March 12, 1929. J. H. HARRISON 1,704,893

PICTURE FRAME CLAMP

Filed April 29, 1927

Fig. 1

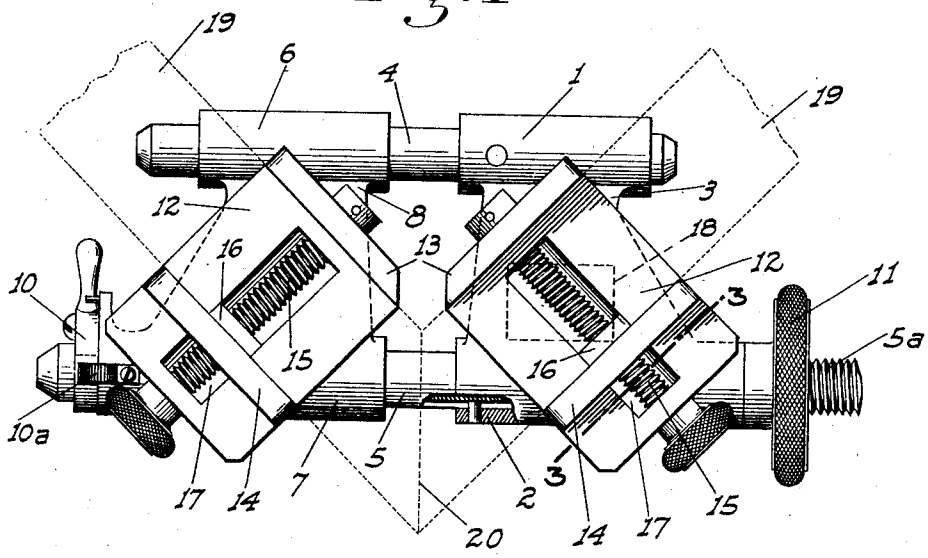


Fig. 2

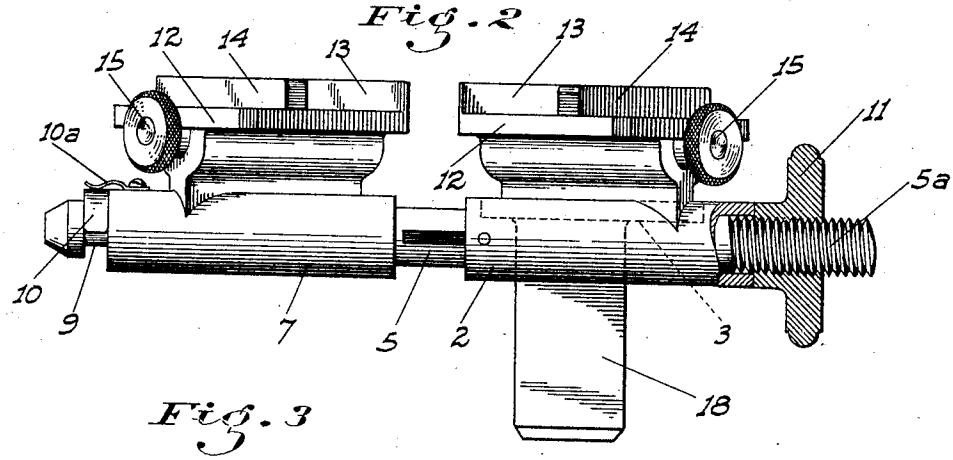
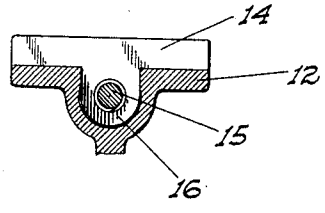


Fig. 3



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UNITED STATES PATENT OFFICE.

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PICTURE-FRAME CLAMP.

Application filed April 29, 1927. Serial No. 187,464.

This invention relates to clamps used in connection with the cutting and connecting together of the bevel corners of picture frames.

My principal object is to provide a device for the purpose so arranged that while the adjacent members of the frame may be rigidly held at right angles to each other they may be also moved toward each other in a plane at right angles to the line of cut or the plane of contact of the frame members. This enables the corners when glued to be pressed into firm engagement with each other, insuring a tight joint and avoiding the possibility of the frame members moving out of their proper alinement relative to each other.

The device is also so arranged that when the frame members have been cut and properly matched together, one of the clamping members with the corresponding section of frame may be removed in order to allow the glue to be conveniently applied to the frame corner. Said clamping member may then be replaced in connection with the other clamping member and the corners then brought together for the above stated purpose without having to again match up said corners.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corersponding parts in the several views:

Fig. 1 is a top plan view of my improved clamp.

Fig. 2 is a side elevation of the same partly broken out.

Fig. 3 is a fragmentary cross section on the line 3—3 of Fig. 1.

Referring now more particularly to the characters of reference on the drawings, 1 and 2 denote transversely spaced and horizontal sleeves connected by a web 3. A shaft 4 projects outwardly from the sleeve 1 at one end thereof and is rigidly secured thereto. Slidable in and projecting through the sleeve 2 is another shaft 5 parallel to the shaft 4. The shaft is held from turning in said sleeve by a slot and pin arrangement as shown, or otherwise as may be found suitable. Removably slidable on the shafts 4 and 5 are sleeves 6 and 7 respectively connected by a web 8. The shaft 5 outwardly of the sleeve 7 is provided with a circumferential groove or recess 9 to receive an arch shaped catch member 10 which is pivoted onto the sleeve 7 at its outer end, and on which a suitable spring 10^a bears to normally hold the catch engaged with the recess. The shaft 5 at the end opposite the sleeve 7 is threaded as at 5^a and is engaged by a hand nut 11 which bears against the outer end of the sleeve 2 or that end opposite the sleeve 7. It will therefore be seen that if the catch 10 is engaged with the shaft 5 and the nut 11 is advanced, said shaft and the sleeves 6 and 7 will be advanced toward the sleeves 1 and 2.

Projecting upwardly from the webs of the two sets of sleeves are individual frame clamps. Each clamp comprises a horizontal base plate 12 having an upstanding stop flange 13 across its inner end. These flanges are disposed at 90 degrees to each other and at 45 degrees to the axis of the shaft 5 at their adjacent ends. Slidable on each plate 12 is an adjustable upstanding flange 14, forming a movable jaw and disposed parallel to the flange 13 which is the fixed jaw. The flange 14 is moved to and from the flange 13 at will by means of a hand screw 15 turnably mounted in connection with the plate 12 below the upper surface thereof and having threaded engagement with a lug 16 depending from the flange 13. The plate has a longitudinal slot 17 through which the lug moves, the screw being disposed in a horizontal plane at right angles to the flanges and being mounted so as to be immovable lengthwise relative to the plate 12. A rectangular lug 18 depends from the web 3 a sufficient distance below the same to enable the device to be firmly held in a vise.

In operation the frame members 19 are mounted in the clamping units and are clamped in place thereon between the jaws 13 and 14 by suitable manipulation of the screws 15. The bevel corners 20 of the frame members may be cut before being placed in the clamps, but the device is preferably mounted in connection with a mitre saw whose blade is disposed in a plane at 45 degrees between the clamping flanges or at 90 degrees to the shafts. After the corners have been thus cut and matched the clamping unit which is slidable on the shaft 4 may be removed by throwing back the catch 10 so as to allow the sleeve 7 to be slid off the shaft 5 without disturbing

the screw 11. Glue may then be conveniently applied to the corner edge surface of the frame member still held in the removed clamp, after which the latter is replaced on the shafts and again locked in position by the engagement of the catch 10 with the shaft 5. The screw 11 is then advanced to bring the corners into close frictional engagement with each other, insuring a firm joint being obtained when the glue sets.

Since the abutting corner surfaces are disposed in a plane at right angles to the line of movement of the clamps, said corners will be brought together without any slipping movement therebetween being possible.

The shaft 4 of course provides supporting means for the removable unit in addition to the shaft 5, so that said unit cannot move out of alignment with the fixed unit.

The outer ends of both shafts 4 and 5 are beveled off. This provides for easy replacement of the removable unit on said shafts, and the bevel on shaft 5 acts to raise the catch 10 so that it will pass over the end of the shaft without manual lifting of the catch being necessary. The spring 10^a acting on the catch causes the same to automatically engage the recess when longitudinally alined with the same.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. A picture-frame clamp including separate clamping units having clamping surfaces disposed at an angle to each other to hold frame members at said angle to each other, a shaft mounted in connection with one unit, the axis of said shaft being in a plane at right angles to the plane bisecting the angle between the clamping surfaces, means for moving said shaft longitudinally, and means for holding the other unit in a fixed position on said shaft.

2. A picture-frame clamp including separate clamping units having clamping surfaces disposed at an angle to each other to hold frame members at said angle to each other, a shaft mounted in connection with one unit, the axis of said shaft being in a plane at right angles to the plane bisecting the angle between the clamping surfaces, a sleeve provided with the other unit and removably engaging the shaft, and releasable means for securing said sleeve against outward movement on said shaft, and means for moving said shaft longitudinally in a direction to cause the unit having the sleeve to approach the other unit.

3. A picture-frame clamp including separate clamping units having clamping surfaces disposed at an angle to each other to hold frame members at said angle to each other, a shaft mounted in fixed connection with one unit, the axis of said shaft being in a plane at right angles to the plane bisecting the angle between the clamping surfaces, another shaft mounted in slidable connection with said unit and disposed parallel to the first named shaft, means cooperating with the last named shaft and said unit for moving said shaft longitudinally, sleeves providing with the other unit slidable on said shafts, and means for securing one of said sleeves against movement on the longitudinally movable shaft.

4. A picture-frame clamp including separated clamping units having clamping surfaces disposed at an angle to each other to hold frame members at said angle to each other, a shaft mounted in connection with one unit, means for removably mounting the other unit on the shaft, catch means then automatically acting to hold said unit against movement along the shaft, and means for moving said shaft longitudinally.

5. A picture-frame clamp including separated clamping units having clamping surfaces disposed at an angle to each other to hold frame members at said angle to each other, a shaft mounted in connection with one unit, means for removably mounting the other unit on the shaft, catch means then holding said unit from movement along the shaft, means for moving said shaft longitudinally, and another shaft projecting from said one unit in spaced and parallel relation to the first shaft and on which said removable unit is slidably mounted.

6. A clamp including separate clamping units having clamping surfaces disposed at an angle to each other, means on one unit for enabling the same to be supported in a fixed position, a shaft supported by and slidable through said one unit and to which the other unit is secured, and means on the shaft engaging said one unit to advance the shaft through the same.

7. A clamp including separate clamping units having clamping surfaces disposed at an angle to each other, means on one unit for enabling the same to be supported in a fixed position, a shaft supported by and slidable through said one unit and to which the other unit is secured, and means for moving the shaft longitudinally relative to said one unit.

8. A clamp including separate clamping units having clamping surfaces disposed at an angle to each other, means on one unit for enabling the same to be supported in a fixed

position, a shaft supported by and slidable through said one unit and to which the other unit is secured, means for moving the shaft longitudinally relative to said one unit, and another shaft parallel to said first named shaft; said last named shaft being secured to one of the units and slidable on the other.

9. A picture-frame clamp including a pair of clamping units, disposed at an angle to each other, each unit having a pair of parallel clamping surfaces, and means supporting said units and enabling them to be moved to and from each other; one of the units being removable from the supporting means.

10. A structure as in claim 9, with releasable means normally preventing such removal of the unit.

In testimony whereof I affix my signature.

JOHN H. HARRISON.