

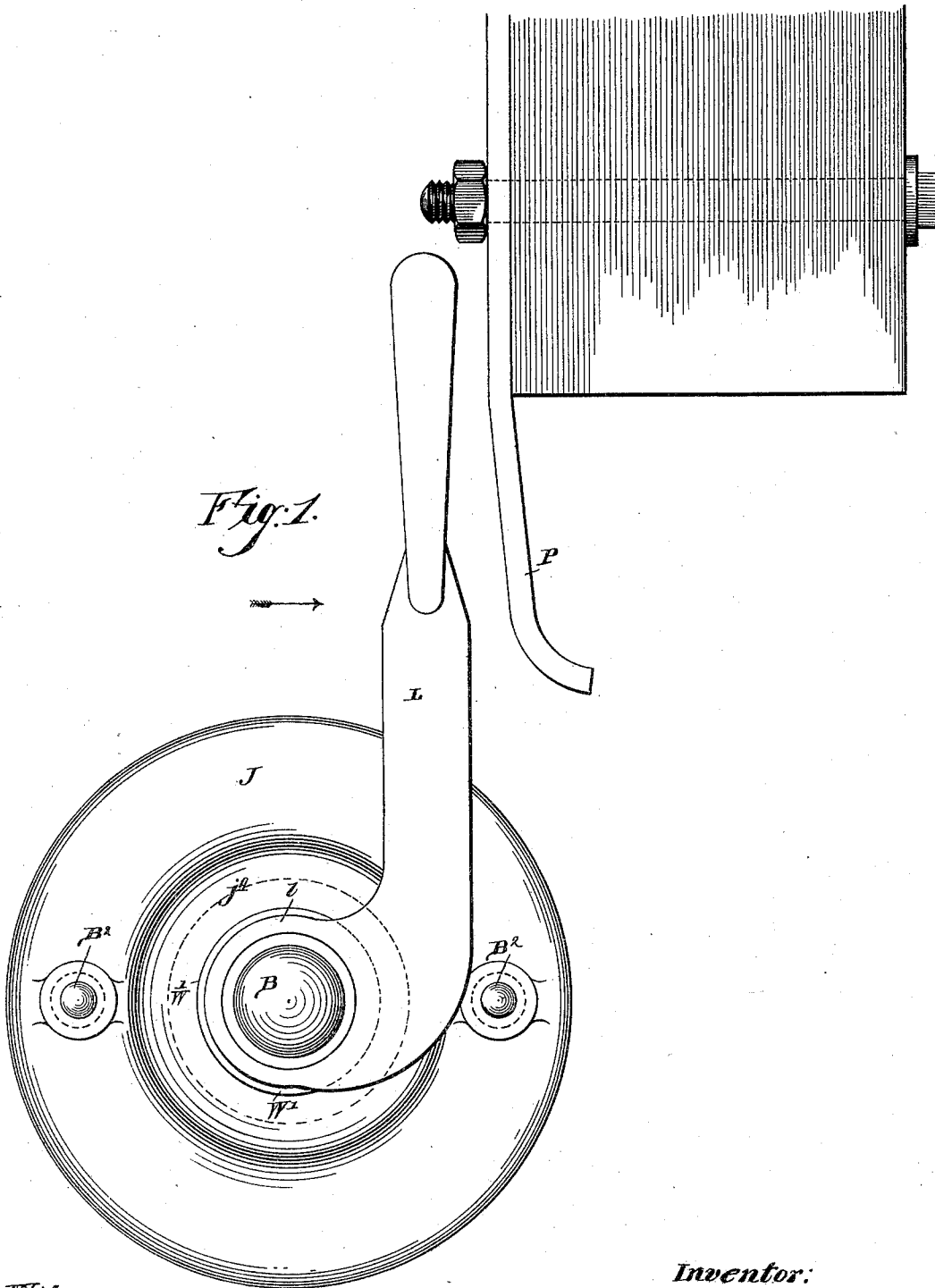
(No Model.)

4 Sheets—Sheet 1.

T. OTTO.
CABLE GRIP.

No. 469,318.

Patented Feb. 23, 1892.



Witnesses:
William H. Miller
Sam. J. Gentry

Inventor:

Thorvald Otto

(No Model.)

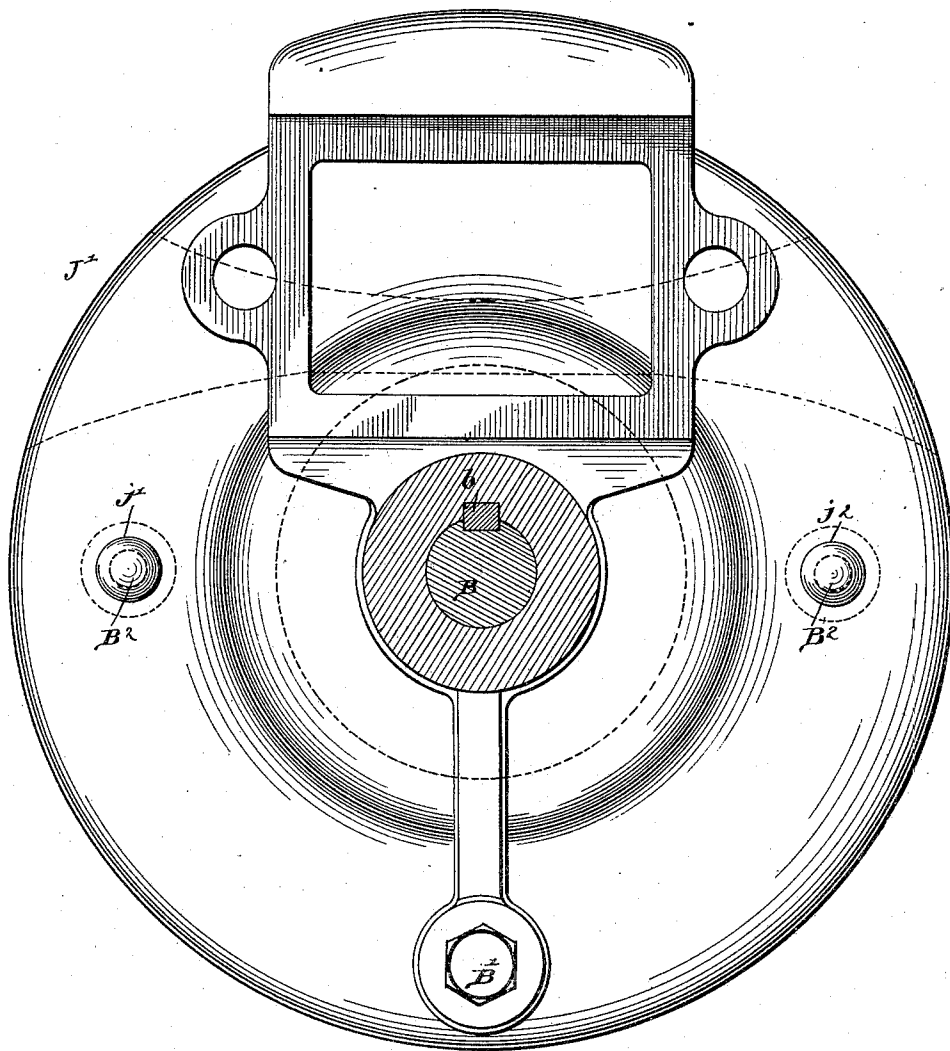
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Fig. 2.



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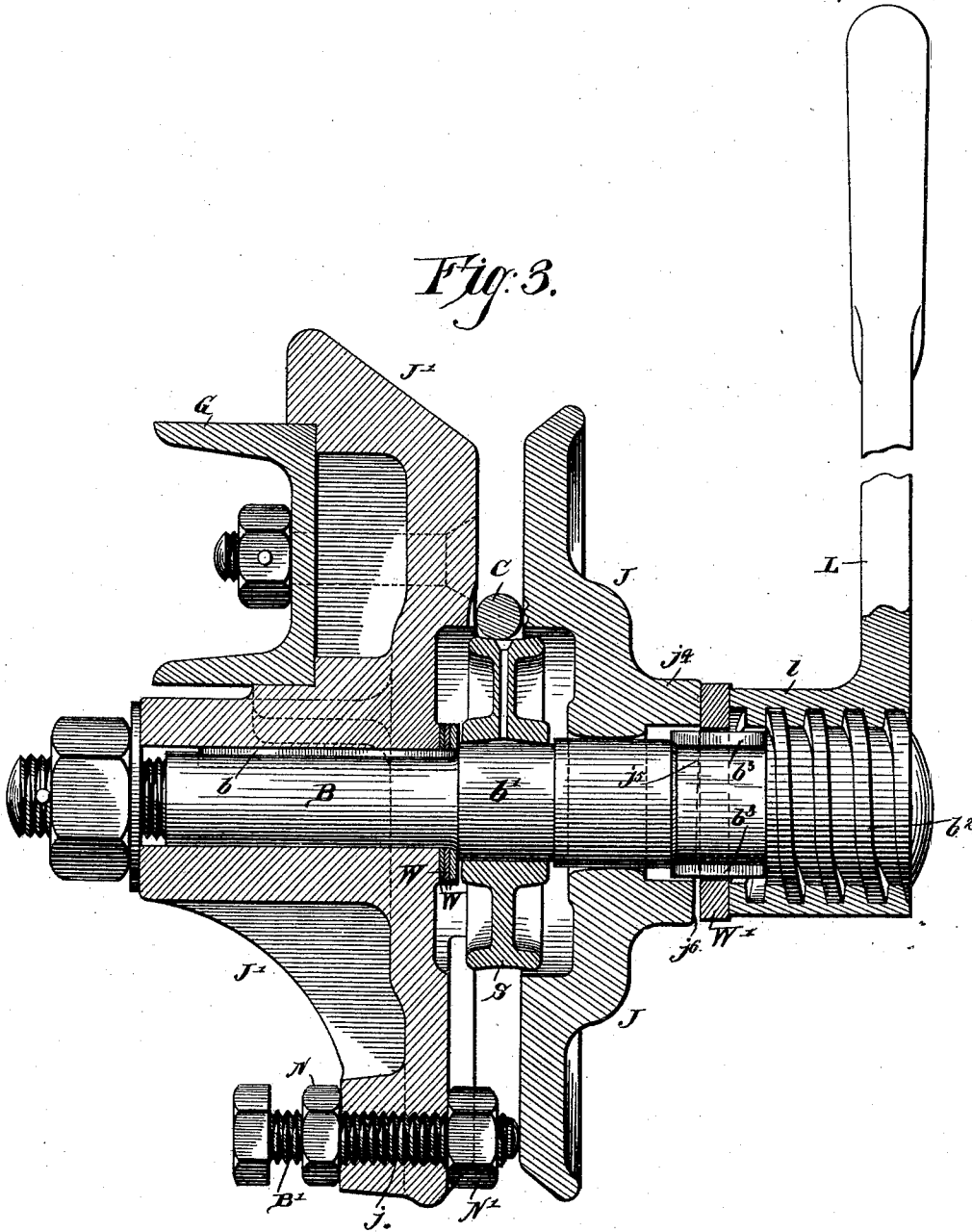
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Fig. 3.



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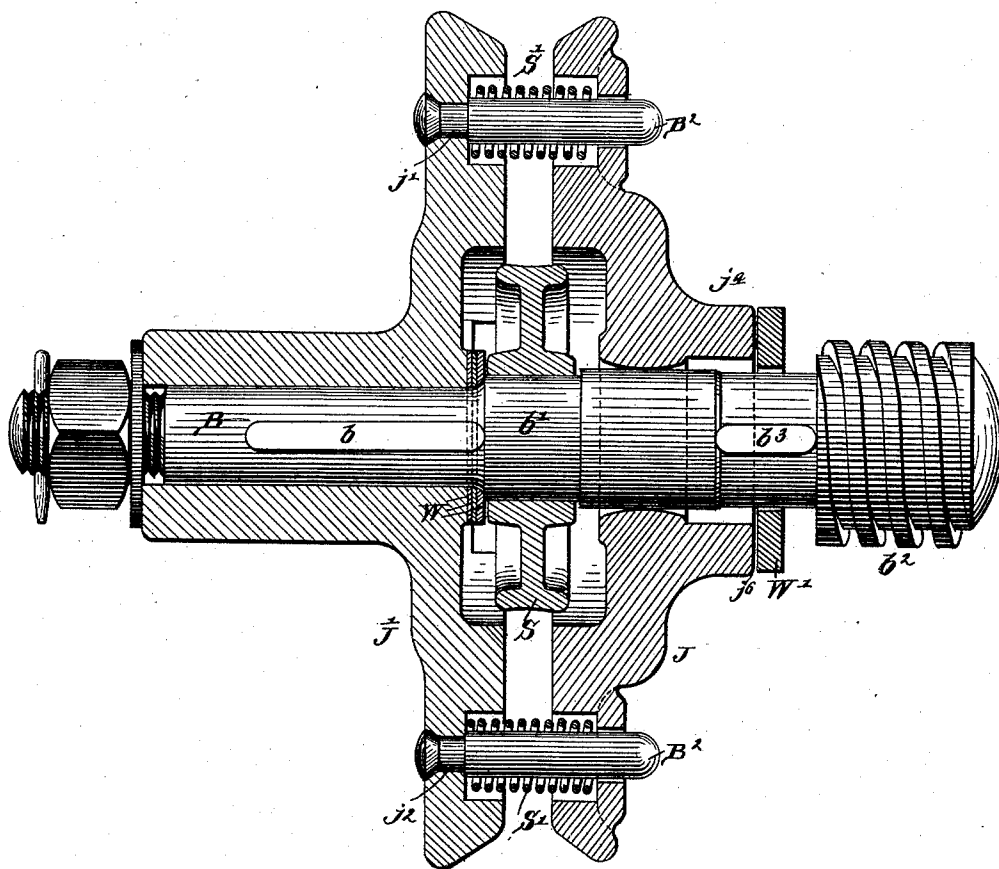
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Fig. 4.



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UNITED STATES PATENT OFFICE.

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CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 469,318, dated February 23, 1892.

Application filed August 12, 1891. Serial No. 402,472. (No model.)

To all whom it may concern:

Be it known that I, THEODOR OTTO, civil engineer, a subject of the King of Prussia, residing at Schkeuditz, in the Kingdom of Prussia and Empire of Germany, have invented certain new and useful Improvements in Cable-Grips; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention relates to cable-grips for overhead cable roads, and has for its object certain improvements in the cable-grip described in my application for Letters Patent of the United States filed on or about September 20, 1890, Serial No. 365,646.

The invention consists in certain structural features and combinations of parts, as will now be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation; Fig. 2, a rear elevation, partly in section; and Figs. 3 and 4 are axial sections taken at right angles to each other, the shaft or bolt on which the movable gripping-jaw is mounted being shown in elevation.

In a cable-grip of the construction described in my application for Letters Patent hereinbefore referred to the movable gripping-jaw is liable to speedy wear by the attrition of the cable, to which it is subjected to a greater extent than the fixed gripping-jaw, so that said movable jaw has to be frequently removed and replaced by another.

One of the objects of my present invention is to so construct the movable jaw as to be adjustable on its support, so that its point of contact with the cable may be changed. In order to attain this end, I construct the movable gripping-jaw in the form of a disk, the fixed gripping-jaw having substantially the same form, and I mount said movable jaw on its support so as to have endwise motion thereon and so as to be adjustable about the same, so that when the gripping-surface is worn away by attrition with the cable a fresh

surface may be brought into position for operation.

The fixed jaw J' (shown in Figs. 2 and 3) is bolted to the carriage or to a longitudinal girt G thereof and has secured thereto a short shaft or axle B by means of a spline or feather b and a nut and washer. The said jaw J' has an interiorly-threaded bearing j for the spacing-bolt B' , by means of which and the nuts N and N' the movement of the movable jaw J toward the fixed jaw is determined or limited. That portion of the axle B between the jaws is of increased diameter and serves as a bearing for a sheave or pulley S , that supports the cable when released from the gripping-jaws, said sheave or pulley S revolving freely on the axle B . The fixed jaw J' has also two bolt-openings $j' j^2$, Figs. 2 and 4, the inner portion of which is enlarged for the reception of bolts B^2 and one end of the coiled springs S' , that serve to move the movable jaw J away from the fixed jaw J' in uncoupling the carriage from the haulage rope or cable C , as shown in Fig. 4.

In practice I prefer to interpose washers W of different thickness between the sheave-bearing b' of axle B and the fixed jaw J' for the purpose of keeping said sheave in proper position relatively to the cable C instead of forming a projecting hub on the interior face of said jaw J' , so as to facilitate the compensation of wear due to friction or attrition and the maintenance of the axle B in proper position. The movable jaw J is loosely mounted on the axle B in front of the fixed jaw J' and has openings for the reception of the outer ends of the bolts B^2 , said openings being also enlarged at their inner ends for the reception of the opposite end of the coiled springs S' , hereinabove referred to, for the purposes stated, the movable discoidal jaw J being held against rotation by said bolts B^2 , while the spacing-bolt B' has bearing upon the inner face of said movable jaw J , for the purposes hereinbefore set forth.

The outer end of the axle B is provided with a screw-thread of considerable pitch, as shown at b^2 , and carries a lever L , whose bearing l is screw-threaded interiorly to fit the thread on the axle, and between said lever and the hub

of the movable jaw I interpose a washer W', held against rotation on the axle B by means of splines or feathers b^3 , so as to prevent reaction of the movable jaw upon the lever L.

5 In its normal position the lever L stands perpendicularly above its axis and is tilted in coupling or uncoupling either by hand or otherwise in one or the other direction. The uncoupling is effected automatically at the
10 stations by means of an arm or plate P in the path of said lever, by which the latter is turned down to uncouple the carriage. As shown in Figs. 3 and 4, the outer face of the hub j^4 of the movable jaw is partially cut
15 away to form an inwardly and downwardly inclined face, the inclination starting from a point above the axis of the hub and extending downwardly, so that nearly two-thirds of said face inclines inwardly or away from the
20 hand-lever or the interposed washer W', as shown at $j^5 j^6$, Fig. 3, so that the power exerted by the lever is applied as much as possible directly upon the cable C instead of being distributed equally upon said cable and the
25 spacing-bolt B'.

When the gripping-surface of the movable jaw is worn, the bolts B² and springs S' are removed and a half-turn given to said jaw to bring a fresh gripping-surface in position,
30 when the said bolts and springs are replaced, an operation which requires but a few minutes.

The gripping-faces of the jaws may be smooth; but on great inclines and with heavy
35 loads the jaws are apt to slip on the cable, to avoid which the gripping-surfaces may be provided with concentric or radial corrugations or ribs so arranged relatively to each other that the ribs on the gripping-face of one jaw
40 will fit into the interspaces between the ribs on the gripping-face of the other jaw.

In Fig. 3 I have shown the fixed jaw as provided with radial corrugations and the movable jaw with concentric corrugations. In
45 practice, however, the corrugations of both jaws will be similar and will be arranged as stated above, so that the portion of the cable held between the jaws will become undulating and the slipping of either the cable or
50 jaws prevented.

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

1. A cable-grip comprising a fixed gripping-jaw, a discoidal gripping-jaw, a support connected with the fixed jaw on which the discoidal jaw is adjustably mounted, a locking device to lock said jaw in position, and a cable-carrier interposed between the jaws, for
60 the purpose set forth.

2. A cable-grip comprising a fixed gripping-jaw, a discoidal gripping-jaw, a support therefor connected with the fixed jaw, said discoidal gripping-jaw being adjustable about
65 its support and having endwise motion there-

on, and an independent cable-support arranged between the jaws below their gripping-faces, for the purpose set forth.

3. A cable-grip comprising a fixed gripping-jaw, a discoidal gripping-jaw, a support therefor connected with the fixed jaw, said discoidal gripping-jaw being adjustable about its support and having endwise motion thereon, and an independent cable-carrier revoluble on the axle between the jaws, with its periphery in proximity to the gripping-faces thereof, for the purpose set forth. 70 75

4. A cable-grip comprising a substantially discoidal fixed jaw, a shaft or axle projecting axially therefrom, a discoidal gripping-jaw loosely mounted on the axle, a locking device to lock the loose jaw against rotation on the axle without interfering with its endwise motion thereon, a resilient actuating device interposed between the jaws and operating to
80 move them apart, and means for moving the loose jaw against the power exerted by the resilient actuating device, for the purpose set forth. 85

5. A cable-grip comprising a substantially discoidal fixed jaw, a discoidal jaw movable toward and from the fixed jaw and having a portion of the outer face of its hub cut away, as described, a support for said movable jaw connected with the fixed jaw and provided at its outer end with a screw-thread, and a lever provided with an interiorly-threaded hub fitting on said threaded portion of the support for imparting motion to the movable jaw, for the purpose set forth. 90 95 100

6. A cable-grip comprising a substantially discoidal fixed jaw, a shaft or axle secured thereto and projecting therefrom, said axle having its outer projecting end screw-threaded, a discoidal jaw adjustable about the axle and movable endwise thereon, said movable jaw having a portion of its outer face cut away, as described, a lever provided with an interiorly-threaded hub for imparting motion to the movable jaw in one direction, one or more springs interposed between the jaws, and a cable-carrier sheave revoluble on the axle between the jaws, with its periphery in proximity to the gripping-faces thereof, for the purpose set forth. 105 110 115

7. In a cable-grip, the combination, with the fixed jaw J', the axle B, the bolts B², and the coiled springs S' on said bolts, of the jaw J, loosely mounted on the bolt B and having the outer face of its hub cut away, as described, and provided with openings for the reception of the bolts B², the sheave S, loosely mounted on axle B between the jaws, the washers W and W', having bearing on the sheave and outer face of the hub of jaw J, respectively, and the lever L, fitted to the outer screw-threaded portion of said axle B and having bearing on washer W', for the purpose set forth. 120 125

8. In a cable-grip, the combination, with 130

the jaws J and J', means for moving said jaws from each other, the axle B, the sheave S, and lever L, arranged relatively to each other, as set forth, of the washers W, interposed between the sheave and jaw J', the washer W', keyed to the axle between the hub of jaw J and that of sleeve L, and the adjusting-bolt B', substantially as and for the purpose set forth.

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Witnesses:

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