Sept. 19, 1961 J. H. HOLDER 3,000,098

CONTOUR MARKER ADAPTER

Filed Sept. 26, 1960

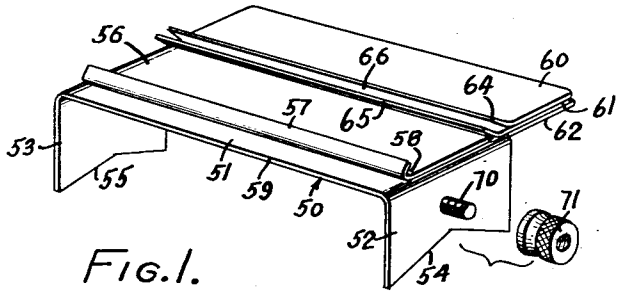


FIG. 1.

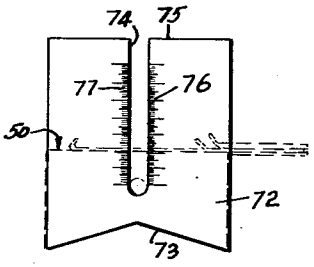


FIG. 5.

FIG. 2.

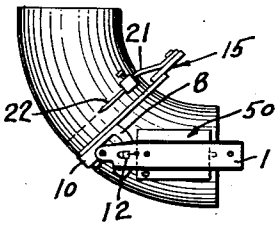


FIG. 7.

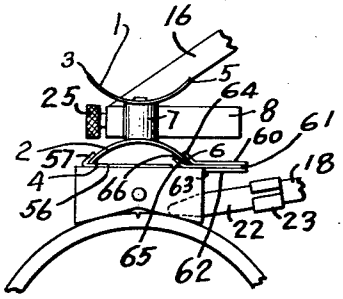
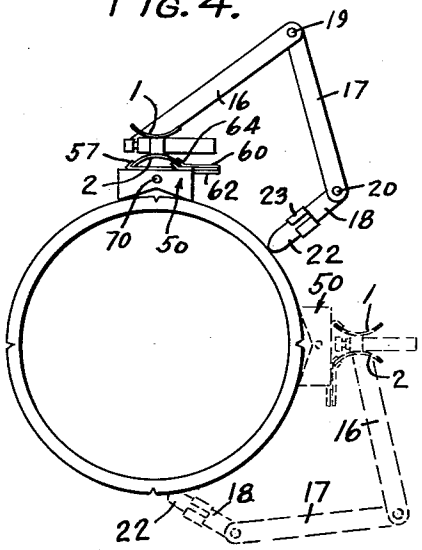


FIG. 4.



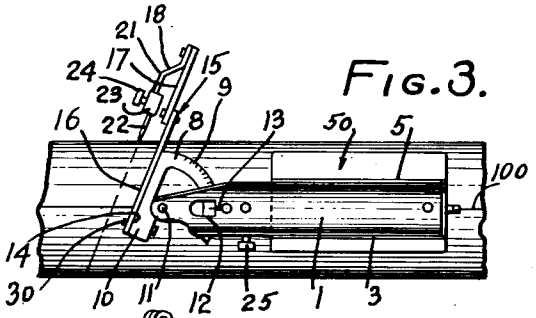


FIG. 3.

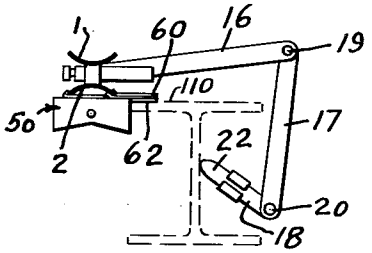


FIG. 8.

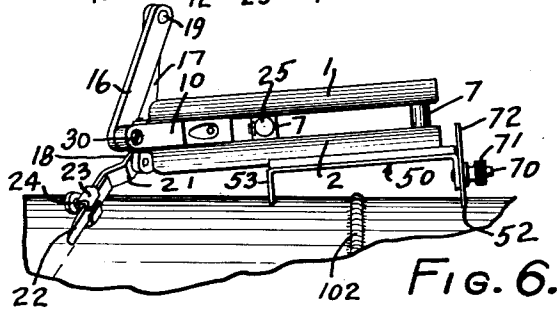


FIG. 6.

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United States Patent Office 3,000,098 Patented Sept. 19, 1961

3,000,098

CONTOUR MARKER ADAPTER

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Filed Sept. 26, 1960, Ser. No. 58,512
6 Claims. (Cl. 33—21)

The present invention relates to a contour marker adapter and has for an object a marker adapted to operate in conjunction with a contour marker to increase the usefulness of the marker and render the same more efficient.

Contour markers are known in the art and usually comprise a frame of some type carying an articulated or jointed arm, the outermost member of which carries a marking pencil usually formed of soapstone. The contour marker also includes a protractor which is attached to the articulated arm so that the marking pencil may mark the workpiece to be cut in accordance with the angle set by the protractor.

Contour markers are used by welders, pipe fitters, and layout men, to the end that the task of making layouts on work is speedily and easily accomplished with accuracy. Contour markers are particularly advantageous in laying out pipe elbows, laterals, Y's, saddles, branches, etc., all as generally understood in the art.

In the use of a contour marker, particularly on a pipe, it is not always possible to apply the frame of a contour marker to the pipe along a given line such as the center line of a pipe, or the marking of the angle of cut on a structural member, such as an I beam, due to various obstructions that may be present on these members.

A further object of the invention is to provide an adapter for a contour marker, which engages the frame of the contour marker, and allows the contour marker to straddle various obstructions without interfering with the operation of the contour marker.

A further object of the invention is an adapter for a contour marker which permits the contour marker frame to be located in an offset position relative to a work member, such as an I beam, and still permit accurate marking of the I beam for a cut.

A further object is the provision of a contour marker adapter which permits the marking of a compound angle to a previously found angle marked on a workpiece without the necessity of moving the adapter on the workpiece.

Other objects and advantages of the invention will be apparent to those skilled in the art. The invention is inexpensive in cost of manufacture, easily used and renders a contour marker more efficient in its adaptations.

With the above mentioned and other objects in view, the invention consists in the novel and useful provision, formation, construction, association and relative arrangement of parts, members and features, all as shown in certain embodiments in the accompanying drawing, described generally and more particularly pointed out in the claims.

In the drawings:

FIGURE 1 is a perspective view of the contour marker adapter of the invention, a certain part being shown in separated position;

FIGURE 2 is a fragmentary end elevation of a type of contour marker mounted on an adapter, the adapter engaging the surface of a pipe;

FIGURE 3 is a fragmentary, top plan view of a contour marker and adapter engaging a workpiece which is to be marked for a given angle of cut;

FIGURE 4 is an end view of a pipe, the contour marker adapter being shown in two positions on the pipe, one in full lines and the other in dotted lines;

FIGURE 5 is an end elevation of a member used in conjunction with the adapter for a compound angle;

FIGURE 6 is a fragmentary, side elevation of a contour marker and the adapter of the invention utilizing the member shown in FIGURE 5 for the purpose of drawing a compound angle by means of the marking point;

FIGURE 7 is a top plan view of the contour marker and its adapter engaging a curved piece or an elbow; and

FIGURE 8 is an end elevation of the contour marker and adapter shown marking the web of a structural member.

Referring now to the drawing. I have shown in the several figures a contour marker of a type which is particularly efficient in use with the adapter of the invention. The contour marker includes a pair of spaced apart and aligned frame members **1** and **2** which frame members are arcuate transversely or of channel type, of the same length with the edges thereof in parallel alignment, as shown in the end elevation of FIGURE 2 at **3**, **4**, **5** and **6**. The frame members are rigidly secured together in spaced relationship by means of separator posts **7**, of which there may be a number, in the present instance two are provided, with suitable means such as rivets, or by welding for securing the posts along the longitudinal center line of each frame member to the end that the convex surface of each frame member is in opposed relationship. It is essential that the frame should be rigid and that there should be no relative shifting of the frame members. In each instance, the concave surface of each frame member faces outwardly. Interposed between the frame members at one end thereof is a protractor **8** which is marked on both surfaces, as shown for one surface at **9**, the marking being arbitrary, but usually one marking is in degrees such as the marking **9**, while the marking on the opposite surface of the protractor may be in inches to the foot. The protractor, in addition to the curved portion **8**, bearing the indicia and markings has an extended arm **10** and the arm **10** is pivoted through suitable means **11** to one end of the two frame members. The pivot point would be the center of the arcuate portion for the protractor so that the curved portion of the protractor would be on a radius. Both frame members **1** and **2** are provided with aligned slots designated generally as **12** whereby the scale markings on either side of the protractor may be readily observed. In this connection, suitable cuts along the longitudinal center of each frame member acts as an index **13** for the protractor markings. It will be observed that the arm **10** has a straight outer surface **14** and to the arm at the straight outer surface **14** is pivotally secured one end of an articulated arm designated generally as **15**. The articulated arm, in the present instance, is triple jointed in that it has three portions **16**, **17** and **18** pivotally secured together at **19** and **20** in any suitable manner, the length **16** being pivoted as at **30** to the arm **10**. The member **18** is offset, as shown in FIGURES 3 and 7 at **21** and carries a marking point **22** at the outer end thereof. This marking point is usually secured by means of a clip **23** which embraces the marking point and the arm and is adjustable, being held in adjustable position by means of a set screw **24**. Usually the marking point **22** is formed of soapstone, although other materials may be used. The protractor may be held in any adjusted position through the means of a locking screw **25** carried between the two frame members and engaging the edge of the arcuate protractor portion **8**.

The adapter for use with the contour marker of the type described is designated as an entirety by **50** and includes a flat piece **51** forming a table, ends of which

table are provided with risers 52 and 53, the risers being of identical form and size, as well as parallel and depending from the table ends. Each riser has its bottom edge in the form of a V, as shown at 54 and 55. Secured to the top of the table 51 is an elongated plate 56 one edge of which is bent upwardly and inwardly, as shown at 57, to provide a grooved portion 58. The upwardly and inwardly bent edge portion 57 parallels the edge 59 of the table 51. Secured to the table and spaced from the upwardly and inwardly bent edge 57, are a pair of overlapped plates 60 and 61, the plate 61 being secured to the table 51, and, likewise, secured to a plate 62 which is beneath the plate 61 and secured to the adapter as shown at 63. The outer edges of said plates are flat while the inner edges of plates 61 and 62, as shown at 64 and 65, are separated and bent upwardly to provide a groove 66 therebetween. The groove 66 parallels the groove 58 and it is to be noted that the angle of the portion 57 and the angle for the two plates for the edges 64 and 65, are the same. The plates 56, 60, 61 and 62 have the same length as the table 51, as shown in FIGURE 6. The riser 52 is provided on its outer surface and intermediate the width thereof with an outwardly extending screw threaded stud 70 which normally carries a knurled surface nut 71. I provide a movable riser 72 which is provided with a V edge 73 and likewise provided intermediate its width with an elongated slot 74 which extends to the top edge 75 of the member 72. The apex of the V 73 lies on a center line which is intermediate the width of the riser 72 and likewise intermediate the slot 74. Indicia 76 and 77 are provided on the movable riser on both sides of the slot, the indicia being in degree markings. Riser 72 has the same width as the fixed riser 52 and the stud 70 is adapted to be received in the slot 74 and held in any adjusted position relative to the movable riser when the knurled nut 71 engages the stud 70 and clamps the movable riser 72 against the fixed riser 52. This permits the movable riser to have its V 73 in alignment with the V 54 or the riser 72 to be moved relative to the fixed riser as shown in FIGURE 6, and to thereby tilt the adapter to the desired compound angle.

The operation, uses, and advantages of my invention are as follows.

Primarily, I intend use of the contour marker with the adapter shown in FIGURE 1 and other figures. However, it is evident that the contour marker, per se, may be used without the adapter in certain instances. While the operation of the contour marker is no doubt apparent to those skilled in the art, it may be said that the contour marker if used without the adapter, is placed upon the workpiece which may be the structural member shown in FIGURE 8 or on a pipe which it is desired to first mark and then cut according to the mark or layout. The concave members 1 and 2 will be used, that is, one or the other of said members, depending upon whether the setting for the protractor is in degrees or in inches to the foot. Assuming that degrees are used, the center line of the pipe 100, FIGURE 3, is established and the center line of the concave frame member 2 is placed in alignment with said center line 100 so that the longitudinal center of the frame overlies and is parallel with said center line 100. It will be noted that the index mark 13 will overlie the center line 100 as will likewise the pivot point 11 for the protractor. The protractor may be revolved and then locked by the locking screw 25; and the protractor may be moved substantially through a predetermined degree of arc. In this connection it is to be observed that both frame members 1 and 2 are cut, as shown at 101 so that the articulate arm may parallel the same so that all degrees of the protractor are used. Usually both ends of the frame members 1 and 2 are given a V cut to act as an index for accurately visually aligning the contour marker on the predetermined center line 100 of the pipe. I refer to the ends of the frame opposite the pivot point 11 which connects the protractor to the frame. To use a contour marker, and assuming its position on pipe, as illustrated in FIGURE 3, to obtain best results, the marking point engages the bottom of the pipe and is moved upwardly. This eliminates accidental springing of the articulated arm out of alignment with the protractor setting and permits accurate marking in a free easy movement. Thus it is possible to scribe a line on the pipe or other structural member so that a cut may be made for any purpose desired whether it be for elbows, laterals, or other fitting.

The adapter shown in FIGURE 1 is used in connection with the contour marker and the edges 3 and 5 of the frame member 1, or edges 4 and 6 of frame member 2, are adapted to span and be received in the channels or grooves 58 and 66 and to fit snugly therein. The contour marker may be positioned within said channels at any desired point, as shown for instance in FIGURE 3. When so used with or without the movable riser 72, the apex of the V in the riser is indexed relative to the center line of the pipe 100 which is to be cut. Usually the V portions will fit the contour or curvature of the pipe depending upon the diameter of the pipe, as shown for instance in FIGURE 4. If the pipe has a welded joint, as shown in FIGURE 6, at 102, the adapter will straddle the weld and not interfere with operation of the contour marker which is an important feature of the present invention. Obstructions on pipe are bridged by the adapter and consequently ease of operation of the marker is obtained. In FIGURE 7, the curved pipe which is to be scribed or marked, shows that the contour marker may be moved relative to the adapter so that the protractor is closely adjacent one riser of the adapter. This is a very handy procedure when the radius of the pipe is such as to require accuracy of cut and the adapter permits this through allowing slide movement of the frame of the contour marker. In FIGURE 6 the contour marker has been moved forwardly from the riser 52 and is in a changed position from that shown in FIGURE 3. When it is desired to scribe a compound angle, the movable riser 72 is used, the stud 70 being received within the slot 74 and the movable riser moved to the desired degree of slope for the contour marker. Thus, as shown in FIGURE 6, a compound angle to a previously found angle marked on a pipe may be made without removing the adapter. By extending the movable riser beyond the fixed riser 52, the end may be raised to the desired angle which tilts the adapter to the desired compound angle.

It is to be noted that the plates 60, 61 and 62 extend beyond an edge of the table 51 and when the contour marker is to be used for marking the angle of cut on a structural member such as an I beam as shown in FIGURE 8, the plate 62 will rest upon the top or the bottom flange of the structural member, as shown at 110, the edge of the flange engaging the side edges of the risers as shown. The contour marker has its frame member 2 positioned within the slots or grooves 57 and 66 whereby the scribe or mark on the structural member may be made at a selected angle. This line may be scribed both on the top and bottom surfaces of the web and flanges and with accuracy.

I claim:

1. The combination, with a contour marker of the type which includes a pair of elongated channel frame members spacedly secured together and in alignment, and a protractor pivotally secured to one end between the frame members, with an articulated arm, the outer end of which carries a marking point, secured to the protractor, of: an adapter for said contour marker; said adapter including: a table provided with parallel fixed end risers, and parallel plates, secured to the top of the table, provided with parallel spaced apart grooves for receiving one of the frame members of the contour marker for slide adjustment of the contour marker relative to said plates.

2. The device of claim 1, certain of said plates extending laterally beyond an edge of the table.

3. The device of claim 1 and a movable riser for engagement with one of the fixed risers for raising or lowering the adapter at an angle to work.

4. The device of claim 1, and a movable riser for abutting engagement with a fixed riser, the fixed riser provided with an outwardly extending stud, and the movable riser provided with a vertical slot through which the stud is passed, and means for engagement with the stud and the

movable riser for adjusting the position of said movable riser relative to the fixed riser.

5. The device of claim 4, there being indicia marks adjacent the slot for indicating the degree of rise of said movable riser member relative to the fixed riser member.

6. The device of claim 4, both the fixed and movable riser members being formed with V ends, the apices for the V being intermediate the width of said fixed and movable riser members.

No references cited.