June 21, 1960 T. J. BAPRAWSKI 2,941,557

ADJUSTABLE SINGLE JOINT MITER CLAMP

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Fig. 1.

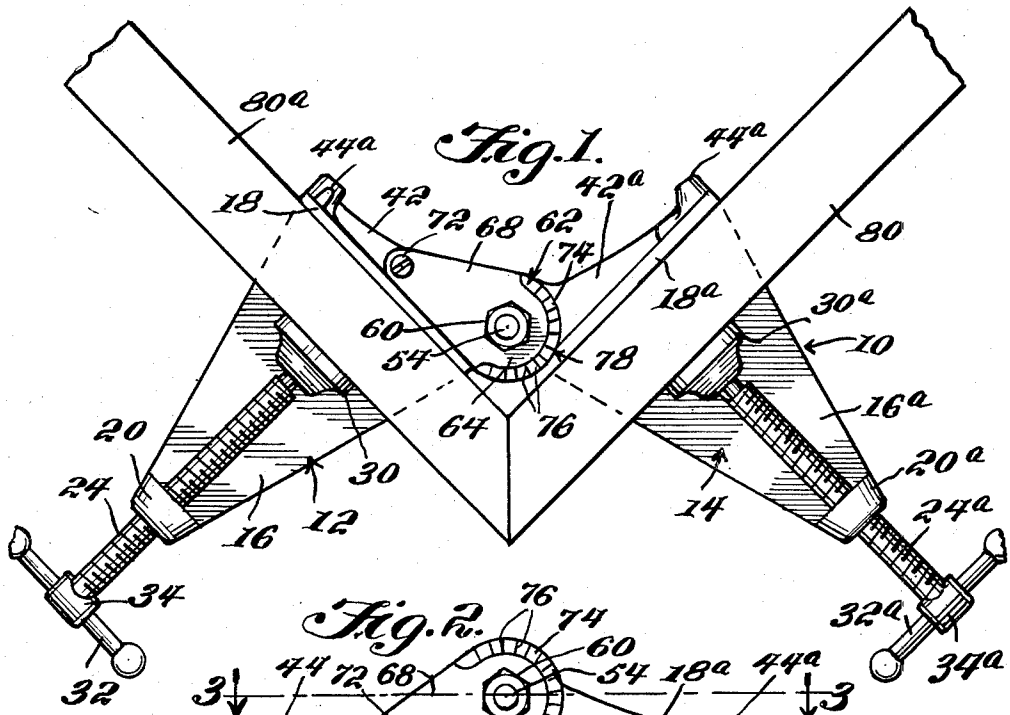


Fig. 2.

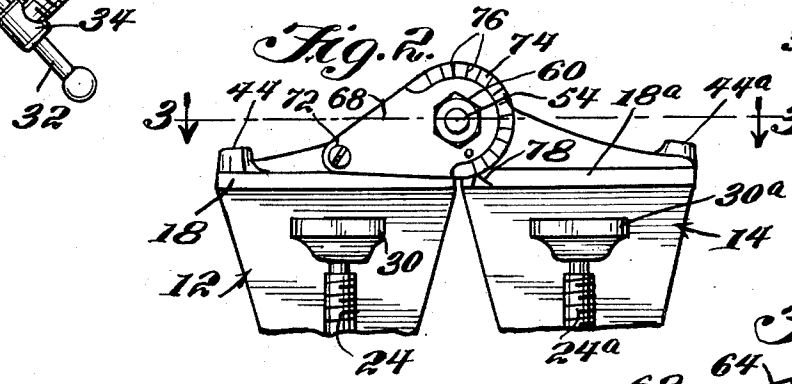


Fig. 3.

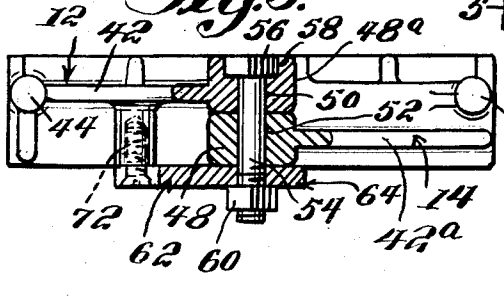


Fig. 4.

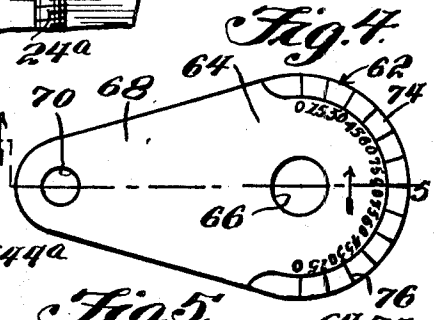
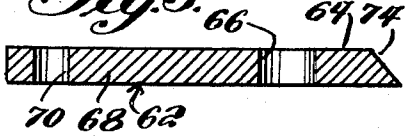


Fig. 5.



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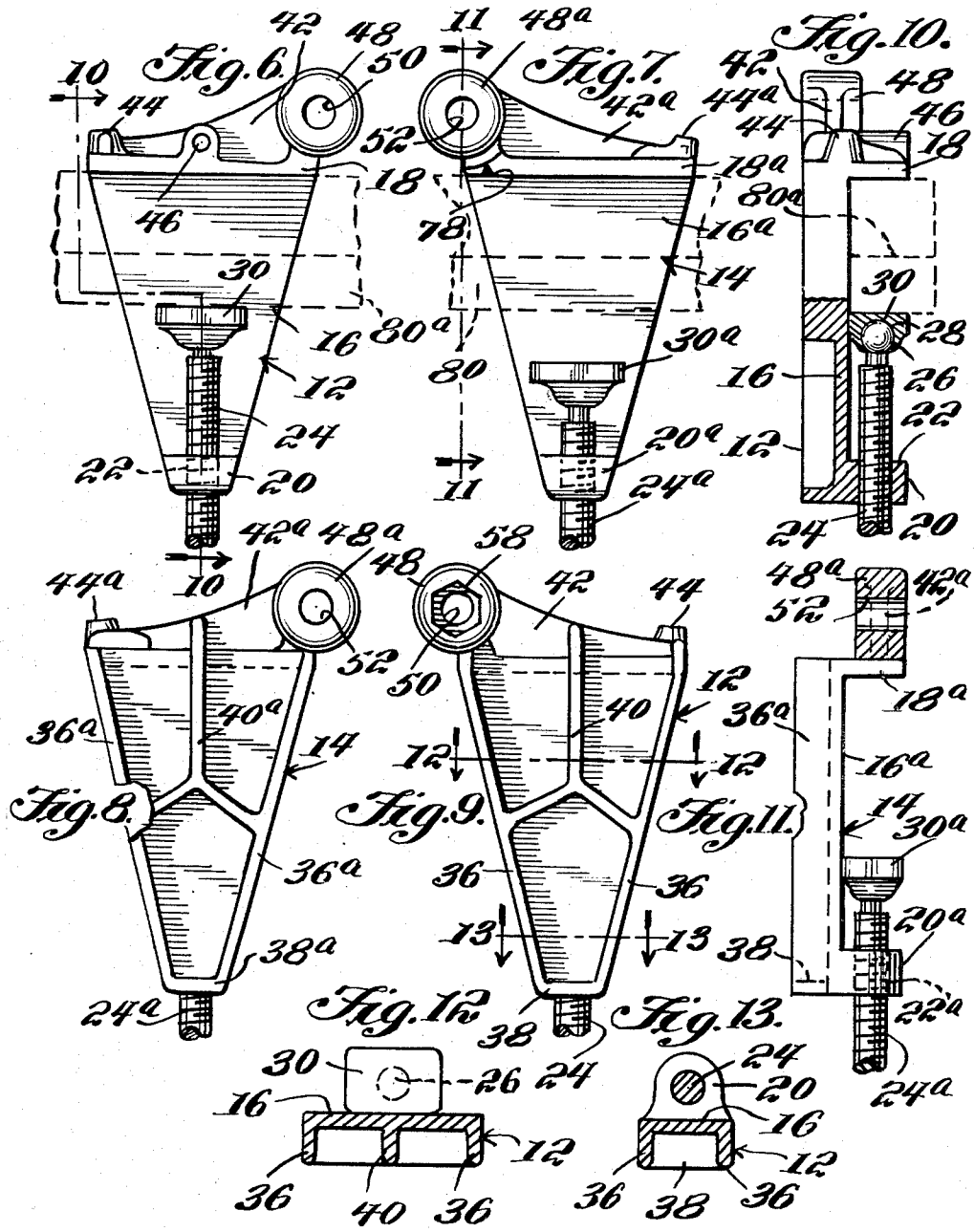
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ADJUSTABLE SINGLE JOINT MITER CLAMP

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2,941,557

ADJUSTABLE SINGLE JOINT MITER CLAMP

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1 Claim. (Cl. 144—293)

This invention relates to improvements in clamps for holding workpieces in desired relation, while the workpieces are being permanently secured together.

A primary object of the present invention is to provide an adjustable clamping device for holding two pieces of material in secured engagement and at any desired angular relationship from zero degrees to one-hundred and eighty degrees.

Another important object of this invention is to provide a pair of clamps, which are rotatably connected in such a way that they are adjustable from side-by-side positions to end-to-end positions, so that workpieces held by the clamps can be securely held in engagement at the desired angular relationship, while they are being nailed, glued or otherwise permanently fixed together.

Another important object of the present invention is to provide a pair of plates, having means on their upper, coplanar surfaces for clampingly holding the workpieces, and having offset portions, which overlap in rotatable relationship, with angular gauge means being provided concentric to the axis of rotation of the plates and cooperative with an indicator means on one of the plates, whereby the plates may be set in the desired angular relationship that the workpieces are to be permanently fastened together in.

A still further object of the present invention is to provide a compact, simple and inexpensive clamping device, which consists of two relatively rotatable plates, that have clamping means provided thereon for holding a workpiece, the plates being so fixed together that they can be used conjunctively or separately.

The foregoing and ancillary objects are attained by this invention, the preferred embodiment of which is set forth in the following description and illustrated in the accompanying drawings, wherein:

Figure 1 is a top plan view of the clamping device, showing two clamping plates in a selected angular position for holding a pair of workpieces in right angular abutting relationship, while the workpieces are being permanently secured together in such relationship;

Figure 2 is a fragmentary top plan view of the plates, showing the clamping means and showing in detail the means for connecting the plates together for relative rotational movement;

Figure 3 is a vertical cross sectional view taken on line 3—3 of Figure 2, and shows more clearly the means for securing the plates together and the means for mounting the angular gauge means on the clamping device;

Figure 4 is a top plan view of the angular gauge means;

Figure 5 is a longitudinal vertical sectional view of such gauge means;

Figure 6 is a top plan view of one of the plates;

Figure 7 is a top plan view of the other of the plates of the clamping device;

Figure 8 is a bottom plan view of the plate, shown in Figure 7;

Figure 9 is a bottom plan view of the plate, shown in Figure 6;

Figure 10 is a longitudinal sectional view taken on line 10—10 of Figure 6;

Figure 11 is a longitudinal sectional view taken on line 11—11 of Figure 7;

Figure 12 is a cross sectional view taken on line 12—12 of Figure 9; and

Figure 13 is a cross sectional view taken on line 13—13 of Figure 9.

Referring now more particularly to the accompanying drawings, the clamping device **10** includes a pair of cooperative clamping plates **12** and **14**.

As shown in detail in Figures 6, 9, 10, 12 and 13, the plate **12** is substantially triangular in shape and is provided with a flat upper surface **16**. A fixed jaw **18** upstands from the major end of the plate and is disposed perpendicular to the upper surface **16**. A block **20** is mounted on the upper surface, at the minor end of the plate, and is provided with an internally threaded bore **22**, which is disposed axially of the plate and threadingly receives a screw shaft **24**. The screw shaft is provided, at its inner end, with a ball **26**, which fits within a socket **28** on the rear face of a movable jaw **30**. The movable jaw **30** confronts the fixed jaw **18** and is positively moved relative to the fixed jaw by rotational movement of the screw shaft **24**, which is rotated by means of the handle **32**. The handle **32** is slidably disposed within a transverse sleeve **34** on the outer end of the screw shaft.

The plate **12** is formed at its side edges with depending strengthening flanges **36** and is provided at its minor end with a cross flange **38**, that is connected to the side flanges **36**. A Y-shaped reinforcing web **40** is provided on the underside of the plate and is connected to the side flanges and extends to the outer edge of the major end of the plate. A web **42** projects outwardly from the fixed jaw **18** and is formed at one end with a stop **44** and is provided, intermediate its ends, with a socket **46**. At one corner of the major end of the plate, an offset journaling disc **48** is formed, the disc being supported by the jaw and by the webbing **42** and being disposed below the upper surface **16** of the plate.

The plate **14** is formed and shaped substantially similar to the plate **12** and includes an upper surface **16*a*** and a fixed jaw **18*a***. A threaded block **20*a*** receives a screw shaft **24*a***, which is joined by a ball and socket to a movable jaw **30*a***, that is disposed complementary to the fixed jaw **18*a***. The jaw **30*a*** is moved relative to the fixed jaw **18*a*** by the screw shaft, that is rotated by the handle **32*a***. Reinforcing edge flanges **36*a*** and **38*a*** are provided, as is a reinforcing web **40*a***. A webbing **42*a*** extends outwardly from the fixed jaw **18*a*** and a stop **44*a*** is provided at the outer end thereof, so as to abut the stop **44**, when the plates are moved into end-to-end relation. A journaling disc **48*a*** is formed on the other end of the webbing **42*a*** and is disposed at the upper portion of the plate.

It is to be particularly noted, as shown in Figure 3, that the discs **48** and **48*a*** are so formed that they overlap each other, while the upper surfaces **16** and **16*a*** are disposed in coplanar relationship.

The disc **48*a*** is formed with a bore **52** that is registrable with the bore **50** in the disc **48**, so as to receive a bolt **54**, which has its head **56** seated in the counterbore **58**. A nut **60** is provided to lock the plates in selected positions, the plates being relatively rotatable about the shank of the bolt.

As shown in Figures 1 and 2, the plates **12** and **14** are movable relative to each other from a side-by-side position into an end-to-end position, the stops **44** and

44*a* abutting each other in the end-to-end position of the plates.

An angular gauge means **62** is provided and consists of a disc **64**, which has a center opening **66**, whereby the disc is circumposed on the shank of the bolt. A tail portion **68** radiates from the disc and is provided with an aperture **70** to receive a screw **72**, that is countersunk in the aperture, and is threaded within the block **46**. The securement of the tail portion to the block **46** on the webbing **42** of the plate **12** serves to mount the disc on the bolt and also serves as additional reinforcement for the attachment of the two plates **12** and **14**. The disc is provided with a beveled edge **74**, which is formed with graduations **76**, that represent degrees from zero to ninety and from ninety to zero, such degrees being suitably scribed on the disc inwardly of the graduations. An indicator means **78** is formed on the upper edge of the jaw **18***a* and is arranged to cooperate with the graduations, so as to indicate the angular relationship between the plates.

As shown in Figure 1, the workpieces **80** and **80***a* are clamped between the movable and fixed jaws of the two plates and are secured thereby against axial or lateral movement. The plates are moved into the selected position and are locked against movement, so that the abutting end edges of the workpieces are held in secured relationship for gluing, tacking or for other permanent fastening means to be fixed thereto.

The plates are relatively rotatable about the bolt into any set angular relationship from zero degrees to one-hundred and eighty degrees and are locked in such relationship by the nut. Thus, the clamping plates can be set in any desired angular relationship for holding workpieces, which are to be secured together.

It is to be noted that the plates are easily detachable, such detachment requiring only the removal of the nut **60**. When the plates are separated, each of the plates can be individually used for clamping purposes.

By virtue of the universal ball and socket connection between the screw shaft and movable jaw a slight swivel movement is imparted to the jaws to accommodate the clamping of tapered workpieces.

While the preferred embodiment of this invention has been illustrated and described herein, other forms may

be realized as come within the scope of the appended claim.

What is claimed is:

A clamping device for holding two workpieces together in angular relationship; said device comprising a pair of generally triangular plates, said plates each including an enlarged end and an opposite diminished end, each plate having a flat surface for supporting a workpiece and a fixed jaw upstanding from the surface and arranged transversely thereof adjacent said enlarged end and having a sleeve upstanding from the surface at the diminished end, said sleeve extending across the full width of said end, said sleeve having an internally threaded bore arranged normal to the fixed jaw, a screw shaft threaded in each sleeve, a movable jaw pivotally mounted on the inner end of each shaft and adapted to be disposed in parallel confronting relation with the fixed jaw to clamp a workpiece thereagainst and being adapted to be disposed in inclined confronting relationship to the fixed jaw, each plate having an offset at one corner of the end having the fixed jaw, said offsets being arranged in overlapping relation with said surfaces of the plates disposed coplanar, means joining the offsets for relative rotational movement so that the plates are movable from a side-by-side position to an end-to-end position, means for locking the plates in selected angular positions, gauge means disposed concentric to the rotational axis of the offsets and carried by one of the plates and an indicator carried by the other of the plates and cooperatively arranged with the gauge means, said gauge means including a disc fitted on the means joining the plates and having a tail portion radiating therefrom and means fixing said portion to said one of the plates.

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