A. W. FARR.

CLAMPING DEVICE.

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1,218,752.

Patented Mar. 13, 1917.

Fig. 1.

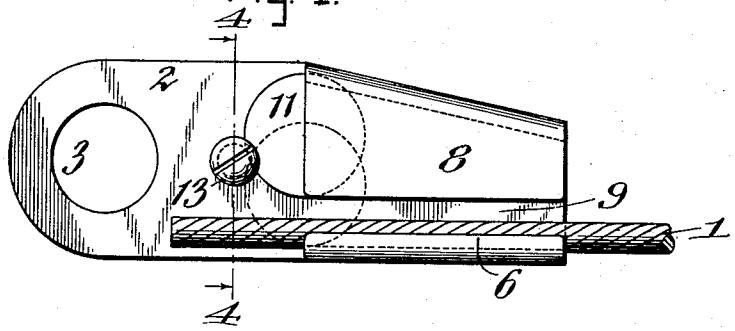


Fig. 2.

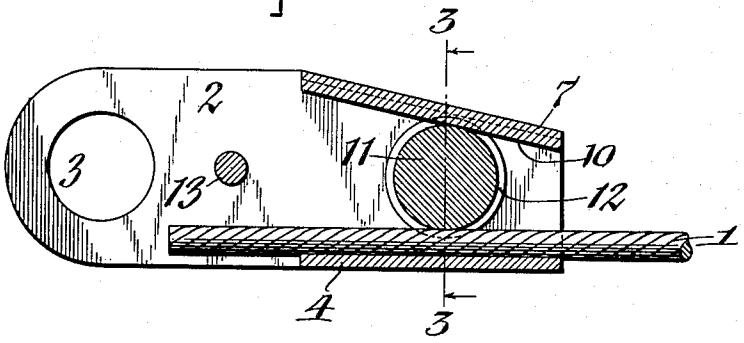
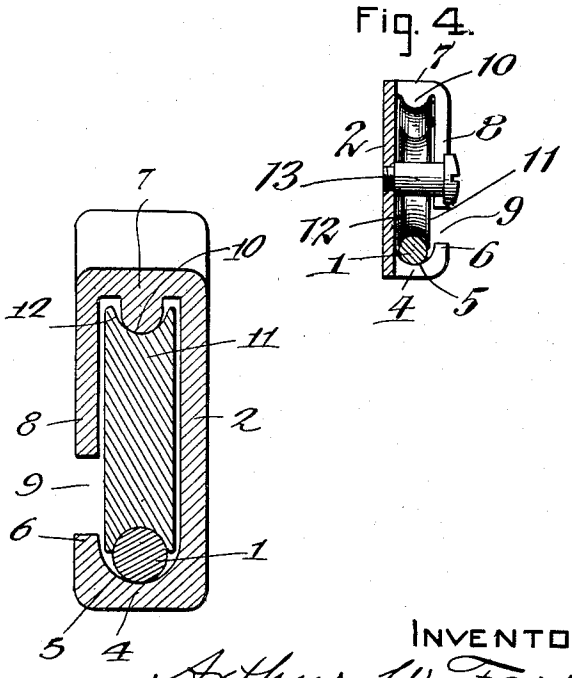


Fig. 4.



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To all whom it may concern:

Be it known that I, ARTHUR W. FARR, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Clamping Devices, of which the following is a specification.

This invention relates to a clamping device which is more particularly designed for detachably connecting a wire cable with a hoisting device for drawing the cable taut or lifting and transporting a load suspended from the cable, but the same may also be used for detachably connecting other lines or rods with a pulling device.

It is the object of this invention to provide a clamping device of this character which is very simple, durable and inexpensive in construction, which can be readily manipulated for applying the same to or removing the same from a cable, line or load which is to be pulled and which will securely hold the member which is being gripped without injuring the same.

In the accompanying drawings:

Figure 1 is a side elevation of my improved clamping device showing the position of the parts preparatory to gripping a cable. Fig. 2 is a longitudinal section of the same showing the position of the parts when a cable is gripped. Figs. 3 and 4 are transverse sections in the correspondingly numbered lines in Figs. 2 and 1, respectively.

Similar characters of reference indicate corresponding parts throughout the several views.

1 represents the member which is adapted to be gripped by the clamping device preparatory to producing a pull thereon. In the drawings this member is represented as a cable but it is to be understood that the same may be any other line or rod.

2 represents the body of the clamping device which is preferably constructed in the form of a flat plate and provided at its front end with an eye or opening 3 whereby the same may be attached to a hoisting or pulling device of any suitable construction for producing a drawing or pulling action on the cable. At the opposite or rear end of the body and on one side thereof the same is provided with two longitudinal gripping flanges which are preferably arranged at the opposite edges of the body and are provided on their opposing sides with bearing faces which converge rearwardly relatively to each other. One of these gripping flanges is preferably arranged parallel with the length of the body and provided with a base portion 4 which has a longitudinal concave or channel-shaped inner bearing surface 5 adapted to engage with one side on the cable line or rod. The inner edge of this channel-shaped base is connected with the body while the outer edge thereof is provided with a longitudinal inwardly projecting lip 6 which confines the cable on the bearing face of this flange. The other gripping flange of the body is preferably inclined toward the rear end of the body and is provided with a base 7 which is connected at its inner longitudinal edge with the body and provided at its outer edge with a lip 8 which projects toward the lip of the other flange but is separated therefrom by an intervening longitudinal space, slot or throat 9 through which the cable, line or rod to be gripped may be readily introduced laterally into the clamping device or removed therefrom. On its inner side the base of the inclined gripping flange is provided with a convex bearing surface or longitudinal rib 10 which is substantially semi-circular in cross section, as shown in Figs 3 and 4.

11 represents a rolling gripping member preferably constructed in the form of a disk and movable lengthwise between the gripping flanges and provided in its periphery with a circumferential groove 12 of substantially semi-circular form in cross section. This gripping disk is adapted to roll rearwardly between the cable and the inclined gripping flange, so that diametrically opposite sides of its grooved periphery engage with the inner side of the cable and the rib of the inclined bearing flange. By rolling the disk rearwardly between the inclined flange of the cable a powerful gripping effect is produced upon the latter which securely holds the same against movement relatively to the body so that these parts are compelled to move together when a pull is produced upon the clamp body by means of a hoisting or other propelling device. This gripping effect upon the cable is similar to that of a wedge or cam action by reason of the gradual reduction in the space between the cable and the inclined gripping flange toward the outer or rear ends thereof. When it is desired to detach the cable from the clamping device it is only necessary to slacken the pull on the body and then move

the latter backwardly slightly, or the cable forwardly relatively to the body, whereby the gripping disk will be moved toward the widely separated ends of the gripping flanges and caused to release its grip upon the cable. The latter is then free to be removed sidewise through the longitudinal slot between the lips of the gripping flanges, or the same may be withdrawn endwise from between these flanges if there is no large projection or part on the front end of the cable such as a shackle, clip or the like.

By constructing the rolling gripping disk with a circumferential groove the same is able to engage the cable over a comparatively large area and thereby not only increase the reliability of the hold on the same but also avoid cutting or indenting the same which otherwise might occur if the roller were provided with a straight bearing surface on its periphery.

By providing the inclined gripping flange with a bearing rib on its inner side for engagement with the periphery of the gripping disk a reliable and durable guide is provided for this disk which will permit the same to run freely and also without liability of unduly wearing the same as would be liable to occur if the flanges of this gripping disk were caused to bear against a flat surface and support the entire load.

The width of the slot between the lips of the gripping flanges is narrower than the diameter of the gripping disk so that the latter is confined against sidewise displacement from between these flanges and the body of the clamping device. The distance between the rear ends of the gripping flanges is less than the diameter of the gripping disk so that the latter is unable to escape from between these flanges at the rear ends thereof when no cable, line or rod is present. The gripping disk is also prevented from escaping from between the front ends of the gripping flanges by means of a stop 13 which is preferably constructed in the form of a screw mounted on the same side of the body as the flanges and adjacent to the front ends thereof in such a position that the same will be engaged by the gripping disk and the latter will be arrested before the same can escape from the front ends of the gripping flanges, as shown in Fig. 1.

The depth of the circumferential groove in the clamping disk is less than the height of the longitudinal bearing rib on the body whereby this disk is caused to run only on those peripheral surfaces within its groove while those surfaces of its periphery on opposite sides of the groove are held out of engagement from the body. By this means the wear upon the periphery of the clamping disk is distributed over a greater area than would be the case if the clamping disk were supported solely on those portions of its periphery on opposite sides of the groove of the disk, thereby prolonging the life of the clamping disk accordingly.

It will be apparent that this clamping device contains no loose parts which are liable to become displaced or lost and that the device is therefore always ready for use when required.

Owing to the few parts which constitute this clamping device and the simplicity of their construction the same can be produced at comparatively low cost. Furthermore, the device is very strong and durable and capable of withstanding the heaviest loads which are liable to be imposed upon the same and while the same is capable of producing an absolutely reliable grip upon the cable which is being held, the same is also easily detached from the cable by reason of the rolling action of the movable gripping member.

I claim as my invention:

A clamping device comprising a body having two converging flanges one of which is provided on its inner side with a longitudinal groove adapted to engage with one side of a line, while the other is provided with a longitudinal bearing rib, and a clamping disk arranged between said flanges and having a circumferential groove forming flanges on opposite sides of said groove, the bottom of said groove engaging on one side of the disk with the edge of said rib while the opposite side of the bottom of this groove is adapted to engage with the opposite side of said line, the height of said rib being greater than the depth of said groove, whereby an extended bearing area is obtained between one side of said disk and the line while the opposite side of the disk is supported without wearing the edges of the disk flanges.

ARTHUR W. FARR.