

C. TIMM & A. JOHNSON.
CUTTING AND GRIPPING TOOL.

Patented Mar. 22, 1892.



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UNITED STATES PATENT OFFICE.

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CUTTING AND GRIPPING TOOL.

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To all whom it may concern:

Be it known that we, CHARLES TIMM, residing at Morgan Park, in the county of Cook and State of Illinois, and ANDREW JOHNSON, residing at Chicago, in the county of Cook and State of Illinois, both citizens of the United States of America, have invented certain new and useful Improvements in Cutting and Gripping Tools, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to an improved tool for use in gripping, cutting, punching, or indenting metals or other substances. The main portion of the apparatus is the same, whether the tool be a plier, cutter, punch, or indenter, the jaws, however, being different for the various purposes.

The primary object of the invention is to provide a tool in which the operating-frame is so constructed that a greater leverage can be exerted upon the movable jaws, and consequently they can be operated with greater force than has heretofore been possible with such devices.

A further object is to provide a cutting or gripping apparatus of improved construction in which the wire or other material to be acted upon can be fed through the center of the frame unobstructed to the cutters and thereby be cut squarely to its length.

Another object is to provide a cutting or gripping apparatus of improved construction in which the cutters can be easily and quickly replaced and adjusted toward and from each other without mutilating or taking apart the frame.

The invention therefore consists, primarily, of an improved construction of operating-frame for accomplishing the above-mentioned objects.

It also consists of certain details of construction whereby the material can be fed through the center of the frame directly to the cutters; in certain details, also, for accomplishing the desired removability and adjustability of the cutters, and in various other matters, all hereinafter described, and referred to in the appended claims.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the invention, showing the jaws open. Fig. 2 is a similar view with the jaws closed. Fig. 3 is a sectional view of one of the cutting-jaws, showing the means for attaching and adjusting the cutters. Fig. 4 is a view showing the adjustable gage in position.

In the drawings, A A represent levers, the greater part of which form the handles of the tool. These levers are pivoted at the end opposite the handles to a brace *a*. This brace, as shown in the drawings, is made of one piece, bifurcated at each end, the ends of the levers A A being reduced and flattened at one end, as shown at *c*, this portion *c* fitting in the space cut out between upper and lower sides of the brace *a*, rivets *b* passing through the ends of the brace and reduced portion of the lever, pivoting the same together. The reduced portion *c* of the lever is preferably curved, and upon the end opposite that at which it is pivoted to the brace is pivoted to the end of jaws B B in a similar manner. These jaws B B are provided near their opposite ends with a transversely-extended flattened reduced portion *d*, pivoted to a brace *e* in a manner similar to that described above. Extending between these two braces *a* and *e* is a rod or tube *f*, rigidly secured to or made integral with brace *e*, but passing through an opening *a'* in the brace *a*. Upon this rod or tube is coiled a spring *g*, bearing at either end against the braces. It will thus be seen that when the handles A A are grasped and forced toward each other the brace *a* slides forward on the rod or tube *f*, compressing the spring *g*, and at the same time the shanks or long arms *h* of the jaws B are forced apart, thus causing their short arms *i* to approach and act on the material in the desired manner. Upon releasing the handles, the spring *g* forces back the sliding brace, thus returning the parts to their normal position. The jaws B B, it will be readily understood, may be formed for the purpose of cutting, gripping, punching, or stamping, the construction of operating-frame being applicable to any of these purposes. This construction of frame is hence broadly claimed, without reference to the particular use to which the jaws are to be put.

The invention also includes, however, cer-

tain features, which render the device particularly useful for cutting wire and the like, and these features are also herein claimed.

Each of the jaws B B at the end of its short arm is preferably made of substantially cylindrical form, as shown at D, having an opening extending longitudinally entirely through it. The rear end of this opening has its sides screw-threaded.

The front portion of the longitudinal opening is enlarged, forming a socket *k*, adapted for the reception of the cutter C. Passing through an opening *l* in the side of the cylinder D is a set-screw *m*, which bears against the flattened surface of the shank of the cutter C, thus holding it in position within the socket. In order to provide for adjustment of the cutters C toward and from each other, a screw or bolt *n* passes into the longitudinal opening in the rear of the cylindrical portion and bears against the inner end of the cutter. It will thus be seen that by the above construction the cutters can be very easily replaced without taking apart or mutilating the frame, and, furthermore, that they can be adjusted to take up the wear or to allow for resharpening; also, that they can be shifted, if it is desired to do side cutting.

In order to provide for feeding the wire or other material to be acted upon through the center of the device and unobstructed to the cutters, we provide the construction now to be described in detail.

The brace *e* has a central opening *o* in line with the meeting point of the cutters. Extending rearward from this brace and either rigidly attached to it or made integral with it is the tube *f*, before referred to, passing through a central opening formed in the brace *a*. The opening through the tube *f* is directly in line with the central opening in the brace so that a wire or other piece of material to be cut if it passes through the tube *f* will be guided directly to the central point between the cutters, and thus be cut squarely to its length. It will be seen that tube *f* not only serves the purpose of a guide for the wire, but also as a support for the spring *g* and a way upon which the brace *a* slides. In case it is not desired to feed the wire to the cutters centrally, we have provided tapering notches *p p* upon the upper and lower faces of the brace *e* to guide the wire.

Upon one side of the tool is adjustably attached a gage *q*, having an upturned shoulder *r*, and by means of this gage the length of pieces cut by the tool may be determined and kept constant. It is not broadly new to provide an adjustable gage upon a pair of pliers adjustable by means of a slot in the gage and a set-screw passing through said slot into one side of the tool. My invention presents an improved construction for attaching the gage to the tool. One of the rivets, as *t*, which passes through the brace *e*, is hollow and provided with an enlarged circular head, as *u*. The opening in the rivet and enlarged head is

screw-threaded. The gage *q* rests upon the enlarged head of the rivet and a set-screw *v* passes through the slot of the gage into the threaded rivet.

We are aware that it is not broadly new to provide tools for the purposes described in which the jaws are operated by a system of toggle levers, nor is it broadly new to provide a cutting-tool with removable cutters, nor to feed the wire or other material centrally to the cutters, nor to provide an adjustable gage.

Our invention, however, differs in important features of construction from such devices in the art as heretofore used, whereby we are enabled to operate the working jaws with greater power, to provide for the readier adjustment and removal of parts, and to provide a device as a whole more effective in operation than any heretofore known.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The herein-described tool, comprising levers forming handles, a movable brace to which the same are pivoted, a guiding-tube on which the brace slides, jaws pivoted at one end to the levers, a second stationary brace to which said jaws are pivoted near their opposite end, and means for holding the jaws normally open, substantially as described.

2. The herein-described tool, comprising levers forming handles, a sliding brace to which the same are pivoted, a guiding rod or tube on which said brace slides, jaws pivoted at one end to the levers and near the opposite end to a second stationary brace, and a spring acting on the sliding brace for keeping the jaws normally open, substantially as described.

3. The herein-described tool, comprising levers forming handles, a sliding brace to which the same are pivoted, jaws pivoted at one end to the levers and near the opposite end to a stationary brace, said stationary brace having attached to it a rod or tube extending rearwardly through the sliding brace and forming a way on which the same slides, and a spring upon said rod or tube for keeping the sliding brace normally pressed back and the jaws open, substantially as described.

4. The herein-described tool, comprising the levers and jaws, pivoted as described, a stationary brace, as *e*, having a central opening, a tube rigidly attached to said brace and having its opening in line with the opening in the brace, and a brace, as *a*, sliding on said tube, and a spring upon said tube acting to keep the brace *a* normally pressed backward, substantially as described.

5. In the herein-described tool, in combination with the sliding and stationary braces, jaws B B, and cutters, the removable and adjustable gage attached to the stationary brace, substantially as described.

6. In the herein-described tool, the levers forming handles, the jaws B B, said levers and jaws being pivoted together and to slid-

ing and stationary braces, respectively, by suitable rivets, one of the rivets passing through the stationary brace being hollow and internally threaded, a slotted gage bearing on the head of said rivet, and a screw passing through the slot and taking into the threads of the rivet, substantially as described.

7. In the herein-described tool, the combination, with the handles and cutting-jaws and the brace to which the cutting-jaws are pivoted, of the tube *f*, attached to said brace,

through which the material can be fed centrally to the cutters, substantially as described.

In testimony whereof we affix our signatures 15
in presence of two witnesses.

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