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2,123,715

SHEET METAL BENDING TOOL

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Fig. 1.

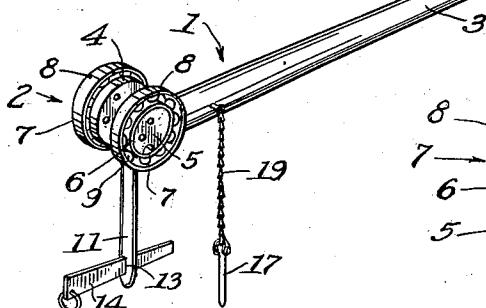


Fig. 3.

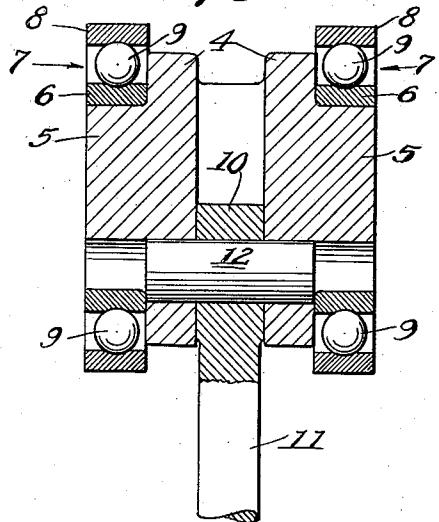


Fig. 2.

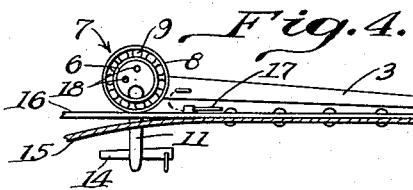
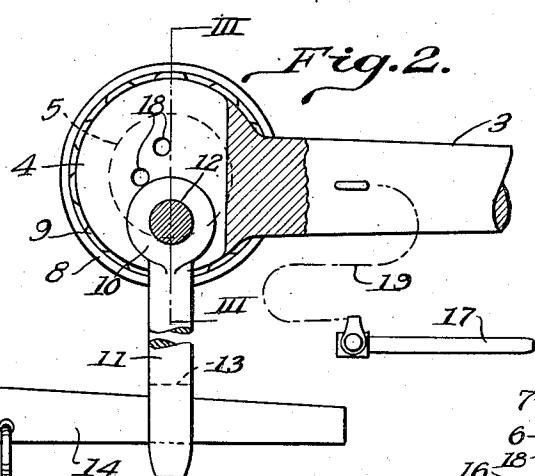
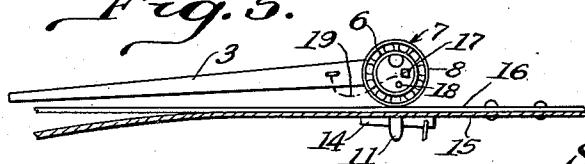


Fig. 5.



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SHEET METAL BENDING TOOL

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2 Claims. (Cl. 29—84)

This invention relates to tools employed in the construction of articles from heavy steel and iron plates or sheets. More particularly, the invention is directed to a device for clamping two or more thicknesses of such sheet metal tightly together in order that they may be riveted or welded together. Frequently when two sheets of metal are overlapped, they tend to separate because of bends or kinks therein and the tool forming the subject of the invention has been provided to draw and hold the overlapped plates together until they can be riveted or welded.

The primary object of the invention is the provision of a tool of this character which is provided with antifriction means between the work engaging member and the handle to lessen the power required in the operation of the device and to quicken the operation.

Another object resides in the employment of positive means to lock the tool in a work clamping position to prevent premature release of the handle and consequent injury to the operator.

For a further understanding of the invention, attention is directed to the following description taken in connection with the accompanying drawing, wherein:

Fig. 1 is a perspective view of a tool constructed in accordance with the present invention;

Fig. 2 is a vertical longitudinal sectional view 30 through the head end of the tool shown in Fig. 1;

Fig. 3 is a vertical transverse sectional view on the plane indicated by the line III—III of Fig. 2;

Fig. 4 is a side elevation of the tool in position upon two overlapping plates before the clamping 35 operation;

Fig. 5 is a similar view after the clamping operation has been performed.

Referring more particularly to the drawing, the numeral 1 indicates generally the tool comprising 40 the present invention. This tool is formed to include a head end 2 and a handle 3, the latter being a steel forging of tapering formation and having any suitable length.

The head 2 of the tool includes a pair of spaced disk-like members 4 which are integrally united at their rear edges to one another and to the handle 3. The disk members 4 are each provided at their outer side with a pad 5 of reduced size, 50 as compared to the disk 4, to receive the inner race 6 of antifriction bearings 7. The pads 5 are of such size that they may be pressed into the races 6 and securely held therein by the friction between the meeting surfaces. Other retaining 55 means may be employed but as it is important to

keep the manufacturing cost as low as possible, this method is believed preferable.

The bearings 7 also include the outer races 8 which engage directly with the work to be clamped. Between the outer races 8 and the inner races 6 are positioned the ball bearings 9 employed to eliminate friction during use of the tool. Rollers might readily be substituted for the balls 9 as will be understood by those familiar with the art.

Positioned between the spaced disk members 4 is the enlarged end 10 of a finger member 11. The enlarged end of the finger member is provided with an opening which registers with a set of similar, eccentrically arranged openings formed in the disk members 4. A short rod 12 is received within the aligned openings and pivotally supports the finger member 11 in connection with the head 2 of the handle 3. The lower or free end of the finger member 11 is slotted as at 13 to receive a wedge-shaped key 14. After the member 11 is inserted within the aligned holes of overlapped plates, as shown in Fig. 4, and the key is positioned in the slot, withdrawal of the member 11 is prevented and clamping pressure can then be applied.

In operation of the device, the finger 11 is inserted into aligned holes in the overlapped plates 15 and 16 with the rod 12 on the side of the center of the disk 4 toward the plate 16. The key is positioned in the slot and the handle rotated about the center provided by the rod 12. The eccentric positioning of the rod causes the plates to be drawn together when the handle is turned to the position shown in Fig. 5. To lock the plates in the clamped position, a pin 17 is inserted into one of a pair of holes 18 drilled in the disk 4. The pin 17 prevents the handle from rotating and the plates will be held pressed together until the welding or riveting operation can be performed. The pin 17 is secured to the handle by a flexible chain 19. After the plates have been secured adjacent the clamp, the pin 17 is removed, the handle 2 swung to its original position, and the key taken from the slot in the finger 11. The finger can then be removed from the openings and the operation repeated until the plates are completely united.

The provision of the bearings between the disks 4 and the work eliminates the necessity of slipping the disks against the plates as has been the procedure in previous devices of this nature. This lessens the friction developed as well as the effort required and the operation can thereby be performed quicker.

While I have shown and described the preferred embodiment of my invention, it will be understood that changes may be made in the mechanical construction of the parts of my device without departing from the spirit of the invention as set forth in the appended claims.

What is claimed is:

1. A device of the character described comprising a handle formed at one end with a pair of 10 relatively spaced pads, antifriction bearings carried by said pads, said bearings each including an inner race rigidly secured to said pad, an outer race and antifriction balls between said races, a finger member eccentrically pivoted at one end 15 in the space between said pads, a key loosely posi-

tioned in a slot near the free end of said finger, and a pin removably positioned across the space between said pads.

2. A device of the character described comprising a handle provided at one end with a pair of 5 relatively spaced pads, antifriction bearings carried by said pads, said bearings each including an inner race non-rotatably secured to said pad, an outer race and antifriction bearing means between said races, a finger member eccentrically pivoted at one end in the space between said pads, and a key loosely positioned in a slot near the free end of said finger.

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