

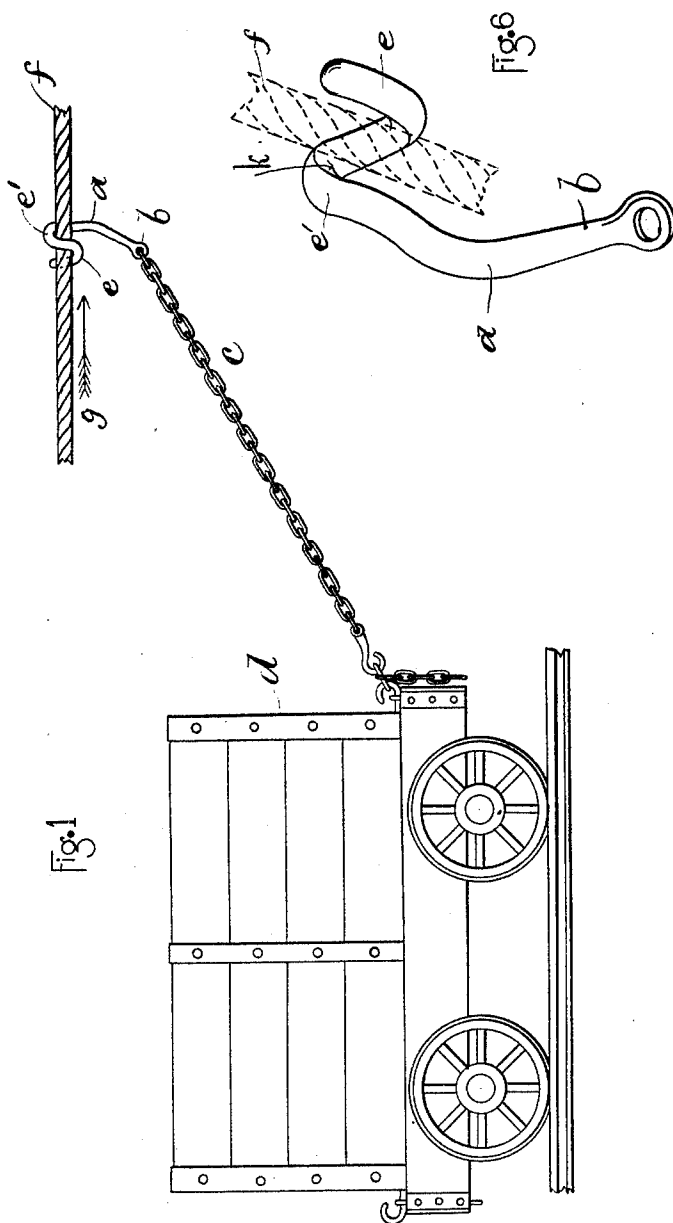
(No Model.)

2 Sheets—Sheet 1.

E. EAVES & A. J. TONGE.
ROPE GRIPPER FOR CABLE RAILWAYS.

No. 586,762.

Patented July 20, 1897.



Witnesses
A. D. Hanson
P. W. Pezzetti

Inventors
E. Eaves
A. J. Tonge
by Knight, Brown & Durbin
Attorneys

(No Model.)

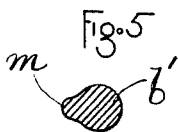
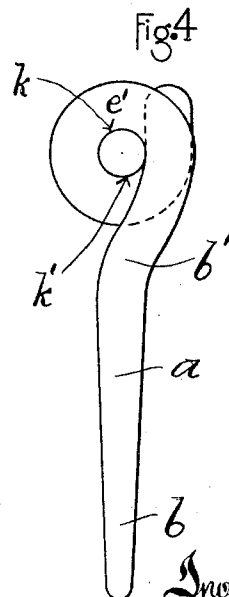
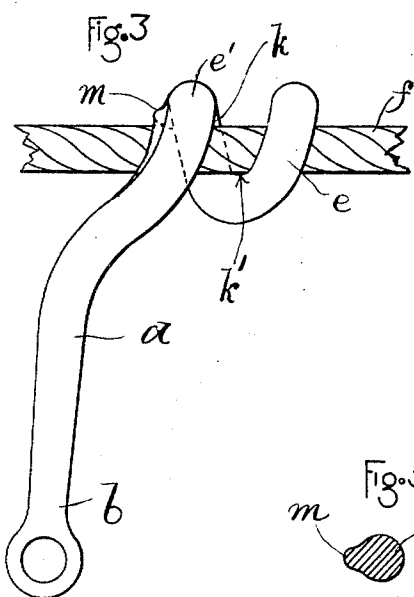
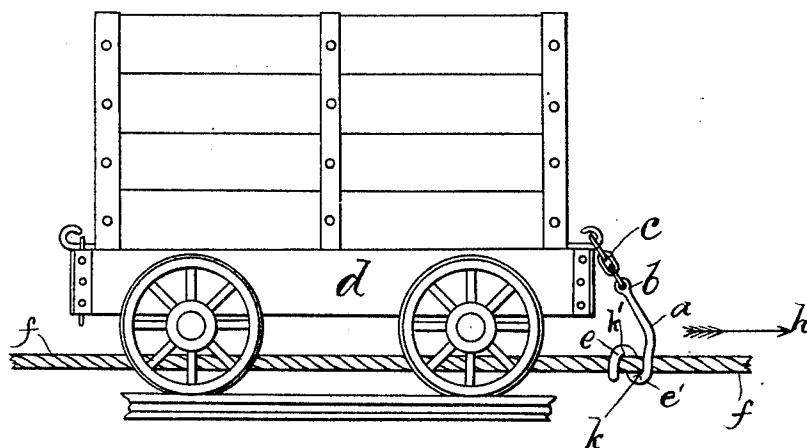
2 Sheets—Sheet 2.

E. EAVES & A. J. TONGE.
ROPE GRIPPER FOR CABLE RAILWAYS.

No. 586,762.

Patented July 20, 1897.

Fig. 2



Witnesses
A. D. Harrison.
P. W. Pezzetti.

Inventors
E. Eaves
A. J. Tonge
Bright & Brown
Attorneys

UNITED STATES PATENT OFFICE.

ELAM EAVES, OF DERBY, AND ALFRED JOSEPH TONGE, OF BOLTON,
ENGLAND.

ROPE-GRIPPER FOR CABLE-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 586,762, dated July 20, 1897.

Application filed November 30, 1896. Serial No. 613,884. (No model.)

To all whom it may concern:

Be it known that we, ELAM EAVES, residing at Derby, in the county of Derby, and ALFRED JOSEPH TONGE, residing at Bolton, in the county of Lancaster, England, subjects of the Queen of Great Britain, have invented a new or Improved Rope-Gripper for Cable-Railways, of which the following is a specification.

Our invention has especial reference to rope-grippers for use in conjunction with the rope or cable haulage arrangements employed in connection with mining operations, such gripping devices being required to be of easy application and so that they will enable the ready attachment or detachment of the vehicles to or from their hauling-ropes, while they shall further allow such ropes to drag or carry them around their several guide-pulleys without being dislodged or otherwise caused to lose their hold thereof.

In the accompanying sheets of drawings, which are illustrative of our invention, Figure 1 is an elevation showing our improved rope-gripper in use in connection with an arrangement wherein the hauling-rope operates in a plane above the vehicle. Fig. 2 is a similar view to Fig. 1, but illustrates the hauling-rope arranged beneath the vehicle. Fig. 3 is a side view of our improved rope-grip, drawn to an enlarged scale. Fig. 4 is a view of said gripping device as seen in the direction lengthwise the rope. Fig. 5 is a sectional view of one portion of the coil. Fig. 6 is a perspective view of the gripping device.

Similar letters of reference indicate similar parts throughout the several views.

In carrying our invention into effect we form the gripping device *a* so that it may be readily attached at its end *b* to the hauling-chain or other attachment *c*, secured to the vehicle *d*, while its other end *e* is bent into the spiral form as shown, one coil *e'* being separated from the other *e* sufficiently to allow the haulage-rope *f* to pass diametrically between them, by which means on the said gripping device *a* being taken and placed upon the rope *f*, one part *e'* being on one side and the other part *e* being on the other side thereof, it is only necessary to give the end *b* a slight turn or twist, and the gripper is

brought thereby into its position shown by Figs. 1 and 2, in which position by the rope *f* traveling in the direction indicated by the arrows *g* and *h*, and therefore causing the force on the gripper *a* to act in the opposite direction to overcome the retarding action of the vehicle *d*, which it has to carry along with it, the upper part or side *k* of this spiral coil *e'* is caused to press on one side of the rope *f* and the other side *k'* of the coil *e* is caused to press on the other side. The greater the drag on the arm *b* the greater will be this pressure, with the result that the vehicle *d* is carried or caused to move as desired. This gripping action is due to the fact that the coils and arm are rigid, the latter extending from the former at such an angle that the two coils are brought firmly against opposite sides of the rope or cable, when the resistance of the vehicle and the flexible connection *c* tends to force the end of the arm toward the said rope. To insure this action, the rigid arm extends substantially at a right angle to the axis or longitudinal center of the spiral. The outer end *e'*, as also the bent part *b'* of the arm *b*, is shaped so that in passing around the grooved guide-pulleys used in connection with this class of mechanism the flanges of said pulleys will not interfere with the gripping actions of the gripping device, any lateral motion thereon caused by this traveling around the guide-pulleys being equally free in one direction or to one side as in or to the other.

To give extra strength to the spiral parts *e* and *e'* and bent part *b'* and, further, to allow the greatest possible freedom to the actions of placing the gripping device into and out of connection with the rope *f*, we form a rib or strengthening part *m* thereon, as shown in section by Fig. 5.

Provided it is found advantageous, those surfaces of the gripper which are for contact with the hauling rope or cable or with the guide-pulleys, around which same passes, may be roughened, as by having serrations or projecting pieces formed on them, so that greater friction is produced between them and those parts into contact with which they are pressed.

Having thus described the nature of our

said invention and shown how same may be carried into effect, what we claim is—

1. A rope-gripper for cable-railways having its gripping part of spiral form and provided with a rigid arm extending substantially at a right angle to the longitudinal center of the spiral, one coil of said spiral being separated from the other to allow the application of the gripper to the cable, substantially as specified.

2. A rope-gripper for cable-railways having its gripping part of spiral form, one coil of which is for contact with one side of the cable while the other is for contact with the other side and provided with a rigid arm ex-

tending substantially at a right angle to the longitudinal center of the spiral, so that the pull on the arm extending from the coils causes them to grip said cable substantially as specified.

3. A rope-gripper for cable-railways having a coiled part and an arm extending therefrom, said arm being bent so as to be clear of the flanges of any guide-pulley around which it has to pass substantially as specified.

ELAM EAVES.

ALFRED JOSEPH TONGE.

Witnesses:

SAMUEL HEY,

JOHN WHITEHEAD.