

July 20, 1943.

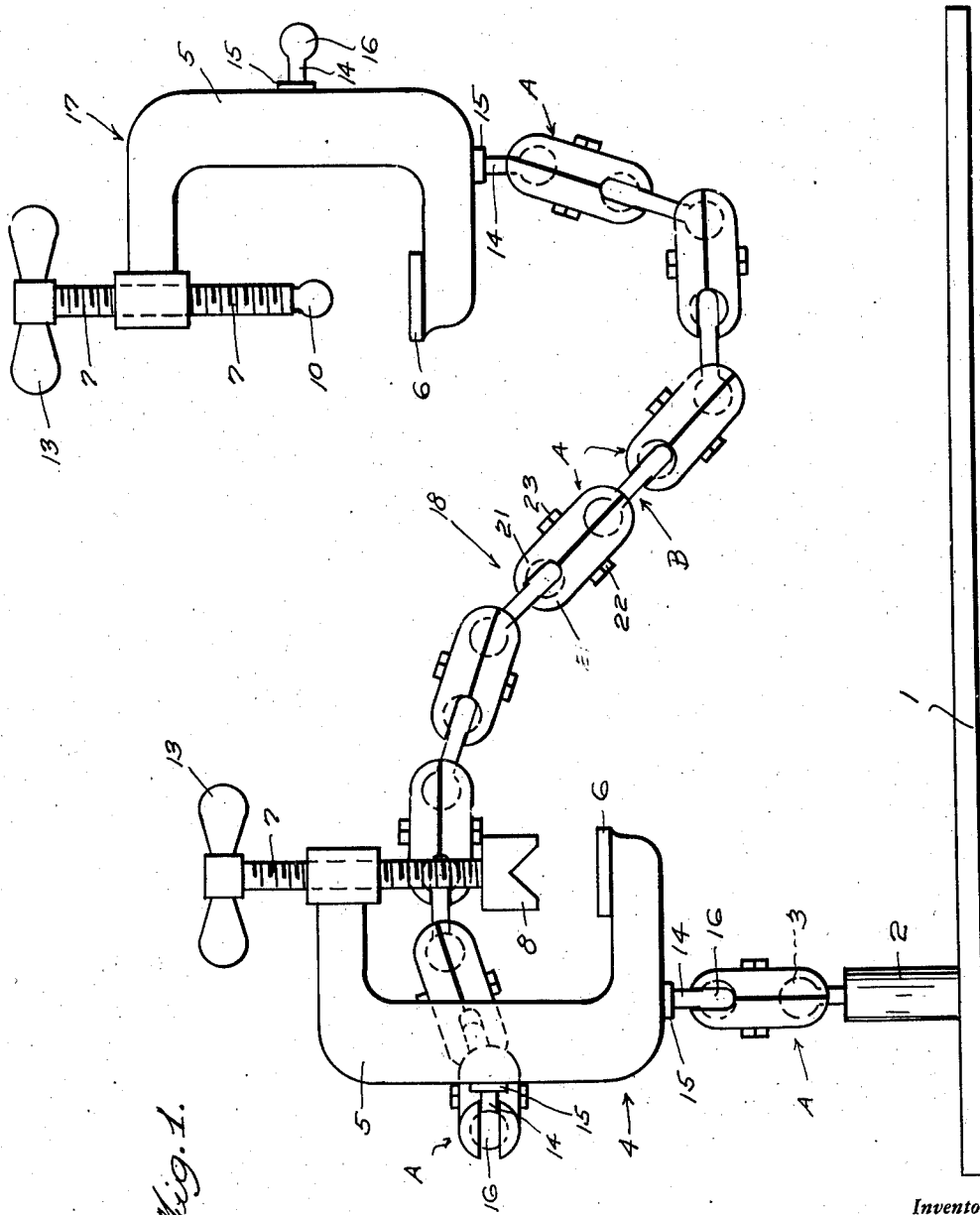
LAVERNE S. SNYDER

2,324,803

WORK HOLDER

Filed May 2, 1942

3 Sheets-Sheet 1



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By *Clarence A. O'Brien*
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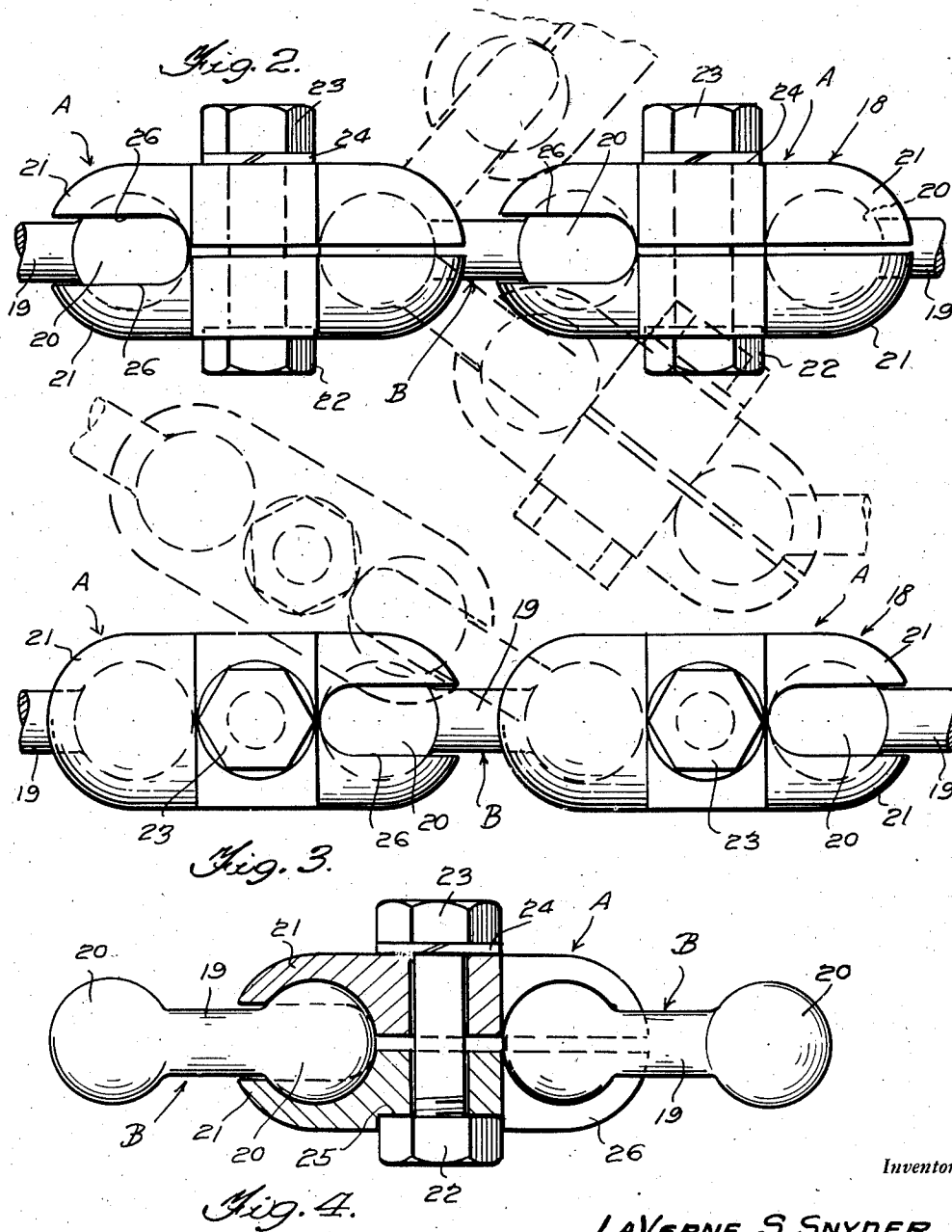
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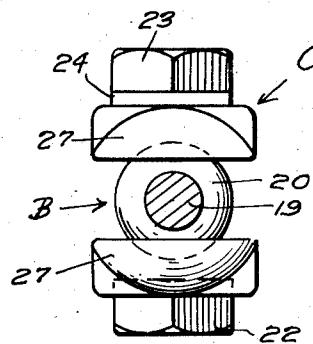
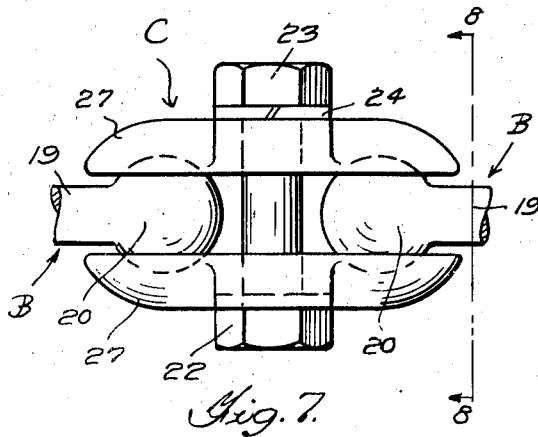
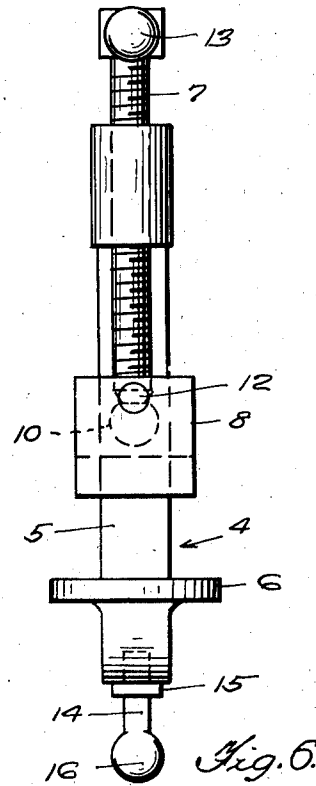
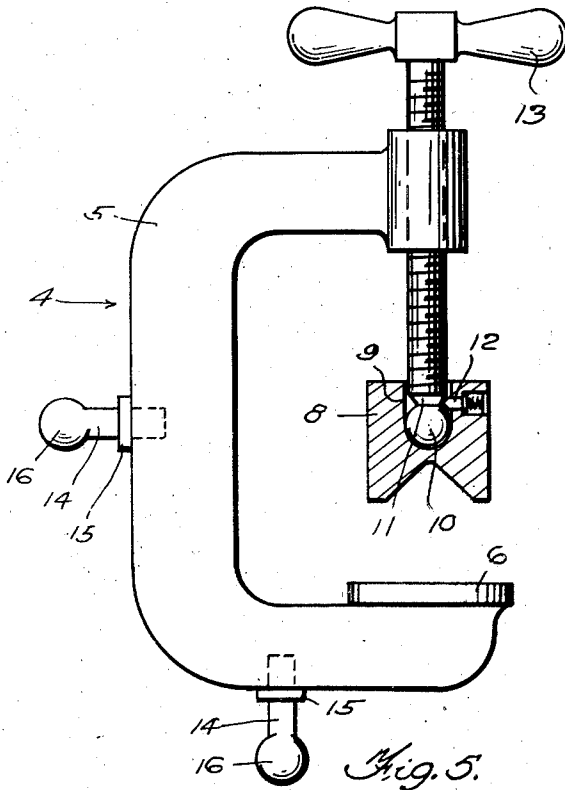
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UNITED STATES PATENT OFFICE

2,324,803

WORK HOLDER

La Verne S. Snyder, Baltimore, Md.

Application May 2, 1942, Serial No. 441,440

1 Claim. (Cl. 29—89)

The present invention relates to new and useful improvements in work holders, particularly for welding, although it will be understood, of course, that the device may be used for any other purpose for which it may be found adapted and desirable.

The primary object of the invention is to provide, in a manner as hereinafter set forth, a holder of the aforementioned character comprising a novel construction and arrangement whereby the device may be expeditiously adjusted for firmly securing pieces of work of various shapes and sizes in position for welding.

Other objects of the invention are to provide an adjustable work holder or clamp of the aforementioned character which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in side elevation of an adjustable work holder constructed in accordance with the present invention.

Figure 2 is a view in side elevation of an intermediate portion of the adjustable supporting arm.

Figure 3 is a top plan view thereof.

Figure 4 is a view in vertical longitudinal section through a portion of the adjustable supporting arm.

Figure 5 is a view in side elevation of one of the clamps, showing the adjustable jaw in vertical section.

Figure 6 is a view in front elevation of one of the clamps.

Figure 7 is a detail view, showing a modified construction for the supporting arm.

Figure 8 is a cross-sectional view through the modification, taken substantially on the line 8—8 of Figure 7.

Referring now to the drawings in detail, it will be seen that reference numeral 1 designates a base of suitable material. Rising from one end portion of the base 1 is a post 2. A ball 3 is mounted on the upper end of the post 2.

A clamp 4 is mounted for universal swinging adjustment on the ball 3. The clamp 4 includes a substantially U-shaped frame 5 having, on one end portion, a stationary jaw 6. Threadedly

mounted on the other end portion of the frame 5 is a thumb screw 7. A substantially V-shaped jaw 8 is rotatably mounted on one end portion of the screw 7 for adjustment toward and away from the stationary jaw 6.

The jaw 8 has formed therein a socket 9 for the reception of a ball head 10 on one end of the screw 7. The head 10 is joined to the screw 7 by a neck 11. A spring pressed detent 12 is provided in the jaw 8 for engagement with the neck 7 for removably securing said jaw in position on the screw 7. An operating handle 13 is provided on the upper end of the screw 7.

Threadedly mounted in sockets which are provided therefor in the frame 5 is a plurality of shanks 14. The shanks 14 are square in cross-section to receive a wrench or other tool. Stop collars 15 are provided on the shanks 14 for engagement with the frame 5. Balls 16 are provided on the outer ends of the shanks 14.

A duplicate clamp 17 is mounted on the clamp 4 through the medium of an adjustable supporting arm 18. The adjustable arm 18 includes alternating links and connectors A and B, respectively. The connectors B comprise shanks 19 having integral balls 20 on their ends. The links A comprise complementary double ended jaws 21 formed to provide sockets for the reception of the balls 20. Bolts 22 clamp the opposed jaws 21 on the balls 20 for frictionally securing any desired adjustment of the arm 18. The bolts 22 are provided with securing nuts 23. Lock washers 24 are provided on the bolts 22 beneath the nuts 23. As illustrated to advantage in Figure 4 of the drawings, the heads of the bolts 22 are countersunk in the links A.

The links A are provided on both ends of the adjustable arm 18. These end links A are clamped on one of the balls 16 on each of the clamps 4 and 17. One of these links A is also clamped on the other ball 16 of the clamp 4 and on the ball 3 for adjustably mounting said clamp 4 on the post 2. The opposed end portions of the jaws 21 are vertically and horizontally slotted, as at 26, to accommodate the shanks 19 of the connectors B. This permits the links A and the connectors B to be conveniently swung to substantially any desired position for obtaining various adjustments.

It is thought that the manner of using the device will be readily apparent from a consideration of the foregoing. Briefly, one of the pieces of work to be welded is mounted in the clamp 4 and the other piece is mounted in the clamp 17. These clamps are then adjusted to position the

two pieces of work relative to each other for welding, which may be expeditiously accomplished by reason of the adjustability of the arm 18 and the mounting of the clamp 4 on the post 2. If desired, one or more of the nuts 23 may be loosened to facilitate adjusting the clamps 4 and 17 relative to each other. These nuts 23 also permit the frictional grip of the jaws 21 on the balls 20 to be regulated as desired. The substantially V-shaped jaws 8 are primarily to accommodate round work. However, other shapes of jaws are to be provided to accommodate other shapes of work. For example, flat jaws would be provided for flat work.

In the slight modification illustrated in Figures 7 and 8 of the drawings, links C are coupled by the connectors B. The links C comprise jaws 27 for the reception therebetween of the balls 20, said jaws 27 being spaced from each other suf-

ficiently to permit the shanks 19 of the connectors B to swing around therebetween.

It is believed that the many advantages of an adjustable work holder constructed in accordance with the present invention will be readily understood, and although preferred embodiments are as illustrated and described, it is to be understood that further modifications and changes in the details of construction may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

A work holder comprising a clamp including a substantially U-shaped frame, shanks projecting from the frame at right angles to each other, balls on said shanks, means engaged with one of the balls for adjustably mounting the clamp on a support, and another clamp adjustably mounted on the other of said balls.

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