June 12, 1951 G. K. HURLBUT 2,556,725

COMPRESSING TOOL

Filed Feb. 18, 1949

Fig. 1.

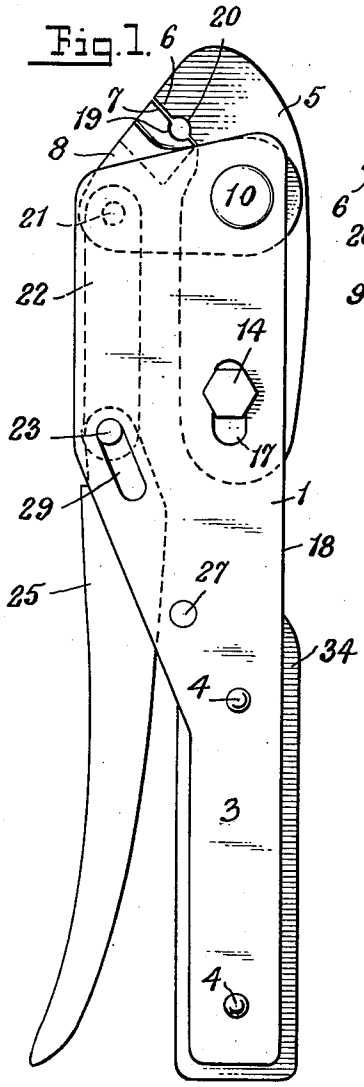


Fig. 2.

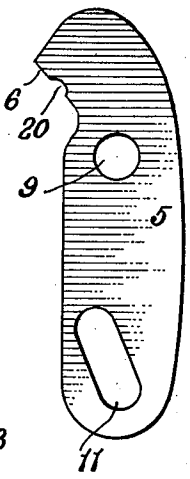


Fig. 3.

Fig. 4.

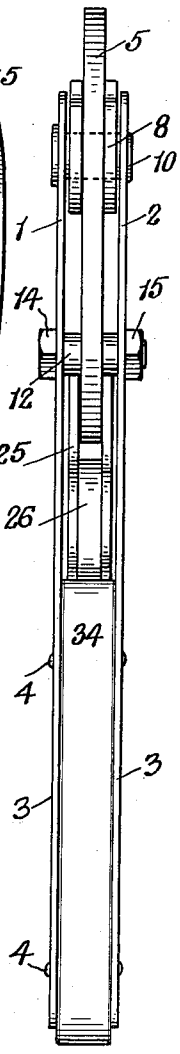


Fig. 5.

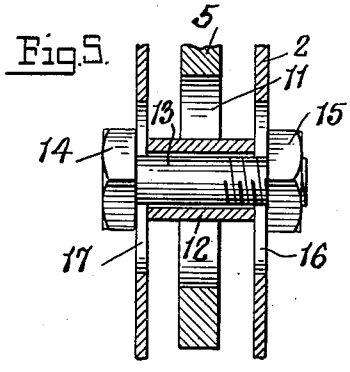


Fig. 6.

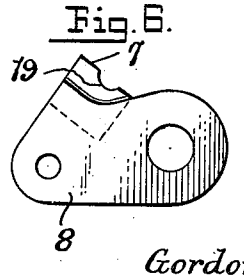
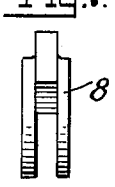


Fig. 7.



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COMPRESSING TOOL

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3 Claims. (Cl. 81—15)

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This invention relates to compressing tools, and more particularly to a tool which will shape or distort an element or article by pressure or compression between its jaws. The invention is especially applicable to the distortion or compression of metallic tubes or sleeves of the character often employed for connecting or coupling together current-carrying wires or conductors. In articles of that character, the ends of two wires are inserted in the opposite ends of a sleeve of soft metal, and pressure is then imposed upon the sleeve to thereby distort or crimp the same, resulting in the ends of the wires being firmly gripped within the sleeve and an effective joinder being attained between the two wire ends.

In distorting or crimping metallic sleeves of such nature, it is desirable that the tool employed for the purpose be one by which a precise amount of pressure can be imposed upon the sleeve so that the same is distorted or crimped to just the right extent to enable the ends of the wires to be very securely held within the sleeve. Hence it is desirable that the jaws of the tool between which the sleeve is compressed shall be arranged to close to the proper extent and that such spacing be maintained in order that precise and uniform crimping of the sleeves shall take place.

The present invention therefore contemplates the provision of a tool intended for the purpose above mentioned and possibly for other compressing functions, and by which the jaws of the tool shall be arranged to close to a desired extent and apply the requisite pressure to assure proper crimping. Another object of the invention is to provide means by which a setting or adjustment of the jaws is readily had and which, when secured, will be maintained.

These and other objects are attained by the invention, a more particular description of which will hereinafter appear and be set forth in the claims appended hereto.

In the accompanying drawing, wherein an illustrative embodiment of the invention is shown, Fig. 1 is a side elevation of a compressing tool constructed in accordance with the invention; Fig. 2 is a face view of the stationary but adjustable jaw; Fig. 3 is a face view of the tool with one of the face plates removed to show interior construction; Fig. 4 is a rear edge view of the tool; Fig. 5 is a sectional view, taken on the line 5—5 of Fig. 3, looking in the direction of the arrows; Fig. 6 is a face view of the movable jaw, and Fig. 7 is an end view of the movable jaw, looking from the left end of Fig. 6.

The main frame of the tool includes a pair of

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spaced face plates, indicated respectively at 1 and 2, each plate having a handle portion 3 at one end, the face plates being held in spaced relation in said handle portion by means of an insert or spacer 34 which can be of plastic material, wood or some lightweight metal. The insert or spacer is maintained in place by the rivets 4, or similar fastening elements.

At 5 is shown a slidably adjustable jaw of the frame, the same being adjustable whereby its recessed edge portion 6 is positioned at just the proper distance for co-operation with the similar edge 7 of a movable jaw 8. The slidably adjustable jaw 5 is shown in Fig. 2, wherein it will be noted that the same is in the form of a flat plate provided with an opening 9 through which a pin 10 extends, said pin extending between the two face plates 1 and 2 and serving as a pivot pin for the movable jaw 8, thereby pivotally attaching the movable jaw to the frame of the tool. The slidably adjustable jaw 5 is formed near one end with an inclined slot 11 through which extends a sleeve or bushing 12 located between the face plates 1 and 2. For locating the sleeve or bushing and maintaining the same in any selected fixed position, a bolt 13 extends axially through the sleeve 12. Said bolt is provided at one end with a head 14 bearing against the face plate 1, and at its other end with the locking nut 15 bearing against the face plate 2. The nut 15 may be of any of the known "self-locking" types so that when the same is firmly tightened up against the face plate 2, the sleeve or bushing 12 will be tightly clamped between the two face plates 1 and 2 and maintained against any shifting movement. The bolt 13 extends through slots 16 and 17 respectively provided in the face plates 2 and 1, said slots being arranged at an angle to the inclined slot 11 in the slidably adjustable jaw 5 through which the bushing or sleeve 12 extends. In other words, the slots 16 and 17 are substantially parallel to the rear edge 18 of each of the face plates 1 and 2, while the slot 11 which angularly crosses the slots 16 and 17 is at an angle to said edge. The faces of the face plates 1 and 2 may be roughened adjacent to the slots 16 and 17 if desired, and the inner faces of the head 14 and nut 15 might also be roughened, thereby assuring maintenance of the bolt 13 and hence the sleeve 12 in any set position.

From the above arrangement, it will be apparent that the position of the gripping edge 6 of the jaw 5 can be regulated by loosening the bolt 13 to thereby permit of manual shifting of the bushing or sleeve 12, the sleeve when moved

in the inclined slot 11 acting to shift the jaw 5 on its pivot 10 to the required extent to position its gripping edge at the desired location. The bolt 13, when tightened, will maintain the sleeve 12 at the position in which it is placed and thereby maintain the jaw 5 in a stationary position for co-operation with the movable jaw 8 which is movable to or from the jaw 5 by means to be described.

The movable jaw, shown at 8, consists of a roughly triangular member, shown in detail in Figs. 6 and 7, and it is provided with the gripping edge 7 which is notched at 19 for co-operation with the similar notch 20 provided in the gripping edge 6 of the jaw 5. At one end the movable jaw 8 is pivoted on the pin 10 extending between the face plates 1 and 2 of the frame. At its opposite end, which is bifurcated, the jaw is pivotally secured by a pin 21 to one end of a link 22 which has its opposite end pivoted on a pin 23 located between ears 24 formed on one end of an actuating lever 25. A coupling link, shown at 26, is of channel shape in cross-section, and has one end pivotally engaging a pin 27 located between and fixed in the face plates 1 and 2, and has its other end pivoted at 28 between the walls or sides of the actuating lever 25.

It will be seen from the structure described, that when the actuating lever 25 is moved toward the fixed handle portion 3 of the tool frame, it will cause the movable jaw 8, through the arrangement of linkage described, to swing toward the jaw 5 and thus the object to be crimped or compressed, and located between the gripping edges 6 and 7 of the two jaws and fitted in the recesses 19 and 20 thereof, will be squeezed between the same and shaped accordingly. It will be noted that when the actuating lever 25 is moved as above described, the pin 23 will move upwardly in slots 29 provided in the face plates 1 and 2, which slots will limit the movement of the pin 23 and hence also limit the movement of the movable jaw 8 in a direction toward the jaw 5, and this, coupled with the spacing of the jaw from the movable jaw will govern the amount of pressure imposed upon the gripped object and hence the degree of crimp or distortion formed in it.

It will also be noted that through the form of linkage employed in the tool, the jaws can be clamped or locked upon an object being crimped or distorted, such lock occurring when the pin 28 passes the over-center position in bringing the actuating lever toward the handle portion of the tool. By swinging the actuating lever outwardly or away from the handle of the tool, the movable jaw 8 will swing outwardly or to open position, the beginning of such movement being shown in Fig. 3, and the crimped object then readily freed from between the jaws.

While I have particularly described the tool for use in connection with the distortion of cylindrical objects, such as a compressible metal wire-coupling sleeve, it will be apparent that it may be used for many other purposes by adapting the gripping edges and the recesses therein to the type of object to be shaped, distorted, crimped, or even cut through, and various other modifications may be made in the described structure without departing from the spirit of the invention.

What I claim is:

1. A compressing tool having a frame provided with a handle and a slidably adjustable jaw, a movable jaw pivoted at one end in the frame, a link pivoted at one end to the movable jaw at a point remote from the pivotal connection of said movable jaw to the frame, an actuating lever pivotally attached to the other end of the link, the pivot which attaches the movable jaw to the frame extending through the slidably adjustable jaw, the slidably adjustable jaw having a slot remote from the said pivot, and an adjustable retaining member in the frame and extending through said slot.

2. A compressing tool having a frame composed of a pair of spaced face plates, a slidably adjustable jaw located between said face plates, a pin extending through the face plates and bridging the space between the same, said pin extending through the slidably adjustable jaw, said slidably adjustable jaw having a slot remote from the pin, a spacing member located between the face plates and positioned in said slot, the face plates being each provided with a slot, and locking means for the spacing member, said locking means being positioned in the slots in the face plates, a movable jaw and means for causing the same to be moved to or from the slidably adjustable jaw.

3. A compressing tool comprising a frame including a pair of spaced face plates, a slidably adjustable jaw located between the same, the face plates each having a slot, a stop member extending between the face plates and entering said slots, said stop member including means by which it may be locked in any selected position in said slots, the slidably adjustable jaw having a slanted slot crossing those in the face plates and surrounding the stop member, a pivot pin extending between the face plates, said pivot pin extending through the slidably adjustable jaw, a movable jaw pivotally mounted on said pivot pin, a link pivoted at one end to the movable jaw, an actuating lever pivotally and slidably mounted in the frame, the second end of the link being attached to the pivot which attaches the actuating lever to the frame.

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