

(No Model.)

J. WHITALL.
CABLE GRIPPER.

No. 528,313.

Patented Oct. 30, 1894.

FIG. 1

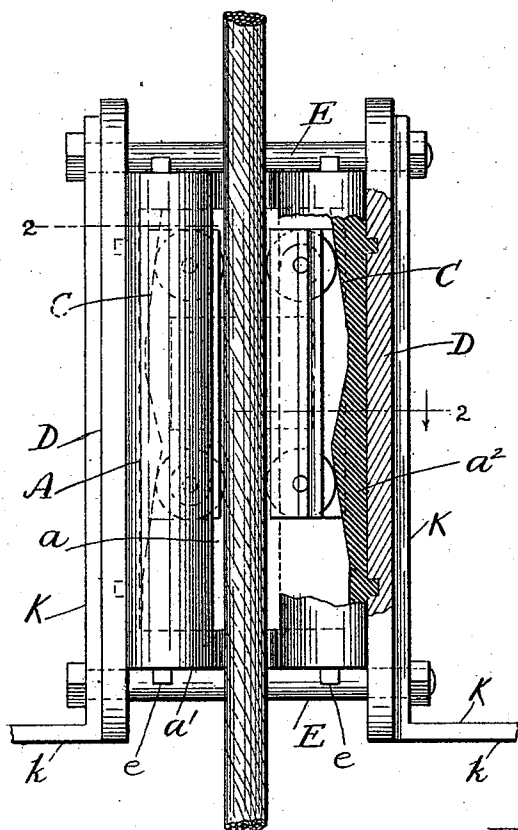


FIG. 2

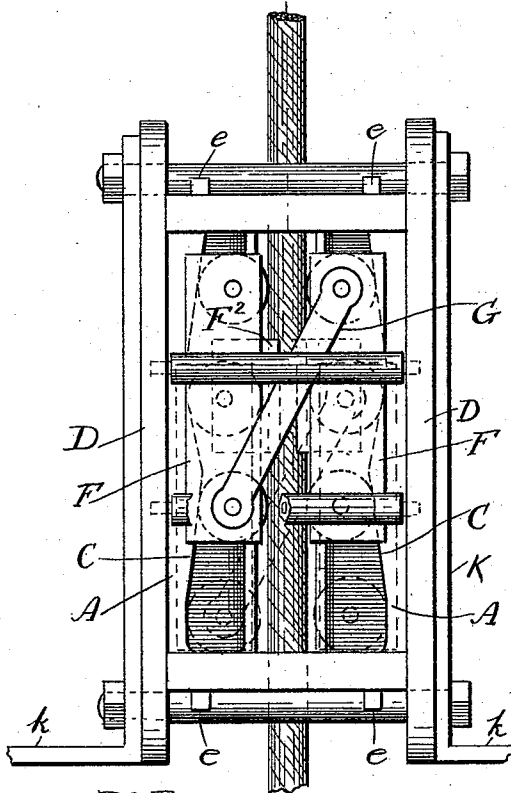


FIG. 3

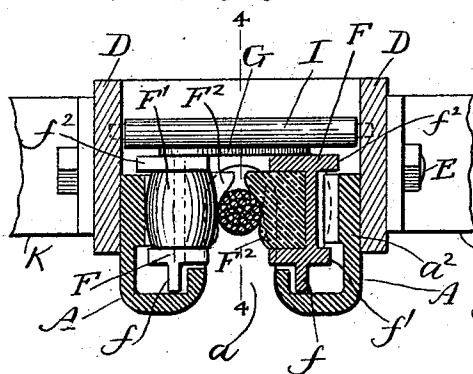


FIG. 4

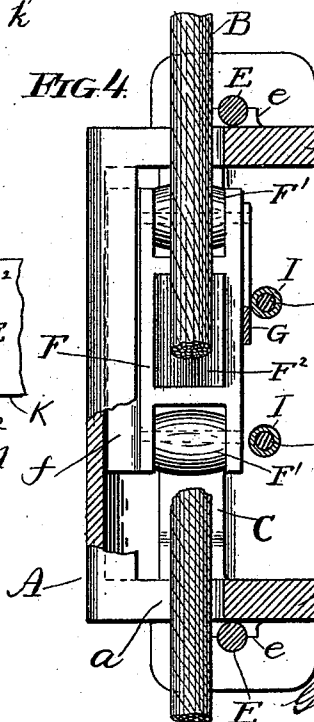
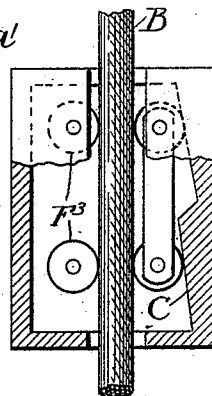


FIG. 5



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UNITED STATES PATENT OFFICE.

JAMES WHITALL, OF CHICAGO, ILLINOIS.

CABLE-GRIPPER.

SPECIFICATION forming part of Letters Patent No. 528,313, dated October 30, 1894.

Application filed May 16, 1894. Serial No. 511,402. (No model.)

To all whom it may concern:

Be it known that I, JAMES WHITALL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cable-Grippers, of which the following is a specification.

The object of the present invention is to provide a gripper of such construction that when brought into contact with the cable the movement of the cable relatively to the gripper, acting upon a movable jaw or jaws, causes the gripper to automatically take hold. In accomplishing this object I construct the gripper of a suitable frame carrying a cam or cams, and I confine within this frame, by some suitable means, a jaw (or a pair of jaws) which is movable relatively to the cam in the direction of the length of the cable.

The gripper which forms the subject of the present invention may be used where the cable is either vertical or horizontal, or in any other position, and is intended more especially for carrying light loads, being particularly adapted for use in cash or bundle carrying systems, and for lifting building and other materials.

The invention consists in the features of novelty that are particularly pointed out in the claims hereinafter, and in order that it may be fully understood I will describe it with reference to the accompanying drawings, which are made a part hereof, and in which—

Figures 1 and 2 are, respectively, a front and a rear elevation partly in section of a gripper embodying the invention. Figs. 3 and 4 are horizontal and vertical sections thereof on the lines 2—2 and 4—4, respectively. Fig. 5 is a front elevation of a portion of a gripper embodying the invention under a slight modification.

In describing the improved gripper this specification, conformable to the law and practice, will be confined to the identical construction shown in the drawings, but I desire to have it understood that many of the details that are shown and hereinafter described are not essential features.

The construction shown is simple and has been proven effective, but in many respects it may be altered without departing from the

spirit and essence of the invention, this being especially so as to the frame or support, which will necessarily vary according to the particular purpose for which the gripper is desired.

In the drawings A represents a heavy block or casting, which is hollow, is open at back, is provided in front with a longitudinal slot or opening a , and has heavy end walls a' notched opposite the opening a for the admission of the cable B.

C, C, are oppositely located cams or cam surfaces which are preferably formed upon the side walls a^2 of the block A and each of which, preferably, has two slopes.

D, D, are a pair of heavy plates placed against the opposite sides of the block A and secured in place thereon by tie-bolts E, E, the block being provided on its ends with notched lugs e which engage said bolts and prevent their lateral movement relatively to the block. Within the block are confined a pair of gripping jaws, which are so located that each of them may have contact with one of the cams C, said jaws being capable of moving relatively to the cams in the direction of the length of the cable.

The invention is not limited to jaws of any particular construction, albeit, the construction shown in the drawings is preferable because of its simplicity and effectiveness. As shown, each of these jaws consists of a housing F, in which is journaled a pair of rollers F', and in which is secured a friction pad F², preferably made of soft rubber. Each of the housings has a flange f which bears against the rear edge of the side wall a^2 of the block, a flange f' which occupies a groove in said side wall, and a flange f^2 which occupies a groove in the inner face of the front of the block, these several flanges and grooves being provided for the purpose of guiding the jaw in its endwise movement. The two jaws are loosely connected by means of a metallic strap or link G, pivotally connected at one end to one end of one of the jaws, and at the other end to the opposite end of the other jaw, so that it will permit the jaws to move freely toward or from each other and at the same time hold them against any considerable relative endwise movement.

The meeting faces of the friction pads F² preferably flare outward, so that a cable in-

serted between them will eventually come in contact with them, and when once in contact the friction will be sufficient to cause the jaws to partake of the movement of the cable and in so doing move relatively to the cams C, and since the cams converge, or approach each other in the direction in which the cable is moving, it follows that the jaws will be forced toward each other and grip the cable. It will be seen also that the force with which the cable is gripped will be directly proportional to the load, or the resistance to the movement of the frame. This being so, the gripper is entirely automatic not only in that it closes automatically, but also in that it grips the cable with only so much force as is necessary in order to enable it to carry the load. When the friction pads F^2 are made of soft rubber they will yield and permit the rollers to come in contact with and grip the cable, but if they are made of a hard material the gripping can be done by them instead of by the rollers, the rollers acting simply as anti-friction devices through which the jaws bear upon the cams.

In order to more securely hold the jaws against displacement, I arrange behind them and in contact with the link G a pair of bars H, and in order to lessen the friction between said bars and link loose sleeves I are put upon them.

I have not shown the gripper constructed as above described, applied to a receptacle or vehicle of any sort, because the manner of so applying it will be perfectly obvious to those skilled in the art, and will vary according to the requirements of particular cases. For example, if the gripper is used for elevating building or other material, an L-shaped bracket K may be secured to one side of it, and a receptacle or vehicle may be secured to the horizontal arm k of this bracket. This is, however, merely illustrative and the invention is not limited to it.

The cable may be released in one of two ways, either by seizing the gripper, or the receptacle to which it is attached, and moving it in the same direction in which the cable is moving and at a little greater speed than the speed of the cable, or by simply striking the cable so as to knock it from between the jaws.

With a gripper constructed as above described and having a pair of movable jaws, both jaws will have equal movement toward or from the central line of the cable, and while this is preferred, still, it is not necessary.

In Fig. 5 I have shown a gripper in which only one movable jaw is used. This jaw is constructed, arranged and operates as already described, the cable being gripped between it and a pair of fixed rollers F^3 .

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In a gripper, the combination with a suitable frame or support, of a cam carried thereby, a gripping jaw engaged by the cam and

capable of moving relatively thereto in the direction of the length of the cable, said jaw having a yielding friction pad adapted to engage the cable, and rollers adapted to engage and bite the cable when the friction pad is compressed, substantially as set forth.

2. In a gripper, the combination with a suitable frame or support, of a cam carried thereby, and a gripping jaw engaged by the cam and capable of moving relatively thereto in the direction of the length of the cable, said jaw having rollers engaging the cam, and a friction pad projecting beyond a plane which touches the peripheries of the rollers on the side adjacent the cable, substantially as set forth.

3. In a gripper, the combination with a suitable frame or support, of a cam carried thereby, and a gripping jaw engaged by the cam and capable of moving relatively thereto in the direction of the length of the cable, said jaw having rollers engaging the cam and having a yielding pad projecting beyond a plane which touches the peripheries of the rollers on the side adjacent the cable, substantially as set forth.

4. In a gripper, the combination with a suitable frame or support, of a pair of oppositely located cams carried thereby and a pair of gripping jaws engaged by the cam and capable of moving relatively thereto in the direction of the length of the cable, said jaws having anti-friction rollers engaging the cams and adapted to engage and bite the cable, substantially as set forth.

5. In a gripper, the combination with a suitable frame or support, of a pair of oppositely located cams carried thereby, and a pair of gripping jaws capable of moving relatively to the cams in the direction of the length of the cable, said jaws having anti-friction rollers engaging the cams, and friction pads projecting beyond a plane which touches the peripheries of the rollers on the side adjacent the cable, substantially as set forth.

6. In a gripper, the combination with a suitable frame or support, of a pair of cams carried thereby, and a pair of gripping jaws engaged by the cams and capable of moving relatively thereto in the direction of the length of the cable, and means connecting said jaws and permitting their relative lateral movement toward or from each other while restraining them from relative endwise movement, substantially as set forth.

7. In a gripper, the combination with a suitable frame or support, of a pair of oppositely located cams carried thereby, and a pair of gripping jaws engaged by the cams and capable of moving relatively thereto in the direction of the length of the cable, and a link pivotally connected at one end to one end of one of the jaws and at the other end to the opposite end of the other jaw, substantially as set forth.

8. In a gripper, the combination with a suitable frame or support, of a cam carried there-

by, and a gripping jaw engaged by the cam
and capable of moving relatively thereto in
the direction of the length of the cable, said
jaw having a recessed housing, anti-friction
5 rollers journaled to said housing, and adapted
to engage and bite the cable and a friction pad
secured in one of the recesses of the housing,
and adapted to engage the cable substantially
as set forth.

10 9. In a gripper, the combination with a suit-

able frame or support, of a cam carried there-
by, and a gripping jaw engaged by the cam
and having flanges engaging guiding shoul-
ders upon the frame or support, substantially
as set forth.

JAMES WHITALL.

Witnesses:

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