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1,483,237

A. MOULTON

LINE TAPPER

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Fig. 1.

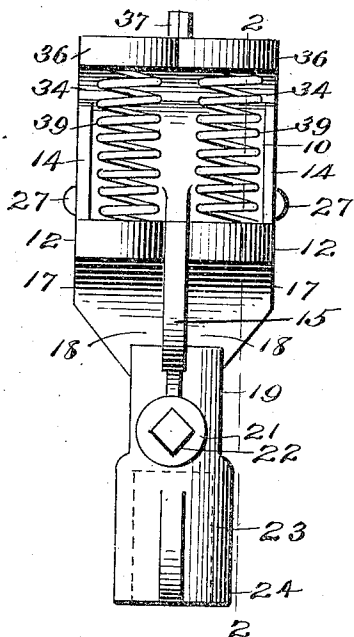


Fig. 2.

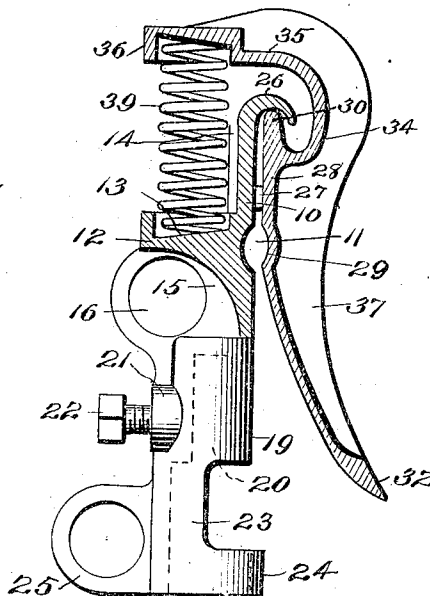


Fig. 3.

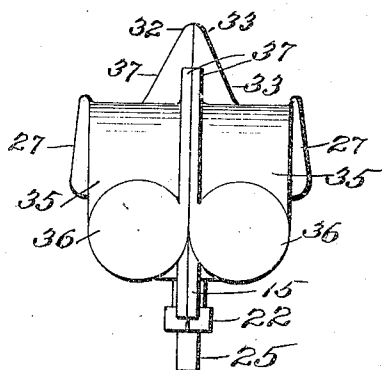
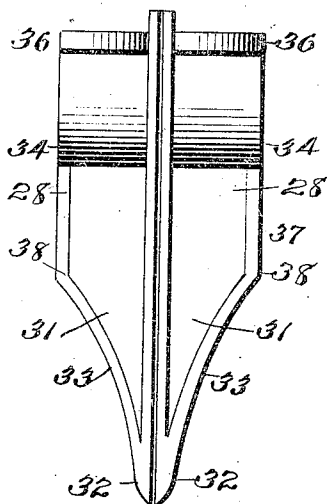


Fig. 4.



Inventor

Albion Moulton

By

Joseph Moulton

Attorney

UNITED STATES PATENT OFFICE.

ALBION MOULTON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE ALLEN
IRON & STEEL COMPANY, OF PHILADELPHIA, PENNSYLVANIA.

LINE TAPPER.

Application filed February 12, 1921. Serial No. 444,372.

To all whom it may concern:

Be it known that I, ALBION MOULTON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Line Tappers, of which the following is a specification.

This invention relates to a snap clamp or grip for electrical conductors and particularly for use in connection with line wires such as overhead trolley wires and other like conductors of power and other circuits.

One important object of the invention is to provide an improved clamp of this character capable of connecting a motor, a transformer or other electrical apparatus to a line wire at any point in the length of said wire, the connection being effected without making it necessary for the line man to climb a pole or in any way approach dangerously near such line wire and without interrupting the other service of said line wire. The invention may also be used in pairs on the ends of a conductor for connecting one line to another, as a substitute for pole disconnecting switches, for sectionizing lines and for many other purposes readily understood by lines men.

A second important object of the invention is to provide an improved construction of such a clamp wherein the line wire may be gripped independently at a plurality of points.

A third important object of the invention is to provide an improved spring arrangement in devices of this character.

A fourth important object of the invention is to provide an improved form of clamp wherein the use of bolts, nuts, pins or other like fastening devices is rendered unnecessary so that the parts of the device may be readily assembled or disassembled without the use of tools thus aiding economy in construction and facilitating repairs and replacements of parts.

A fifth important object of the invention is the provision of an improved arrangement of engaging devices to engage the hook end of the lifting pole employed to carry the device into position and engage it on the line wire.

With the above and other objects in view, as will be hereinafter apparent, the inven-

tion consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and specifically claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:—

Figure 1 is a front elevation of the invention.

Figure 2 is a section on the line 2—2 of Figure 1.

Figure 3 is a top view of the device.

Figure 4 is a rear elevation of the two movable jaws of the clamp.

In the embodiment of the invention herein illustrated there is provided a fixed jaw 10 having a transverse wire receiving groove 11. On the side opposite of this groove is a horizontal shelf or support 12 having a pair of spring seats 13 above which the jaw is provided with lateral ribs 14. Beneath the spring shelf 12 and extending at right angles from the front of the jaw is a rib 15 having an opening 16 therein forming an eye for the reception of the hook or prong of the usual lifting rod. At each side of this portion of the device ribs 17 extend forwardly from the lateral edges of the jaw 10 so that between these ribs and the eye rib 15 are formed pockets 18 wherein may fit a boss on the end of the lifting rod whereby the device is prevented from turning over while being lifted to position to engage the line wire. The jaw 10 is contracted laterally in this portion and is formed cylindrically as at 19. This cylindrical portion has a wire receiving socket 20 extending upward from its bottom and on the front side is provided with a boss 21 through which and the wall of the socket 20 passes a set screw 22 which is used to secure the end of a conductor wire or cable within said socket. Below the socket 20 the device is continued downwardly in a hollow segmental cylindrical portion 23 and terminates at its lower end in a hollow cylindrical portion 24 through which the conductor wire or cable entering the socket passes. This portion 24 has the opening therein considerably larger than the socket 20 so that the insulation on the conductor wire or cable can be accommodated. From the front of the portions 23 and 24 projects a lower eye 25 similar in size to the upper

eye but having no pockets adjacent, these being unnecessary since the function of this lower eye is principally to afford means to engage the hook or prong of the lifting rod for downward pulling. At the upper end of the jaw 10 there is provided a downwardly opening hook 26 extending transversely across the entire width of the jaw. From each side of the jaw 10 below the hook 26 a prong 27 extends rearwardly for purposes which will be presently explained.

There are two independent movable jaws each of which has a flat body portion 28 provided with a groove 29 on its front face opposing the groove 11 so that, when the device is on the line wire, the wire lies in these grooves. The upper end of each flat portion is rounded as at 30 to fit within the hook 26 as seen in Figure 2. Below the flat portion each movable jaw inclines rearwardly away from the fixed jaw as at 31 and terminates in a rearwardly curved horn 32, the outside edge of each portion 30 and horn 32 being inclined towards the other movable jaw as shown in Figure 4 at 33. Below the upper edge of each flat portion 28 each movable jaw extends rearwardly and then upwardly to form, with the portion 30, an upwardly opening hook 34 complementary to the downwardly opening hook 26. From the upper end of the hook portion each movable jaw extends forward as at 35 and terminates in a downwardly opening socket 36 forming an upper spring seat vertically alined above the respective lower spring seat 13. On the adjacent edges of the movable jaws are heavy strengthening ribs 37 while the outer edges of said jaws are provided with lighter strengthening ribs 38 at their lower parts. Seated in the spring sockets are strong compression springs 39.

From the foregoing it will be seen that the independently movable jaws provide a contact that adjusts itself to inequalities in the conductor wire such as may be occasioned by joints and also provides against ineffectual contact arising through any slight lack of parallelism in the mounting of a unitary movable jaw on the fixed jaw. Also this construction affords an improved spring arrangement and does not require the use of bolts, nuts, pins or the like but may be simply disassembled by forcing the movable jaws bodily downward until the hooks can be disengaged by rearward movement.

It is also to be noted that the prongs 27 serve to restrain the movable jaws from lateral movement.

In the operation of this clamp the lead or conductor wire is first connected to the socket. The hook of the lifting stick or pole is then placed in the upper eye and the clamp adjusted in position over the wire. The hook is then shifted to the lower open-

ing or eye and by a downward pull the clamp is snapped into final position. The clamp may be released by turning on the wire and pulling downward on the upper eye.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the device without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described but it is wished to include all such as come within the scope claimed.

Having thus described the invention, what is claimed as new, is:—

1. In a spring clamp for electrical conductors, a fixed jaw having a rearwardly extending downwardly opening hook at its upper end, a spring seat extending forwardly from the fixed jaw, a movable jaw having its upper end engaged in said hook and provided with an upward and forward extension carrying a spring seat alined above the fixed jaw spring seat, and a compression spring having its ends engaging said spring seats.

2. In a clamp for conductor wires, a fixed jaw having a rearwardly extending downwardly opening hook at its upper end and provided with a forwardly extending shelf on its front side having a plurality of upwardly opening sockets forming spring seats, a plurality of movable jaws, each having a forwardly positioned upwardly opening hook, the hooks on the movable and fixed jaws being interengaged, said movable jaws each further having an upwardly and forwardly extending portion overlying the shelf of the fixed jaw and provided with a downwardly opening socket forming an upper spring seat alined above a respective lower spring seat, and springs each having its ends mounted in the respective upper and lower spring seats.

3. In a clamp for conductor wires, a fixed jaw having a rearwardly extending downwardly opening hook at its upper end and provided with a forwardly extending shelf on its front side having a plurality of upwardly opening sockets forming spring seats, a plurality of movable jaws, each having a forwardly positioned upwardly opening hook, the hooks on the movable and fixed jaws being interengaged, said movable jaws each further having an upwardly and forwardly extending portion overlying the shelf of the fixed jaw and provided with a downwardly opening socket forming an upper spring seat alined above a respective lower spring seat, springs each having its ends mounted in the respective upper and lower spring seats, and prongs formed on

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said fixed jaw and extending rearwardly alongside the movable jaws to prevent lateral movement thereof.

4. In a clamp for conductor wires, a fixed
5 jaw having a rearwardly extending downwardly opening hook at its upper end and provided with a forwardly extending shelf on its front side having a plurality of upwardly opening sockets forming spring
10 seats, a plurality of movable jaws, each having a forwardly positioned upwardly opening hook, the hooks on the movable and fixed jaws being interengaged, said movable jaws each further having an upwardly and
15 forwardly extending portion overlying the shelf of the fixed jaw and provided with a downwardly opening socket forming an upper spring seat alined above a respective
20 ends mounted in the respective upper and lower spring seats, and an eye located beneath the shelf of the fixed jaw in the plane centrally of said fixed jaw and between said movable jaws.

25 5. In a clamp for conductor wires, a fixed jaw having a rearwardly extending downwardly opening hook at its upper end and provided with a forwardly extending shelf on its front side having a plurality of upwardly opening sockets forming spring
30 seats, a plurality of movable jaws, each having a forwardly positioned upwardly opening hook, the hooks on the movable and fixed jaws being interengaged, said movable
35 jaws each further having an upwardly and forwardly extending portion overlying the shelf of the fixed jaw and provided with a downwardly opening socket forming an upper spring seat alined above a respective
40 lower spring seat, springs each having its

ends mounted in the respective upper and lower spring seats, an eye located beneath the shelf of the fixed jaw in the plane centrally of said fixed jaw and between said
movable jaws, and a conductor wire receiving socket formed on the lower end of said
45 fixed jaw beneath the eye whereby the spaces between the shelf and socket form pole end receiving pockets.

6. In a clamp for conductor wires, a fixed
50 jaw having a rearwardly extending downwardly opening hook at its upper end and provided with a forwardly extending shelf on its front side having a plurality of upwardly opening sockets forming spring
55 seats, a plurality of movable jaws, each having a forwardly positioned upwardly opening hook, the hooks on the movable and fixed jaws being interengaged, said movable
60 jaws each further having an upwardly and forwardly extending portion overlying the shelf of the fixed jaw and provided with a downwardly opening socket forming an upper spring seat alined above a respective
65 lower spring seat, springs each having its ends mounted in the respective upper and lower spring seats, an eye located beneath the shelf of the fixed jaw in the plane centrally of said fixed jaw and between said
70 movable jaws, a conductor wire receiving socket formed on the lower end of said fixed jaw beneath the eye whereby the spaces between the shelf and socket form pole end receiving pockets, and a second eye extending forwardly from the lower portion of the
75 socket and lying in the same plane as the upper eye.

In testimony whereof I affix my signature.

ALBION MOULTON.