

(No Model.)

2 Sheets—Sheet 1.

A. N. HUMPHREYS.
CABLE GRIP.

No. 512,112.

Patented Jan. 2, 1894.

Fig. 1.

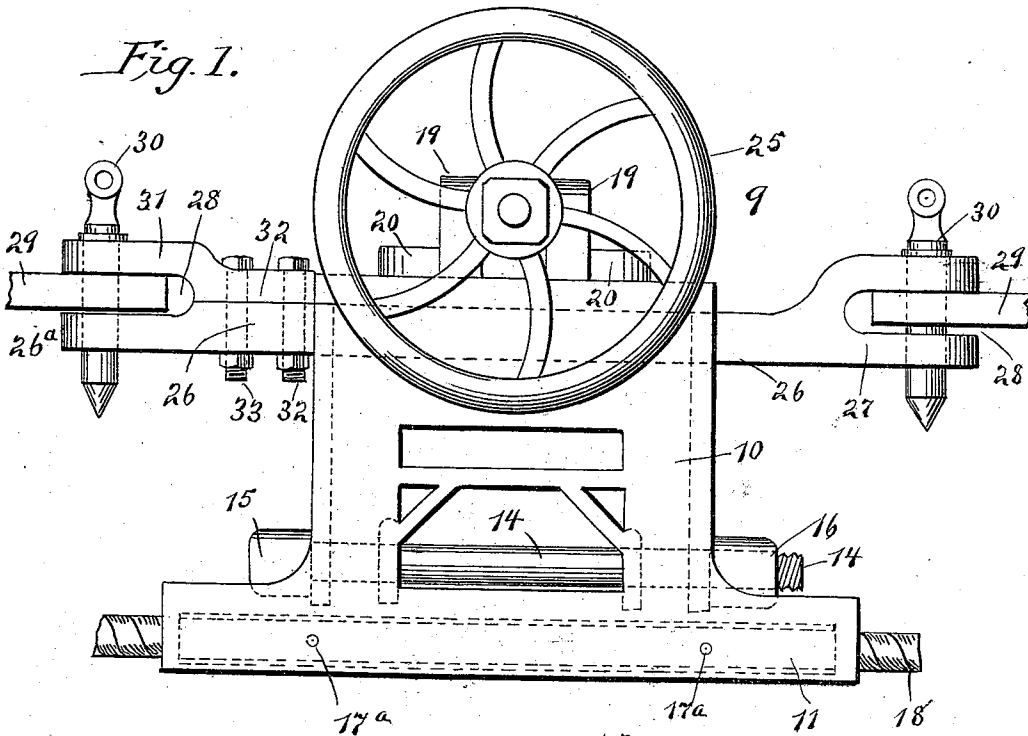


Fig 2

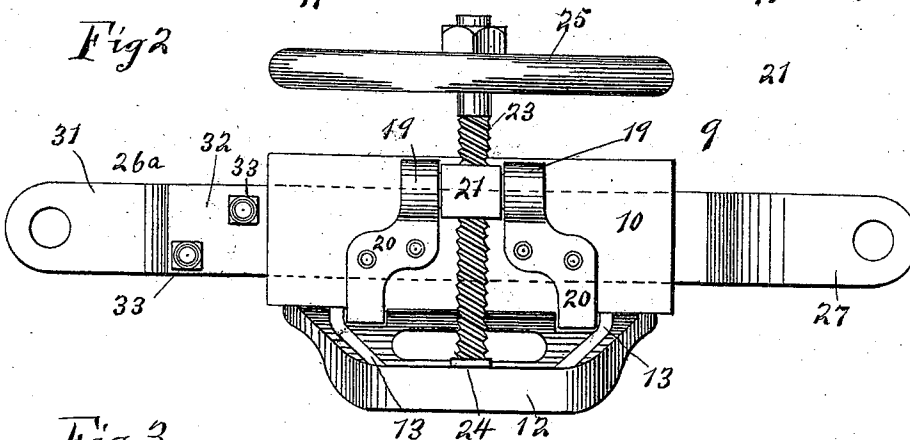
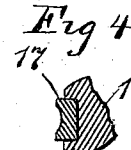
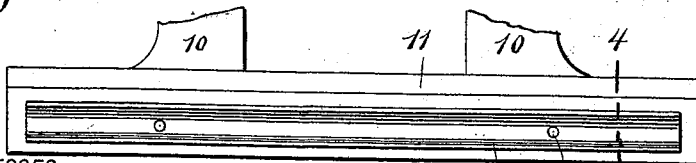


Fig 3



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(No Model.)

2 Sheets—Sheet 2.

A. N. HUMPHREYS.
CABLE GRIP.

No. 512,112.

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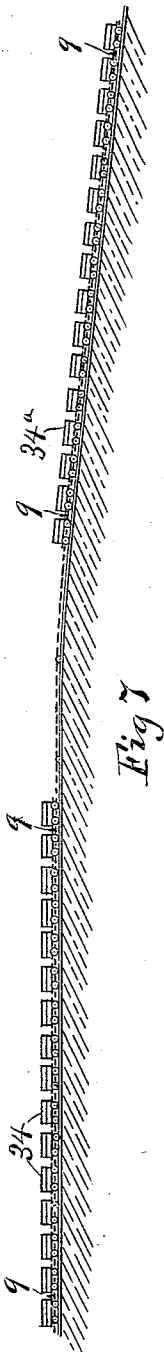


Fig 7

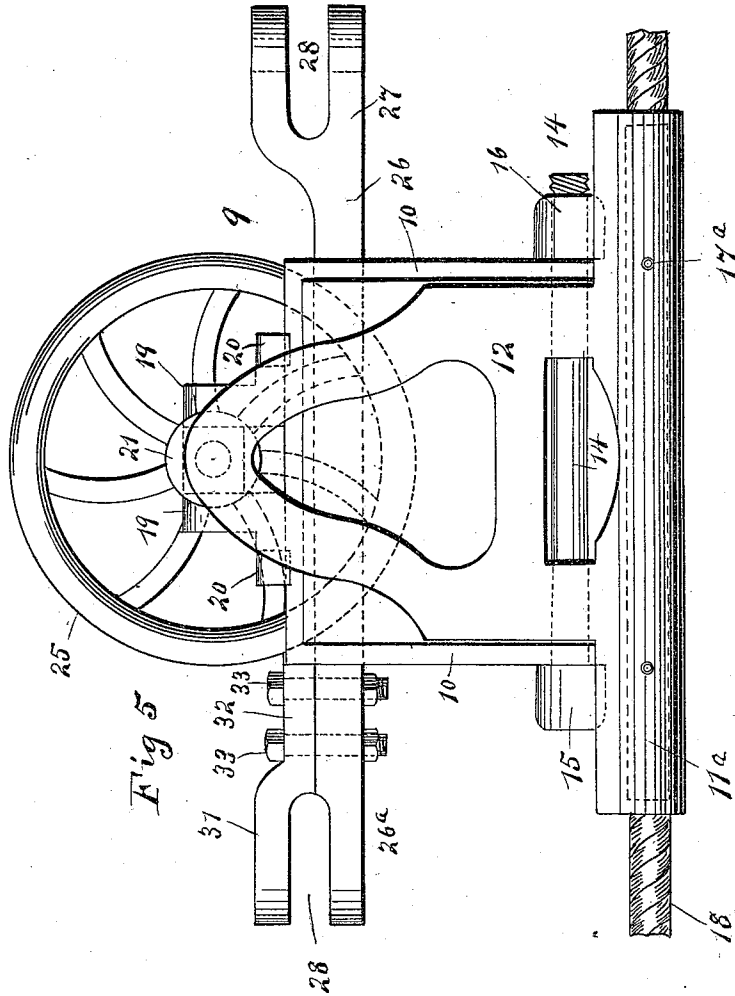


Fig 5

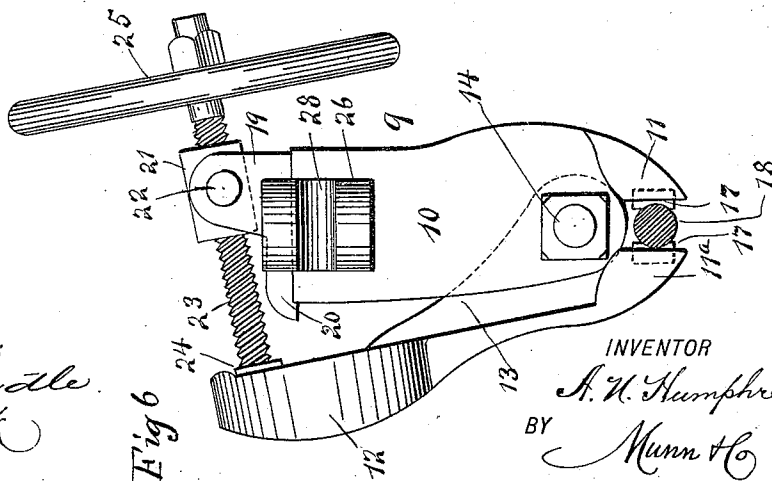


Fig 6

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UNITED STATES PATENT OFFICE.

ALFRED N. HUMPHREYS, OF IRWIN, PENNSYLVANIA.

CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 512,112, dated January 2, 1894.

Application filed October 31, 1892. Serial No. 450,471. (No model.)

To all whom it may concern:

Be it known that I, ALFRED N. HUMPHREYS, of Irwin, in the county of Westmoreland and State of Pennsylvania, have invented a new and Improved Cable-Grip, of which the following is a full, clear, and exact description.

My invention relates to improvements in grips, such as are adapted to be carried by cars and are used to clamp a moving cable, and especially to such as are adapted for use in connection with coal cars or wagons used at coal mines.

The object of my invention is to produce an extremely strong and simple grip, which may be quickly and easily operated, which is adapted to be arranged between two cars or wagons so as to form a coupling as well as a grip, which clasps the cable from the sides, and consequently does not bend it materially so as to cause it to be weakened and broken, which is adapted to make a smooth but solid connection with the cable, and by means of which a long train of wagons or cars may be conveniently attached to the cable and as conveniently detached when necessary.

To these ends, my invention consists in certain features of construction and combinations of parts, which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the cable grip embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is a broken enlarged inside detail view of one of the gripping jaws. Fig. 4 is a broken cross section on the line 4-4 in Fig. 3. Fig. 5 is a side elevation taken from the opposite side to that shown in Fig. 1, and with the coupling pin and draw bar removed. Fig. 6 is an end view of the device, the cable being shown in cross section; and Fig. 7 is a diagrammatic view, showing the method in which the grips are applied to trains of cars or wagons.

The grip 9, is provided with a generally U-shaped frame 10, which is arranged in an inverted position, and which at its lower end is widened to form a jaw 11, which is adapted to clasp one side of the cable as hereinafter

described. On one side of the frame 10, is a swinging arm or plate 12, which has on its inner side and near opposite edges, ribs 13, which project into the frame 10, and which are pivoted to the frame 10 by a bolt 14, the bolt extending through the ribs and through opposite sides of the frame, and it has at one end a head 15, and at the opposite end is provided with a nut 16, by which it is held in place and the frame and arm or plate locked together. The bolt 14 is arranged near the lower portions of the frame 10 and arm 12. Consequently when the upper ends of these parts are forced apart, the lower ends are forced together with great power. The lower end of the arm 12 is widened to form a jaw 11^a, which is arranged opposite the jaw 11, and is similar to the same, and each jaw is provided with a shoe 17, which extends longitudinally of the jaw, is fitted in a recess of the same, and is held in place by rivets 17^a. This construction permits a shoe to be taken out and another inserted in its place when the first shoe has become worn. The inner faces of the shoe 17 are grooved so as to fit snugly upon the cable 18. It will be noticed by reference to Figs. 1 and 5, that the jaws are arranged on opposite sides of the cable 18, and clasp the cable in such a way that the cable is not bent and consequently it is not injured by the jaws.

On the top of the frame 10 are bearing blocks 19, having base flanges 20 which are secured to the frame, and between the blocks 19 is a nut 21, having trunnions 22 which are journaled in the blocks 19. A screw shaft 23 extends transversely through the nut 21, which fits the shaft, and one end of the shaft is held in a socket in the free end and inner side of the arm 12, in the usual way, and the opposite end of the shaft is provided with a hand wheel 25, by which it may be turned. It will be seen then, that by turning the hand wheel 25 and screw 23 in one direction, the upper ends of the arm 12 and frame 10 may be forced apart, thus throwing the shoes 17 forcibly upon the cable 18, and by turning the hand wheel and shaft in the opposite direction the reverse action takes place, and the shoes 17 are removed from the cable.

The frame 10 is carried by a coupling bar 26, which is rectangular in cross section, and

which terminates at its ends in coupling heads 27 and 26^a. Two forms of the coupling heads are shown, but either may be used. The coupling head 27 is formed integral with the bar 26, and has a horizontal slot or mouth 28, which is adapted to fit upon the draw-bar 29 of one of the cars or wagons. The head is also perforated vertically like an ordinary car coupling, so as to receive a pin 30, which extends through the head and draw-bar and thus binds the two together. The head 26^a is substantially like the head 27, and it has also a mouth 28, but the upper half of the head is formed by a plate 31, which has a shank 32 fitting upon the bar 26, to which it is fastened by bolts 33.

It will be seen that the heads 27 and 26^a may be coupled to an ordinary draw-bar so as to unite two cars or wagons, and that the grip when applied to the cable serves to connect both cars or a number of cars in such a way that they will be moved by the cable.

It will be noticed also that the screw mechanism for operating the jaws is of the simplest nature, and that it enables the jaws to be forced with great power upon the cable.

Mine wagons or cars are usually hitched to chains connecting between sockets in a wire rope, and only a limited number can be moved at a time, just as many as will make up and equal the length of rope reaching between a pair of coupling chains. This is because the trains must be coupled in front and rear; but with a pair of my improved grips, any number of wagons or cars which the strength of the cable will permit, may be attached to the cable and moved on tracks in which the grades change from ascending to descending and vice versa. The method of accomplishing this by a single pair of grips is shown in Fig. 7, which illustrates a loaded train going up one side of an incline and an empty train traveling back the opposite side of the incline. The trains are usually operated in this way on an incline, but they are not coupled to the rope as described. By reference to the diagram it will be seen that the first and second cars are coupled by my grip and coupling, and also the last and next to the last cars. In this way the ends of a train are held in proper position and fastened to the cable, and it will be readily seen that all the other cars must move in unison with the ones to which the grips are attached whether

the trains be moving up or down grade, or on a changing grade.

Referring again to the construction of the grip, it will be noticed that the frame 10 and the arm 12 form practically the shanks of the jaws, and as the distance between the pivot pin 14 and the screw shaft 23, is very much greater than the distance between the pivot pin and the shoes 17, the grip may be fastened so strongly to the cable that it cannot slip, and the cable will part before the grip will lose its hold.

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

1. A grip, comprising a frame terminating in a jaw, an arm pivoted to the frame and terminating in a jaw which is opposite the frame, jaw, a screw carried by the frame and engaging the arm, and a coupling bar secured to the frame and provided with coupling heads, substantially as described.

2. A grip, comprising a frame terminating at its lower end in a jaw, an arm pivoted to the side of the frame and terminating at its lower end in a jaw which is arranged opposite the frame jaw, a nut pivoted on the top of the frame, to rock and a screw shaft threaded in the nut and having its end connected with the arm, substantially as described.

3. A grip, comprising a frame terminating in a jaw and provided with bearing blocks, an arm pivoted to the frame and terminating in a jaw opposite the jaw of the frame, a nut journaled in the bearing blocks, and a screw shaft working in the nut and having one end fitted in a socket in the arm, substantially as described.

4. A grip, comprising a frame terminating at its lower end in a jaw, an arm arranged opposite the frame and pivoted thereto, the arm terminating at its lower end in a jaw placed opposite the frame jaw, a nut journaled upon the frame, a screw shaft threaded into the nut and connected with the arm, the screw shaft having a hand wheel at one end, and couplings connected with the frame and adapted to couple to the draw-bars of adjacent cars, substantially as described.

ALFRED N. HUMPHREYS.

Witnesses:

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J. B. RHODES.