line, said portions being adapted to pass between the guides of the hauling-line and to rotate the said wheel, substantially as shown and described.

8. The carriage provided with a pendent loop serving as a guide for the hauling-line and the dog pivoted in said loop and adapted to engage the hauling-line, substantially as shown and described.

9. The combination, with the track-rope and an inclined contact-piece fixed in position alongside the same, of a carriage having a pivoted dog for engaging the hauling-line, the same being provided with a slot having an offset as described, and a rocking crank, one end of which is adapted to traverse the slot and engage the offset in the dog and the other for engagement with the aforesaid contact-piece, substantially as shown and described.

10. The carriage for running on an over-



head support, the same comprising a suitable frame and running-wheels, and an attachment for dogging the hauling-line, the same comprising a longitudinal bar arranged on the side of a lower portion of the carriage and secured thereto as described, guide-loops attached to and pendent from such bar, and dogs pivoted to a working within said guides, substantially as shown and described.

11. The combination, with the carriage adapted to run on an overhead support, of the curved hanger, a cuff pendent therefrom and pivoted upon an axle of the carriage, substantially as shown and described.

12. The combination, with the carriage adapted to run on an overhead support and provided with a transverse shaft or axle, of a bent hanger having a device which attaches it to said axle, and an interposed bearing-block and support, substantially as shown and described.

13. The combination, with the carriage, adapted to run on an overhead support, of the hanger for supporting freight, the same being pivotally connected with the carriage and extended therefrom on the opposite side from its vertical portion, and an adjustable counterbalance-weight applied to such lateral extension, substantially as shown and described.

14. The improved carriage for running on an overhead support having its end portions flared or turned outward, substantially as shown and described.

15. The carriage running on an overhead support having a frame constructed of longitudinal portions, whose ends are flared or divergent, and connecting the cross-pieces, substantially as shown and described.

16. The carriage for running on an overhead support having a frame whose ends are inclined downward on the upper side and provided with a central arch which forms practically a continuation of the end portions, substantially as shown and described.

17. The carriage for running on an overhead support in combination with a track-rope, the same having running-wheels and a frame whose end portions are inclined downward on the upper side and extend to a point below the plane of the track-rope, substantially as shown and described.

18. The improved carriage for running on an overhead support, the same having running-wheels and the frame whose end portions extending downward to a point below the un-

der surface of said wheels, substantially as and for the purposes specified.

19. The combination with the carriage-frame proper, of said casings extending longitudinally on the frame and conforming thereto in general shape, and means for securing them with the ends of the frame, substantially as shown and described.

20. The combination with the carriage-frame proper having longitudinal slots, of casing members formed of thin metal and provided with inwardly-bent flanges adapted to enter said slots, and means for securing the ends of the casing members to the ends of the frame, substantially as shown and described.

21. The combination, with the track-rope and the carriage proper adapted to run thereon, of swinging supports pivoted on the carriage-frame, and disks mounted on the lower ends of such supports and extending inward below the track-rope, substantially as shown and described.

22. The combination with a track-rope and a carriage proper adapted to run thereon, of bars pivoted and suspended on the carriage-frame, disks mounted rotatably on such bars, and springs for holding the latter pressed inward so that the disks span the space below the track-rope, substantially as shown and described.

23. The combination, with the carriage-frame having laterally-extended top portions, of the disks and their swinging supports consisting of bars pivoted and supported in the horizontal portions of said frame, and means for holding them in normal position for retaining the track-rope in the space between the side members of the frame, substantially as shown and described.

24. The combination, with the carriage-frame having a longitudinal central space, and running-wheels arranged therein, of means for securing the carriage to a track-rope, the same consisting of swinging hangers or supports pivoted on the frame, rotatable disks mounted on the lower ends of said supports and adapted to overlap at the bottom of the frame, the supports for said disks being in line with the axles of the running-wheels, substantially as shown and described.

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Witnesses:

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