

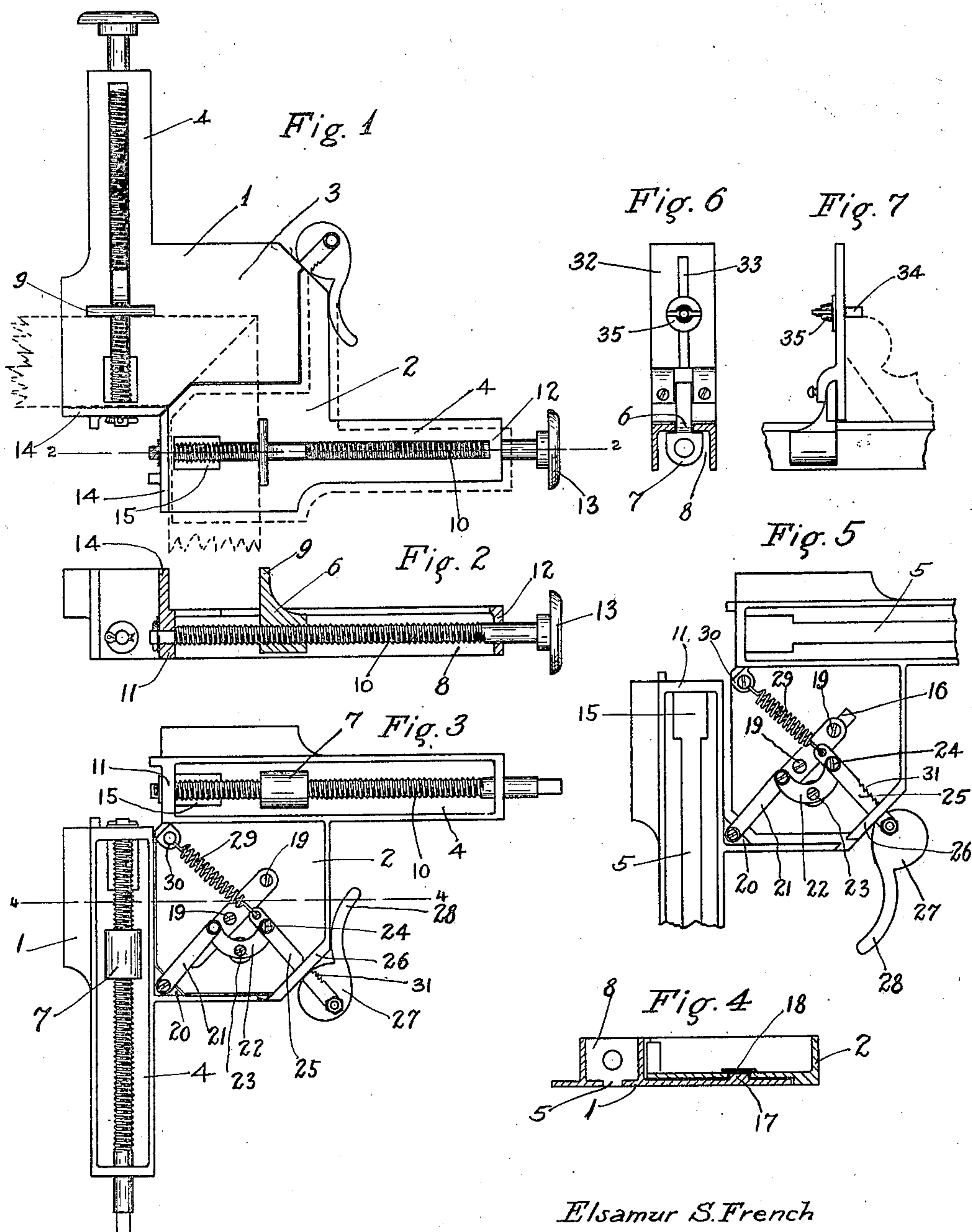
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E. S. FRENCH

CLAMP

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CLAMP.

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To all whom it may concern:

Be it known that I, ELSAMUR S. FRENCH, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Clamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in clamps and more particularly to a clamp adapted to be used for holding two pieces of material, the ends of which are to be joined by a miter joint, the main object of the present invention being the provision of a clamp whereby the two pieces of material to be clamped together may be moved apart, opening up the joint so that the glue or other adhesive material may be readily inserted within the joint and the joint then closed together tightly and retained in a rigid position while the glue sets or hardens.

Another object of the present invention is the provision of a clamp of this character particularly adapted for holding articles which are to be joined together, especially articles which are disposed at substantially right angles to each other whereby the two articles are fitted within the movable clamping members and then brought together so as to assure of a perfect fit of the two parts before the glue or adhesive material is applied thereto. After the fit has been assured, the two members can be then readily moved apart for applying the adhesive material and returned to their close fitting position and retained in this position until the adhesive material has set.

A further object of the present invention is the provision of a clamp of the above character which can be quickly and readily applied to articles to be joined together and detached therefrom, and which in itself is extremely simple in construction and operation and can be placed upon the market at a comparatively low cost.

With the above and other objects in view, the invention consists in the novel features of construction, combination and arrangement of parts hereinafter more fully set forth, pointed out in the claims and shown in the accompanying drawings, in which:

Figure 1 is a top plan view of a clamp

constructed in accordance with my invention, illustrating two pieces of material arranged within the clamp and fitted tightly together;

Fig. 2 is a longitudinal sectional view taken through one of the clamping members on the line 2—2 of Fig. 1;

Fig. 3 is a bottom plan view;

Fig. 4 is a transverse section taken on the line 4—4 of Fig. 3;

Fig. 5 is a detail plan view of the frames and plates, the clamping members being eliminated;

Fig. 6 is a front elevation of a modified form of clamp, and

Fig. 7 is a side elevation of the form of clamp shown in Fig. 6.

Referring now more particularly to the drawings, in which like reference characters indicate like parts of the device, the numerals 1 and 2 indicate two similar clamping members and as each of these members are similar in construction, it will only be necessary to describe the particular construction of one member. Each of the clamping members comprises a body plate 3 having formed upon one side thereof the frame 4 which when the body plates are brought together into overlapping relation, as shown in Fig. 1, are disposed at right angles to each other. These frame members are provided with longitudinal slots 5 adapted to receive the shank portion 6 of a threaded sleeve 7, said sleeve being movable within the channel 8 formed by the frame portion 4, the top of said frame 4 being substantially flat and preferably flush with the top of each of the body plates 3. Formed integral with the shank portion 6 is a clamping plate 9, and in order to impart movement to this plate 9 so that the same may be moved longitudinally along the upper face of the frame 4, a screw 10 is threaded through the sleeve 7, one end of said screw being rotatably mounted within the flange 11 formed at the outer end of the channel portion 8, the other end of said screw being rotated within a suitable bearing formed within the flange 12 at the opposite end of said channel. In order to impart movement to the screw 10, a finger piece 13 is formed upon the outer end of said screw member whereby the operator may readily rotate the screw 10 and move the sleeve 7 along the screw.

As illustrated in Fig. 1, the body plates

3 are provided with stationary clamping members 14 which are preferably disposed in alignment with the frames 4 so that when the clamping members 9 are arranged within the frames 4 they will be disposed in alignment with the stationary clamping members 14. In order to insert the sleeve 7 through the top portion of the frames 4, to a position within the channel portion 8, a suitable opening 15 is formed in the top of each of the frames whereby the sleeve 7 can be readily inserted therethrough then the screw 10 threaded through said sleeves and its reduced end secured within the bearing formed in the flange 11 whereby the screw 10 may be manipulated to move the sleeve 7 longitudinally within the channel 8 and cause the clamping member 9 to be moved toward and away from the stationary clamp 14.

From the above, it will be apparent that when the two body plates 3 are arranged in the positions as shown in Fig. 1, the two sets of clamps will be disposed at right angles to each other. In Fig. 1, I have also illustrated two pieces of material in position, the ends of which are fitted together by a miter joint, the ends of said material being fitted tightly together as disclosed prior to applying the adhesive material thereto or after the adhesive material has been applied.

Means are provided for moving the body plates 3 toward and away from each other in order to apply the adhesive material to the ends of the strips which are to be secured together, and in order to accomplish this, one of the body plates is provided with a straight slot (Figure 4) in such a position that it will be disposed directly at right angles to the joint which is to be formed and movable within this slot is a tongue 17 to retain the plates in their proper relative position, said tongue being retained within this slot by means of a plate 18 which is detachably connected to the tongue 17 by means of the screws 19 and arranged upon the outer face of the plate in which the slot is formed, thus retaining the tongue 17 in its proper relative position within this slot so that the plates when moved apart, will move in the proper direction.

Formed integral with the under face of one of said plates, is a lug 20 and connected to this lug is a link 21, said link extending in the same general direction as the tongue 17 and connected to this link is an arcuate lever 22 which is pivoted to the clamping member 2, as at 23, the other end of the lever being pivotally connected as at 24 to a reciprocating rod 25. This rod 25 is mounted for sliding movement through the flange 26 formed on the clamp 2 whereby upon reciprocating movement of the rod 25 the lever 22 will be actuated upon its pivot

23 to impart movement to the link 21 which will move the opposing body plate or clamping member toward or away from the clamping member 2, so that the two ends of the material to be joined together may be moved toward or away from each other.

In order to actuate the rod 25, a cam member 27 is attached to the outer end of said rod, said rod being eccentrically connected to said cam so that when the cam is in the position illustrated in Fig. 3, whereby the major portion of the cam is contacting with the flange 26, the rod 25 will be moved outwardly, thus drawing the two clamping members tightly together so that the pieces of material disposed between the clamps 9 and 14 will have their ends tightly fitted together. Should it be desired to move the ends of the strips away from each other for applying the adhesive, the cam 27 is actuated through the medium of the handle 28 so as to bring the minor portion of the cam next to the flange 26, causing the rod 25 to be moved inwardly, moving the link 21 outwardly and forcing the two clamps away from each other. In order to assure a positive movement of the two clamps, a coil spring 29 is provided, one end of which is connected to a perforated ear 30 arranged at the inner corner of one of the body plates and the other end of said spring attached to the inner end of the rod 25 whereby the tension of said spring will tend to impart movement to the lever 22 and the link 21 when the cam 27 is moved to the position shown in Fig. 5. From this it will be apparent that after the two pieces of material have been clamped between the two sets of clamping members 9 and 14 and disposed at right angles to each other so that the corners will be brought into close proximity, when the two clamping members are in the position illustrated in Fig. 5, the ends of the pieces may be then brought tightly together to assure of a perfect fit of the miter joint by moving the cam member 27 to the position shown in Fig. 3. After the ends of the pieces have been properly fitted together and it is desired to apply the adhesive material, the body members 3 are then moved away from each other, the movement being substantially perpendicular to the two pieces whereby to provide suitable space between the ends of the pieces for applying the adhesive material. After the adhesive material has been applied the joint is then closed by moving the two body members back to their normal positions, as illustrated in Fig. 3, retaining the ends of the pieces of material tightly together until the adhesive material has hardened or set.

In order to retain the body members 3 in various adjusted positions with respect to each other, the rod 25 is provided with a

plurality of notches 31 which are adapted to engage with the side of the opening through which the rod moves to retain the rod in various adjusted positions.

5 In Figs. 6 and 7, I have illustrated detachable jaw members indicated at 32 which may be detachably secured to the jaws 9 and 14, these jaw members 32 being provided with
10 suitable slots 33, in which the lug 34 is adjustably mounted and retained in an adjusted position by means of the nut 25. These particular types of jaws are especially required due to the fact that many
15 types of moldings and the like are constructed in two pieces, or of irregular shapes, the lug 34 engaging the top of the molding to retain the same or the sections thereof in their proper relative positions, while the miter joint is being completed.
20 These removable jaw members 32 may be detachably connected to the jaw members 9 and 14 in any suitable manner.

I claim:

25 1. A device of the class described including two clamping members disposed at an angle to each other, means for causing said clamps to approach each other or separate along a path of movement oblique to said
30 clamps, said means including a link connected with one of said clamps, a pivoted member connected to the other of said clamps and having pivotal connection with said link at one end and means connected to
35 the other end of said pivoted member for imparting movement thereto, as and for the purpose set forth.

40 2. A device of the class described including two clamps disposed at an angle to each other, means for causing said clamps to approach each other or separate along a path of movement oblique to said clamps, said means including a link connected to one of

said clamps, a lever having pivotal connection with said link at one end, a movable rod carried by one of said clamps and having
45 pivotal connection with the other end of the lever whereby movement of said rod will impart movement to the lever and in turn impart movement to said clamps and means for holding said clamps in various adjusted
50 positions.

3. In combination, a pair of clamps arranged at a fixed angle to each other, means for varying the distance between said clamps without disturbing said angle, said means
55 including superposed frames slidably engaged with each other and projecting from said clamps into the included angle.

4. In combination, a pair of clamps arranged at a fixed angle to each other, means
60 for varying the distance between said clamps without disturbing said angle, said means including a pair of superposed slidable frame members projecting from opposite sides of said clamps into the included angle, and
65 means carried by said frame members for moving them relatively to each other.

5. In combination, pair of overlapping body plates capable of relative movement in a right line, a clamp carried by each of said
70 plates, one of the clamps having a member capable of independent movement in a right line transversely to the first said line of movement.

6. In combination, a pair of overlapping
75 body plates capable of relative movement in a right line, a clamp carried by each of said members, both of the clamps having members capable of independent movement in right lines extending transversely to each
80 other.

In testimony whereof I affix my signature.

ELSAMUR S. FRENCH.