C. E. WISE.

PORTABLE HAND TOOL FOR STRETCHING, TIGHTENING, AND TWISTING THE FREE ENDS OF WIRE LENGTHS.

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1,351,598. Patented Aug. 31, 1920.

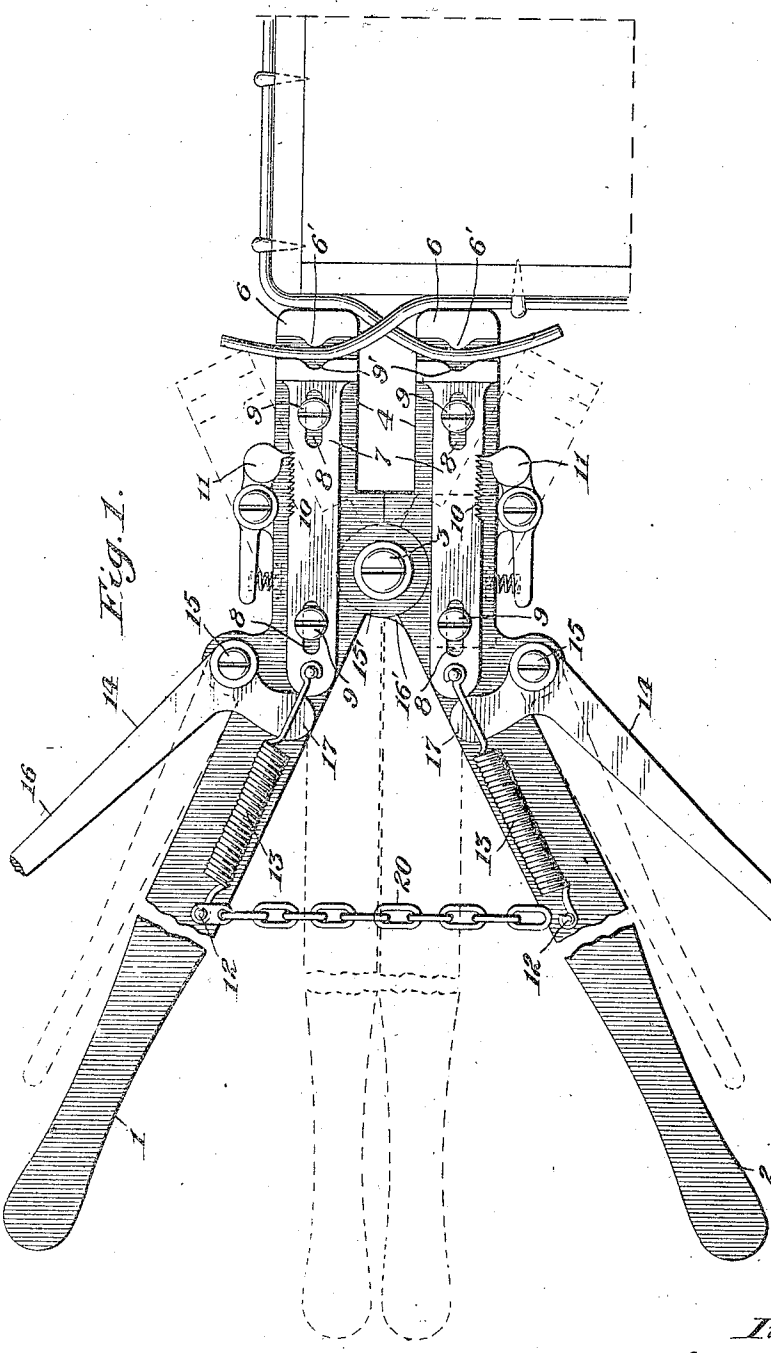


Fig. 1.

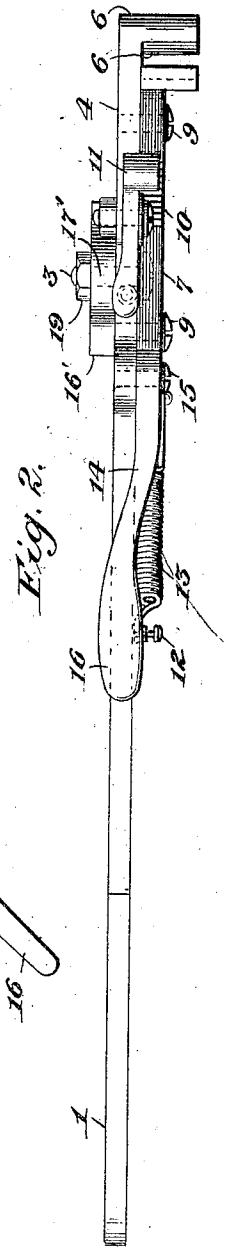


Fig. 2.

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UNITED STATES PATENT OFFICE.

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PORTABLE HAND-TOOL FOR STRETCHING, TIGHTENING, AND TWISTING THE FREE ENDS OF WIRE LENGTHS.

1,351,598. Specification of Letters Patent. Patented Aug. 31, 1920.

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To all whom it may concern:

Be it known that I, CLARENCE E. WISE, citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Portable Hand-Tools for Stretching, Tightening, and Twisting the Free Ends of Wire Lengths, of which the following is a specification.

This invention relates to a portable hand tool for stretching and twisting the free ends of wire lengths to assure the tight twisting of said ends of the wire for securely joining the said ends together, and is especially designed for the purpose of stretching or tightening the wire which is frequently employed in securing together the sections of a knock-down or collapsible crate used for shipping purposes by clamping the terminal ends of the wire and twisting the free ends until the said ends are tightly and securely joined.

The prime object of this invention is to provide a novel, simple, strong, economical, durable and thoroughly reliable and efficient tool for the purpose of stretching or tightening and twisting the free ends of wire lengths, so that the said lengths will be properly tightened around a receptacle and the ends will be caused to be safely, firmly and securely joined together by the twisting operation thereof.

Another object of the invention is to so construct my novel device that when each free end of a wire length which has been passed or secured around a receptacle to bind the same shall have been firmly secured between the jaws of the tool the handle portions of said tool are pressed together, which action causes the jaws to be separated, thereby stretching or tightening the wire at its joining point, and at the same time the handles are secured in the closed position by suitable securing means until one or more turns of the tool is made which will twist the meeting ends of the wire together at the point of their juncture sufficiently to secure the stretching or tightening tension of the wire, when the handle securing means is detached and said handle allowed to separate, thus relieving the tension on the wire at and near the point of juncture, the tool then being given a sufficient number of turns to properly and securely join the terminal ends of the wire by the twisting operation.

A further object of the invention is to provide simple and efficient means for effecting the clamping, stretching or tightening, holding and releasing of the wire ends for the purposes such as set forth.

The foregoing and such other objects as may appear from the ensuing description are attained by the combination, arrangement, location, and novel features of the construction of the parts hereinafter more fully described, illustrated in the accompanying drawings and particularly pointed out in the claims appended hereto, it being understood that slight changes in the form, proportions, and minor details of the construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings which form a part of the specification it will be seen that:

Figure 1 is a plan view of the novel device embodying my invention, showing the ends of the wire passed between the clamping jaws, and showing a portion of a top and side section of a knock-down or collapsible crate or other receptacle to which a binding wire has been secured, and

Fig. 2 shows an edge view of the device shown in Fig. 1.

Similar characters of reference are employed to designate corresponding parts throughout the several views in the drawings.

In carrying out my invention it will be seen that it comprises two main levers or members 1 and 2 which are pivoted together by a suitable pin 3, the integral acting ends or fixed jaws 4, 4 each being provided near its outer end with an extended portion 6 for the reception of one end of a wire length, and each of said fixed jaws having an integral projecting rib 6′ for the purpose hereinafter referred to.

Secured to the outer face of each of the members 1 and 2, at the acting end portion thereof, is a longitudinally slidable member constituting a movable jaw 7, provided with elongated slots 8 therethrough, said slots being adapted to receive the headed pins 9 for the purpose of securing the members 7 to the members 1 and 2 and also serving

as a guiding means during the longitudinal sliding movement of the members 7 in their forwardly and rearwardly movement. The outer end of each member 7 is provided with a recess forming a semicircular groove or seat 9′, so that when the ends of the wire to be stretched or tightened and twisted are passed between the rib 6′ and groove or seat 9, and clamped between the movable and rigid clamping jaws, the wire will be crimped and firmly secured between said jaws until the stretching, tightening and twisting operation of the wire ends shall have been suitably completed.

The outer edge of each of the slidable members is provided with ratchet teeth 10, which teeth are engaged by the toothed end of a spring pressed pawl 11, carried by each of the members 1 and 2 for the purpose of locking the movable jaw in its clamped relation with the rigid jaw when the wire ends are clamped between the said movable and rigid jaws, and for releasing the movable jaw when desired to release the wire from between the jaws.

To each of the members 1 and 2 is secured, by a double headed pin 12 at its inner headed portion one end of a coiled spring 13, the other end of said spring being secured to the outer end portion of the slidable or movable member 7 for the purpose of withdrawing the movable member from its clamped position when the pawl 11 is disengaged from the ratchet teeth 10, as will be readily understood, and at the outer headed portion of the pin 12 is secured a chain adapted to lock the members 1 and 2 in their closed position until the ends of the wire which have been clamped between the jaws of the tool have been given the desired stretching, tightening and twisting action at the point of juncture, sufficiently only to secure the tension on the wire when the locking means is released, the members 1 and 2 allowed to separate and the twisting action then continued to properly finish the twisting of the ends of the wire securely together.

Each member 1 and 2 is provided with a lever 14, pivoted thereto by a suitable securing pin 15, each of said levers having an outer handle portion 16 and an inner cam-shaped portion 17, which cam-shaped portion is adapted to engage with the outer end of the movable member 7 when the lever is pressed inward, thereby forcing said movable member to slide forward to clamp the wire between the rigid and movable jaws, and when the said levers 14 are moved outwardly the cam-shaped inner end portion will be disengaged from the outer end of the movable member, and, the spring-pressed pawl being disconnected, the tension exerted by the coil spring 13 will immediately retract the movable member and release the wire ends from the clamping jaws.

The member 1 is provided with a semicircular projection or ear 15′ which is fitted into a corresponding recess formed in the member 2, while said member 2 is provided with a member 16′ suitably and rigidly secured to the rear surface of said member at the pivotal point thereof, said member 16′ being formed with a semicircular projection or ear 17′, each of said ears being provided with a perforation adapted to receive a suitable pin 3 for pivoting the members 1 and 2 together, said pin having a screw threaded outer end portion to which is fitted a securing nut 19.

While I have shown a chain 20 for locking the members 1 and 2 together for the purpose referred to, it will be understood that any suitable or desirable means may be employed for the purpose stated.

From the foregoing description, taken in connection with the accompanying drawings, it is believed that the construction and manner of operation of the device will be fully and clearly understood, hence a more extended and detailed explanation has been omitted.

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

1. A tool of the character described, comprising pivoted members, each member having a rigid jaw at one end thereof, and a longitudinally slidable member secured to each pivoted member having a clamping jaw at one end, each slidable member being adapted to move forwardly and rearwardly.

2. A tool of the character described, comprising pivoted members having a rigid jaw at one end formed with a transverse extension and a central rib, and a longitudinally slidable member secured to each pivoted member having a clamping jaw at one end formed with a transverse recess and a central groove or seat within said recess.

3. A tool of the character described, comprising pivoted members having a rigid jaw formed at one end, a longitudinally slidable member secured to each pivoted member having a clamping jaw formed at one end, means secured to each pivoted member for forcing the slidable member into the clamping position, and means for releasing the slidable member from its clamped position.

4. A tool of the character described, comprising pivoted members having a rigid jaw formed at one end, a longitudinally movable member secured to each pivoted member having a clamping jaw formed at one end, a lever secured to each pivoted member provided with a cam-shaped portion at one end adapted to engage the outer end of the movable member and force it into the clamping position, and means secured to

each pivoted member for releasing the movable member from its clamped position.

5. A tool of the character described, comprising pivoted members having a rigid clamping jaw formed at one end, a longitudinally movable member with a clamping jaw formed at one end secured to each pivoted member, means mounted on the pivoted members for forcing the movable members into clamping position, means connected to the pivoted member and to the movable member for releasing the latter from its clamped position, and means for locking the jaws in their clamped position.

6. A tool of the character described, comprising pivoted members having a rigid clamping jaw at one end, a longitudinally movable member with a clamping jaw formed at one end secured to each pivoted member, a lever secured to each pivoted member provided with a cam-shaped portion at one end adapted to engage the outer end of the movable member and force it into the clamping position, means secured to each pivoted member and the outer end of the movable member for releasing the latter from its clamped position, and means connected with the pivoted and movable members for locking the members in clamped position.

7. A tool of the character described, comprising pivoted members having a rigid clamping jaw at one end, a longitudinally slidable member with a clamping jaw formed at one end mounted on each pivoted member, means mounted on the pivoted member for locking the movable member in its clamped position, and means connected to each pivoted member and movable member for releasing the movable member from its clamped position.

8. A tool of the character described, comprising pivoted members having a rigid clamping jaw at one end, a longitudinally slidable member secured to each pivoted member having a clamping jaw at one end, means mounted on each pivoted member to force the movable member into its clamping position, a spring-pressed pawl mounted on each pivoted member and connected with the movable member for locking the latter in its clamped position, and means for withdrawing the movable member from its clamped position.

9. A tool of the character described, comprising pivoted members having a rigid jaw formed at one end, a longitudinally slidable member secured to each pivoted member having a clamping jaw at one end, means mounted on each pivoted member for forcing the slidable member into its clamping position, ratchet teeth formed on the outer edge of each slidable member, a spring-pressed pawl mounted on each pivoted member adapted to engage said ratchet teeth and lock the movable member in its clamped position, and means connected to the pivoted member and slidable member for withdrawing the latter from its clamped position.

10. A tool of the character described, comprising two members each having a rigid clamping jaw formed at one end, one of said members having a laterally projecting ear adapted to be fitted in a corresponding recess formed in the other member, and said other member having a member rigidly secured thereto provided with a laterally projecting ear adapted to overlap the first named ear, each of said ears being perforated to receive a pivotal pin for securely pivoting the two members together, and each member having a longitudinally sliding clamping member secured thereto.

11. A tool of the character described, comprising pivoted members each formed with a rigid clamping jaw at one end, a longitudinally sliding member secured to each pivoted member having a clamping jaw formed at one end, means mounted on each pivoted member for forcing the sliding members into clamped position, means for withdrawing the sliding member from its clamped position, and means secured to one of the pivoted members for locking the handles of said pivoted member into the closed position.

CLARENCE E. WISE.