

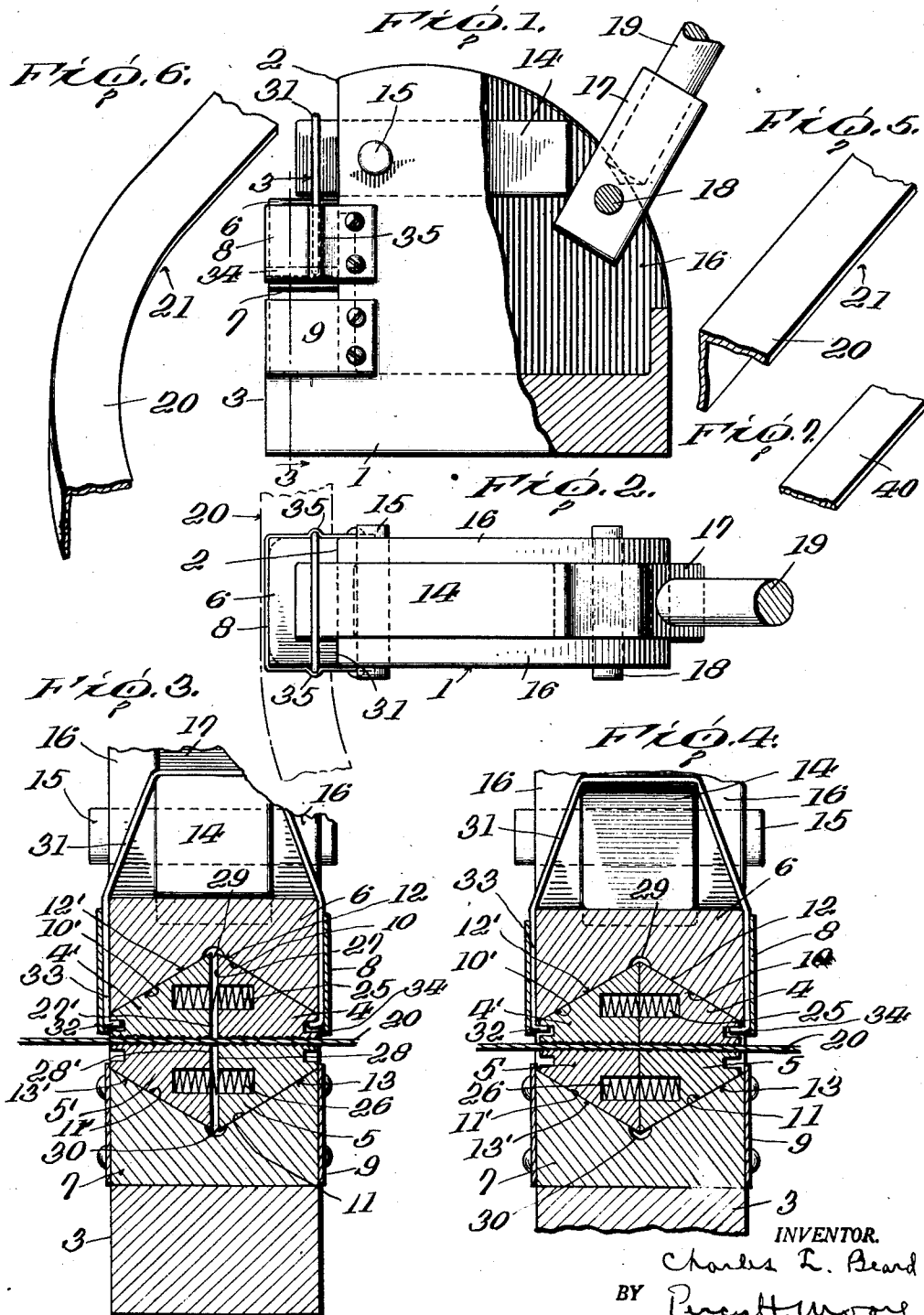
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ANGLE SHRINKER

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ANGLE SHRINKER

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3 Claims (Cl. 78—61)

My invention relates to improvements in machines for contracting either an angle shaped or a flat strip of metal into curved form, to fit a predetermined pattern or shape.

An object of the invention is to provide an improved form of apparatus adapted for use in curving an angle shaped strip of metal by gripping spaced areas of opposite faces of one leg or flange of the strip and forcing said gripped areas toward each other to shrink the gripped flange and impart curvature to the angle strip. Other objects and advantages of the invention will be understood from the following specification taken with the accompanying drawing, in which one embodiment of the improved apparatus is illustrated.

In the drawing:

Figure 1 is a side view, partly broken away, of the improved machine;

Figure 2 is a top plan view of the machine;

Figure 3 is a vertical section on the line 3—3 of Figure 1, showing the jaws of each pair expanded or spaced laterally;

Figure 4 is a section on the line 3—3 of Figure 1, showing the jaws in the position assumed when the upper guide member is forced downward;

Figure 5 is a fragmentary view of an angle shaped strip of metal before it has been operated upon by the machine;

Figure 6 is a view similar to Figure 5 showing the curvature of the strip after the shrinking operation; and

Figure 7 is a fragmentary view of a flat strip of metal before it has been operated upon by the machine.

Referring to the drawing 1 denotes a frame or body preferably of heavy cast construction and formed at its bifurcated front end 2 with a forwardly projecting table portion 3. Upper and lower sectional jaws 4—4' and 5—5', are embraced by spaced upper and lower jaw guiding or actuating members 6 and 7, the lower member 7 being supported upon this table portion 3, while upper member 6 and the upper jaws 4—4' are suspended from a pivoted bar 14, described more fully hereinafter, by means of a substantially inverted U-shaped wire member 31. This wire member seats, intermediate its ends, upon the front end of the bar 14 and may be secured thereto by any suitable means, not shown. The inwardly bent extremities 32 of the depending legs 33 of the member 31 are anchored in grooves 34, formed in opposite sides of these jaws. Upper and lower sheet metal housings or plates 8 and 9,

suitably connected to the front end of the body 1, are employed to confine these parts in relatively movable but rather compact assembled relation. The upper plates are formed with grooved offset portions 35 in which the legs of the wire member 31 are snugly received, for an obvious purpose. Normally the opposing inner straight smooth side faces 27—27' of the jaws 4—4', are forced apart by a coil expansion spring 25, while a similar spring 26 normally spreads the side faces 28—28' of lower jaws 5—5', as indicated by the vertical spaces 29 and 30, between these faces as best shown in Figure 3 of the drawing. The weight of the longer or rear end of the pivoted bar 14, is sufficient to normally maintain the jaws 4—4' and the jaw guiding or actuating member 6 in elevated position, thus permitting the springs 25 and 26 to operate freely.

The jaw guiding member 7 is provided with two downwardly and inwardly converging angled faces 11—11' and the part 6 is provided with two upwardly and inwardly converging angled faces 10—10'. The two upper or sectional jaws 4—4' and the two lower jaws 5—5', have inclined faces 12—12' and 13—13', respectively, which correspond with and are arranged in opposed relations to the inclined faces 10—10' and 11—11' of the members 6 and 7.

The bar 14, pivotally mounted upon a pin 15, extending between the walls or bifurcations 16 of the body 1, overlies the upper guide member 6, with its forward end, and at its rear end rests upon the inward end of a lever 17. This lever 17, like the bar 14 is mounted for pivotal movement between the bifurcations 16, a pivot pin 18 being provided for this purpose. Suitably secured to the outer end of the lever 17 is a handle 19 for rocking the lever on its pivot, to cause the rear end of the bar 14 to be elevated and the front end thereof to exert downward pressure against the top jaw guiding member 6, for a purpose presently explained.

In practice the horizontal flange or leg 20 of an angle shaped metal strip 21 is inserted between the opposed serrated working faces of the upper and lower jaws. The workman then manipulates the lever 17, in an obvious manner, to cause the outer end of pivotally mounted bar 14, to exert pressure against the top jaw guiding member 6. This operation first forces the opposing serrated gripping faces of the jaws to tightly grip the flange 20, and then causes the respective jaws, of each pair, to move inwardly toward each other against the tension of springs 25 and 26. It also

results in crowding or shrinking the material of those areas gripped by the respective sections or jaws of each pair, in opposing directions toward the space or spaces 29—30, between the jaws of each pair. Repeated successive applications of this gripping pressure, throughout substantially the entire length of the flange 20, causes the angle strip to assume the curvature illustrated in Figure 6. It will of course be understood that upon completion of the working stroke of the lever 17, the jaws and guide members will have moved downwardly a distance about equal to the thickness of the flange 20, of metal strip 21. Release of pressure will now permit the springs 25—26 to return the gripping jaws to their normal spaced position. During the slight outward movement or expansion of the gripping jaws, within the confines of the housings 8 and 9, the jaws 4—4' as well as the top guide member 6 are elevated by the action of bar 14.

It will be understood that when the flat strip of metal 40 is inserted between the opposed serrated faces of the upper and lower jaws, and the tool actuated in the manner previously described the strip 40 will be deformed or caused to assume the curvature of flange 20, in Figure 6.

Having thus described my invention, what I claim is:

1. A machine of the character described comprising a body member, spaced upper and lower guide members mounted on said body, two pairs of upper and lower jaws embraced by said guide members and adapted to receive therebetween a flat metal work piece, said upper jaws having grooves in opposite sides thereof, each of said upper and lower jaws having an inclined face adapted to slidably engage a correspondingly inclined face formed in the respective guide members whereby downward pressure exerted against the top guide member will force the jaws of a pair toward each other, a bar pivoted to said body with its forward end adjacent said upper

guide member, a wire member looped over and depending from the forward end of said bar and having angular extremities seating in said grooves for supporting said upper jaws and said upper guide member for simultaneous movement, means normally engaging the rear end of said bar for elevating the same and causing the front end thereof to be depressed to exert a downward pressure against said top guide member.

2. A machine of the character described, comprising a body member having a forwardly projecting table portion, spaced upper and lower guide members, two pairs of upper and lower jaws adapted to receive therebetween a flat metal work piece, the jaws of a pair being normally spaced laterally from each other, said upper jaws having grooves in their ends, each of said upper and lower jaws having an inclined face formed in the respective guide members whereby downward pressure exerted against the top guide member will force the jaws of a pair toward each other, said lower guide member supported on said table portion, a bar pivoted to said body and having the forward end overlying said upper guide member, a substantially inverted U-shaped wire member mounted intermediate its ends on said bar and having depending legs formed with inwardly bent extremities seating in the grooves of said upper jaws for supporting the latter and said upper guide member, a hand lever adapted to engage the rear end of said bar for causing the front end thereof to engage and exert a downward pressure against said top guide member, and means for automatically forcing the jaws of a pair laterally away from each other when said pressure is released.

3. A machine according to claim 2 wherein a grooved housing plate covers the legs of the wire member and secures the extremities of said legs in the grooves of said upper jaws.

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