

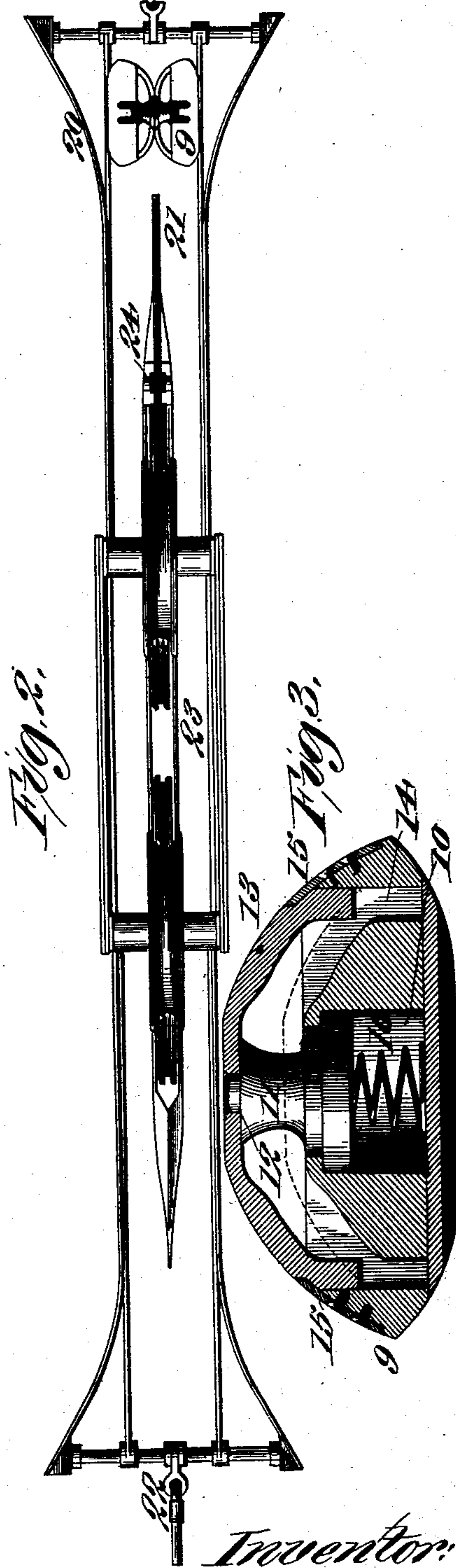
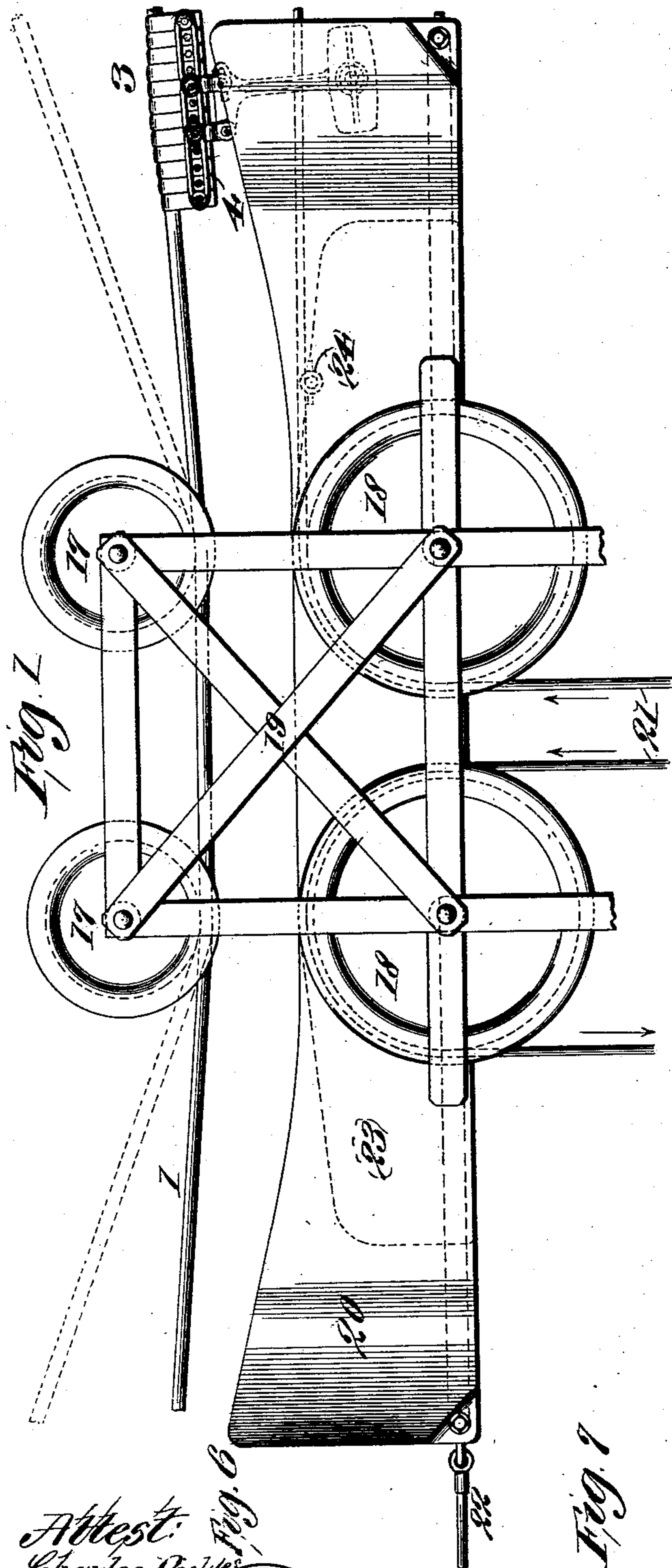
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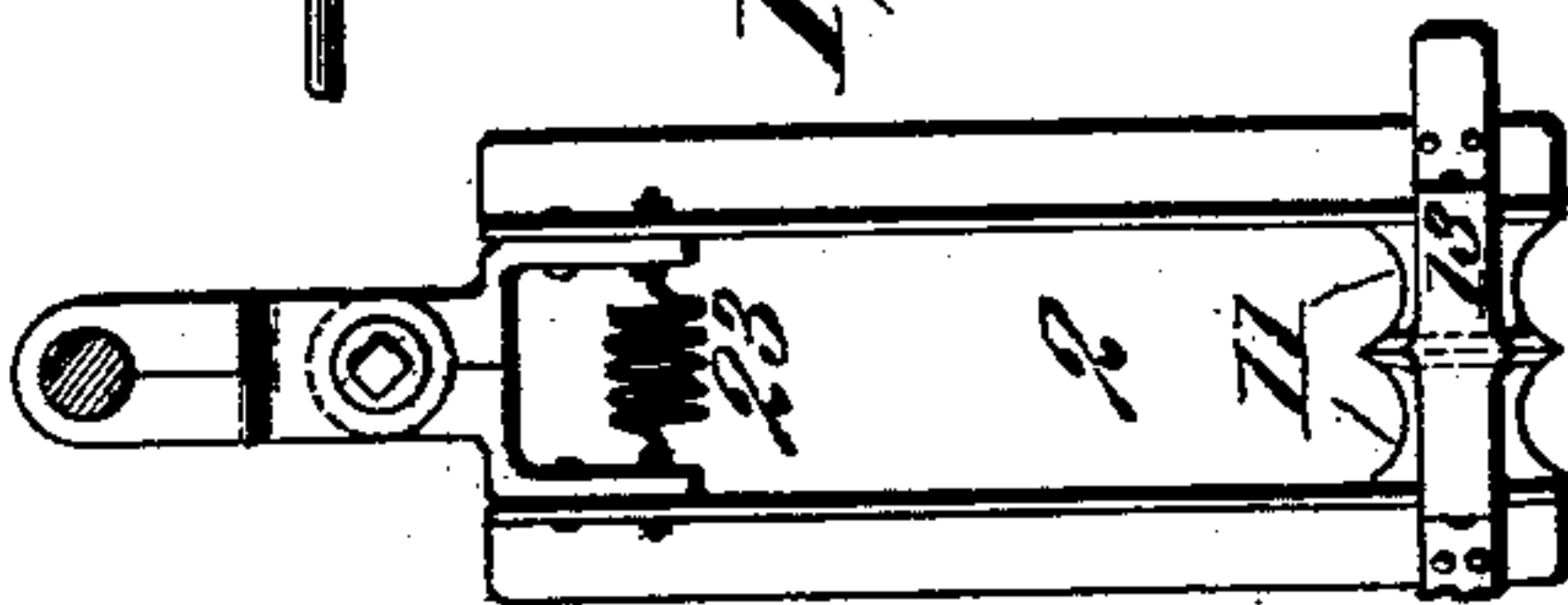
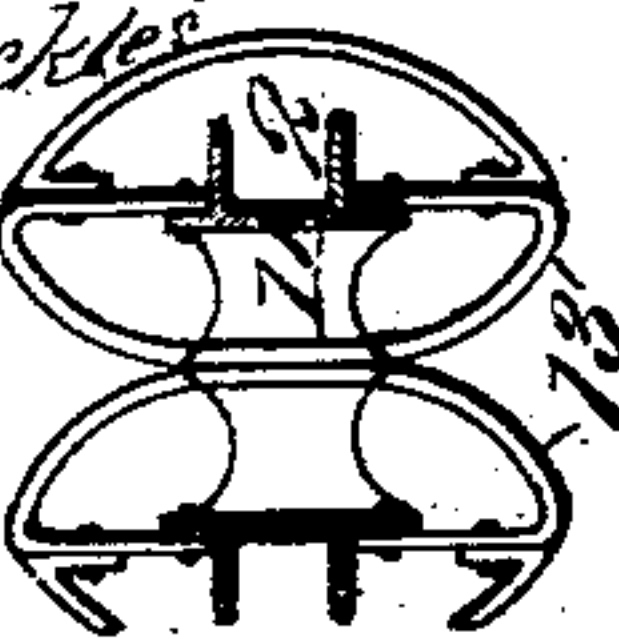
W. L. GARRELS.
FALL ROPE CARRIER.

No. 569,127.

Patented Oct. 6, 1896.



Attest:
Charles Pickles
W. L. Garrels



Inventor:
W. L. Garrels
By C. W. Carr
Atty.

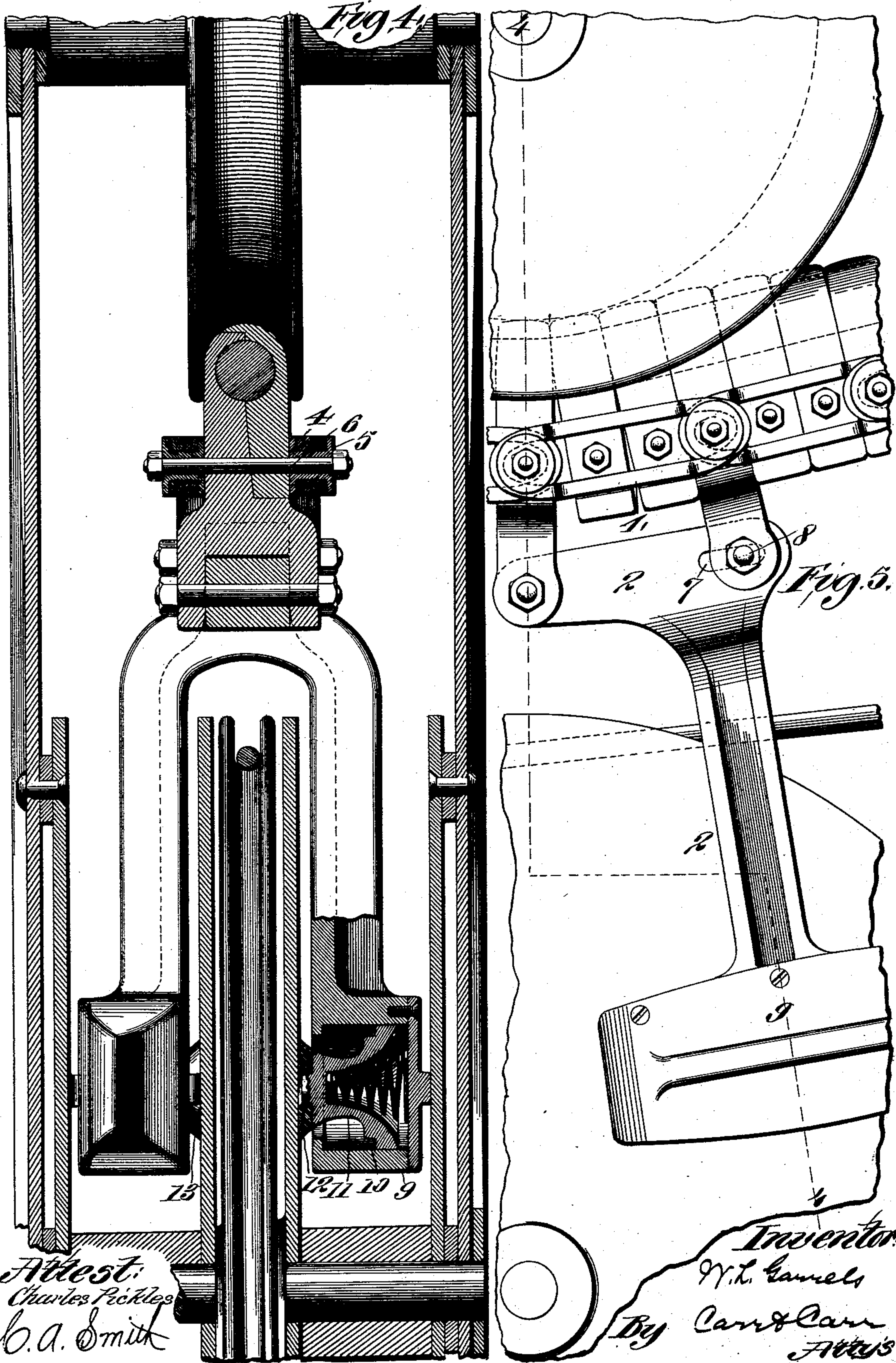
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

WILLIAM L. GARRELS, OF ST. LOUIS, MISSOURI.

FALL-ROPE CARRIER.

SPECIFICATION forming part of Letters Patent No. 569,127, dated October 6, 1896.

Application filed February 7, 1896. Serial No. 578,339. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. GARRELS, a citizen of the United States, and a resident of the city of St. Louis, in the State of Missouri, have invented a new and useful Improvement in Fall-Rope Carriers, of which the following is a specification.

My invention relates to a device for supporting the fall-rope or hoisting-rope of a cable-hoist, and has for one of its objects to increase the distance through which such cable-hoist may be made practically available.

To this end my invention consists in carriers or hangers fastened to the main cable at suitable intervals and in a traveling carriage adapted to automatically mount the hoisting-rope on said hangers and automatically to dismount it therefrom as the carriage travels along the main cable.

My invention also consists in the parts and in the combinations of parts hereinafter described and claimed.

In the accompanying drawings, which form part of this specification, Figure 1 is a side elevation of my invention. Fig. 2 is a plan view thereof, the main cable being omitted and the hanger being shown in section. Fig. 3 is an enlarged detail of a hanger, showing in horizontal section the arrangement by which the supporting-drums are adapted to separate automatically to permit the passage of the traveling carriage. Fig. 4 is an enlarged fragmental transverse sectional elevation of the invention. Fig. 5 is an enlarged fragmental side elevation, and Figs. 6 and 7 are respectively a horizontal section and an end elevation of the hanger.

At suitable intervals along the main cable 1 hangers or carriers 2 are securely fastened by any suitable means, as, for instance, by series of clamps or clips 3, engaging said cable and linked together so that each series constitutes, in effect, a single clamp. The links 4 fit loosely over thimbles 5 on the clamping-bolts 6 of the clamps 3, and in order to allow for flexion of the main cable they are made slightly longer than the distance apart of such bolts when the cable is straight.

The hanger 2 is suspended from two points along the series of clamps 3 in order to secure its proper alinement relative to the path of the traveling carriage hereinafter de-

scribed. As the distance apart of these points varies with the flexion of the main cable 1, the hanger 2 is provided with a horizontally-elongated slot 7 for one of the suspension-bolts 8 to allow for such varying distance. The hanger or carrier 2 is a downwardly-extending yoke or fork, bifurcated in a plane transverse to the cable 1. The lower portion of each leg of the hanger 2 is elongated longitudinally with the cable 1 and tapers to a vertical edge at each end. This lower portion 9 of the yoke-leg has a transverse cylindrical chamber 10 therein, arranged concentrically with a similar chamber in the other leg of the yoke. In this chamber 10 fits a drum or pulley 11, whose inner end is smaller than the outer end and is adapted to extend through an opening made therefor in the inner side of the yoke continuous with the chamber 10. The inner end of the drum 11 has a concentric cylindrical extension 12, which fits in a journal-bearing provided therefor in a movable guide-bar 13. Of course the drum 11 need not be rotatable, but may be replaced with any suitable support, with an increase, however, of friction. This guide-bar 13 is bow-shaped, as shown in Fig. 3, and has straight parallel ends, adapted to slide in slots or grooves 14 provided therefor in the lower portion 9 of the yoke-leg parallel with the axis of the drum 11.

The guide-bar 13 is limited in its movement by plates 15, fastened to the yoke-leg and overlapping a portion of the guide-bar. Normally the drum 11 is caused to extend through the end of the chamber 10 by a spiral spring 16, which bears axially against said drum and against the end plate of said chamber. In order to economize space, the drum may be made hollow and the spring put inside.

As will appear hereinafter, the guide-bar 13 and with it the drum 11 are pushed in by the traveling carriage, but when the carriage is past the spring 16 pushes out the drum and with it the guide-bar 13, which thus bridge the yoke. In their normal positions as pushed out by the spiral springs the guide-bars of the two legs of the yoke abut and the drums extend out, so that a rope inside of said yoke will sag onto one or the other of said drums.

Obviously the guide-bar need not be a separate piece, but may consist of the end portion of the drum, which should be curved or inclined for the purpose of constituting a suitable bearing-surface.

The traveling carriage consists of two deep-grooved wheels 17, adapted to fit over the main cable 1, and from whose axles is suspended a framework 19. On this framework are mounted the pulleys 18 for the fall-rope or hoisting-rope 21 and cooperating with the fall-block. The carriage is pulled along the cable 1 by means of a hauling-rope 22 attached to said carriage at each end.

The framework 19 of the traveling carrier has two sets of guides fastened thereto lengthwise of the cable. The outer guides consist of plates 20 arranged parallel and far enough apart to let the hanger-yoke pass freely between them. The ends of these plates 20 are flared or curved outwardly, so as to strike and bear against the hanger even when the hanger and the carriage may have been swung considerable angles from the vertical. The inner guides 23 consist of two parallel vertical plates curved toward its ends convexly and then concavely until they meet in a vertical edge. These plates 20 extend on each side of the pulleys, but are fastened together rigidly and close enough together to pass between the forks of the hanger or carrier. The ends of the guides should be deep enough to insure their striking the hanger in all its positions, varying with the flexion of the cable. In the case of the inner guides, which do not extend as far as the outer guides longitudinally, it is preferable to have their top edges lower on account of the hanger-yoke, and to have them inclined together so as to spread the hanger-pulleys when the hanger strikes the guides from above. A small roller or pulley 24 for the hoisting or fall rope 21 may be located near one end of the inner guide in position to pass through the upper portion of the hanger-yoke.

The operation of the device is as follows: The main cable having been first stretched hangers or carriers 2 are firmly clamped thereto at suitable intervals and the traveling carriage is mounted thereon. As the carriage is hauled in either direction by an ordinary hauling-rope the flaring end of one of the outer guides 20 bears against the hanger and centers it between said outer guides. As the carriage proceeds the sharp end of the inner guides 23 strikes the inclined guide-bar at the end of one of the hanger-legs and crowds or is wedged between the guide-bars 13, separating said guide-bars and the drums journaled therein and allowing the carrier-pulleys with the fall-rope thereon to pass through the yoke of the hanger. When the carriage has passed, the springs automatically push out said drums and guide-bars, thereby causing them to bridge said yoke, and as the fall-rope sags

it rests upon one or the other of these anti-friction-drums. Likewise when the carriage returns the drums are automatically separated therefor and the fall-rope is dismounted from said drums.

A modification of the hanger or carrier is shown in Figs. 6 and 7. In this modification the legs of the fork or yoke are separate pieces pivotally fastened and normally held against each other by a spiral spring 23, connecting them near their upper ends. The lower ends are provided with guides and pulleys arranged like those in the construction above described in their normal positions, but, unlike those, having no transverse movement independent of said legs. The operation of this modification is similar to that above described, except that the yoke-legs swing on their pivot to separate the drums and are restored to position by the spring near their tops.

What I claim is—

1. In a cable-hoist, the combination of a carriage adapted to travel on a cable and having guides adapted to center the fall-rope carrier and a fall-rope carrier consisting of a yoke having drums and curved guides bridging said yoke, all arranged so that said drums and guides are adapted to separate when the carriage is wedged between said guides, substantially as and for the purpose set forth.

2. A fall-rope carrier consisting of a yoke having drums and curved guides bridging said yoke and movable transversely in the legs of said yoke, whereby the drum and guide on one leg are adapted to separate from those on the other leg when the carriage is wedged between said guides, substantially as and for the purpose described.

3. A fall-rope carrier consisting of a yoke each of whose legs has a drum journaled and longitudinally movable in a cylindrical chamber arranged transversely in said leg, a bow-shaped guide-bar for each leg whose ends rest movably in sockets in said leg, said drum projecting from said chamber and having an axle fitting in a bearing provided therefor in said guide-bar, and a spring in each chamber bearing against said drum and the end of the chamber, whereby said drums and guide-bars are adapted to bridge said yoke and to yield automatically when the carriage is wedged between said guides, substantially as and for the purpose set forth.

4. A cable-hoist carriage consisting of two grooved wheels adapted to travel on the cable, and a framework suspended from their axles and carrying the hoisting-tackle, said framework having an outer pair of guides flaring at their ends and adapted to center a hanger or fall-rope carrier suspended from their cable, and a second pair of guides arranged medially between the outer guides and tapering to an edge at each end whereby it is adapted to wedge between guides on said hanger, substantially as and for the purpose set forth.

5. The combination of a main cable, hang-

ers or fall-rope carriers suspended therefrom
at suitable intervals and each consisting of a
yoke having drums and curved guides bridg-
ing said yoke and arranged to separate trans-
5 versely, and a traveling carriage consisting of
grooved wheels resting on said cable and hav-
ing a framework suspended from their axles
and carrying the hoisting-tackle, said frame-
work having an outer pair of guides flaring at
10 their ends and adapted to center said hanger,

and a second pair of guides arranged medially
between the outer guides and tapering to an
edge whereby it is adapted to be wedged be-
tween the guides on the hanger and separate
the same, substantially as and for the pur- 15
pose set forth.

WILLIAM L. GARRELS.

Witnesses:

T. PERCY CARR,
JAMES A. CARR.