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CLAMPING FIXTURE

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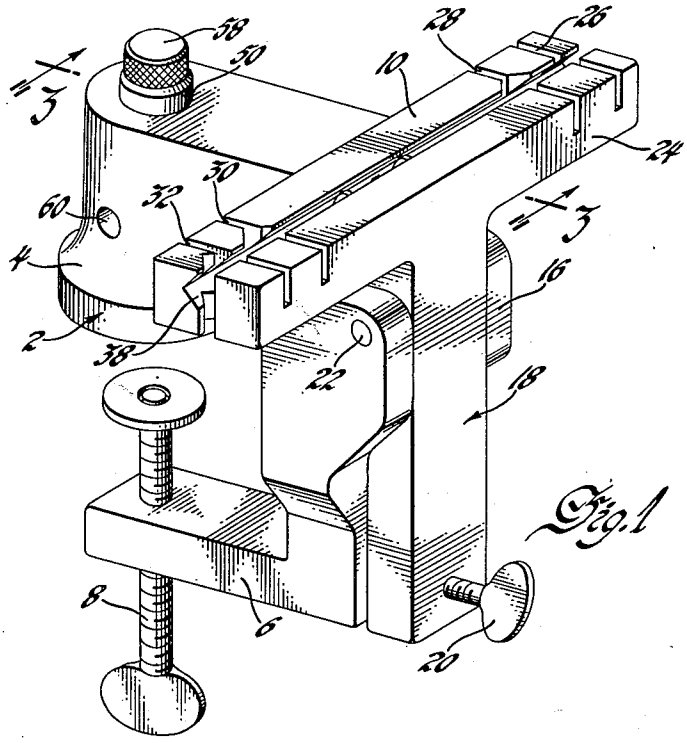

Fig. 1

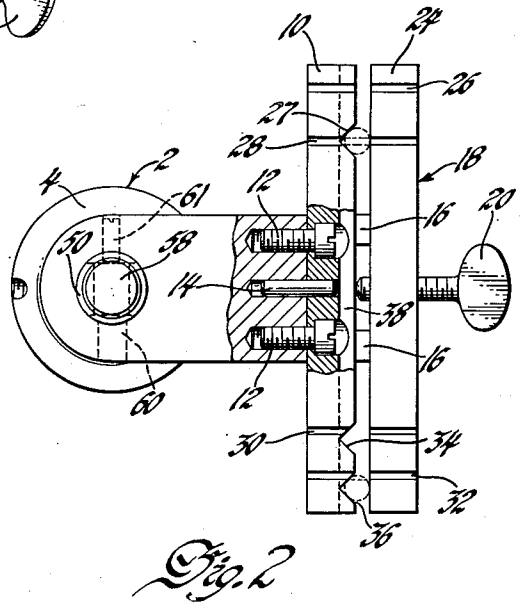

Fig. 2

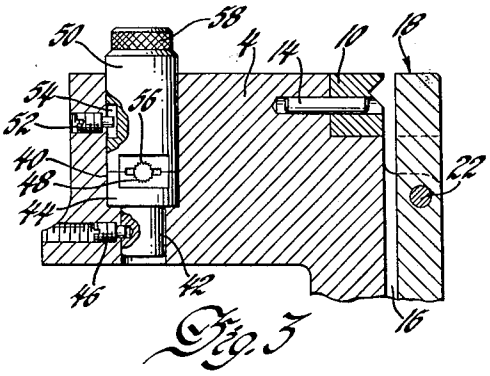

Fig. 3

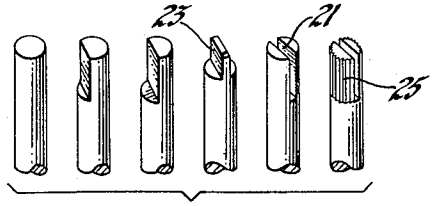

Fig. 4

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CLAMPING FIXTURE

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4 Claims. (Cl. 29—67)

1

This invention relates to a fixture in which parts for particular purposes may be supported for fabrication. Parts for similar functions or use in similar portions of mechanisms are in most instances almost identical but not exactly the same. Different manufacturers utilize different manners of securing parts together or of mounting similar parts which necessitate minor changes, and therefore in the service field one must carry a relatively large stock of similar parts in order to have one on hand that might be needed. As illustrative only, and in no way to be considered as limiting my invention, in the radio receiver field there are provided a plurality of control shafts which are rotatably secured to the receiver chassis for operating parts of the set, which shafts normally project through the cabinet front (or instrument panel in the case of automotive sets), and have operating knobs removably secured to the projecting ends, said securing means being of many different types. In the servicing of radio receivers, it is often necessary to replace one of these control shafts, and in order to have a complete supply for the large number of different receiver models, the radio serviceman has had to carry a very large number of types of these control shafts, having different end portions, all of which are substantially the same diameter and approximately the same length, but vary considerably in the type of end design, both for the projecting end that supports the control knob and also the end connected into the means being operated, such, for example, as the volume control. In order to simplify the carrying of stock for these parts, a standard rod or shaft material may be purchased in standard lengths, and when a control shaft is desired, the rod may be cut to the proper length and provided with the necessary ends to answer the needs of the particular set.

It is, therefore, an object of my invention to provide means for supporting stock material so that it may be easily cut to the desired form.

It is a further object of my invention to provide a master fixture to hold stock for fabricating purposes.

It is a still further object of my invention to provide a master fixture in which the rough stock may be held in several different positions so that it may be easily cut to a desired form.

With these and other objects in view which will become apparent as the specification proceeds, my invention will be best understood by reference to the following specification and claims and the illustrations in the accompanying drawings, in which:

2

Figure 1 is a perspective view showing the master fixture of my invention.

Figure 2 is a top view with parts broken away and shown in section of the same.

Figure 3 is a sectional view taken on line 3—3 of Figure 1; and

Figure 4 illustrates a group of different types of control rods such as can be made with my invention.

Referring now more specifically to the drawings, there is shown therein a substantially C-shaped base member 2, adapted to be clamped to any suitable supporting means, such as a bench. The upper portion 4 of this base is heavily built and is adapted to seat on the support. The spaced arm 6 carries a threaded clamping means 8 at right angles thereto, which is adapted to clamp onto the lower portion of the supporting member. The upper arm 4 is adapted to carry a transverse backing clamp 10 which is secured to the member 4 in any suitable manner, such as by cap screws 12, as best shown in Figure 2, and aligning pins 14 properly position this transverse backing clamp at the proper location.

The central portion of the C-clamp 2 is provided with two spaced outstanding ears 16 between which is adapted to be pivotally mounted a T-shaped clamping member 18, the lower portion of which carries a screw threaded thumb screw 20 adapted to project through the T-shaped clamping member and engage the surface of the base 2, thus forcing the entire T-clamp about its pivot 22 to hold the work. Both the backing clamp 10 and the upper section 24 of the cooperating T-shaped clamping member 18 are provided with a series of transverse aligned slots 26, 28, 30 and 32, which act as guiding means for a hacksaw blade. The backing clamping means is likewise provided adjacent certain of these slots with V-notches at different positions with respect to the axis of the slots, as best shown in the top view, Figure 2. For example, the V-notch 27 associated with slot 28 has its central axis coincidental with that of the slot, while in respect to slot 30 the V-notch 34 associated therewith is considerably to one side and in slot 32 the V-notch 36 is even further to one side of the center line of the slot. It will thus be evident that when a rod is clamped vertically in V-notch 27, with its upper end in alignment with the upper surface of the clamping jaws, that by sawing down through the slot 28, a central slot will be provided in the end of the rod, as shown at 21, Figure 4, whereas if the rod is applied to and clamped in V-slot 34, the majority of one side of the rod's end will be cut off, and if the rod

is then turned around 180° and again cut, only a thin tongue will remain in the middle of the rod end, as shown at **23**, Figure 4. Slot **36** will, of course, support the rod so that only a very small part will be taken from the edge and the center tongue will be substantially thick. This could be used for providing a small flattened surface for a set screw. The backing clamp member **10** is also provided with a longitudinal V-slot **38**, in which the rod may be horizontally positioned and clamped, and then by sawing through slot **36**, the rod will be cut off to the proper length.

It will thus be evident that by using my master fixture almost any kind or combination of rod end may be provided from a slightly flattened surface for set screw engagement to thin tongued members or slotted ends. In the case of the latter, the outside of the slotted end portion is usually roughened or knurled, as shown at **25**, Figure 4, so that the knob will have better engagement. My fixture is also provided with means for knurling the ends. It will be noted that the back portion **4** is relatively heavily built so as to form a type of anvil, and in this portion there is provided a vertical opening **40** having a relatively large diameter in the upper portion and a smaller one **42** in the lower. A lower jaw **44** is adapted to fit into the lower portion, seat on the change in diameter section, and be clamped therein by a set screw **46**. The upper part of this cylindrical member carries approximately one-half diameter of a toothed section **48**, which is of the approximate diameter of the shaft being fabricated. A mating cylindrical section **50** is adapted to slide up and down in the upper portion of the opening **40** and is retained against excessive movement by set screw **52**, the end of which projects into a slot **54** in the side of the member **50**. The lower end of this member **50** has a mating section **56** providing the other half of the toothed section for knurling a complete circumference. The upper portion of this member **50** is provided with a knurled head so that the operator may manually lift this section to insert the end of the control rod between the two jaws **56**, **48**. The upper member is then lowered and a slight tap on the head **58** with a hammer will knurl or dig into the circumference of the rod end. An opening **60**, through the side of the base **4**, is provided to give access to this knurling mechanism and an adjustable limit stop **61**.

It will thus be evident that many types of rod ends may be quickly and readily made with this master fixture, such as those various types shown in Figure 4, and, of course, any combinations of these, so that a serviceman with my fixture may keep in stock only rod or bar stock, and yet quickly make a control shaft of any type for radio receivers or any other type of apparatus in which control shafts are used.

I claim:

1. In a clamping fixture, a plurality of relatively movable jaw means having a series of generally transverse slots spaced axially with relation to the jaws and having, adjacent a portion of the slots therein, geometrical recesses whose axes are located in various positions with respect to the central planes of the associated slots.

2. In a clamping member, a base, a jaw member rigidly secured to said base, said jaw having a longitudinal clamping groove extending the length of the clamping face and a plurality of generally transverse tool-guiding slots angularly arranged relative to said longitudinal groove, a second jaw pivotally mounted on said base movable with respect to the first for clamping purposes and having slots in alignment with those in the first jaw, said first jaw having a series of V-shaped recesses adjacent the slots therein and having different off-center relation with respect thereto, and screw means for clamping the two jaws together.

3. In a clamping fixture, a pair of relatively movable jaws, one of said jaws provided with a series of generally transverse slots in one face and having, in its clamping face adjacent the ends of the slots, a series of clamping recesses which are located at varying displaced positions with respect to the central planes of the associated slots, the other of said jaws having a series of slots aligned with the slots in said first mentioned jaw.

4. In a clamping fixture, a base portion, a jaw member rigidly secured to said base provided with a plurality of generally transverse slots and having a series of clamping recesses in its clamping face and associated with said slots, said recesses being located at various distances from the central planes of the respective associated slots, a second jaw member movably mounted on said base portion for clamping relation with said first jaw member and having a plurality of slots in alignment with the slots in the first jaw member, and screw means to clamp the jaws together.

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