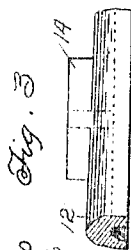
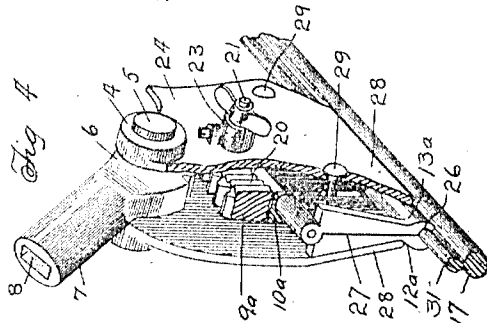
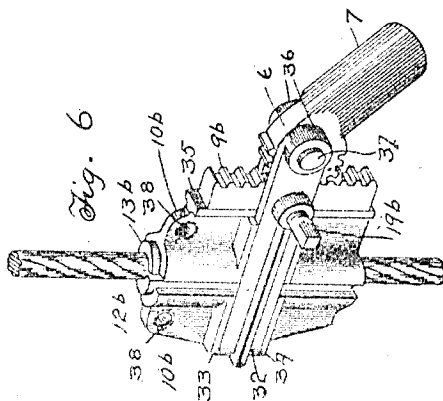
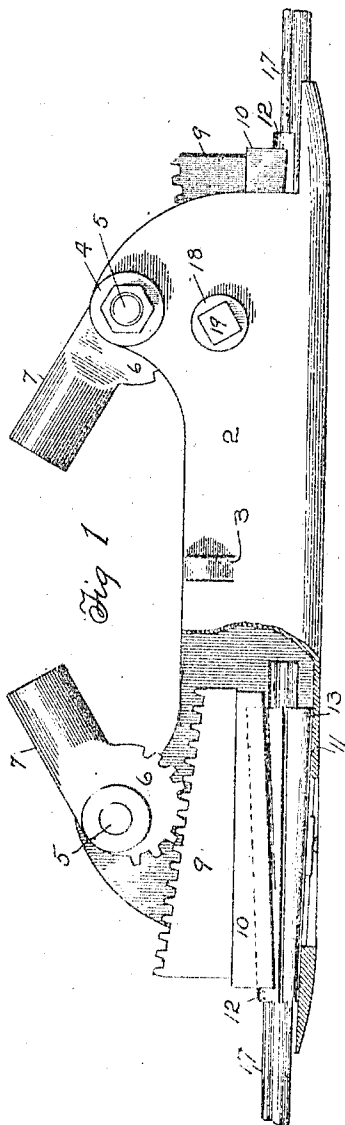


G. K. BOUGHNER
CLAMPING DEVICE.
APPLICATION FILED NOV. 7, 1910.

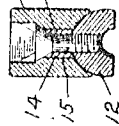
1,012,508.

Patented Dec. 19, 1911.



Witnesses:
Harry A. Brooks
J. A. Mampius

Fig. 2



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UNITED STATES PATENT OFFICE.

GEORGE K. BOUGHNER, OF SANTA MONICA, CALIFORNIA.

CLAMPING DEVICE.

1,012,508.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed November 7, 1910. Serial No. 591,194.

To all whom it may concern:

Be it known that I, GEORGE K. BOUGHNER, a citizen of the United States of America, residing at Santa Monica, in the county of Los Angeles, State of California, have invented a certain new and useful Clamping Device; 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.

This invention relates to clamping devices, and it may be said to consist of the novel construction, arrangement and combination of parts as will appear from the description and claims hereinafter.

The invention is an improvement of that disclosed in application Serial No. 541,640, filed February 2, 1910, and it has for its principal objects to provide a novel construction for a device of the nature specified whereby it may be easily and quickly applied to wires, cables, or the like, and act effectively to clamp the same.

Other objects and the advantages of the invention will be apparent to those skilled in the art from a consideration of the following description of diverse forms of construction in which it may be embodied, taken in connection with the accompanying drawings, in which—

Figure 1 is a partly broken view in side elevation of one form of clamping device having the invention applied thereto. Fig. 2 is a cross section through one of the slips and the part which bears thereon. Fig. 3 is a partly broken side view of one of the slips. Fig. 4 is a partly broken away perspective view of one side of a modified form of construction. Fig. 5 is an elevation of the ratchet pin used in the construction shown in Fig. 4, and Fig. 6 is a perspective view of an alternative construction showing the invention applied to an oil well cable clamp.

Referring to Fig. 1, which shows the invention applied to a trolley wire splicing device, the frame 2 may be of a substantially U-shaped form having attaching means such

as the lugs 3 whereby it may be supported. At each end of frame 2 may be provided bosses 4 through which may pass bolts 5 having pivoted thereon toothed cams 6 which may be provided with sockets 7 having mortises 8, (see Fig. 4) wherein may be inserted levers for operating the cams. With each cam may mesh a toothed wedge 9 the under surface of which bears upon a member 10 having a concave lower side formed at a slight angle to its upper side. At each end of the lower surface of frame 2 it is formed with a slight upward inclination 11. In the converging space between the inclined surface 11 and the bottom of member 10 may be disposed slips 12 and 13. Slips 12 may have a rib 14 fitting slidably in a slot 15 in member 10; the upper portion of such slot preferably being counter-bored parallel to the lower surface of the member 10 to accommodate the head of a screw 16 inserted in the rib 14 whereby the parts 10 and 12 may be held together and are slidably movable in position relatively to each other. Slip 13 is similarly held in position with respect to the inclined surface 11. The inclined slips 12 and 13 may have their adjacent faces formed to fit the upper and lower surfaces respectively of the trolley wire 17. Bosses 18 upon the frame 2 may carry set screws 19 adapted to bear against the side surfaces of the wedges 9.

With the above construction the operation may be as follows: Cam 6 being in a position to allow wedge 9 to be raised and the slips to be separated, wire 17 may be inserted between the slips whereupon wedge 9 may be pushed inwardly until its teeth just clear the teeth of cam 6 and the latter may then be operated by moving the socket 7 inwardly and thereby providing a strong clamping effect upon the wire 17; it being understood that the pitch of the wedge 9 being of less degree than the eccentricity of the cam 6, they act differentially to produce the effect of a wedge of a slight pitch, while primary adjustment of large amplitude of the distance apart of the slips may be readily made on account of the large

pitch of the wedge. Set screw 19 may then be tightened to lock the wedge 9 in position. The remaining end of the wire may be clamped in the other end of the device in the manner already described. When strain comes on the wire, slips 12 and 13 tend to move outwardly from the center of the clamp, thus causing them to slide toward the narrow part of the space between surface 11 and the bottom of member 10 and to press the wire 17 more tightly.

In Fig. 4 is shown a construction whereby the bead of a trolley wire such as is illustrated may be gripped laterally so that the lower surface is free to be engaged by the trolley wheel. The cam 6 may be similar to that already described and the wedge 9^a may be provided with ratchet teeth 20 which may be engaged by a ratchet pin 21 having flattened sides 22 fitting in an opening in a boss 23 in side members 24 of the frame of the device; the end 25 of the pin being beveled to more readily engage with the teeth 20. Below the wedge 9^a may be arranged a member 10^a having a concave lower surface which bears upon the hingedly connected slips 12^a and 13^a having their lower portions provided with a groove 26. These slips may be provided at suitable intervals with inclined ribs 27 which may bear against the converging lower portions 28 of the side members 24. Rivets or bolts 29 passing through slots 30 in jaws 26 and through holes in the converging portions 28, serve to hold the latter from spreading. In use, the cam 6 being in its raised position, the jaws 26 are pressed upward and separated whereupon the bead 31 of the wire 17 may be inserted therein. The wedge 9^a and the cam 6 may now be manipulated as described in connection with the first form of construction, whereupon the jaws will be pressed downwardly and the slips 27 will bear against the portions 28 and cause the lower part of the jaws to bear against and firmly grip the bead 31 of the wire 17.

In the form of construction shown in Fig. 6 the frame may consist of a substantially U-shaped part 32 between which are placed members 10^b having thereon flanges 33 and 34 engaging respectively the upper and lower surfaces of the part 32. One of the members 10^b may be provided with a surface 35 against which bears wedge 9^b which may be locked in position by set screw 19^b. At the ends of part 32 are bosses 36 through which may pass bolt 37 on which is pivoted the cam 6 similar to those already described. Slips 12^b and 13^b similar to those already described may be disposed in the concave faces of members 10^b. The upper ends of members 10^b may be provided with openings 38 for the reception of rings (not shown) whereby the device may be attached to the

temper screw of a well drilling apparatus. The mode of operation of the last construction will be readily understood from what has gone before so that further description is deemed unnecessary.

With any of the above described constructions if it is desired to produce a clamping effect of large amplitude the cam and wedge may be arranged so that their effect is cumulative instead of differential. This may be brought about by arranging the cam and the wedge in the manner shown in Fig. 6, or either the wedge 9 or the cam 6, Fig. 1, may be reversed.

I claim:

1. In a clamping device, the combination of a frame formed with an inclined side, a toothed cam pivoted upon the frame, a wedge slidably mounted upon the frame and formed with a toothed face engaging the toothed cam, a pair of longitudinally tapered slips adapted to grip a cable between the same, one of the said tapered slips bearing directly against the inclined side of the frame, a tapered member interposed between the wedge and the opposite slip and slidably engaging the said members, and means for locking the wedge against movement.

2. In a clamping device, the combination of a frame formed with an inclined side, the said inclined side being longitudinally slotted, a toothed cam mounted upon the frame, a wedge slidably mounted upon the frame and formed with a toothed face engaging the toothed cam, a pair of longitudinally tapered slips adapted to grip a cable between the same and provided upon their outer faces with ribs, one of the slips bearing directly against the inclined side of the frame and the rib upon the said slip being loosely received within the slot of the frame, a member interposed between the opposite slip and the wedge and slidably engaging the same, the said member being formed with a slot loosely receiving the rib of the said opposite slip, and means for locking the wedge against movement.

3. In a clamping device, the combination of a frame formed with an inclined side and provided in the said inclined side with a longitudinal slot, a toothed cam pivoted upon the frame, a wedge slidably mounted upon the frame and formed with a toothed face meshing with the toothed cam, a pair of longitudinally tapered slips adapted to grip a cable between the same and provided upon their outer faces with ribs, one of the slips bearing directly against the inclined side of the frame and the rib thereon being slidably received within the slot of the frame, a member interposed between the wedge and the opposite slip and slidably engaging the same, the said member being formed with a slot loosely receiving the rib

of the slip, screws applied to the ribs upon the slips and operating within the before mentioned slots, and means for locking the wedge against movement.

5 In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, at Los Angeles,

county of Los Angeles, State of California, this 1st day of November A. D. 1910.

GEORGE K. BOUGHNER.

Witnesses:

FRED A. MANSFIELD,
ALEX. H. LIDDERS.