No. 832,671. PATENTED OCT. 9, 1906.

J. HIST.

METAL SHAPING APPLIANCE.

APPLICATION FILED JAN. 27, 1906.

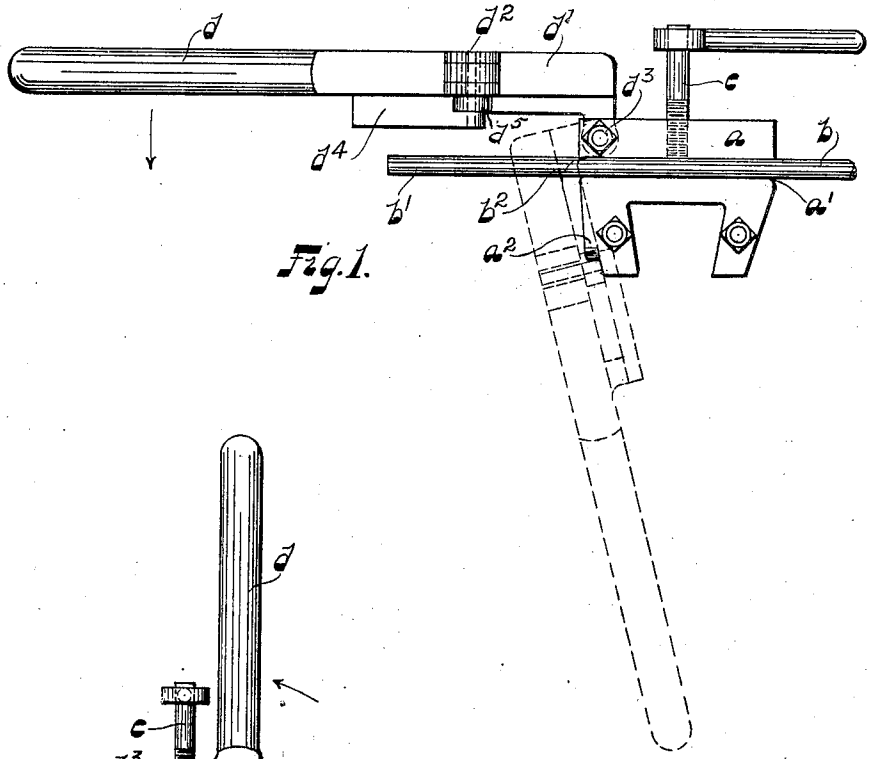


Fig. 1.

Fig. 2.

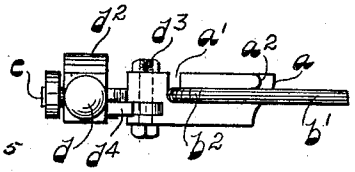


Fig. 4.

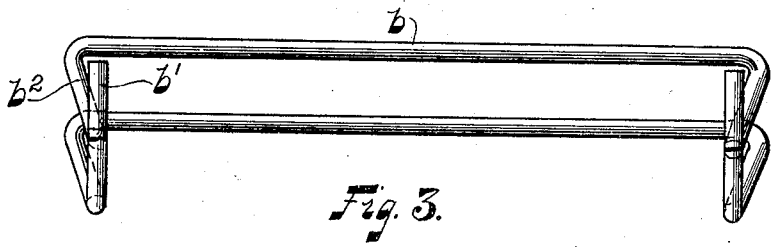


Fig. 3.

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UNITED STATES PATENT OFFICE.

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METAL-SHAPING APPLIANCE.

No. 832,671. Specification of Letters Patent. Patented Oct. 9, 1906.

Application filed January 27, 1906. Serial No. 298,276.

To all whom it may concern:

Be it known that I, JOHN HIST, a citizen of the United States of America, and a resident of Orange township, (Solon post-office,) county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Metal-Shaping Appliances, of which the following is a specification.

My invention relates to improvements in metal-shaping appliances, and has for its object the provision of a simple, strong, and cheap device which is adapted to bend or shape bars of metal, and particularly those formed of spring-steel.

In the manufacture of a potato-digging machine of my invention I have found it very desirable to form the linked conveying-chain of spring-steel; but, as is well known, it is necessary to shape rods of this material quickly and at a relatively low temperature in order to avoid impairing its qualities.

My invention has particularly in view the shaping of the link members of such a conveyer from spring-steel, although this particular application of the improvements is simply selected as the preferred utilization thereof and is neither limited to the exact details of construction herein set forth nor to the manipulation of any particular material for forming such link member or other device.

The embodiment of my invention designed and adapted for the use mentioned may be briefly described as consisting of a support and gripping member suitably recessed to receive the stock to be shaped, to which member is pivoted a shaping member which is hinged to be doubled back upon itself, and thereby shaping the stock about a fillet or form suitably positioned upon the gripping member. The details of my invention will be gathered much more readily, however, by making reference to the accompanying sheet of drawings, wherein—

Figure 1 exhibits a front view of my improved metal-shaping appliance, the initial shaping movement of its pivoted member being indicated by dotted lines. Fig. 2 shows an end view of the same device with the pivoted member doubled back upon itself. Fig. 3 illustrates two of the link members of the conveyer-chain made by means of my improved device, and Fig. 4 shows an end view of the device with the pivoted member raised after suitably shaping the end of one of the link members.

Throughout each of the several figures I have employed the same character of reference to indicate similar parts.

Referring then to Fig. 1, it will be seen that the support and gripping member a is provided with a transverse slot a', wherein the bar or rod b of spring-steel is adapted to be securely held by means of the screw c. Other means obviously may be employed for removably securing the rod in place; but the screw mechanism shown is the simplest type with which I am acquainted. At the left is provided a form or fillet a^2, positioned forwardly, but beneath the bottom wall of the slot. The pivoted shaping member is formed in two sections d d', respectively hinged upon each other at d^2, and pivoted to the support at d^3, the handle portion of said member thus being movable in a plane at right angles to the one in which the upper portion is actuated. Along the inner face a slide d^4 is provided which is in line with the inserted rod b and is adapted to engage the end thereof upon swinging said pivoted member downwardly into its dotted-line position, Fig. 1.

Having explained the structural features of my improved device, I may now set forth the manner in which the link members of Fig. 3 are made, as an illustration of the utility of my improved appliance. The rod b is inserted in the proper position in the slot a' with its left end b' extending therefrom sufficiently to form the loop or link portion of the completed link member. It will be understood that the end of the spring-steel rod has previously been brought to the requisite temperature (above a cherry-red) for shaping the same. The handle portion d is then grasped by the user and the pivoted member is drawn downward and inward to the dotted-line position, Fig. 1, whereupon the lowermost or handle portion d is immediately bent back upon the upper portion d' to the position shown in Fig. 2. This serves first to bend the heated end portions b' b^2 of the spring-steel rod downwardly at a slightly acute angle with the body thereof and behind the form or fillet a^2 and then to fold the lowermost portion b' of the rod upward about said fillet. The engaging shoulder or slide portion

d^4 is provided with a roller d^5 at the hinge d^3, (best shown in Fig. 2,) which roller serves to rotate about the heated end of rod b and shape the curved portion of the link member about the fillet a^2. Inasmuch as the lower end b' of the rod is inwardly bent at a slightly acute angle, and thus given an inward set by the first bending movement. When the handle portion d is turned backward upon the upper portion d' of the pivoted member, this lower portion b' of the rod instead of being bent directly back upon itself retains practically its initial set, the end thereof sliding slightly toward the right within the slide portion d^4 and assuming the fixed relation or position indicated in the drawings, Fig. 3. In other words, the inwardly-bent end b' of the rod not being rigidly held in the shaping appliance slips somewhat toward the right within the slide or engaging portion d^4, and thus provides the desired clearance for joining the link members, as shown. A similar operation, it will be understood, is performed upon the other end of the rod in order to complete the link member, whereupon it may be released from the support and the operation rapidly repeated with successive rods of spring-steel. Accordingly it will be appreciated that the appliance of my invention is capable of very rapidly and accurately shaping spring-steel or other rods before they have lost sufficient heat to render this operation difficult, and such articles as the link members shown may be made exact duplicates of one another.

Having now described an appliance embodying my invention and the manner of using the same, I claim as new, and desire to secure by Letters Patent, the following:

1. In an appliance of the class described, the combination with a support, of means for securing the stock or rod operated upon, a pivoted shaping member attached to said support, adapted to bend the stock about the support in a given plane; said member being jointed in one portion to permit it thereafter to bend the stock or rod in a different plane, substantially as set forth.

2. In an appliance of the class described, the combination with a support adapted to be rigidly secured, of means associated therewith for clamping therein the stock or bar, a shaping member pivoted to said support and having movement as a whole in a given plane, whereby the rod may be bent or shaped within that plane; said member being jointed to swing upon itself, and thereby bend the rod back in a different plane, substantially as set forth.

3. In a metal-shaping appliance, the combination with a recessed support, suitable means for gripping a rod therein, a fillet or extended part provided upon said support, and a shaping member pivoted to the support in position to bend the rod at an acute angle; said member being jointed or hinged to turn back upon itself, whereby the rod may be shaped about the mandrel to give it a loop form, substantially as set forth.

4. In a metal-shaping appliance, the combination with a recessed support, suitable means for gripping a rod therein, a fillet or extended part provided upon said support, and a shaping member pivoted to the support in position to bend the rod at an acute angle; said member being jointed or hinged to turn back upon itself, and having an engaging roller thereon, whereby the rod may be shaped about the mandrel to give it a loop form, while retaining practically its initial set, substantially as set forth.

5. In an appliance of the class described, the combination with a suitable support, of means for securing the stock or bar operated upon, a pivoted shaping member attached to said support, adapted to bend the bar or stock at an acute angle in a given plane, and means for bending the bar or stock approximately back upon itself in a different plane; said bar being permitted to move laterally and being free and unrestrained in that direction, whereby the initial bend or set of the bar is availed of to provide a deflection or clearance in the loop thus formed, substantially as set forth.

Signed at Cleveland, this 24th day of January, 1906, in the presence of two subscribing witnesses.

JOHN HIST.

Witnesses:
J. D. MALLOY,
ALBERT LYNN LAWRENCE.