

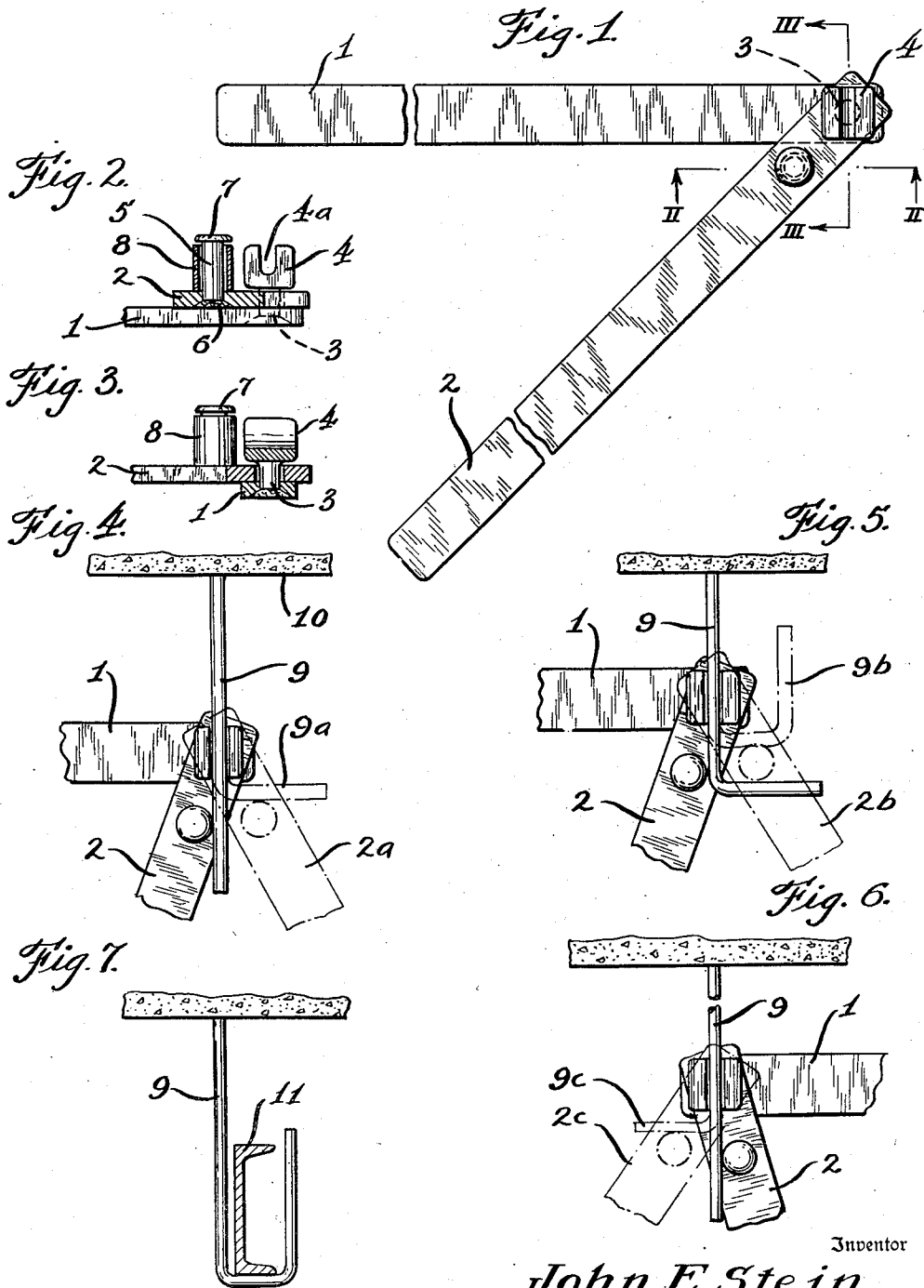
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J. E. STEIN

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PIVOTED ROD BENDING HAND TOOL

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Inventor

John E. Stein

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William J. Ruano

Attorney

UNITED STATES PATENT OFFICE

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PIVOTED ROD BENDING HAND TOOL

John E. Stein, Pittsburgh, Pa.

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1 Claim. (Cl. 81-15)

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The present invention relates to a device for bending wires and rods and, more particularly, to a tool for making L-shaped or U-shaped bends on rods, such as hangers extending downwardly from a ceiling, to provide a support for channels and the like.

In the past, rod bending tools have been provided comprising essentially a pair of handles pivotally connected together, at least one of which having mounted thereon a roller for effecting the wire bending operation as the result of pivotal movement of the handles. An outstanding disadvantage of such tools is the great tendency of breakage of the tools because of bending over-sized rods and wires. A further disadvantage of conventional tools is that they are somewhat complicated in construction and are relatively expensive to manufacture.

An object of the present invention is to provide a tool for bending rods and wires, which tool overcomes the above-mentioned disadvantages.

A more specific object of the present invention is to provide a wire or rod bending tool which prevents the possibility of bending over-sized rods and wires which might otherwise cause breakage of the tool.

A still further object of the present invention is to provide a wire or rod bending tool which is of exceedingly simple construction, therefore relatively inexpensive to manufacture, and which is capable of making either right or left hand bends in a wire or rod, such as in hanger rods extending downwardly from the ceiling for supporting channels and the like wherein the rod is bent to U-shape for substantially encircling the supported channel.

Other objects and advantages of the present invention will become apparent from a study of the following description, taken with the accompanying drawing wherein:

Fig. 1 is an elevational view of a device or tool for bending rods or wires and embodying the principles of the present invention;

Fig. 2 is a cross-sectional view taken along line II-II of Fig. 1;

Fig. 3 is a cross-sectional view taken along line III-III of Fig. 1;

Fig. 4 is an elevational view showing a rod extending from the ceiling and a fragmentary portion of the tool illustrating how the rod is bent in forming a hanger;

Fig. 5 is an elevational view similar to Fig. 4 but showing the rod after it is bent by the tool;

Fig. 6 is an elevational view similar to Fig. 4, 55

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except showing how the tool is used for making a left-handed bend in the rod, and

Fig. 7 is an elevational view of the rod after being bent into U-shape to form a channel supporting hanger for building construction.

Referring more particularly to Figs. 1, 2 and 3, numerals 1 and 2 denote handles made of flat steel bars or of other suitable material, which handles are pivotally connected together at one end thereof by means of a pivot pin 3, one end of which pin is welded to handle 1. At the other end of the pivot pin 3, there is integrally secured a safety guide element 4 which is in the form of a block of steel having a groove 4a extending therethrough whose width limits the diameter of the rod or tube extending through the groove to be bent by the tool. The width of such groove, of course, is dependent upon the over-all size of the tool and can be made larger for larger size tools. For example, if the width of the groove is $\frac{1}{4}$ " , the depth can be $\frac{1}{2}$ ". Pivot pin 3 extends through a hole of slightly larger diameter formed at one end of handle 2.

Adjacent the pivotally connected end of handle 2, there is mounted a roller bearing element comprising a pivot pin 5, one end of which is welded at 6 to handle 2 and the other end is flattened to provide a head 7 which will confine a bearing sleeve 8.

The operation of the tool may be better understood by reference to Fig. 4 which shows a rod 9 emerging from a ceiling 10, which rod, while initially straight and vertical, is to be bent into the shape of a hanger to provide a support for supporting a channel such as used in building construction, or other elements. Handle 1 is held in a substantially horizontal position, as shown in Figs. 1 and 4, so that the vertically extending rod 9 will be extended through groove 4a in the guide element 4 while handle 2 is held in such position that the roller bearing mounted thereon is at the left of the rod as viewed in Fig. 4. Bar 2 is then pivotally swung in a counterclockwise direction from the full to the dot-and-dash line position 2a as indicated so as to bend rod 9 from the full to the dot-and-dash line 9a, thereby forming an L-shaped right-hand bend. It will be noted that rod 9 is snugly guided and held within the guide element 4, and as sleeve 8 is forced against and rolled along the surface of rod 9 providing an anti-friction rolling connection, the rod will be bent along a smooth and short 90° curvature as indicated. In order to shape rod 9 into the form of a hanger, such as commonly used for supporting channels in build-

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ing construction, such as channel 11 shown in Fig. 7, the tool, after an initial L-shaped bend, such as 9a, has been perfected, is moved upwardly to the position shown in Fig. 5, after which rod 9a is bent again along a portion closer to the center of the rod. That is, handle 2 is pivotally moved again in a counter-clockwise direction from full line position to the dot-and-dash line position 2b and at the same time, rod 9 will be bent from the shape shown in the full line position to the dot-and-dash line position 9b, thereby providing a substantially U-shaped bend.

The final shape of rod 9 is more clearly shown in Fig. 7. After a plurality of bends, such as shown in Fig. 7, are provided, a steel channel 11 may be supported by a number of spaced rods, such as 9. Of course, other elements may be supported by rods 9 as well.

Fig. 6 shows the manner the tool may be used for making a left-hand bend instead of a right-hand bend on rod 9. Handle 1 is extended horizontally towards the right while handle 2 is pivotally moved so that the roller bearing element mounted thereon is at the right-hand side of the rod 9. While handle 1 is held stationary, handle 2 is moved in a clockwise direction to the position shown in dot-and-dash lines 2c, thereby bending rod 9 to the position shown in dot-and-dash lines 9c, thus making a left-hand bend. Of course, to provide a U-shaped bend to rod 9, the tool is lifted to an intermediate position, similar to that shown in Fig. 5, to provide a second left-hand bend for completing the U-shaped bend. Rod 9 will carry a metal lathe and plastered ceiling (not shown).

Thus it will be seen that I have provided a highly efficient device or tool for bending solid or tubular rods or wires, and which is particularly useful for bending hangers emerging from ceilings in building construction for supporting channels and the like; furthermore, I have provided a rod and wire bending tool which is of relatively simple construction, therefore economical to manufacture, and which embodies a safety feature preventing the entrance of oversized rods or wires through the guide element which might otherwise break the tool if bending thereof were to be attempted.

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While I have illustrated and described a certain specific embodiment of my invention, it will be understood that this is by way of illustration only, and that various changes and modifications may be made within the contemplation of my invention and within the scope of the following claim.

I claim:

A tool for bending rods and the like, comprising a pair of flat handles of uniform thickness, a solid cylindrical pivot pin having a head portion welded to the end of one handle, the other handle having a circular hole formed at one end which encircles said pivot pin for providing a pivot for said handles on the axis of said pivot pin, a guide element integrally secured to the other end of said pivot pin to form therewith a one-piece element, said guide element being in the form of a flat piece of metal having a vertical, substantially rectangular slot cut therethrough disposed in axial alignment with the pivot pin and extending at right angles to said one handle, said slot being straight and of uniform width for limiting the lateral movement of the rod therein, a second cylindrical pivot pin welded on said other, hole-bearing handle adjacent the points where said handles are pivotally connected together, a hollow cylindrical sleeve encircling said second pivot pin, a flattened head on said second pin for confining said sleeve, whereby said sleeve provides a rolling anti-friction bearing element for pressing against the rod which is moved into said groove and for bending it as the result of pivotal movement of said handles.

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