Apr. 10, 1923. 1,451,606

O. ARNESOI

LIFTING TONGS

Filed June 20, 1921

Fig. 1.

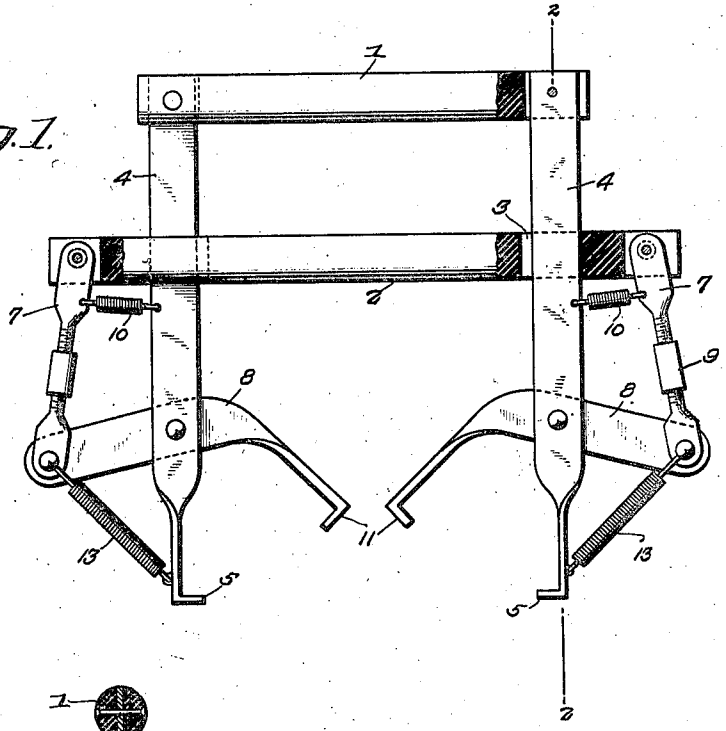
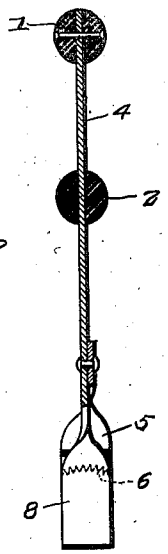


Fig. 2.



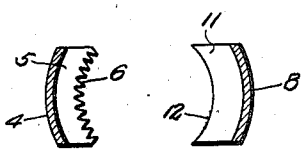


Fig. 3.

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UNITED STATES PATENT OFFICE.

OSCAR ARNESON, OF GARRETSON, SOUTH DAKOTA.

LIFTING TONGS.

Application filed June 20, 1921. Serial No. 479,066.

To all whom it may concern:

Be it known that I, OSCAR ARNESON, a citizen of the United States, residing at Garretson, in the county of Minnehaha and State of South Dakota, have invented certain new and useful Improvements in Lifting Tongs, of which the following is a specification.

This invention relates to lifting devices of the grapple or tong type.

The object of the invention is to provide a device of this character especially constructed for use in removing battery cells whereby both posts of a cell may be gripped simultaneously permitting a straight pull to be exerted and thereby preventing wedging of the cells during removal.

Another object is to so construct such an implement that all possibility of the jaws slipping is avoided.

Another object is to construct an implement of this character so that short circuiting is prevented and the objectionable results thereof eliminated.

Still another object is to construct a device of this character which is extremely simple in construction, thoroughly effective in operation and which may be readily adjusted to fit posts of varying sizes.

With these and other objects in view, the invention consists in certain novel features of construction as hereinafter shown, described and claimed.

In the accompanying drawings:

Figure 1 represents a side elevation of the grapple constituting this invention with parts broken out and in section.

Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1; and

Fig. 3 is a horizontal section taken through a pair of the jaws used in connection with this instrument.

This device which is primarily intended for use in removing battery cells or the like, may be however, used in various connections and comprises a pair of parallel hand grips 1 and 2 constructed of wood or any non-conductive material and adapted to be moved toward and away from each other in a manner presently to be described, the member 2 being longer than the member 1 and provided at points spaced inwardly from the ends thereof with aperture 3 for the passage therethrough of bars 4, carried by the member 1. These bars 4 as shown, are pivotally mounted in openings in the end of the member 1 said openings being sufficiently large to permit a certain amount of play of the bars therein.

These bars 4 extend in the same direction from the member 1 substantially at right angles thereto, and are provided at their free ends with transversely arranged inturned arcuate gripping jaws 5, said jaws being shown facing each other and provided along their biting edges with teeth 6 to assist in securely holding the object to be grasped and prevent slipping thereof.

As shown, these bars 4 are made of strap metal and the jaw carrying ends are twisted, as shown clearly in Fig. 1 so that the jaws 5 will face each other.

The hand grip 2 which is slidably mounted on the bars 4 has pivotally connected with its opposite ends links 7, which are connected at their other ends with the movable jaws 8 and are adapted to actuate said jaws in a manner presently to be described.

These links 7 are made in sections and are provided with turn buckles 9 to provide for their longitudinal adjustment to enable the movable jaws 8 with which they are connected to be adjusted for use in connection with varying sized objects. Coiled springs 10 connect the inner ends of the links 7 with the bars 4 and operate to steady the movement of the movable jaws during their grasping operation.

The jaws 8, as shown, are also constructed of strap metal and are pivoted intermediate their ends to the bars 4 in rear of the jaws 5 thereof and are equipped at their inner ends with arcuate jaws 11 designed to cooperate with the jaws 5 in grasping the object to be lifted. The jaws 11 as shown, have biting edges 12, which co-operate with the two biting edges 6 of the jaws 5 to securely hold between them the binding posts of a battery cell or other objects to be lifted.

The outer ends of the jaws 8 as above described are pivotally connected with the lower ends of the links 7 and coiled springs 13 connect these ends of the jaws 8 with the jaws 5, or rather with the bars 4 adjacent the jaws 5, as shown clearly in Fig. 1. These springs 13 operate to exert a pull

on the bars 8 which carry the jaws 11 and operate to hold said jaws 11 normally in open position and to return them to this position when the hand grips 1 and 2 are released.

From the above description, it will be obvious, that when the two bars, or hand grips 1 and 2 are grasped and the bar 2 moves toward bar 1 the movable jaws 8 will swing inwardly toward their co-operating jaws 5 for gripping an object to be lifted, and when used for removing battery cells the open jaws are placed over the posts of the battery and by gripping the members 1 and 2, the jaws are firmly closed over the posts, which enables a straight pull to be exerted on the implement and thereby removes an entire cell without danger of wedging, which frequently occurs when one post at a time is removed.

The construction of the members 1 and 2 of material which is a non-conductor of electricity prevents all possibility of short circuiting between the posts and thus prevents the metal of the remover from being heated and also danger of the plates in the battery cells from becoming heated.

The turn buckle construction of the links 7 adapt the jaw members 8 to be adjusted so that any size post or other object may be gripped between the movable and fixed jaws and the provision of the teeth or serrations on one of the jaws and the sharp edge on the other insures a firm grip, when once the jaws are engaged with an object to be lifted.

It will be obvious that the implement constructed as above described and as shown, will be strong and durable and provides two pairs of gripping jaws for actuation simultaneously to engage objects to be raised or lifted and which renders the implement especially useful in removing battery cells which are equipped with two posts.

The preferred embodiment of the invention is disclosed in the drawings and set forth in the specification, but it will be understood that any modifications within the scope of the claimed invention may be made in the construction without departing from the principle of the invention or sacrificing any of its advantages.

What I claim is:

1. A lifting device of the class described comprising fixed and movable jaws, means movable toward each other for closing said jaws, a spring for opening said jaws, and means for steadying the movable jaw during their gripping operation.

2. In a lifting device of the class described, a pair of parallel members movable toward and away from each other, fixed jaws carried by one of said members, movable jaws mounted on said fixed jaws to co-operate therewith, and means carried by the other member to close said jaws when the members are moved toward each other.

3. In a lifting device of the class described, a hand grip having arms extending at right angles from the ends thereof in the same direction and pivotally connected therewith, another hand grip slidably mounted on said arms fixed jaws carried by the free ends of said arms, movable jaws pivotally mounted on said arms intermediate their ends and adjacent said fixed jaws, and a link connection between said movable hand grip and the outer ends of said movable jaws whereby the compression of said hand grip will close said jaws.

4. In a lifting device of the class described, a hand grip having arms extending at right angles from the ends thereof in the same direction and pivotally connected therewith, another hand grip slidably mounted on said arms fixed jaws carried by the free ends of said arms, movable jaws pivotally mounted on said arms intermediate their ends and adjacent said fixed jaws and a link connection between said movable hand grip and the outer ends of said movable jaws whereby the compression of said hand grip will close said jaws, and springs connecting the outer ends of said movable jaws with said fixed jaws to open the jaws when the compressible member is released.

In testimony whereof, I affix my signature.

OSCAR ARNESON.