Nov. 14, 1950 G. B. LEAR 2,530,203

MODEL MAKER'S CLAMP HAVING REMOVABLE JAWS

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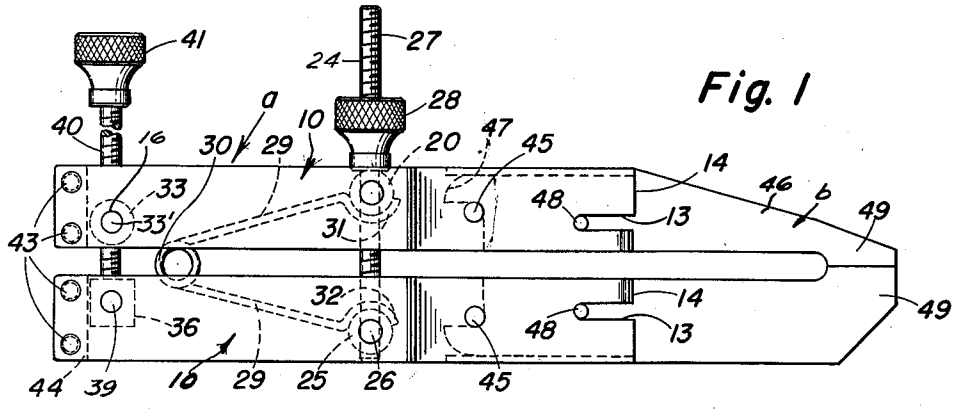


Fig. 1

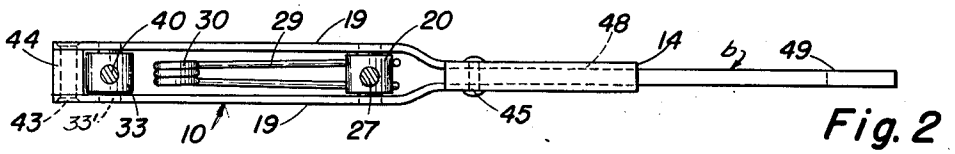


Fig. 2

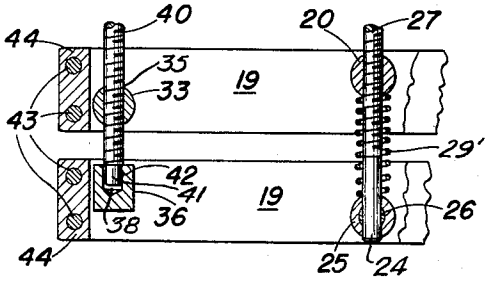


Fig. 8

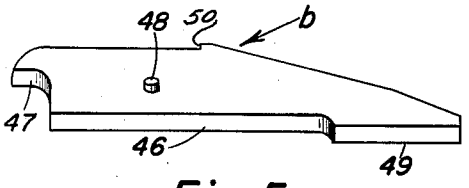


Fig. 5

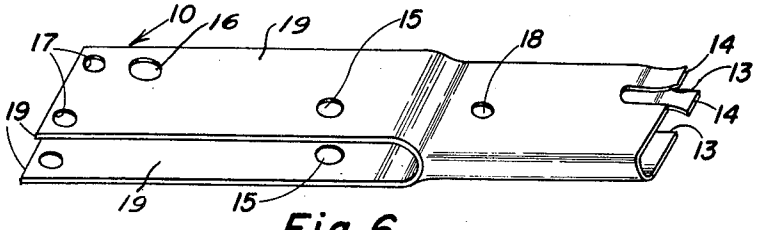


Fig. 6

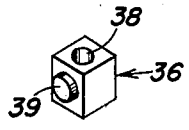
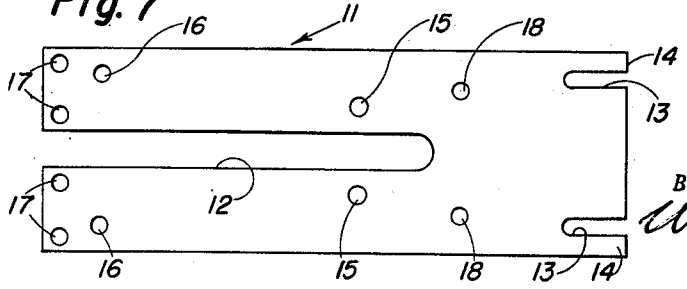


Fig. 3

Fig. 7



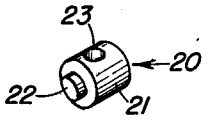


Fig. 4

INVENTOR.
George B. Lear

BY
Wilfred L. Lawson
Attorney

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MODEL MAKER'S CLAMP HAVING REMOVABLE JAWS

George B. Lear, Shreveport, La.

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3 Claims. (Cl. 144—300)

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My invention relates to tools and more particularly to a model maker's clamp.

The object of my invention is to provide a new and improved hand clamp for the use of model makers, builders of radio sets, and others performing work including the handling and holding of light small parts for the purpose of assembling them by gluing, soldering or the like, or for the purpose of machining them or laying-off.

Another object of my invention is to provide a clamp of the character indicated above, having a body formed of two halves, each half being adapted to receive and hold interchangeably a variety of clamping jaws.

A further object of my invention is to provide a clamp of the character indicated above, the halves of which are made in the shape of stampings from resilient sheet metal.

Other objects of my invention not specifically mentioned may appear in the following specification describing my invention with reference to the accompanying drawing illustrating a preferred embodiment of my invention.

It is however to be understood, that my invention is not to be limited or restricted to the exact construction and combination of parts described in the specification and shown in the drawing but that such changes and modifications can be made which fall within the scope of the claims appended hereto.

In the several figures of the drawing similar parts are indicated by similar index characters and

Figure 1 is an elevational side view of the hand clamp according to my invention.

Figure 2 is a plan view, partly in section, of the hand clamp shown in Figure 1, a bolt head and a clamping nut being omitted.

Figure 3 is a perspective detail view of a swivel block used in the hand clamp according to my invention.

Figure 4 is a perspective detail view of another swivel block used in the hand clamp according to my invention.

Figure 5 is a perspective detail view of one of a variety of clamping jaws adapted to be used in connection with the hand clamp according to my invention, and

Figure 6 is a perspective detail view of one of the two halves of the body of the hand clamp according to my invention, and

Figure 7 is a top plan view of a blank, from which the halves of the clamp body are formed.

Figure 8 is a detail section showing a slight modification wherein a different form of control spring is employed.

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The hand clamp forming the subject matter of my invention comprises a body *a* consisting of two similarly constructed halves 10. Each half is made from a blank of resilient sheet metal 11 as shown in Figure 7. This blank has a substantially rectangular shape. A centrally located slot 12 extends from one of the ends of the blank over approximately two thirds of the entire length of the blank and on the other end the longitudinal edges of the blank are off-set inwardly, the length of the offset being approximately one third of the length of the blank. Two short slots 13 extend inwardly from the end of the blank opposite the one where the slot 12 enters and form two tongues 14 for a purpose to be described later.

At each side of the slot 12 and adjacent to the inner end of said slot a hole 15 is provided in the blank, and adjacent to each longitudinal edge of the blank and at a short distance from the end of the blank, where the slot 12 enters, a hole 16 is arranged. These four holes are of the same size.

At each side of the slot 12, two holes 17 are arranged adjacent to the end edge of the blank where the slot 12 enters. These holes may be smaller than the other four holes in the blank 11 but are shown of approximately the same size.

Two other holes 18 are provided in the blank portion between the inner end of the slot 12 and the inner ends of the slots 13 and are located approximately one quarter of the width of the blank from the longitudinal edges thereof and adjacent to the inner end of the central slot 12.

The forward portion of the blank 11 is bent into U-shape as shown in Figure 6 so that the rear end of the half body 10 formed in this manner consists of two plates 19 extending parallel to each other from the front portion of said half body and these plates are off-set outwardly from the correspondingly forward body portions.

The two halves 10 forming the body *a* are arranged relative to each other so that the open edges of the forward portions of the halves face each other.

A swivel block 20 having a substantially cylindrical body 21 is provided on opposite ends with coaxial reduced journal parts 22. The length of the body 21 is such that it fits between the two parallel plates 19. These plates are resilient enough to permit the swivel block 20 to be inserted between them so that the reduced journals 22 can be placed in the holes 15 in the resilient plates 19 of one body half 10. A plain smooth hole 23 extends diametrically through the swivel block body 21 centrally of the length thereof.

A rod 24 has one of its ends extending through and fixed in a cylindrical body 25 which fits be-

tween the two resilient plates 19 of the other half 10 of the body *a*. Pins 26 extend from opposite ends of the body 25 and through the holes 15 in the second half 10 of the body *a* so that this body and the attached rod are pivotally mounted.

The free end of the rod 24 extends slidably through the hole 23 in the swivel block 20 and approximately two thirds of the length of the rod 24 is threaded, as shown at 27 in Figure 1. A knurled nut 28 engaging the rod 24 threadedly urges the two halves 10 of the body *a* against each other.

Between the two halves 10 is a coil spring 30 having the two end portions 29 which extend forwardly from said spring and the foremost portions 31 and 32 thereof are curved, to respectively engage the swivel block body 21 and the cylindrical body 26 when the coil spring 30 is positioned inside the body *a* between the two halves 10 as shown. The spring 30 urges the two halves of the body away from each other.

In the holes 16 of the body half 10 supporting swivel block 20, journals 33' of a swivel block 33 are rotatably mounted. In the swivel block body 33 a central threaded hole 35 is provided extending at right angles to the axis of the journals 33'.

A third swivel block 36 is adjacent to the second swivel block 33 and has two journals 39 thereon extending in opposite directions to each other and rotatably arranged in the holes 16 of the other half 10 of the body. This swivel block 36 is provided with a central smooth socket 38 extending at right angles to the axis of the journals 39.

A screw 40 having a knurled head 41 is adapted to be screwed into and through the hole 35 in the second swivel block 33. The end of the screw 40 is reduced in diameter at its inner end at 41 to enter the socket 38 in the third swivel block 36 so that the shoulder 42 on top of the reduced end portion 41 bottoms on the swivel block 36.

Rivets 43 extend through and are riveted into the holes 17 in the plates 19 and a spacer block 44 is secured by the rivets between said plates.

Rivets 45 extend through and are secured in the holes 18 in the front portion of each half 10 of the body *a*.

In this manner the body *a* of the hand clamp according to my invention is constructed and each half 10 of the body *a* is adapted to receive and hold removably a clamping jaw *b*.

The clamping jaw *b* may be made selectively in several different forms of which only one is shown in the drawing illustrating the portions which are common to all forms and modifications.

The jaw *b* is made from sheet steel and has an elongated body 46 of such thickness that it fits slidingly into the U-shaped front portion of the halves 10 of the body *a*.

On the rear end of the jaw body 46 a rearwardly projecting finger or lug 47 is formed at the edge of the jaw body sliding along the back of the closed U-shaped portion of the clamp body *a*. The lug 47 slides between said back and the adjacent pin or rivet 45 and engages the latter.

A pin 48 is secured in and projects outwardly from the jaw body 46, and is arranged thereon, so that its slides into and engages the short slot 13 when the jaw *b* is placed into working position in the clamp body *a*.

The tongues 14 of said clamp body are bent or curved inwardly so that they will clampingly engage the jaw body 46 when the same is arranged between them.

On the forward portion of the jaw body 46 an inwardly projecting clamping surface 49 is formed extending parallel to the back of the U-shaped closed portion of the clamp body. The back of the jaw body 46 is cut away to an amount equal to the thickness of the clamp body back to form a shoulder 50 on the back of the jaw body so that the outer edge of this shoulder is located approximately in the same plane with the outer edge of the back of the clamp body.

The above description shows clearly how any clamping jaw *b* having the described portions may be easily, securely and exchangeably attached to the clamp body *a*, and how the two halves 10 of the body *a* will be opened parallel to each other, when the screw 40 is used to move the rear ends of the two body halves 10 away from each other and the nut 28 is loosened on the screw 27 to permit the coil spring 30 to swing its forward portions of the clamp body halves outwardly.

In urging the rear ends of the clamp body *a* toward each other the journals 33' and 39 serve as fulcra for the movement of the two halves 10 of the clamp body *a*, and in urging the forward ends of the clamp body halves toward each, these halves pivot about the journals 22 and 26 of the swivelblocks 20 and 25 respectively.

In Figure 8 there is illustrated a slight modification of the spring means employed for separating the jaws. In this construction, the rod 24 extends through a coil spring 29', the ends of which spring bear upon the swivel block 20 and the body 25. As will be readily apparent the function of this spring 29' is the same as that of the spring 29.

Having described my invention I claim as new and desire to secure by Letters Patent:

1. A hand clamp including the combination of a clamp body consisting of two similarly formed halves and two clamping jaws removably and exchangeably attached to the halves of the clamp body, each half of the clamp body being made from a resilient sheet metal blank bent into U-shape, having a comparatively long, inwardly extending, central slot at one of its ends and two inwardly curved tongues formed by two comparatively short slots extending into the blank from the other end thereof, said tongues engaging the clamping jaw and said short slots receiving a pin extending through said clamping jaw.

2. A hand clamp including the combination of a clamp body consisting of two similarly formed halves and two clamping jaws removably and exchangeably attached to the halves of the clamp body, each half of the clamp body being made from a resilient sheet metal blank bent into U-shape, having a comparatively long, inwardly extending, central slot at one of its ends and two inwardly curved tongues formed by two comparatively short slots extending into the blank from the other end thereof, said tongues engaging the clamping jaw and said short slots receiving a pin extending through said clamping jaw, a lug formed on and extending rearwardly from each clamping jaw, a pin extending through and secured in the forward portion of each half of the clamp body, said lug engaging the pin.

3. A hand clamp including the combination of a clamp body consisting of two similarly formed halves and two clamping jaws removably and exchangeably attached to the halves of the clamp body, each half of the clamp body being made from a resilient sheet metal blank bent into U-shape, having a comparatively long, inwardly ex-

tending, central slot at one of its ends and two inwardly curved tongues formed by two comparatively short slots extending into the blank from the other end thereof, said tongues engaging the clamping jaw and said short slots receiving a pin extending through said clamping jaw, the rear portion of each half of the clamp body consisting of two plates being formed by the rear portions of the blank divided from each other by the comparatively long slot, a spacer block located between and adjacent to the rear ends of each pair of plates and a rivet extending through the plates and the spacer block and secured to the plates.

GEORGE B. LEAR.

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