Dec. 4, 1962 H. A. KOEHLER 3,066,962

CONCRETE FORM CLAMP

Filed April 19, 1961 2 Sheets-Sheet 1

Fig. 1

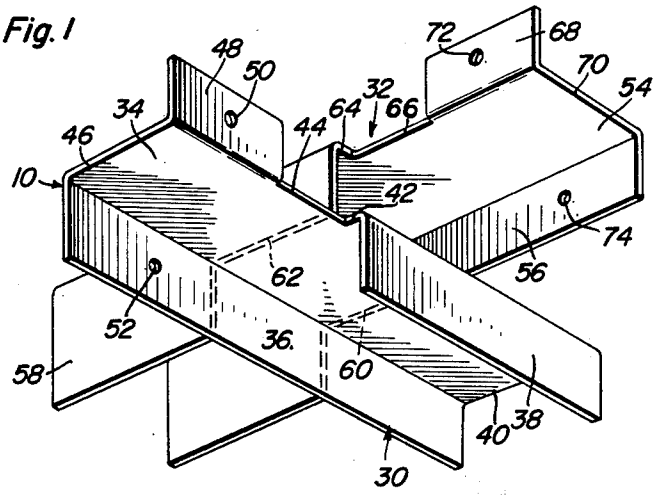

Fig. 2

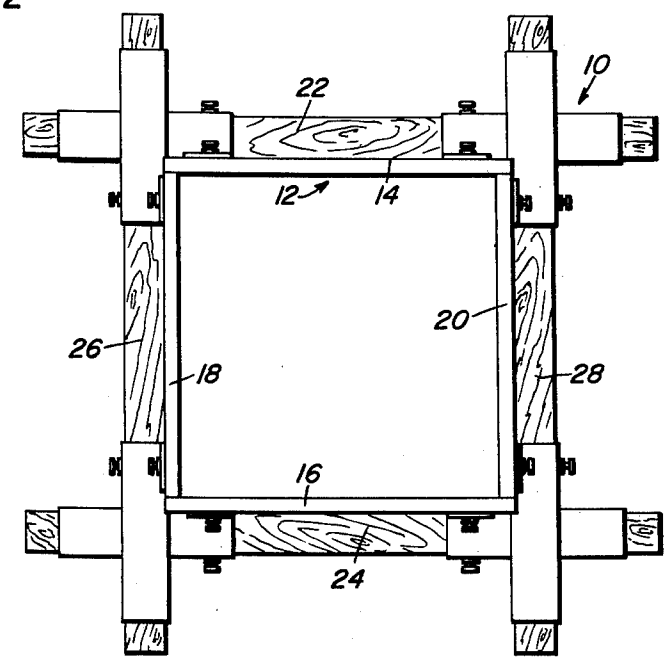

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Fig. 3

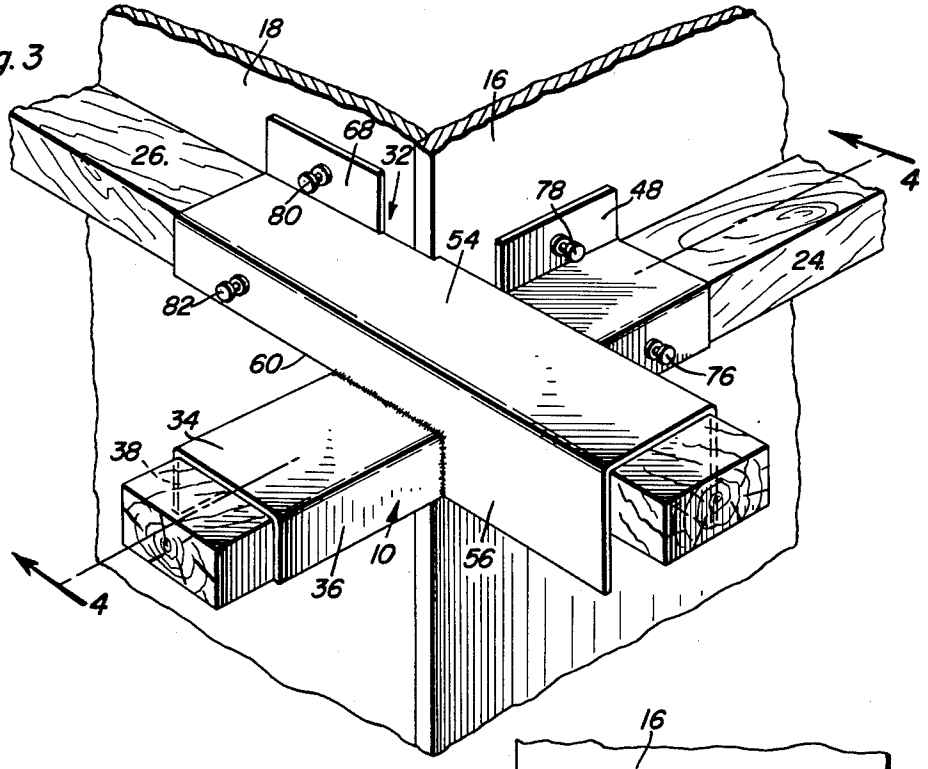
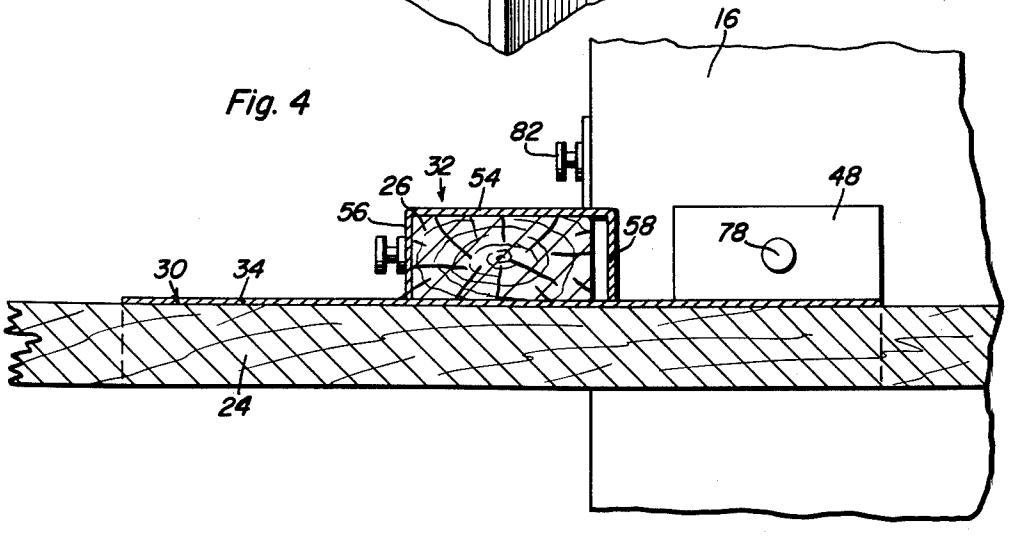


Fig. 4



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3,066,962

Patented Dec. 4, 1962

3,066,962

CONCRETE FORM CLAMP

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Filed Apr. 19, 1961, Ser. No. 104,141

13 Claims. (Cl. 287—54)

This invention relates to hardware or fittings whereby cross timbers may be locked in position so as to square and back the walls of a form within which plastic material is poured and more particularly relates to fittings for locking cross timbers in a backing and corner squaring installation for a concrete column form.

It is therefore a primary object of the present invention to provide a new and useful hardware fitting whereby any length of lumber such as two by four beams, may be used as pressure backings for plywood concrete forms as well as to provide a secure corner squaring assembly for the forms.

By use of the fittings of the present invention, a tremendous reduction in materials, time and labor is effected in that the amount of nailing needed at the corners of the form may be reduced in view of the increased backing pressure and squaring facilities provided. A further reduction in cost in erecting the concrete form is effected by virtue of the ability of the fitting hardware of the present invention to directly square the corners of the form.

A still further object of this invention is to provide hardware which will clamp crossed timbers in place for pressure backing and corner squaring purposes on concrete forms and which will facilitate disassembly of the form so as to reduce the disassembly time and breakage of the lumber during the disassembly.

An additional object of this invention is to provide concrete form clamp fittings which are extremely simple in design, and have no moving parts so as to render the fittings economical in cost and maintenance and yet provide fittings which are more advantageous and useful in particular for concrete square column forms.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of a concrete form fitting or clamp made in accordance with this invention.

FIGURE 2 is a top plan view of a square column form installation utilizing four fitting devices of the present invention.

FIGURE 3 is a partial perspective view of one corner of the installation illustrated in FIGURE 2.

FIGURE 4 is a sectional view taken substantially through a plane indicated by section line 4—4 in FIGURE 3.

Referring now to the drawings in detail, the novel concrete form fitting or clamp device of the present invention which is generally referred to by reference numeral **10** is illustrated in connection with an installation for which it is particularly useful. Accordingly, as seen in FIGURE 2, a concrete column form assembly generally referred to by reference numeral **12** is illustrated including parallel form walls **14** and **16** disposed in perpendicular relation to the parallel form walls **18** and **20**. The walls **14** and **16** are respectively braced by timbers **22** and **24** which may be for example, two by four lumber, while the walls **18** and **20** are backed by the timbers **26** and **28** respectively. It will also be observed that the timbers **28** and **26** are disposed above the timbers **22** and **24** and arranged perpendicular thereto so that the assembly of the timbers also squares the corner of the form assembly **12**. The timbers are therefore held

in the illustrated position by the novel form clamping devices **10**.

Referring now to FIGURES 1 and 3 in particular, it will be observed that the fitting device **10** is composed of a lower member generally referred to by reference numeral **30** which is disposed in interfitting relation and welded to an upper member generally referred to by reference numeral **32**. The members **30** and **32** are disposed in perpendicular relation to each other. The lower member **30** is generally of a rectangular inverted channel-shaped configuration, said member including a top plate portion **34** from which parallel side channel walls **36** and **38** depend. It will be observed, that the side channel wall **36** extends along the entire length of the top portion **34**. The channel wall **38** on the other hand, extends from one end **40** of the lower member **30** along a portion of the top portion **34**. The channel wall **38** accordingly terminates at a shoulder edge **42** formed on the top plate portion **34** which shoulder edge **42** is disposed perpendicular to the edge **44** of a slightly narrower portion of the top portion **34**. Connected to the portion **34** adjacent the other end **46** of the lower member **30** and projecting upwardly therefrom is an anchoring plate member or flange **48** which is disposed in parallel relation to the side channel walls **36** and **38**. A pair of aligned apertures **50** and **52** are disposed in the anchoring plate member **48** and the channel wall **36** respectively, through which nails may be inserted for temporarily anchoring the lower member **30** to the wall of the form with which it is associated and to secure thereto the timber associated with the lower channel member **30**.

The upper channel member **32** is of similar construction to the lower channel member **30** but is disposed in perpendicular relation thereto. The upper channel member **32** accordingly also includes a top plate portion **54** from which a pair of parallel side channel walls or flanges **56** and **58** depend. The side channel walls **56** and **58** differ however from the side channel walls **36** and **38** of the lower channel member **30** in that they include recessed portions **60** and **62** by means of which the upper channel member **32** is disposed in interfitting relation to the lower channel member **30** and welded thereto along the interfitting edges as more clearly seen in FIGURE 3.

It will be further observed, that the upper channel member **32** also includes a shoulder edge **64** disposed in perpendicular relation to the side edge **66**. The corner formed between the edges **64** and **66** on the upper channel member **32** and the corner formed by the edges **42** and **44** on the lower channel member **30** define, the squared edge for the concrete form when the fitting **10** is placed thereagainst. An anchoring plate member or flange **68** is therefore also provided adjacent end **70** of the upper channel member **32** with nailing apertures **72** and **74** being disposed in the anchoring plate **68** and the side channel wall **56**.

Referring now to FIGURES 3 and 4 in particular, it will be observed that the timber **24** is slidably received between the top portion **34** and side channel walls **36** and **38** of the lower channel member **30**. The lumber **24** is secured to the lower channel member **30** by a nail **76** while the channel member **30** itself is disposed up against the wall **16** of the form assembly **12** with the anchoring plate **48** abutting against the wall **16** and being secured thereto by a nail **78**. It will be appreciated although not shown in FIGURE 3, that the squaring edges **42** and **44** on the lower channel member **30** will be disposed up against the corner of the wall **16**.

The upper channel member **32** which is welded to the lower channel member **30** also slidably receives the timber **26** between the upper plate portion **54** and side channel walls **56** and **58**. As more clearly seen in FIG-

URE 4, the timber 26 will be disposed up against the form wall 18 and hence spaced a short distance from the side channel wall 58 in view of the intermediate terminal edge thereof being disposed in abutting relation against the wall 16 so that the perpendicular edges 64 and 66 may square the corner forms by the walls 16 and 18. The anchoring plate member 68 is therefore disposed in contact with the wall 18 and anchored thereto by the nails 80. The timber 26 is in turn secured to the upper channel member 32 by the nails 82. As shown to advantage in FIGURE 1 of the drawing the inner sides of the channel members 30 and 32 are open and recessed from the shoulders 42 and 64 to the inner ends of said members whereby the timbers 24 and 26 are exposed for abutting engagement with the form.

From the foregoing description, the clamping of each of the timbers adjacent to opposite corners of the wall against which the particular timber is disposed, will be apparent. It will be further apparent, that the squaring and backing of the concrete form assembly 12 by the cross timbers may be accomplished with great dispatch and ease and may even be performed by a single man whereas two men were heretofore required in order to properly stack and square the concrete form assembly 12. Furthermore, the assembly of the described installation may be readily disassembled by simple removal of the nails associated with each of the fitting devices 10.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A fitting for locking crossed timbers in a backing and corner squaring installation for concrete forms, comprising, a lower inverted channel member slidably receiving a first timber therethrough, an upper inverted channel member interfitted with and disposed perpendicular to the lower member for slidably receiving a second timber above the first timber, shoulder means formed on one side of each member for abutment against a corner formed by walls of a form, and anchoring means mounted on said one sides of the members in spaced relation to the shoulder means for abutment against the respective corner forming walls of the form, said one sides of the members being open and recessed from the shoulders to the inner ends of said members for exposing the timbers for abutting engagement with the form.

2. The combination of claim 1 wherein said members include means for securing the timbers within their respective members in corner forming and wall backing contact with the respective walls of the form.

3. The combination of claim 2, wherein said members include parallel downwardly depending side channel walls, the channel walls on said one side of each member extending from one end of the member and terminating at the shoulder means.

4. The combination of claim 3, wherein said anchoring means comprises a plate projecting upwardly from the member adjacent an end thereof opposite said one end in parallel relation to the side channel walls.

5. The combination of claim 4, wherein the side channel walls of the upper member include recessed portions for interfitting connection of the upper member to the lower member.

6. The combination of claim 5, wherein the anchoring means and channel walls on the other side of each member includes apertures in vertically spaced parallel relation to each other for nailing the members to the form walls and the timbers to the members.

7. The combination of claim 1, wherein said members are channel-shaped including parallel downwardly depending side channel walls, the channel walls on said one side of each member extending from one end of the member and terminating at the shoulder means.

8. The combination of claim 7, wherein the side channel walls of the upper member include recessed portions for interfitting connection of the upper member to the lower member.

9. The combination of claim 8, wherein the anchoring means and channel walls on the other side of each member includes apertures in vertically spaced parallel relation to each other for nailing the members to the form walls and the timbers to the members.

10. A fitting for locking crossed timbers in a backing and corner squaring installation for concrete forms, comprising, an inverted low channel member slidably receiving a first timber therethrough, an inverted upper channel member interfittingly connected to and disposed perpendicular to the lower member for slidably receiving a second timber above the first timber, and means mounted on said members for nailing the members to a form and the timbers to the members.

11. A corner clamp for concrete forms of the type including a pair of crossed timbers, said clamp comprising upper and lower inverted channel members crossed and fixedly secured together at an intermediate point and longitudinally receiving the timbers, the inner longitudinal marginal portions of said members including, at an intermediate point, transverse shoulders for abutting the form, said inner longitudinal marginal member portions being recessed and open from the shoulders to the inner ends of said members for exposing the timbers for abutting engagement with the form, and means for securing said members to the form with the timbers in abutting engagement therewith.

12. A corner clamp in accordance with claim 11, said means including upstanding apertured flanges integral with said recessed inner longitudinal marginal member portions.

13. A corner clamp in accordance with claim 12, said upper member comprising on its outer end portion depending side flange portions including ends abutting the outer longitudinal side of the lower member and affixed thereto.

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