Oct. 23, 1923. 1,471,593

E. A. DAVIS

CLAMPING AND SUPPORTING TOOL

Filed May 9, 1921

Fig. 1.

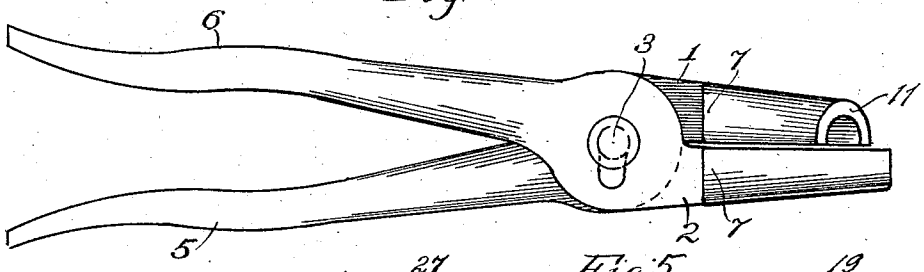


Fig. 5

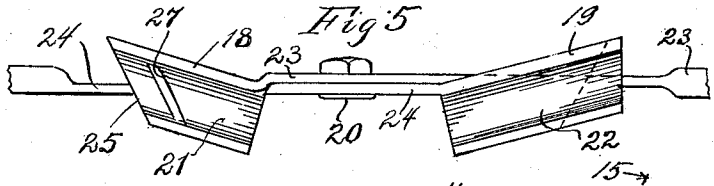


Fig. 2.

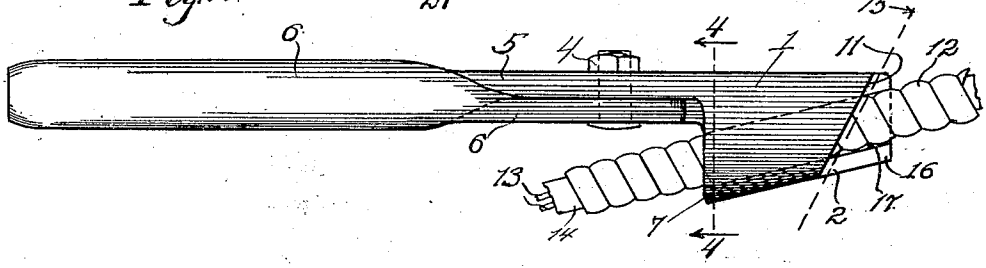


Fig. 3.

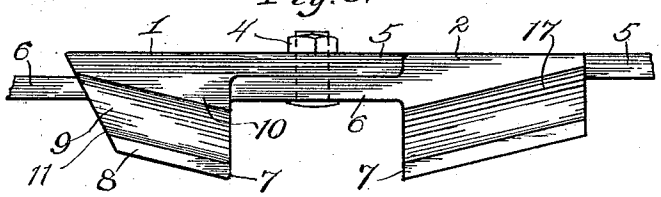
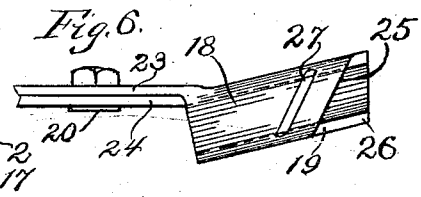


Fig. 4.

Fig. 6.



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UNITED STATES PATENT OFFICE.

ELMER A. DAVIS, OF CHICAGO, ILLINOIS.

CLAMPING AND SUPPORTING TOOL.

Application filed May 9, 1921. Serial No. 468,085.

To all whom it may concern:

Be it known that I, ELMER A. DAVIS, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Clamping and Supporting Tools, of which the following is a specification.

This invention relates to that class of clamping and supporting tools having opposed clamping jaws provided with a concave, recessed or grooved inner portion on one or both of the jaws, adapted to form an opening between the jaws for receiving an article to be operated upon—such, for instance, as a metal-encased flexible cable or conduit—said jaws being of suitable form to support such article in convenient position and with sufficient rigidity to enable the outer metal part or covering to be sawed through or severed by the operator with facility and without injury to the encased or armored-covered conduit or cable, and in such a manner that the kerf or cut will be at the desired angle and in the desired position.

The principal object of the invention is to provide a simple, economical and efficient clamping and supporting tool of the class described.

Other and further objects of the invention will appear from the following description and claims, and from an inspection of the accompanying drawings, which are made a part of this specification.

The invention consists in the features, combinations, arrangement and construction of parts, and details of construction herein described and claimed.

In the accompanying drawings, Figure 1 is a bottom plan view of an improved portable clamping and supporting tool constructed in accordance with my invention;

Fig. 2 is a side view of the tool shown in Fig. 1, with an insulated conduit or cable having a metallic helically wound metallic casing or armor thereon, clamped between the jaws, and supported in position to enable the armor to be sawed through at the desired angle and at the place indicated by the oblique saw-guiding margin or edge of the front or relatively short jaw, and while the cable or article is rigidly supported by the endwise-projecting supporting end portion of the opposed jaw;

Fig. 3 is an end view of the tool shown in Figs. 1 and 2, with the jaws in wide open position, and showing the recessed or concave inner clamping surfaces of the jaws, each of which has an oblique groove therein, said grooves forming an elongated oblique opening or slot between the jaws when the latter are in closed or clamping position;

Fig. 4 is a view in transverse section, taken on line 4—4 of Fig. 2, looking in the direction of the arrows;

Fig. 5 is an end view of a modification, showing an improved clamping and supporting tool as it would appear when made of stamped sheet metal, with the clamping jaws pivotally connected and in wide-open position, similar to the position of the jaws in Fig. 3, with parts of the levers or handles broken away; and

Fig. 6 is a view in side elevation of the jaws shown in Fig. 5, but with the jaws in closed clamping position, with the levers or handles broken away.

In constructing an improved clamping and supporting tool in accordance with my invention, I provide a pair of opposed clamping or gripping jaws 1 and 2 which are pivotally connected by means of a pivot pin or headed bolt 3 extending through suitable apertures in said jaws or clamping members 1 and 2, and having a nut 4 in threaded engagement with the threaded end of said pivot or bolt.

The clamping member or jaw 1 has a lever or handle 5 formed in one integral piece therewith; and the clamping member or jaw 2 has a similar lever or handle 6 formed in one integral piece with said jaw—the handles 5 and 6, or the clamping members one of which consists of the jaw 1 and lever 5, and the other of which consists of the jaw 2 and lever 6, being crossed at their points of pivotal connection or axes, in the manner of a pair of shears, or pliers.

The jaw 1 has a downwardly projecting depending portion 7 the lower margin of which extends upward and in a direction away from the axis or pivot 3 at an oblique angle to the axial center of said pivot and axis of the jaws and said jaw has an inner oblique groove or recess 9 in the inner concave face 10 of said jaw, said groove or recess being elongated and extending from end to end of the depending portion 7 of said jaw and upward and in a direction away from and at an oblique angle with respect to

the axial center of said pivot 3 and axis of said pivotally connected jaws. This oblique elongated groove in the inner face of the jaw 1 is, by preference substantially or approximately semicylindrical; and the jaw 1 has a transverse edge or margin 11 at its outer extremity which is adapted to form a guiding means, for guiding a saw, and indicating the point and angle at which an article—such, for instance, as a helically wound metallic casing or armor 12 forming a flexible casing for a cable or conduit 13 and its flexible covering 14 of insulating material which is interposed between the metallic conductors or wires 13 and said outer helically wound metallic casing or armor 12—is to be sawed through or severed. The position of the saw in the operation of sawing through the helically wound metallic armor or casing 12 is indicated by the broken line 15 in Fig. 2. It follows, of course, that said line 15 indicates the angle and the position or place where the metallic armor 12, or one of the helical windings thereof, is to be sawed through without injury to the insulation 14, or the cable parts encased within said armor or flexible casing 12.

It is important and highly desirable that the flexible cable or article to be operated upon should be held rigidly between the jaws, and particularly at the point where the armor 12 is to be sawed through or severed, and beyond said point endwise of the cable in both directions; and that the cable or article to be sawed or operated upon be so held between the jaws as to enable the tool and the article clamped between the jaws, to be supported in the desired convenient position by one hand of the operator grasping the handles or levers 5 and 6, while the saw is operated by the other hand of the same operator and at the desired angle with respect to the handles, and with respect to the longitudinal center of the cable or flexible article to be operated upon or sawed. The jaw 2, is therefore provided with a projecting supporting end portion 16, which, by preference, projects endwise beyond the oblique guiding edge or end margin 11 of the jaw 1; and the said jaw 2 is provided, by preference, with an oblique inner groove or elongated recess 17 in the inner clamping face or concave clamping surface of said jaw 2 and directly opposite to and at the same inclined angle with the groove 9 in the jaw 1 already described, said groove 17 extending from end to end of the jaw 2 and upward and endwise away from and at an oblique angle with respect to the axial center of the pivot 3 and axis of the pivotally connected jaws. The opposed oblique grooves 9 and 17—each of which is by preference substantially or approximately semi-cylindrical—are thus adapted to form an oblique or inclined slot or opening between said jaws and adapted to contain and hold in the desired angular position with respect to the handles or levers 5 and 6, and in position to be conveniently sawed or cut at the desired angle, a cable or electric conduit having a spirally wound metallic armor or casing to be operated upon or cut without injury to the parts of the cable enclosed within such armor or casing.

From the foregoing description, it will be readily understood that the form of the device may be modified to a considerable extent in some respects without departing from the spirit of my invention.

In Figures 5 and 6 is shown an improved clamping and supporting tool formed of stamped sheet metal and comprising in its construction a pair of clamping jaws 18 and 19 pivotally connected by means of a pivot pin or headed bolt 20, and having opposed inner oblique grooves 21, and 22 in the corresponding opposed inner concave clamping faces of said clamping jaws, respectively. The jaw 18 has a handle or lever 23 formed in one integral piece with said jaw; and the jaw 19 has a similar handle or lever 24 formed in one integral piece of sheet metal with said jaw; and the jaw 18 has an oblique guiding end margin 25, for the purpose of guiding and indicating the proper angle and position of a saw and the place at which the flexible article or spiral metallic casing is to be cut; while the jaw 19 has the endwise projecting, preferably grooved, end portion 26 projecting endwise beyond the oblique guiding end margin or edge 25 of the jaw 18, and adapted to rigidly support the article to be operated upon in place, so that the jaws firmly brace the flexible article on both sides of the oblique kerf, or on both sides of the saw during the operation of sawing, with the tool held in one hand of the operator, and the saw, in the other.

The oblique guiding slot or kerf 27 in the jaw 18—like the oblique saw-guiding marginal portion or end 25—is adapted to admit and guide a saw during the operation of sawing through an article, such as the armor 12, or other similar article to be operated upon.

I claim:

1. In a tool of the class described, the combination of a pair of pivotally connected jaws having opposed inner clamping faces provided with an elongated opening between and extending lengthwise of said jaws and at an oblique angle with respect to the axes of the jaws, and adapted to admit and clamp a flexible cable in said opening between the jaws, one of said jaws having a transverse guiding edge in oblique relation to said elongated opening and adapted to permit a saw to be guided and operated adjacent to and in parallel relation to said oblique guiding edge of said jaw and in

cutting engagement with such flexible cable, and the other one of said jaws having a cable-supporting outer end portion projecting endwise of the jaws and beyond the said oblique guiding edge of the opposite jaw and adapted to engage and support said flexible cable in rigid relation to said oblique guiding edge, and a lever for each of said jaws.

2. In a tool of the class described, the combination of a pair of pivotally connected jaws having opposed inner faces each provided with an elongated groove extending lengthwise of said jaws and at an oblique angle with respect to the axes of said pivoted jaws and adapted to admit and clamp a flexible cable between the grooved portions of said jaws and in position to extend endwise beyond the opposite ends of the jaws, one of said jaws having a transverse guiding edge in oblique relation to the groove in said jaw and adapted to permit a saw to be guided and operated adjacent to and in parallel relation to said oblique guiding edge and in cutting engagement with such flexible cable, and the other one of said jaws having a cable-supporting extension projecting endwise of the jaws beyond said oblique guiding edge of the opposite jaw and acting to engage and support such flexible cable in rigid relation to said oblique guiding edge, and a lever fixed to each of said jaws respectively.

3. In a tool of the class described, the combination of a pair of pivotally connected jaws having opposed inner concave clamping faces forming opposed side walls of an elongated opening between and extending lengthwise from end to end of said jaws and at an oblique angle with respect to the axes of the jaws, and adapted to admit and clamp a flexible cable in said opening and in position to extend endwise beyond the opposite ends of the jaws, one of said jaws having a transverse guiding edge in oblique relation to said elongated opening between the jaws and adapted to permit a saw to be guided and operated adjacent to and in parallel relation to said oblique guiding edge and in cutting engagement with the outer covering of such flexible cable, and the other one of said jaws having a cable-supporting extension projecting endwise of the jaws beyond said oblique guiding edge and acting to engage and support such flexible cable in rigid relation to said oblique guiding edge, and a pair of crossed levers each fixed to a corresponding one of said jaws, and each extending in oblique relation to the longitudinal center of the said opening formed between the opposed concave clamping faces of said jaws.

Signed at Chicago, in the county of Cook and State of Illinois, this 3rd day of May, 1921.

ELMER A. DAVIS.

Witnesses:
CLARENCE K. CHAMBERLAIN,
HARRY I. CROSSER.