Sept. 4, 1956 R. D. LA HAYNE 2,761,475

ADJUSTABLE BEAM AND FORM CLAMP

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Fig. 1.

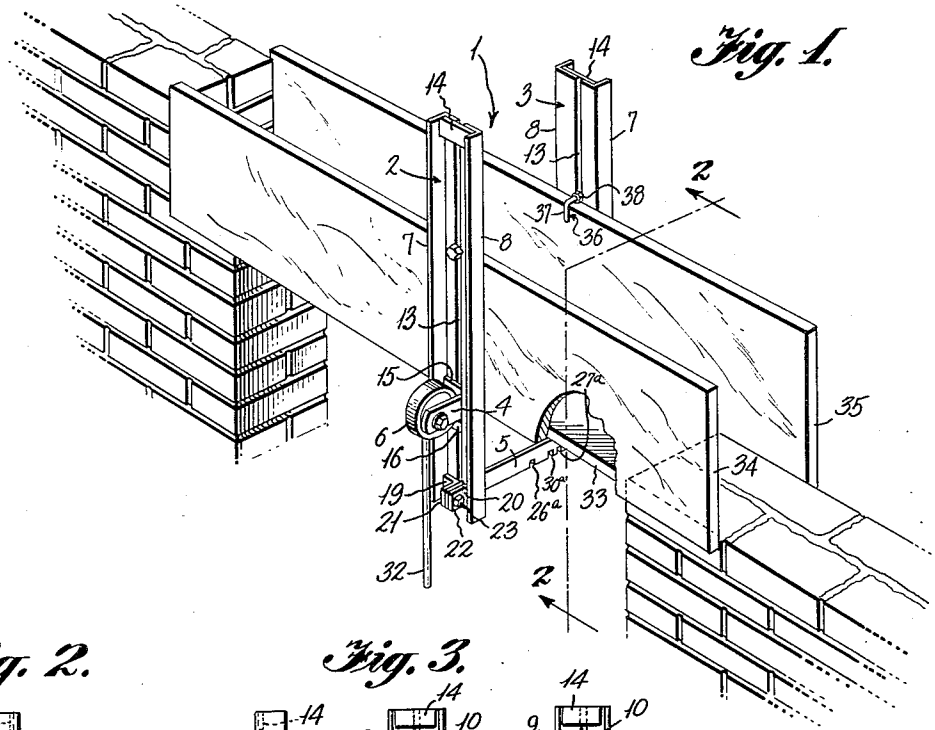


Fig. 2.

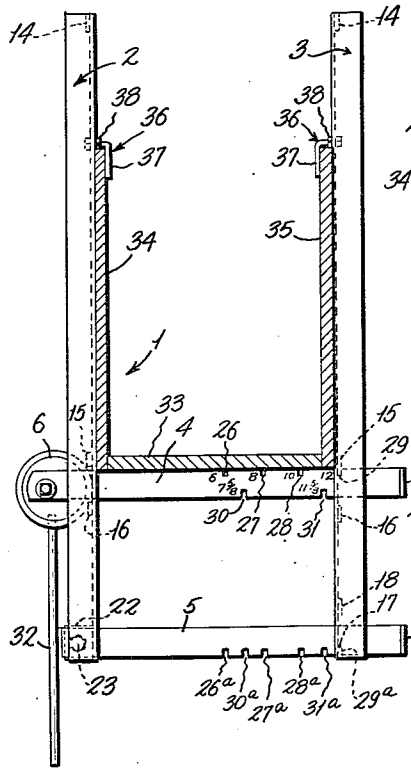


Fig. 3.

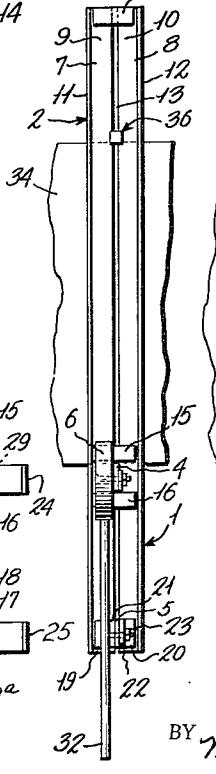
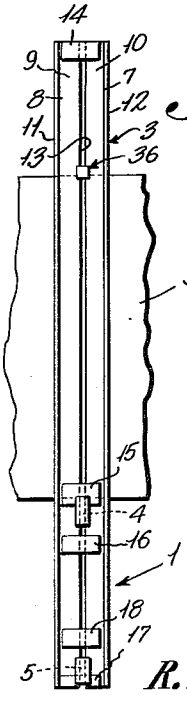


Fig. 4.



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ADJUSTABLE BEAM AND FORM CLAMP

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3 Claims. (Cl. 144—291)

This invention relates to an adjustable form clamp useful in poured masonry construction and particularly applicable for clamping in close contact the bottom and side form boards for casting a lintel beam, holding the form boards in rectangular relationship, or in clamping the side form boards against the opposite sides of a wall, holding them in parallel relation for casting a beam upon the top of the wall, such for example as a perimeter beam.

One of the objects of the invention is to provide a unitary clamp structure comprising a pair of rectilinear clamp jaws intersected at an intermediate point by a transverse member with respect to which said jaws are perpendicular when the clamp is set up, said transverse member being a support for the bottom form board for casting a lintel beam, and said jaws being the supports for the side boards of said form, said jaws being relatively adjustable to provide various predetermined widths of clamp opening, there being means to maintain said jaws parallel in any position of adjustment.

Another object of the invention is to provide a form clamp as described, including means slidable longitudinally of the clamp jaws for engaging the top edges of the side form boards for holding said boards against the clamping jaws.

Another object of the invention is to provide said transverse member with clamp means for drawing the side form boards tight against the side edges of the intervening bottom form board.

Other objects of the invention will appear as the following description of a practical embodiment thereof proceeds.

In the drawing which accompanies and forms a part of the following specification, and throughout the several figures of which the same reference characters have been used to denote identical parts:

Figure 1 is a perspective view of a form clamp embodying the principles of the invention illustrated in holding position with respect to a form for a lintel beam;

Figure 2 is a cross-section taken in a plane designated by the line 2—2 in Figure 1;

Figure 3 is a side elevation of the form clamp viewed from the lefthand side in Figure 2;

Figure 4 is a similar view from the righthand side of Figure 2.

Referring now in detail to the several figures, the form clamp, designated as a whole by the numeral 1, comprises essentially a pair of spaced rectilinear jaws 2 and 3, a transverse member 4 upon which the jaws are slidably mounted, a tie bar 5 for maintaining said jaws parallel when the clamp is set up, and an eccentric 6 or its equivalent pivotally mounted upon the transverse member 4 and bearing against the adjacent jaw 2 for drawing the jaws into tight contact with the form and for locking it in this position.

Each of the jaws is composed of a pair of angle bars 7 and 8 of right angular cross-section, positioned with their interior angles confronting so that they form a

channel, the adjacent flanges 9 and 10 lying in the same plane and constituting the faces of the jaws which contact the side boards of the form. The outer flanges 11 and 12 impart depth strength to the jaws. The base flanges are spaced apart, forming narrow slots 13, extending lengthwise of the jaws. The angle bars 7 and 8 are maintained in spaced position by means of tie plates 14 at the top, bridging the slot and welded to the angle bars, and other tie bars 15 and 16 at an intermediate point in the length of said angle bars and relatively narrowly spaced. The jaw 3 has a similar tie bar 17 at its lower end and a tie bar 18 narrowly spaced above the tie bar 17.

The spaces between the pairs of tie bars 15 and 16 of both jaws provide runways for the transverse member 4 upon which the jaws are slidably mounted. Said runways are somewhat wider than the width of the transverse member, to permit a small degree of oscillation of said member which is useful in effecting lateral relative adjustment of the jaws 2 and 3. The angle bars 7 and 8 of the jaw 2 are provided with right angular clips 19 and 20 at their lower ends, welded thereto and providing upstanding flanges 21 and 22 spaced apart in registry with the slot 13. The upstanding flanges 21 and 22 are perforated to provide registering holes for a bolt 23, by means of which the tie bar 5 is pivotally mounted in the lower end of the jaw 2. The opposite end portion of said tie bar 5 is slidable through the space between the tie plates 17 and 18, which space is wider than the width of said tie bar, to permit limited oscillation of the latter. The free ends of the transverse member 4 and the tie bar 5 are bent angularly to form the flanges 24 and 25 which retain the jaws on said transverse member and tie bar, and make the form clamp a unitary structure.

The transverse member 4 is provided on its upper side with a series of notches 26, 27, 28 and 29 of such width as to receive the lower side of the tie plate 15 of the jaw 3. Said slots provide means for adjusting the jaw 3 laterally with respect to the jaw 2, the slot 26 being positioned so that when the tie plate 15 of the jaw 3 is within said slot, the interior width of the form will be 6 inches. The other slots are positioned so as to successively increase the interior width of the form by multiples of 2 inches.

The lower side of the transverse member 4 is provided with similar slots 30 and 31, which receive the upper side of the tie plate 16 of the jaw 3. These are so positioned as to provide an adjustment of the jaw 3 with respect to the jaw 2, to provide a modular width of respectively 7⅝ inches and 11⅝ inches to the interior of the form. The tie bar 5 has a series of notches 26*a*, 30*a*, 27*a*, 28*a*, 31*a* and 29*a* on its lower side, sized to receive the tie bar 17 of the jaw 3, and corresponding to the respective slots in the transverse member 4. When the jaw 3 is seated in corresponding slots of both the transverse member 4 and tie bar 5, said jaws are substantially parallel, the purpose of the tie bar 5 being to hold them parallel. The adjustment is made by oscillating the transverse member 4 and tie bar 5 to a free position between the pairs of tie bars 15 and 16 and 17 and 18, then moving the jaw 3 inwardly or outwardly until the tie plates 15 or 16, and 17 are in registry with the corresponding slots representing the desired width of form. Then the transverse member 4 is moved to interlock the tie plate 15 with the selected slot, while the tie bar 5 is similarly moved to engage the tie plate 17 with the corresponding slot.

The tie plates 15 and 16 of the jaw 2 form an abutment for the eccentric 6. Said eccentric has an operating handle 32. After the width adjustment has been made in the manner described, the eccentric is rotated

to bring pressure against the tie plates **15** and **16**, drawing the transverse member **4** slightly in a leftward direction, tightening the jaws against the form members and frictionally locking the jaws in their adjusted position.

As shown in Figures 1 and 2, the transverse member **4** affords support for the bottom form board **33**. This board is normally set inside of the side form boards **34** and **35** so that the clamping pressure of the eccentric **6** tightens the side boards against the bottom board and prevents leakage through the joints between said form boards. The part of the slots **13** which extend above the tie plates **15** form runways for the keepers **36**. Said keepers are in the form of headed rods **37**, having portions which extend through said slots with retaining nuts **38** on the inside of said jaws adjusted to permit free sliding movement of the keepers. The inner ends of the keepers are bent down parallel to the adjacent faces of the jaws and at such distance therefrom as to overlie the upper edges of the side form boards, as shown in Figure 2. These keepers hold the side form boards in contact with the adjacent faces of the jaw and maintain the width of the form uniform throughout its height. The keepers are adjustable longitudinally so as to cooperate with form boards of various height. The tie bar **5** may be supported upon a suitable shore, not shown, to sustain the weight of the newly poured beam.

By inverting the clamp it may be employed to retain the side boards of a form used in pouring a perimeter beam, where no bottom form board is employed, and where the side form boards are clamped against the masonry. In this case the transverse member **4** will rest upon the top of the side form boards, the keepers **36** not being employed. In order to keep the free ends of the side form boards parallel, a stake of proper width will be inserted between them to transmit the thrust of the pressure of the eccentric.

While I have in the above description disclosed a practical embodiment of the invention, it will be understood by those skilled in the art that the specific details of construction and arrangement of parts are by way of illustration and not to be construed as limiting the scope of the invention.

What I claim is:

1. Form clamp comprising a pair of rectilinear spaced jaw members of channel shaped cross-section having the webs of channels confronting forming the clamping faces, and being formed each with an intermediate longitudinal slot, pairs of spaced bridging bars, one pair for each jaw member, correspondingly fixedly positioned within the channels of the respective jaw members at

intermediate points in their length, bridging said slots, cooperating with the sides of said slots to form openings, a transverse member extending sildably through said openings with slight play in the direction of the length of said slots, said transverse member having a series of notches toward one end selectively engageable with one of the bridging bars of one jaw member, a cam pivotally connected to said transverse member at its opposite end outside the opposite jaw member, having an operating handle for tightening said clamp against a form board positioned between said jaw members, said cam when in tightened positioned being stably seated between the bridging bars of the adjacent jaw member and in contact with said bars, a tie bar bridging said clamp at the lower ends of said jaw members pivoted at one end to the jaw member engageable by said cam, spaced bridging bars secured within the channel of the opposite jaw member at its lower end defining with the sides of the channel bridged thereby an opening through which said tie bar extends with slight range of swinging movement, said tie bar being provided with a series of notches engageable selectively with one of the last mentioned bridging bars, corresponding notches of both series being parallel to the clamp faces of said jaw members.

2. Form clamp as claimed in claim 1, including keepers slidably retained in said slots, said keepers being formed with hook ends adapted to overhook the upper edges of form boards.

3. Form clamp as claimed in claim 1, the ends of said transverse member and said tie bar, remote respectively from said cam and said pivotal connection, being angularly turned to retain said jaw members, said transverse member and said tie bar as an inseparable unit.

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