

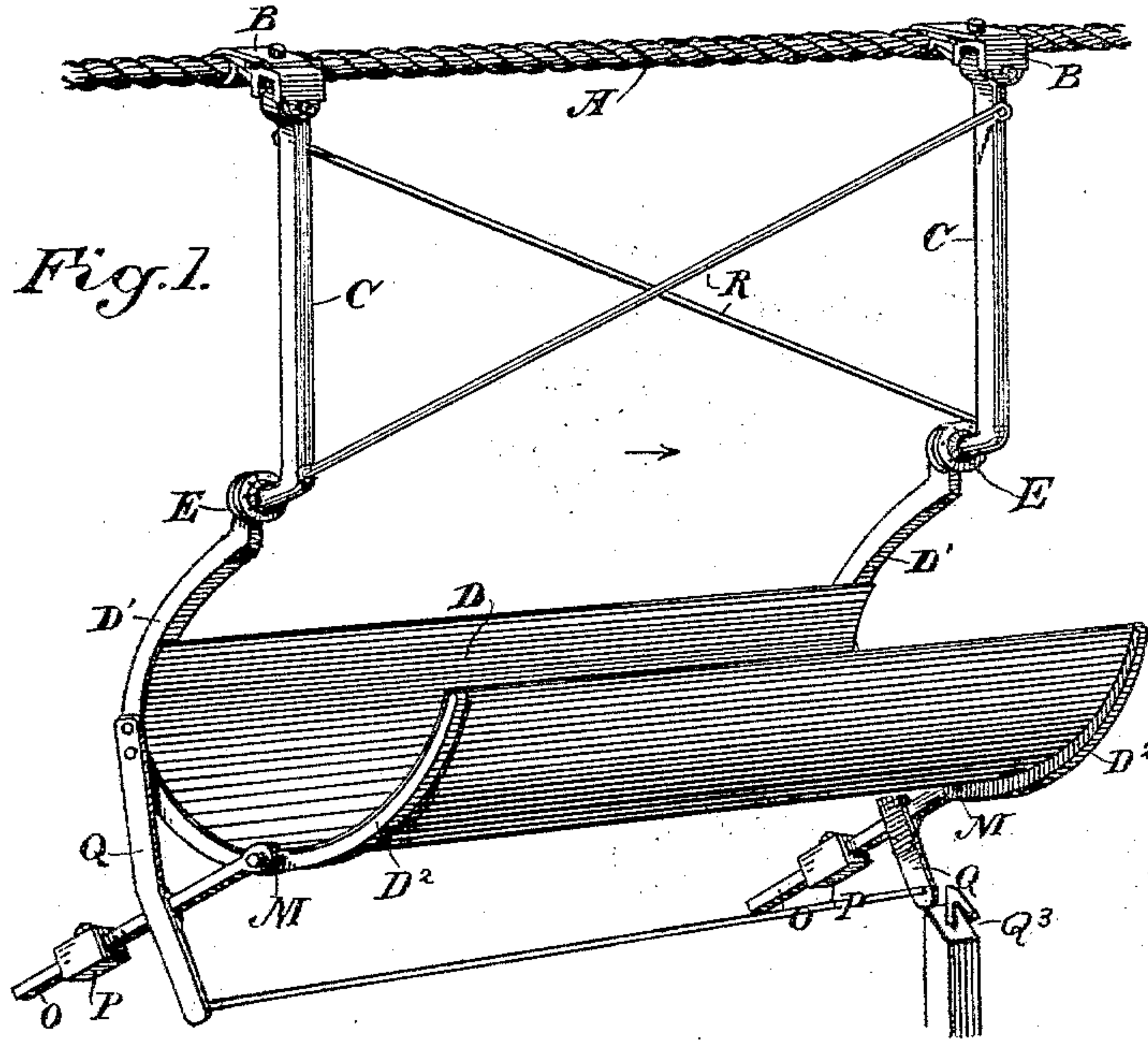
(No Model.)

A. S. HALLIDIE.

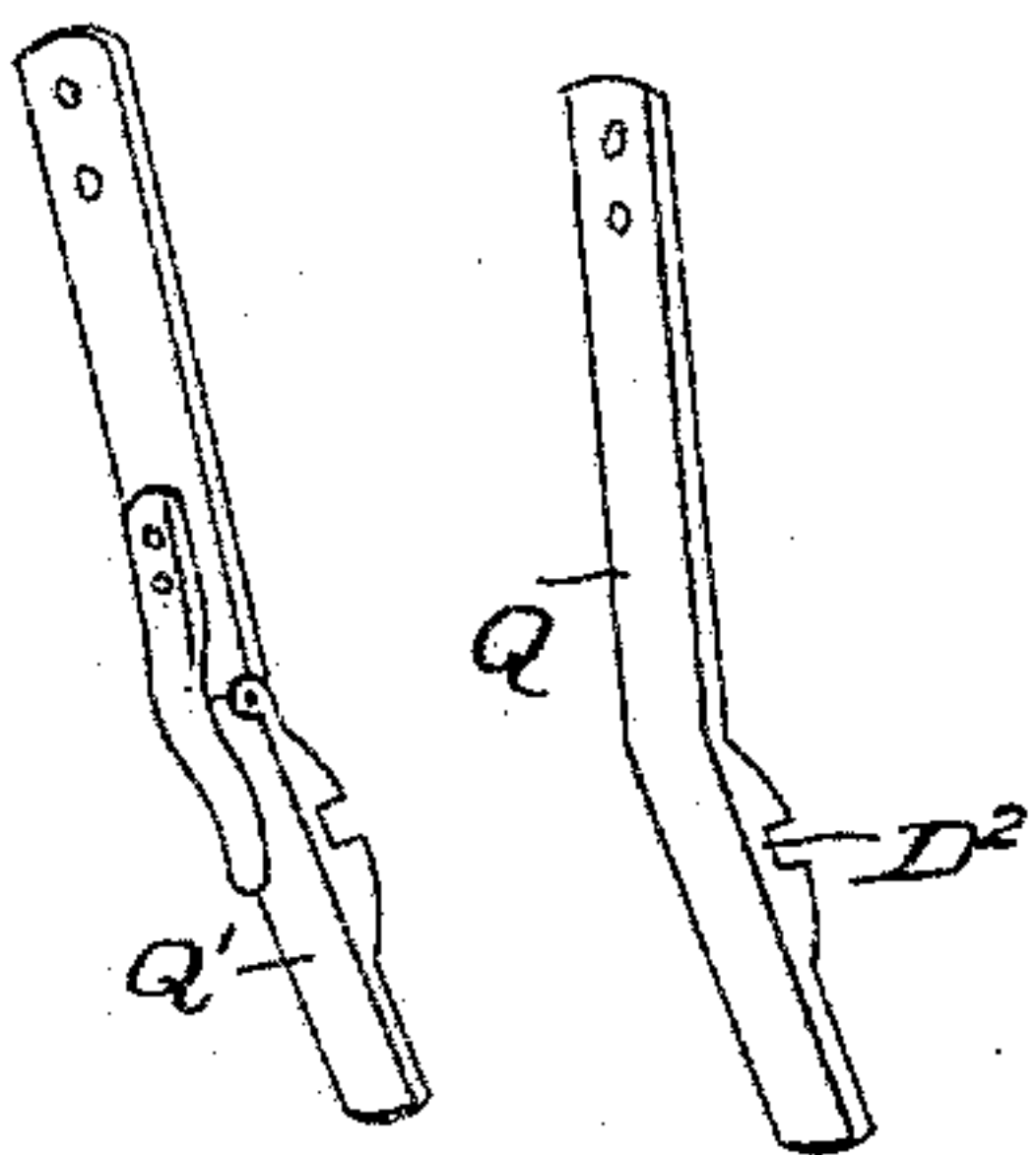
DEVICE FOR TRANSPORTING AND WEIGHING CANE, &c.

No. 597,904.

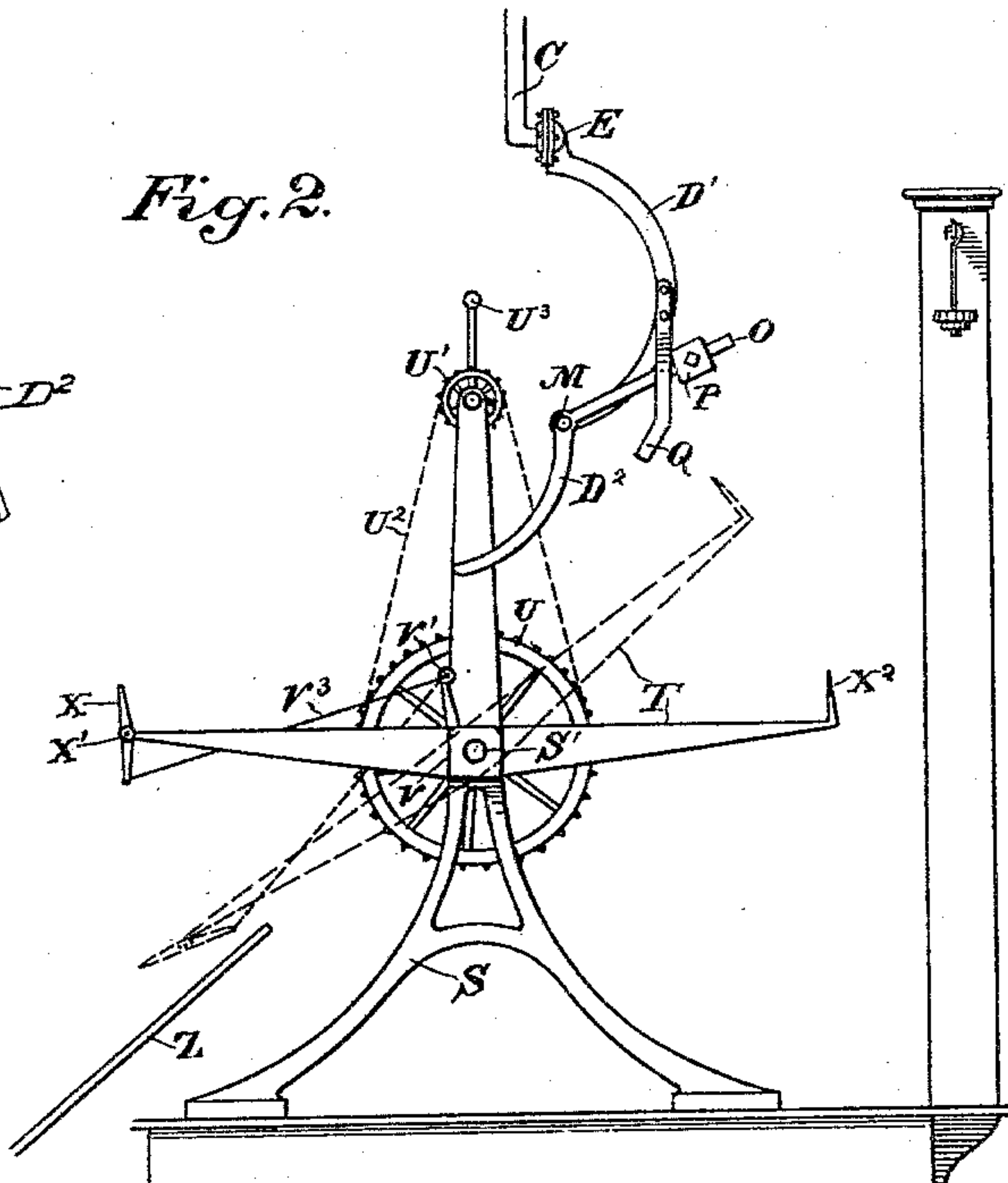
Patented Jan. 25, 1898.



*Fig. 4. Fig. 3.*



*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

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## DEVICE FOR TRANSPORTING AND WEIGHING CANE, &c.

SPECIFICATION forming part of Letters Patent No. 597,904, dated January 25, 1898.

Application filed August 24, 1897. Serial No. 649,351. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW S. HALLIDIE, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Devices for Transporting and Weighing Cane and other Materials; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the method of transportation by means of endless wire ropes elevated above the ground, moving on sheaves or pulleys and usually called "ropeways," and automatically depositing and then weighing the discharged product.

This invention is especially applicable to the transportation of sugar-cane and other materials grown from fields where they are gathered to a distant point where it may be desired to collect them.

The invention consists in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of my carrier. Fig. 2 shows it delivering its load on a scale. Fig. 3 is a detail of one of the spring-pressed latches Q. Fig. 4 is a modification of the latch shown in Fig. 3.

The object of my invention is to provide a convenient and economical means for transporting materials, and I have here especially described it as being applicable to the transportation of sugar-cane from the points where it may be gathered to the mill or other central point.

I accomplish my purpose by the use of an endless wire rope, which is stretched across, over, or around a field occupied by the growing crop, and is supported at intervals on sheaves or rollers in the usual manner at the proper level above the surface of the ground. At each end, corner, or point where change of direction is required the rope passes around horizontal sheaves or grip-pulleys of considerable diameter, mounted on shafts and provided with proper boxes. The end pulley or pulleys being set in motion will actuate the wire rope, which, being endless, travels around these pulleys over the sheaves or rollers. To this wire rope at certain intervals are attached carriers or conveyers by means of

suitable clips or saddles, these carriers being adapted to contain the material to be transported, and they are provided with means by which the contents can be mechanically discharged when they arrive at their destination.

In the figures, A is the cable or rope of a ropeway; B, a clip which is attached to the rope and to which the hanger C is suspended by an eyebolt and an eye at the upper end. A ball-and-socket joint E at the lower end connects it with the curved arm D', which forms the portion of the cradle of the carrier D. The curved arm D' is jointed, as shown at M, and there forms connection with the extension D<sup>2</sup>, so that the latter can be allowed to swing down to discharge the contents of the cradle.

Either one or two hangers and clips may be employed or multiples of two when a very heavy load is to be conveyed.

In the present case I have shown the cradle suspended by a hanger at each of its ends, which ends are usually left open.

In place of the clip B here shown a saddle, such as usually employed in wire ropeways and tramways, can be used, if preferred.

The cradle D is covered with sheet-iron, wire-netting, or other suitable material, and this is jointed in a line between the joints or hinges M, so as to allow the outer portion to swing freely on the joints. The extension curved arms D<sup>2</sup> are provided with spur-levers O, extending rearwardly beneath and behind the cradle and having attached to the outer ends counterbalance-weights P. These weights are sufficient to cause the outer part of the cradle to close up when freed from its load, and they may be adjusted back and forward upon the levers O, and by means of set-screws they can be locked in any desired position. On the curved arm D' a spring-pressed latch Q or, as shown in Fig. 4, a jointed latch Q' is fixed, extending downwardly and having a notch D<sup>2</sup> formed in its lower end, which acts as a keeper or latch for the lever-arm O, so that when the latch and arm are engaged the cradle is kept in position, as shown in Fig. 1, ready to convey its load; but when the latch is released by striking a tripping-piece Q<sup>3</sup>, which will be fixed at the discharge-point, as the carrier passes said point the extension-arm D<sup>2</sup> and the outer part of the cradle D



swings downward upon its hinges M, as shown in Fig. 2, and thus drops its load. Flexible diagonal stays R R are connected from the upper end of each of the hangers C to the lower end of the other hanger and crossing each other, as shown in Fig. 1. This prevents excessive oscillation longitudinally.

When the load arrives at the point of discharge, it is delivered upon a receiving and weighing apparatus, as shown in Fig. 2. In the present case I have shown a weighing-machine in the form of an ordinary platform-scale, on the platform of which are standards S, having boxes V in the upper part, in which the trunnions S' of the tilting platform T are allowed to work. A lug V' is projected upward from the box V and has attached to it by a pin a connecting-rod V<sup>3</sup>, the opposite end of which is secured in like manner by a pin to a guard X. This guard is pivoted or fulcrumed on a bearing X', so that it may be turned about this bearing. Upon the opposite side of the tilting platform is a fixed guard X<sup>2</sup>, the function of which guard is to retain the cane or other material upon the platform T while the latter is in an approximately horizontal or level position. The platform is controlled and held in this position by sprocket-wheels U and U' and a chain U<sup>2</sup>, passing around them. The sprocket-wheel U is attached to the side of the platform T or keyed upon its shaft or trunnion S', and upon the spindle of the wheel U' is a crank U<sup>3</sup>, by which it may be turned. The platform T is designed to receive the contents of a number of the cradles or carriers before it is fully loaded and ready to be weighed. When the load has been received upon the platform T and properly weighed, the crank is turned, and, acting through the chain U<sup>2</sup>, it rotates the sprocket-wheel U and, with it, tilts the platform T. The action of tilting this platform causes the connecting-rod V<sup>3</sup> to turn the guard X and straighten it out to such an extent as to permit the material on the platform to be discharged upon the apron Z, whence it passes to its destination. This action upon the guard X is caused by the lengthening of the distance between the points of attachment of the connecting-rod V<sup>3</sup>, and when the platform is again returned to its normal horizontal position the guard will be also returned to its approximately vertical position ready for another load.

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

1. In combination with the traveling rope of an aerial ropeway, a carrier suspended to a clip or saddle upon said rope, one or more hangers depending from the clip, each having an eye at the upper end to connect it with the clip, and a ball-and-socket connection at the lower end for the suspension of the carrier.

2. The combination with a traveling rope of an aerial wire ropeway, of clips or saddles

attached to the rope, hangers suspended therefrom by eyes at the upper end, ball-and-socket joints at the lower end, and a jointed carrier suspended therefrom.

3. In combination with a suspending device attached to the traveling rope of an aerial ropeway, a carrier having jointed arms connected to hangers from the rope, a curved sectional surface connected with said arms and forming the carrier which is adapted to swing about the joints so as to be closed or opened.

4. The cradle of a ropeway-carrier jointed in the middle so that the outer half can swing about the joint, said outer half being provided with rearwardly-extending levers and counterbalance-weights to return and hold it in its normal position after the load is discharged.

5. The cradle of a ropeway-carrier consisting of two segmental sections hinged together longitudinally, a hanger suspended from the traveling rope, a connection by which the inner half of the cradle is suspended therefrom, a counterbalanced lever attached to the outer segment and a latch or keeper adapted to engage the lever to hold the cradle-sections in position to carry the load.

6. A wire-ropeway carrier consisting of a curved segmental cradle centrally and longitudinally hinged, with means for retaining the segments in position to receive and carry a load or disengage them to discharge the load, hangers suspended from the clips or saddles fixed to an endless traveling rope, said hangers having ball-and-socket joints at the lower ends by which the curved arms of the cradle are connected thereto.

7. In a ropeway-carrier, clips secured to an aerial traveling rope, hangers jointed to and suspended therefrom with carrying-cradles connecting with the hangers, and flexible, diagonal braces crossing each other and connecting the upper and lower ends of the hangers respectively.

8. In a ropeway-carrier, clips secured to an aerial traveling rope, hangers jointed to and suspended therefrom with curved jointed carrying-cradles connecting with the hangers by ball-and-socket joints, and flexible, diagonal braces crossing each other and connecting the upper and lower ends of the hangers respectively.

9. The combination with an endless ropeway and suspended traveling carriers formed of segmental sections hinged together with counterbalanced levers and latches or keepers, of a tripping-piece adapted to operate the latches and allow the cradles to automatically discharge their contents, and weighing-platforms so disposed with relation thereto as to receive the discharged contents from the cradles.

10. A receiving and weighing device consisting of a framework supported upon the scale, a platform having trunnions turnable in boxes upon the framework, a fixed upwardly-projecting guard upon one edge of the



platform and a pivoted turnable guard upon the opposite edge, and means whereby the guard is automatically turned in unison with the tilting of the platform.

5 11. A receiving-platform having trunnions journaled and turnable in a supporting-frame and a fixed upwardly-projecting guard upon one edge, a guard pivoted or fulcrumed to the opposite edge of the platform extending above  
10 and below the fulcrum-point, a fixed standard upon the supporting-frame and a connecting-rod extending from said standard to the tilting guard so that the latter is moved in unison with the tilting of the platform.

15 12. A receiving and weighing apparatus for wire ropeway adapted to receive and weigh the contents of the cradles of passing carriers,

comprising a platform supported upon the weighing apparatus adapted to be tilted from a horizontal to an inclined position to discharge the load after it has been weighed, and  
20 a mechanism consisting of sprocket-wheels, one of which is connected with the journals of the tilting platform and the other provided with a crank whereby it may be turned, and  
25 an endless sprocket-chain passing around the sprocket-wheels whereby the platform may be tilted and returned.

In witness whereof I have hereunto set my hand.

ANDREW S. HALLIDIE.

Witnesses:

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