

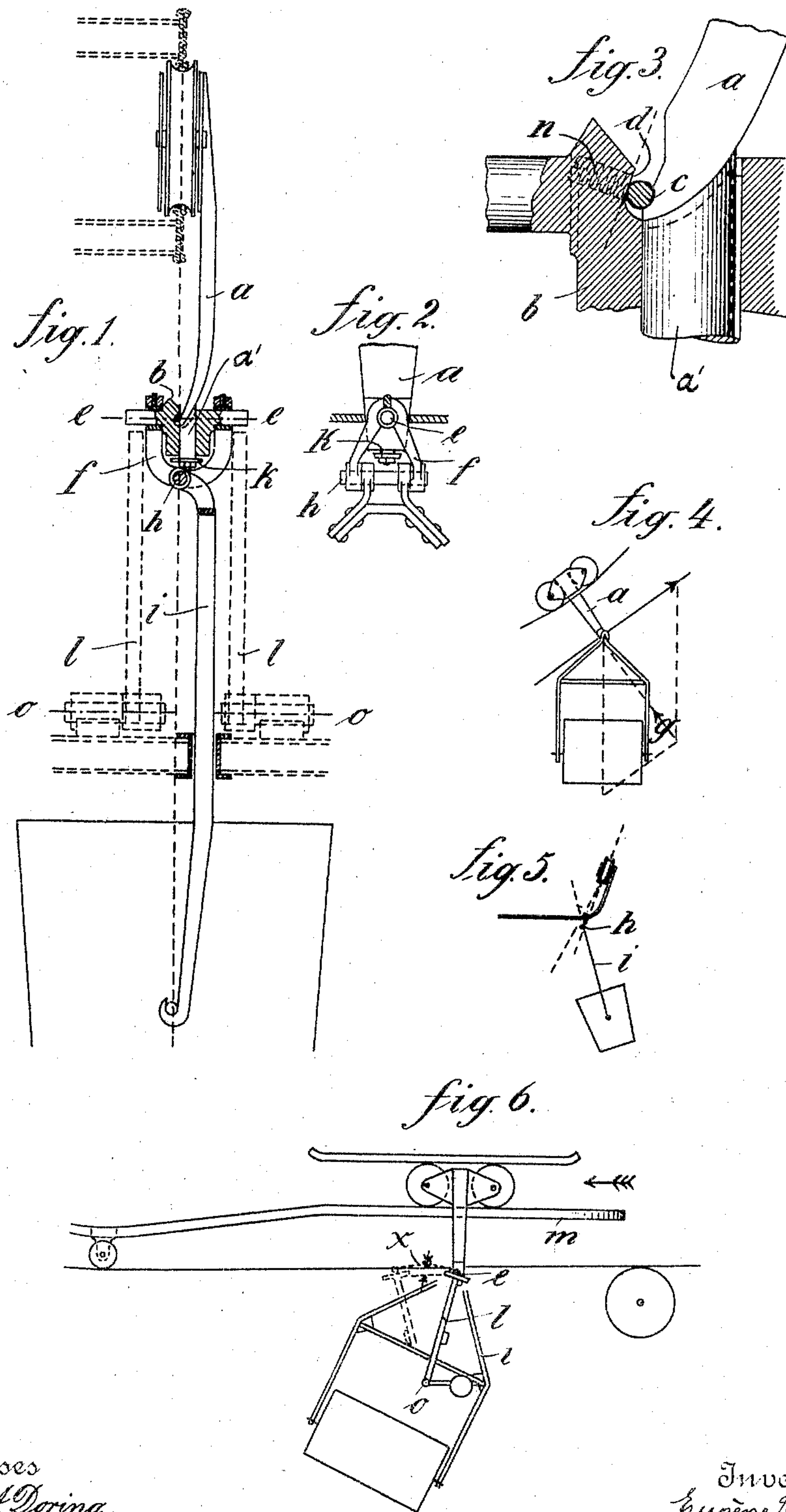
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E. BOUCHER.

ROPE CLUTCH FOR AERIAL TRAMWAY CARRIAGES.

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EUGÈNE BOUCHER, OF NEW YORK, N. Y.

ROPE-CLUTCH FOR AERIAL-TRAMWAY CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 784,100, dated March 7, 1905.

Application filed June 23, 1904. Serial No. 213,899.

To all whom it may concern:

Be it known that I, EUGÈNE BOUCHER, a citizen of France, residing in the borough of Brooklyn, in the city and State of New York, have invented certain new and useful Improvements in Rope-Clutches for Aerial-Tramway Carriages, of which the following is a specification.

The present invention relates to a rope-clutch designed for aerial-wire-rope-tramway carriages and is illustrated in the accompanying drawings, in which corresponding reference-letters denote corresponding parts, and in which—

Figure 1 shows a sectional elevation of the rope-clutch transversely to the track, the dotted lines illustrating a lifting device therefor. Fig. 2 is an elevational view thereof as seen in direction of the track. Fig. 3 is an enlarged sectional elevation of the clutch, similar to that of Fig. 1. Figs. 4 and 5 illustrate the carriage in different positions, and Fig. 6 the carriage at one of the coupling or uncoupling points.

With reference to the drawings, *a* is an arm or hanger rigidly fastened to the carriage at the center thereof and depending therefrom beneath the track, the lower end *a'* of this hanger *a* being formed to a cylindrical pin or pivot. The latter serves as a guide for a vertically-movable piece *b*, forming the second part of the clutch and being provided with two pivots *e e*, extending transversely to the track and carrying the load. The surface *d* of the movable piece *b* forming the clamping-surface is made oblique, as seen from Fig. 3, whereby the pressure acting perpendicularly to the said surface *d* will depend not only from the load, but also from the pitch of said surface. At the part of the hanger *a* opposite the oblique surface of the movable piece *b* a furrow *c* is made, adapted to hold the rope in position in the clutch. A short vertical movement of the piece *b* suffices to open or close the clutch by the increase or decrease of the distance between *d* and *c*, Fig. 3, so that the traction-rope can readily enter or leave the clutch. When the carriage is released from the traction-rope, the movable piece *b* bears

against a washer *k*, carried by the pivot *a'* of the hanger *a*.

The load can be suspended from the movable piece *b* in any convenient manner. It is, however, advantageous to connect the load-carrier *z*, Fig. 1, by means of a universal joint with the movable piece *b*, Figs. 1 and 2.

A double arm *f* is rotatively journaled upon the pivots *e e* of the movable piece *b* and has at its lower end a pivot *h*, extending parallel with the track and serving to hold the load-carrier *z*. This allows a carriage construction which is advantageous for the equilibrium of the carriage in all its positions, as shown in Figs. 4 and 5. Fig. 4 shows that with an oblique track the load hangs freely down and the bearing-pressure *g* upon the leading rope, which is essentially composed of the weight of the load and the draft of the traction-rope, is directed toward the center of the carriage and that upon each wheel half of the pressure is imparted. Fig. 5 shows the carriage in a view similar to that of Fig. 1 and the position thereof upon a curved part of the track. It is herefrom seen that the universal joint *h* will permit the load freely to follow the centrifugal power and that the carriage will adjust itself in an inclined position until it is in equilibrium without absolutely necessitating any guides.

As above stated, the opening of the clutch is effected by the raising of the piece *b*. In Fig. 6 it is shown how, for instance, at one of the coupling-points this movement is accomplished and that the traction-rope is forcibly so guided that it will immediately upon the opening of the clutch enter the same. At the uncoupling-point the traction-rope is correspondingly guided so that the same will leave the clutch immediately upon opening the latter. At suitable points of the track two rods 1 (see dotted lines in Fig. 1 and full lines in Fig. 6) are arranged, which swing upon an axle or pivot *o* and are held in an inclined position by counterweights and stops. The load-carrier *z* comes between the two rods and the pivots *e e* come in contact with the upper end of these rods. The inertia of the carriage running upon the rail *m* forces the rods to swing

upon their axle *o* and the movable piece *c*, being supported by the said rods to raise a distance *x* of the arc described by the pivots *e*. This movement is effected without any shock because of the distance being very short and the load being capable of turning upon the pivots *e e*, and thus enabled to follow the centrifugal power.

The traction-rope being at the coupling-points always pressed downward does not exert any friction upon the clamping-surface *d*; nor is there any friction in the clutch at the uncoupling-point, because of the carriage and the rope having the same speed. In view of this fact it will be seen that if it is desired to increase the friction this may be accomplished by screws *n*, which, as shown in Fig. 3, may be arranged in the movable piece *b* and be provided at its outer extremity with a plurality of notches, which would not injure the traction-rope clamped between the said notched ends of the screws and the furrow *c* of the hanger *a*.

Having thus described the nature of my invention and in what manner the same is to be operated, what I desire to secure by Letters Patent is—

1. A rope-clutch for wire-rope-tramway carriages, comprising a hanger rigidly attached to the carriage, and a vertically-movable piece guided upon the hanger and carrying the load, the traction-rope being adapted to be clamped between the hanger and the movable part, substantially and for the purpose as specified.

2. A rope-clutch for wire-rope-tramway carriages, comprising a hanger rigidly attached to the carriage at the central line thereof and depending therefrom perpendicularly to the track, a cylindrical and downwardly-projecting pivot at the lower end of the hanger, a vertically-movable part guided upon said pivot, a second hanger suspended from the said movable part and having a universal movement, and means allowing said universal movement, the said second hanger being adapted to carry the load, substantially and for the purpose as specified.

3. A rope-clutch for wire-rope-tramway carriages, comprising a hanger rigidly attached to the carriage at the central line thereof and depending therefrom perpendicularly to the track, a vertically-movable part guided upon the lower end of the hanger, said movable part having lateral pivots extending approximately in line with the traction-rope, a double arm journaled upon said pivots, a pivot journaled in said double arm, the latter arm with its pivot forming a universal joint, a second hanger suspended from said universal

joint and carrying the load, substantially and for the purpose as specified.

4. A rope-clutch for wire-rope-tramway carriages, comprising a hanger rigidly attached to the carriage at the central line thereof and depending therefrom perpendicularly to the track, a vertically-movable piece guided upon the lower end of the hanger, said movable piece consisting of a casing adapted to fit upon said lower end of the hanger, a recess at one side of the said casing having an oblique surface, said surface and lower end of the hanger immediately above the cylindrical extension thereof being adapted to clamp the traction-rope, lateral horizontal pivots attached to the movable casing and extending approximately in line with the traction-rope, a universal joint suspended from said pivots and a second hanger suspended from said universal joint and carrying the load, substantially and for the purpose as specified.

5. A rope-clutch for wire-rope-tramway carriages comprising a hanger rigidly attached to the carriage at the central line thereof and depending therefrom perpendicularly to the track, a vertically-movable piece guided upon the lower end of the hanger, said movable piece consisting of a casing adapted to fit upon said lower end of the hanger, a recess at one side of the said casing having an oblique surface, a screw working in the said recessed side for the increase of friction, lateral horizontal pivots attached to the movable casing and extending approximately in line with the traction-rope, a universal joint suspended from said pivot and a second hanger suspended from said universal joint and carrying the load, substantially and for the purpose as specified.

6. The combination with a wire-clutch for aerial-wire-rope-tramway carriages, of a device for lifting the movable piece of the clutch, said device comprising swinging arms journaled upon an axle and arranged at suitable points of the track, counterweights and stops for holding the swinging arms in proper position, said arms being adapted to support with their upper ends the pivots of the movable piece, when the latter comes to lie between the two arms, and in swinging around to lift the said movable piece, substantially and for the purpose as specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 21st day of June, 1904.

EUGÈNE BOUCHER.

Witnesses:

EMMA GALINGER,
SARA SPILLE.