No. 611,570. Patented Sept. 27, 1898.

W. DÜSEDAU.

GRIPPING MECHANISM.

(Application filed Nov. 30, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

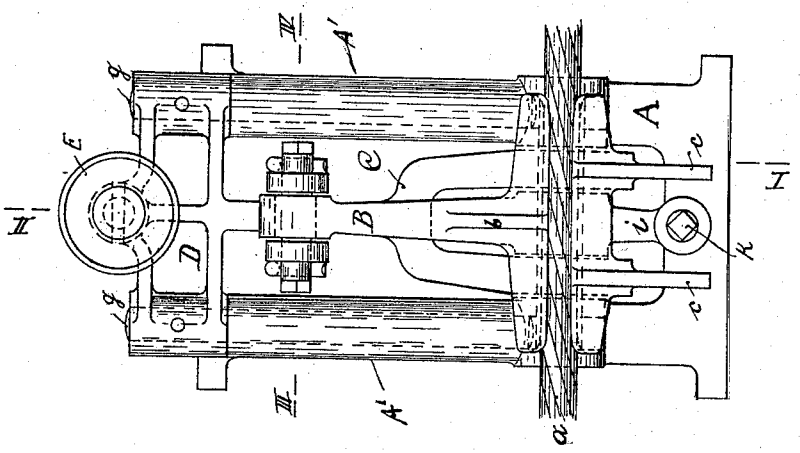


Fig. 2.

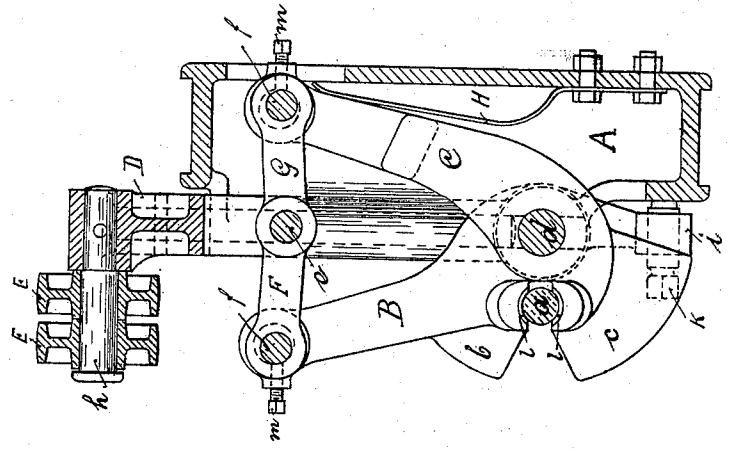
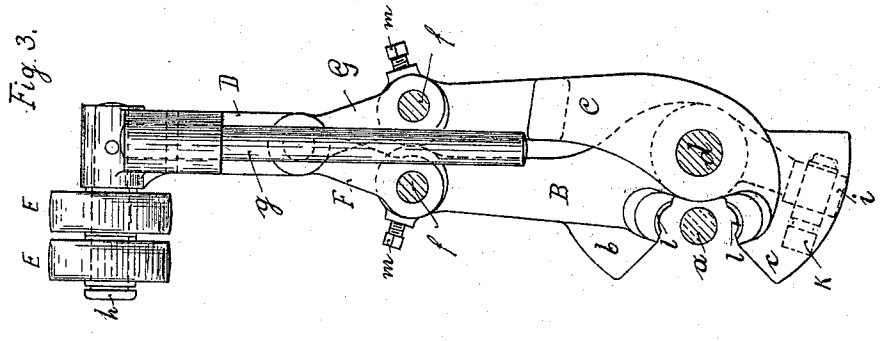


Fig. 3.



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Fig. 4.

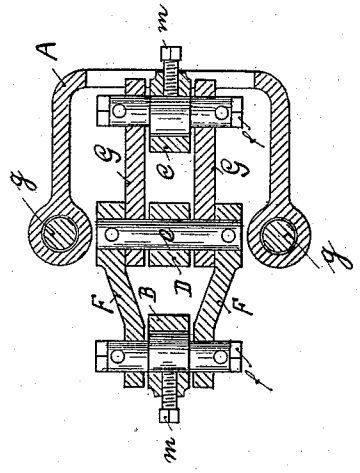
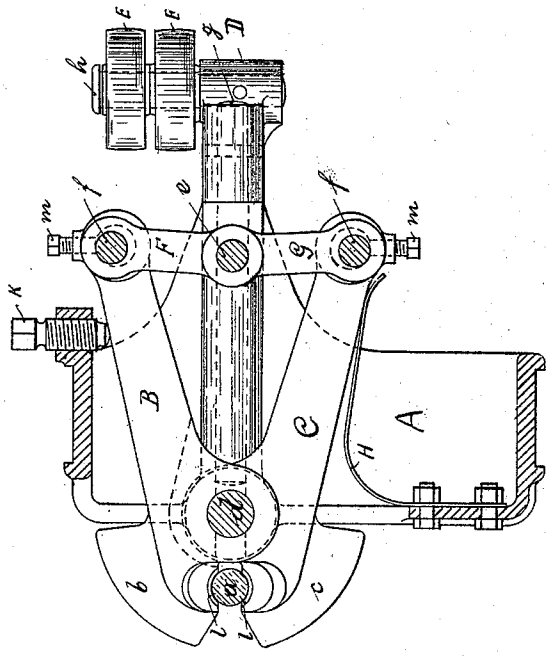


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILHELM DÜSEDAU, OF NEW YORK, N. Y.

GRIPPING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 611,570, dated September 27, 1898.

Application filed November 30, 1897. Serial No. 660,217. (No model.)

To all whom it may concern:

Be it known that I, WILHELM DÜSEDAU, a citizen of the United States, residing at New York, (Brooklyn,) State of New York, have invented certain new and useful Improvements in Gripping Mechanism, of which the following is a specification.

My invention, hereinafter described, is of the class of gripping mechanisms designed to connect cars with the traction-rope by means of which they are moved in the transportation of loads. It is more particularly designed to be used in connection with what are known as "aerial wire-rope ways" or "overhead tramways."

Heretofore experience in this special work has been required to connect the gripping mechanism of the car with the rope of an overhead ropeway, and this operation has been otherwise attended with special difficulties. With the form of grip in use prior to my invention it was necessary to place the car in position to receive the rope. As the opening between the gripping-jaws is small in most instances, it was necessary that the rope should be placed between the jaws of the grip by hand, and as in most cases the car was standing during the attachment of the grip to the rope the sudden action of the rope upon the grip caused considerable jerking of the car and injury to the rope. Further, the time required for these manipulations materially limited the number of cars which could be connected with the rope in any given time. In order to obviate these difficulties, I have provided the gripping mechanism hereinafter described, in which the gripping mechanism is provided with an automatic opening and closing device adapted to be operated by fixed cams or inclines located in proper relation to the wireway, whereby the jaws are opened or closed while the car is in motion and the rope is automatically gripped. To this end two gripping-jaws are provided with guards for the traction-rope, arranged to open reciprocally to such an extent as to take the traction-rope without the aid of an attendant. Further, provision is made for adjusting the motion of the jaws to accord with the diameter of the traction-rope. I have also provided a spring for the purpose of keeping the jaws open after the rope has been released. The car may be pushed by hand toward the rope or it may be run by momentum or down an incline for the purpose of making the connection. As the car is in motion while the gripping mechanism is attached to the rope, the jerking occasioned by the starting of the car from a position of rest is avoided and little or no aid is required of the workmen, so that any number of cars which can be accommodated upon the way may be sent off within a given time without difficulty.

In the accompanying drawings the gripping mechanism is shown not in connection with the car or any vehicle; but it will be understood that the mechanism is to be carried upon the vehicle properly connected therewith and in operative relation to the rope, and the camways are inclines by which the gripping mechanism is worked.

In the drawings, Figure 1 is a front view of the gripping mechanism, showing also a section of the rope. Fig. 2 shows a vertical section of the same on lines 1 2 of Fig. 1, and it represents the mechanism gripped upon the rope. In Fig. 3 the mechanism is shown released or with the jaws open, the gripping mechanism being there represented without the frame. Fig. 4 shows a horizontal section on lines 3 and 4, illustrating the link connection of the jaw-levers and the method of adjusting the levers to the size of the rope. Fig. 5 is a similar view to Fig. 2, showing the mechanism in a modified form and in a horizontal position.

In the drawings the frame of the gripping mechanism is shown at A. It consists of a base surmounted by two upright hollow standards A'. On the base and between these standards are pivoted the jaw-levers B and C, both being pivoted upon a common pivot-bolt *d*, supported in the frame. The jaws opening outwardly upon the front, their lever extensions both project upward and when the jaws are closed are slightly inclined to front and rear, as shown in Fig. 2. The lever B carries the upper jaw and C the lower. The upper ends of the levers B and C are connected by links F and G to a bolt which pivots these inner ends upon the lower extension of a yoke D, which is provided with a pair of downwardly-extending rods *g*, fitted to slide

in the hollow standard A', so that as the yoke reciprocates vertically the levers are drawn in or separated and the jaws are opened or closed. The outer ends of the links F and G are pivoted to levers B and C, respectively, by eccentric-pins *f*. These eccentric-pins are squared on their outer ends, so that they may be turned to adjust the levers B and C in or out and thus adjust the grip of the jaws to a larger or smaller rope. The pins *f* are held in the required position by means of set-screws *m*. On the upper end of the yoke is fixed a horizontal stud *h*, which projects to the front over the position of the rope and carries wheels E, loosely mounted on the stud. These wheels are adapted to travel under or over inclined ways arranged longitudinally of the wireway, but slightly inclined thereto, so that when the wheels pass over one of these ways as the carriage proceeds the wheels are lifted, carrying up the yoke and drawing up the inner ends of the arms F G and thus drawing inwardly the levers B and C, which motion opens the jaws, as represented in Fig. 3. This first inclined camway for the wheels is ascending. It is succeeded by a declining way arranged so that the wheels pass under it and are forced down, thus depressing the levers F G to the position shown in Fig. 2, in which the pivoted bolt *e* is a little lower than the pivot-bolts *f f*, and the jaws are gripped upon the rope. The lower position of the pivot *e* locks the levers F G, which, acting as toggles, have caused the jaws to grip upon the rope and in this position hold the jaws securely. The camways are not shown; but it will be understood that they are located at the points where it is desired to close or release the grip.

Upon the jaws are fixed guards *b c*, (shown in Fig. 3,) which serve to guide the traction-rope into the jaws when the car is moved toward the said rope for connection therewith. This is arranged to occur when the camway has operated upon the wheels to open the jaws, the lever extension then operating to close them, and the relation of the parts is such that as the jaws approach the rope it will enter automatically without requiring to be guided.

A spring H is provided to bear upon the lever C and is sufficient to hold the jaws open when they are not acted upon by the camways.

The jaw B has a downwardly-projecting extension *i*, provided with a set-screw K, which is so adjusted that it bears against the frame when the jaws are gripped upon the traction-rope. The weight of the traction-rope is thus taken up by the frame while the mechanism is closed, and thus the yoke D and the rods *g* are relieved from this pressure. The jaws are provided with linings *l*, which can be readily replaced when worn out.

A key or wrench is used to turn the squared outer ends of the eccentric-pivots *f*, and when these are set the stroke of the levers is adjusted and there is no lost motion in their operation and they are made accurately to fit the traction-rope.

In Fig. 5 I have shown a modification of the mechanism above described. The principle is the same and the jaws open vertically, as those shown in Fig. 2; but the jaw-levers extend horizontally, and the attaching and detaching movements of the yoke are also horizontal. In this form the set-screw is placed in the frame, the lever extension not being necessary in this case.

The entire gripping mechanism can be made to swing or rock relatively to the car in order to take the inclination of the traction-rope in cases where this may be necessary. For this purpose obvious additions of parts may be made to the mechanism above described.

I do not confine myself to the details of construction shown and described, as these may be modified without departing from the spirit of my invention.

I claim—

1. In combination, the rigid frame, the gripping-jaws pivoted therein upon a common center, the yoke movable upon said frame, a pair of links connecting said yoke with the gripping-jaws, and a contact member carried by the yoke adapted to contact with stationary inclines to raise and lower the yoke and thus automatically close and open the jaws, substantially as described.

2. In combination, the frame having the hollow posts, the pair of gripping-jaws pivoted upon a common center between said posts, the rods sliding in the posts, the cross-head or yoke connecting said rods, a pair of links connecting said yoke with the gripping-jaws, and a roller carried by the cross-head adapted to contact with a stationary incline to raise and lower the yoke and open and close the jaws, substantially as described.

3. In combination with the pair of jaw-levers of a gripping mechanism for traction-rope, and with a reciprocating piece for opening and closing the same, a pair of links connected to said levers by eccentric-pins, and set-screws, substantially as described.

4. In a gripping mechanism for a traction-rope, a frame, a pair of jaws pivoted thereon on a common center, means for opening and closing said jaws, and a set-screw adapted to form a bearing between one jaw and the frame when the jaws are closed, and to take the weight of the rope, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILHELM DÜSEDAU.

Witnesses:
MARIE CÖLLN,
JOSEPH SCHLÜCHT.