

No. 684,956.

Patented Oct. 22, 1901.

P. R. STUART.  
CABLE GRIP.

(Application filed Feb. 23, 1901.)

(No Model.)

Fig. 1.

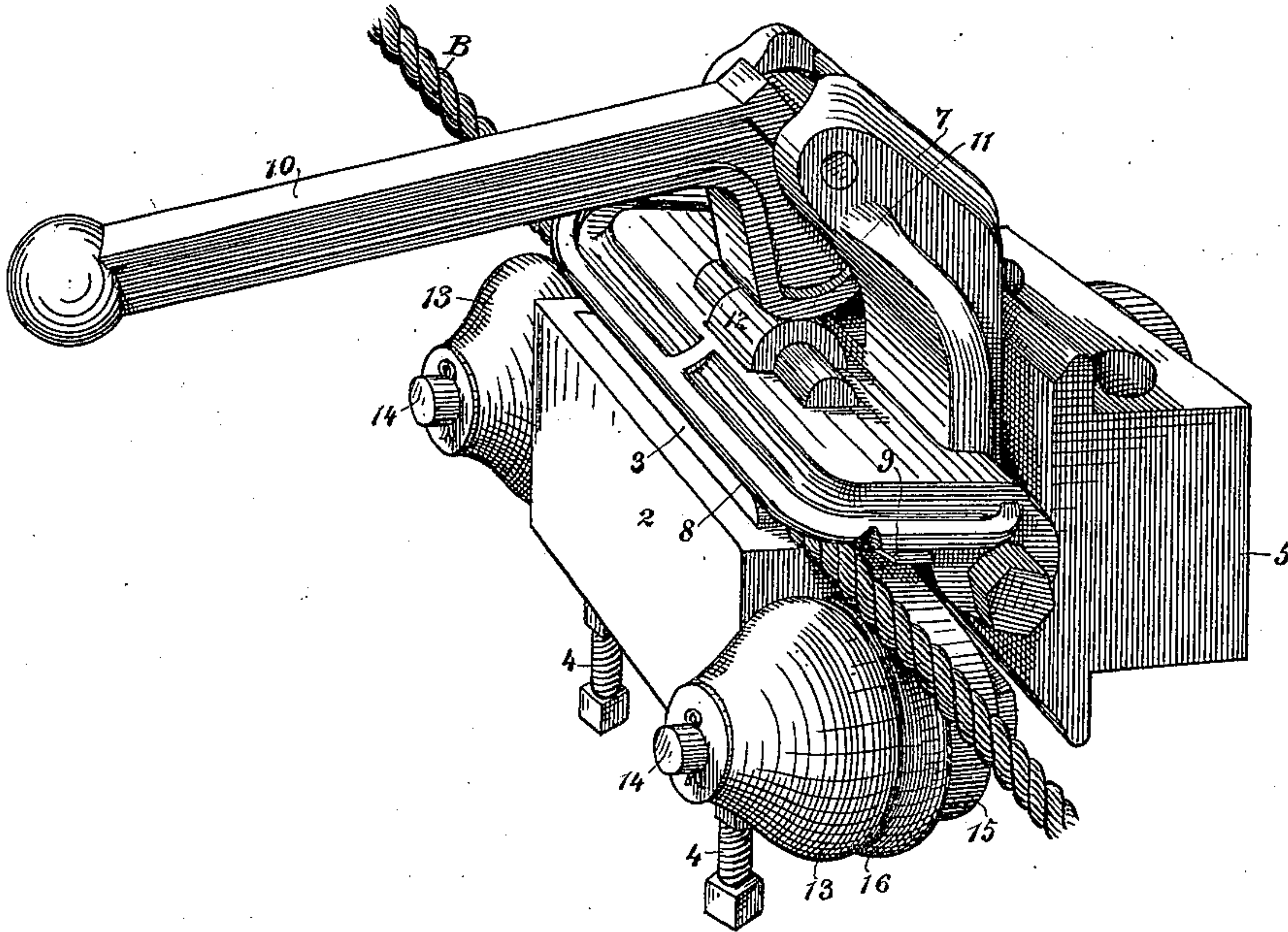


Fig. 2.

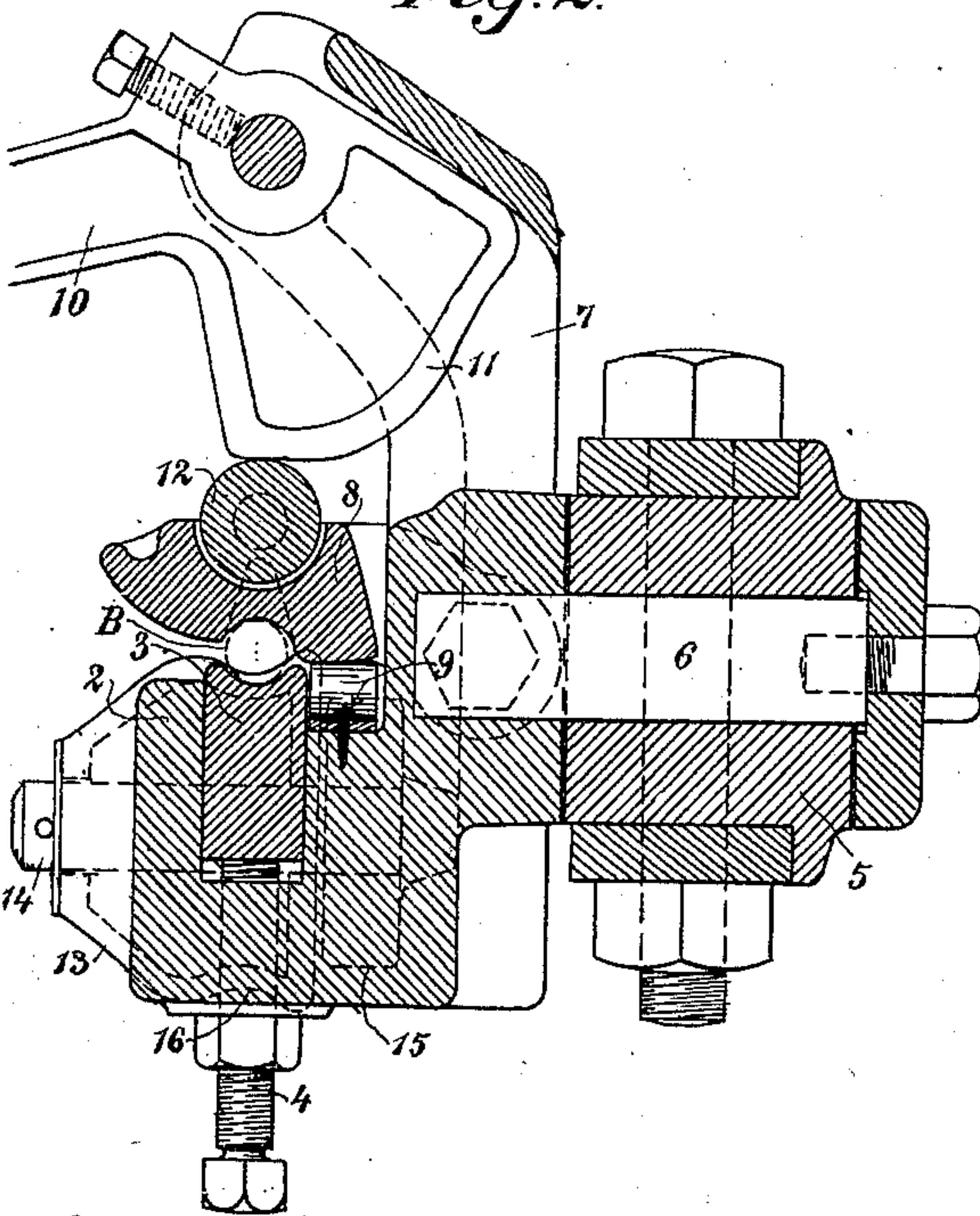
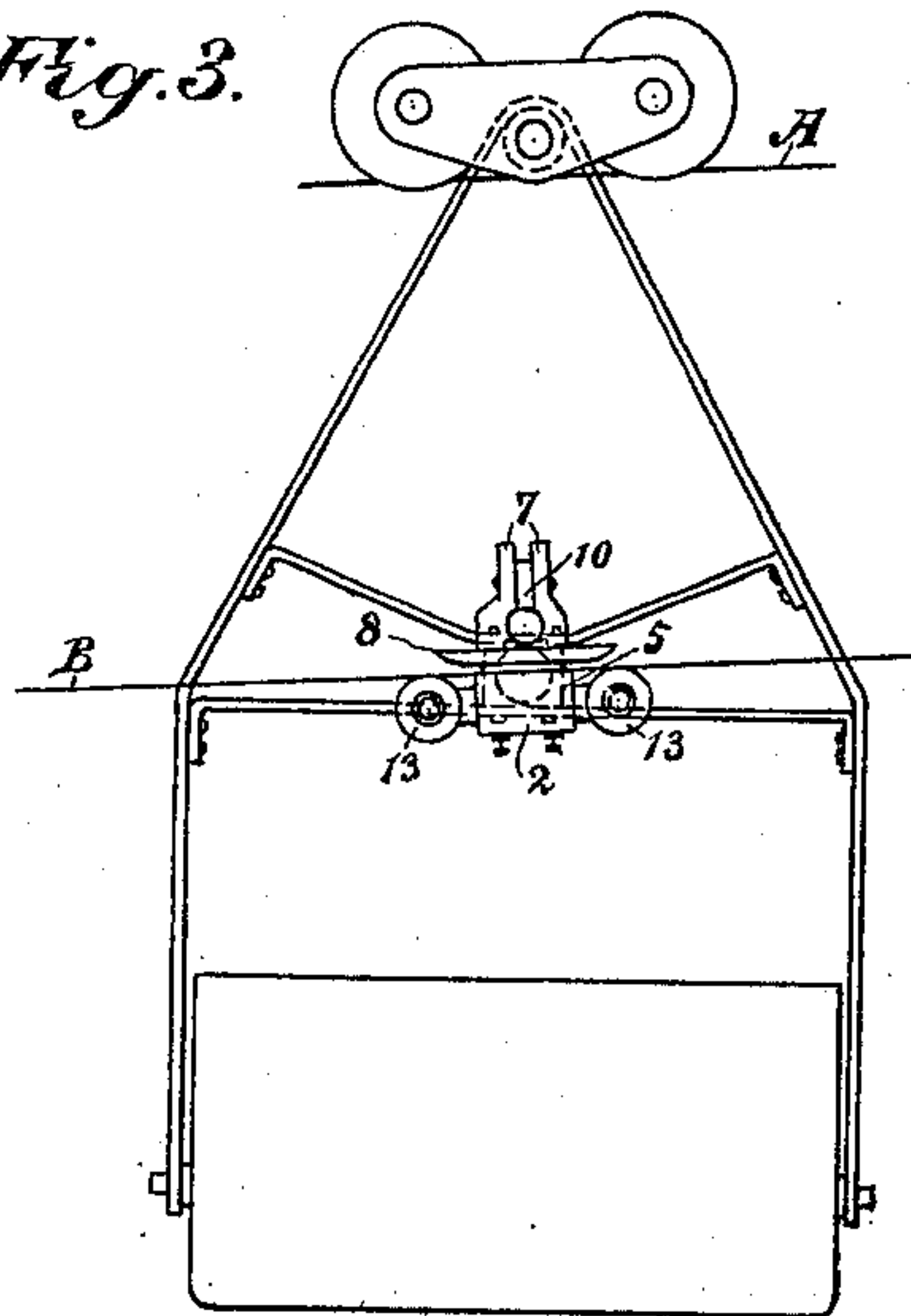


Fig. 3.



Witnesses,  
J. H. House  
H. F. Elschek

Inventor,  
Percy R. Stuart  
By Duval Strong & Co  
attys



# UNITED STATES PATENT OFFICE.

PERCY R. STUART, OF OAKLAND, CALIFORNIA, ASSIGNOR TO A. LESCHEN & SONS ROPE CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 684,956, dated October 22, 1901.

Application filed February 23, 1901. Serial No. 48,503. (No model.)

*To all whom it may concern:*

Be it known that I, PERCY R. STUART, a citizen of the United States, residing in the city of Oakland, county of Alameda, State of California, have invented an Improvement in Cable-Grips; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a gripping device for ropes or cables, and is especially applicable to what are known as "aerial" ropeways, and I have here shown it as applied to the class known as "double" ropeways, in which a car or carrier is suspended by a hanger from a fixed rope upon which it travels by means of pulleys and is propelled by a traveling rope by means of a grip attached to the carrier and adapted to take hold of the traveling rope and be released therefrom.

My invention is designed to provide an improved grip for this purpose; and it consists in a novel combination of parts and details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of the grip. Fig. 2 is a vertical central section through the same. Fig. 3 is a front view of the grip and its connections.

As illustrated in the present case, A is the standing rope, and B is the traveling rope. The standing rope is supported by posts or other equivalent devices at suitable intervals, and the rope may be thus carried over hills, valleys, streams, and rough countries, such as is encountered in mining and like regions. The traveling rope passes around pulleys at each end and is propelled by any suitable connection, such as a grip-pulley operated by an engine or motor, and this rope hangs beneath the standing rope and its slack may be supported at intervals by pulleys sufficiently lower than the line of travel to allow the carrier to pass above the pulleys.

The grip consists of a fixed jaw 2, containing a shoe or die 3, between which and the upper jaw the traveling rope is gripped when in operation. The shoe 3 is preferably loosely fitted into the jaw 2 and may be adjusted from time to time to compensate for wear by set-screws, as at 4, or equivalent means for

raising it. This jaw 2 is connected with the hanger of the carrier by means of a swivel-block 5, secured to the hanger and having a hole made through it transversely, through which passes a pin 6, which is fixed to the jaw 2. The jaw may be of cast metal, and the pin being fixed so as to project into the mold the molten metal will be cast about the pin, which is thus secured in place without machine-work. The jaw is here shown as having an upwardly-extending arm 7, and to this arm is fulcrumed a yoke-shaped upper jaw 8. This jaw projects from its fulcrum-points so as to stand above the jaw 2 and its shoe, and both the upper jaw and the shoe are grooved and channeled longitudinally to approximately fit the rope or cable which they are to grip.

9 is a spring by which the upper jaw is normally raised when released, so as to allow the rope to slip out of the jaws when the car leaves the line of travel of the rope, as when it reaches the point where it is to be discharged or stopped for any purpose. This spring may be of any well-known character. It is shown in Figs. 1 and 2 as a flat plate secured at or near its center to the lower jaw and having its ends curved upwardly to bear under the end portions of the upper jaw, as shown in Fig. 1.

In the upper part of the arm or standard 7 is fulcrumed a lever 10. The arm is here shown as bent forward, so that the fulcrum-pin stands approximately in a plane above the gripping-jaws, and the end of the lever is formed in a cam shape, as shown at 11. In the top of the upper jaw is journaled a roller 12 in line with the cam, so that when the lever is moved the cam will act upon this roller and by reason of the antifriction contact will easily operate to close the upper jaw and grip the rope between it and the lower one. The roller is here shown as journaled in babbitted journal-boxes upon the top of the upper jaw. The cam is so shaped that the first movement of the lever produces a rapid closing of the jaws upon the rope, and the remainder of the cam is less abrupt, approaching a curve having its radius from the fulcrum-pin of the lever. The last portion of the cam is slightly flattened or curved in the opposite direction,



so that when the lever has been pressed down to cause the jaws to fully grip the rope this flattened or curved portion standing in the vertical plane through the jaws and rope will lock the lever and prevent its being accidentally disengaged to allow the jaws to open. By this device a powerful grip is obtained, which will hold the carrier to the rope, so that it may be transported over inclines up and down without danger of slipping.

The swivel-block in which the grip is suspended allows the carrier to swing, so that it will hang vertically whatever be the inclination of the line of rope.

The lever is disengaged at the point where it is desired to uncloze the grip by striking against the fixed arm or lug, which throws it up and releases the upper jaw, which is immediately unclosed by the action of the spring before mentioned. The car is then moved away from the line of the rope, either by continuing along upon the supporting-track while the rope passes around a returning-pulley or by being otherwise diverged from the line of the rope, and when discharged may be again gripped to the rope, to be returned to the starting-point.

In order to prevent the rope from wearing upon the jaws while leaving or entering them, I have shown rollers 13, journaled upon pins 14, projecting from extensions 15 upon the lower jaw, so that the rollers stand in line with the line of travel of the rope. These rollers are here shown as cone-shaped or convergent toward the outer ends, so that when the rope comes in contact with these cone-shaped ends it will be lifted over the angle of the intermediate jaw, and when in line with the gripping-jaws the rope will be out of contact with the rollers, which are grooved, as shown at 16, in the line with the jaws. These rollers are preferably cast hollow, so as to make them light. The whole device is designed to be cast and cored, so that the only finishing necessary is boring the hole in the swivel-block, into which the supporting-pin is fitted, and one or two pinholes.

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

1. The combination in a rope or cable grip of a lower jaw, an upper jaw fulcrumed above and at one side of the plane of travel of the rope, and a fulcrumed cam-lever adapted to press upon the upper jaw and close it to clamp the rope between the jaws.

2. The combination in a rope-grip of a lower jaw having an upwardly-projecting arm at one side of the line of travel of the rope, an upper jaw fulcrumed to said arm projecting above the lower jaw, a cam-lever fulcrumed

in the upper end of the arm having a curvature whereby pressure upon the lever acts to close and lock the jaws.

3. The combination in a rope or cable grip of a lower jaw having a standard projecting upwardly and forwardly at one side of the line of travel of the rope, an upper jaw fulcrumed in said standard and projecting above the lower jaw, a journaled antifrictional roller carried upon the upper part of said jaw, a cam-lever fulcrumed in the arm above said jaw, with its face movable against the roller, said cam having a curvature by which the jaw is rapidly closed by the downward movement of the lever and locked by the completion of said movement.

4. The combination in a rope or cable grip of a lower jaw having a chamber in its upper part, a shoe loosely fitting said chamber and means by which said shoe is adjusted for wear, an arm projecting upwardly and forwardly from said jaw at one side of the line of travel of the rope, an upper jaw fulcrumed to said arm projecting above the lower jaw and springs by which said jaw is normally opened, a cam-lever standing transversely of the line of travel of the rope and fulcrumed above the upper jaw, a roller journaled upon said jaw through which the cam-lever acts to close the jaw.

5. A rope or cable grip, consisting of an upper jaw, fulcrumed thereto, a spring by which said jaw is normally opened, a cam-lever fulcrumed above the upper jaw adapted to close said jaw and grip the rope and horizontally-journaled rollers at each end by which the rope is prevented from contact with the jaws while entering or leaving.

6. The combination in a rope or cable grip of a lower jaw, an upper spring-pressed jaw fulcrumed thereto, a cam-lever by which said jaw is closed to grip the rope and pulleys journaled horizontally beyond each end of the grip, said pulleys being grooved in the line of the grips and having the outer ends made conical to lift the rope over the edge of the grip without contact therewith.

7. The combination in a rope or cable grip of a lower jaw, an upper jaw fulcrumed thereto, a lever by which the upper jaw is closed to grip the rope and means for adjustably connecting the grip with the hanger consisting of a swivel-block attached to the hanger and a pin upon the grip turnable in said block.

In witness whereof I have hereunto set my hand.

PERCY R. STUART.

Witnesses:

S. H. NOURSE,  
JESSIE C. BRODIE.