Feb. 10, 1970 G. E. ALLEN 3,494,090

DEVICES FOR TYING WOODEN MEMBERS TO BRICK AND MASONRY WALLS

Filed Nov. 13, 1967 3 Sheets-Sheet 1

FIG - 1

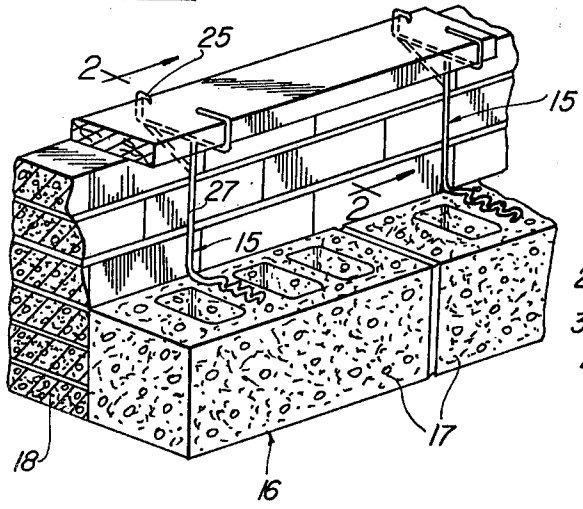


FIG - 2

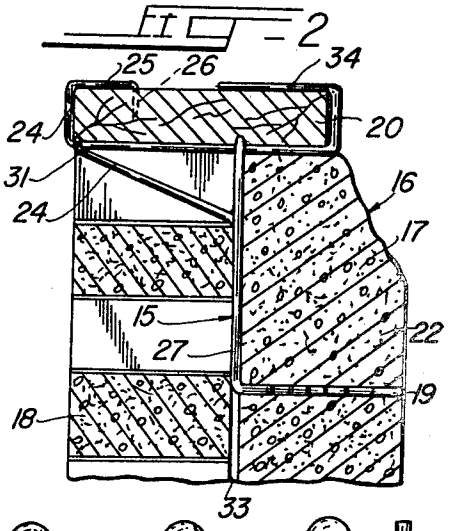


FIG - 3

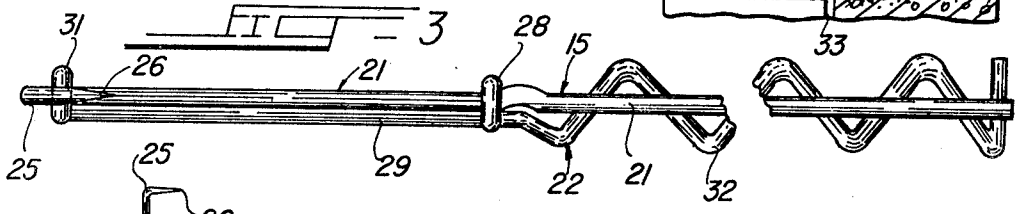
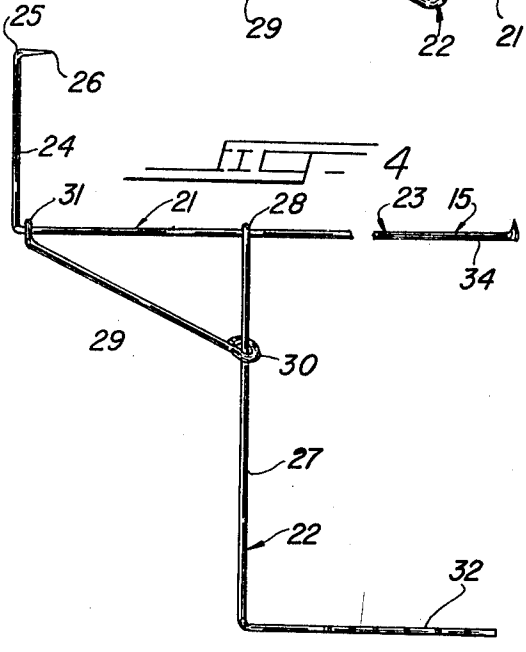


FIG - 4



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DEVICES FOR TYING WOODEN MEMBERS TO BRICK AND MASONRY WALLS

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FIG. 5

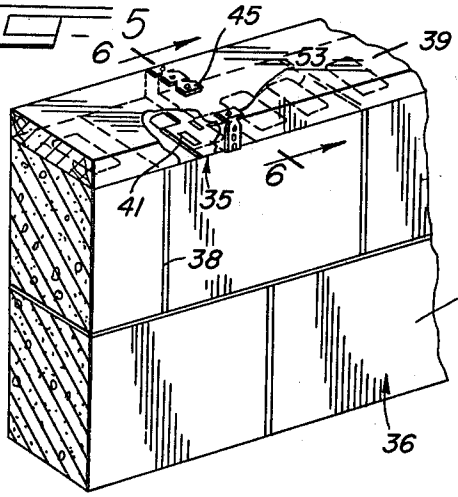


FIG. 6

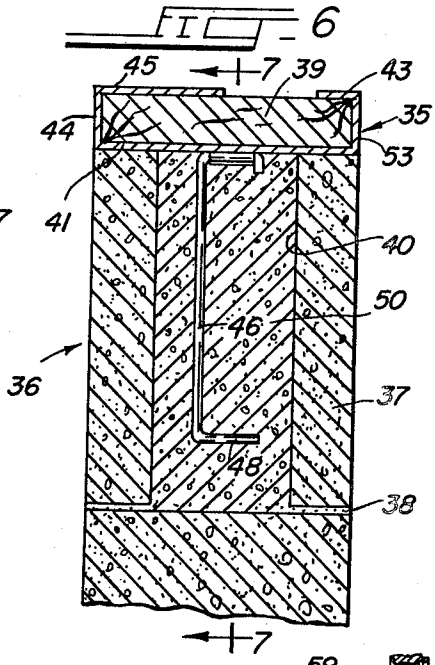


FIG. 7

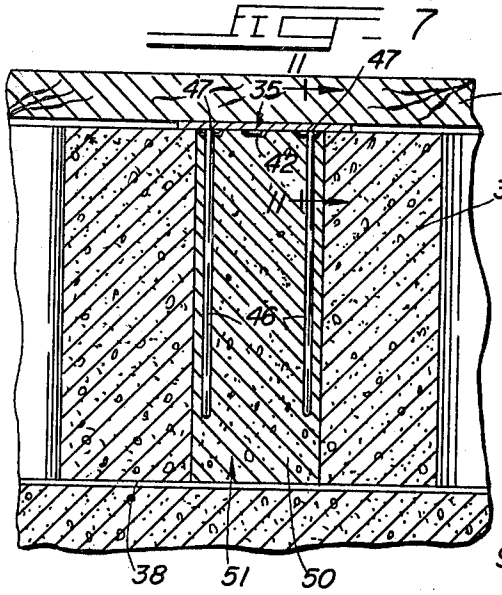


FIG. 8

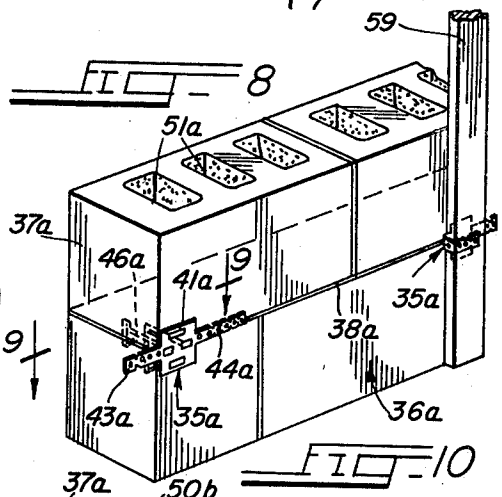


FIG. 9

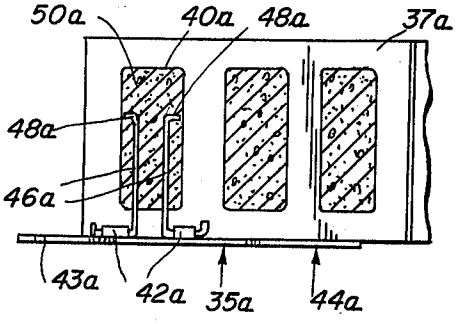
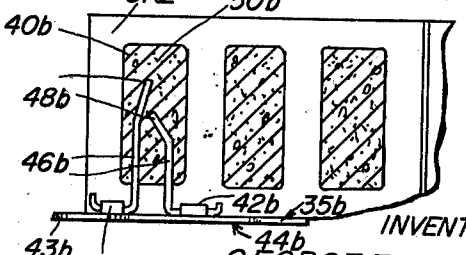


FIG. 10



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FIG - 11

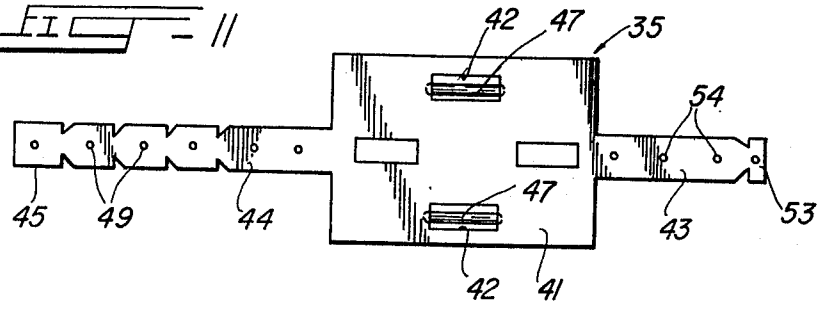


FIG - 12

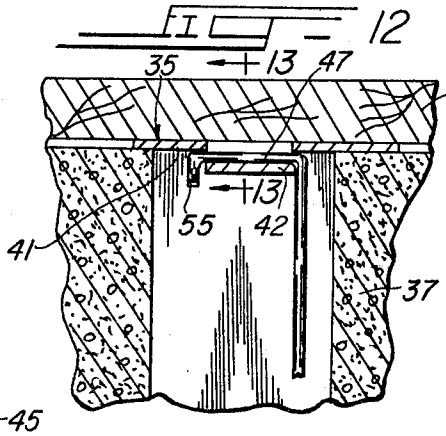


FIG - 13

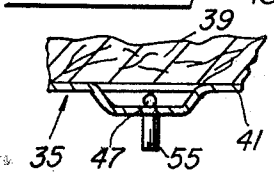
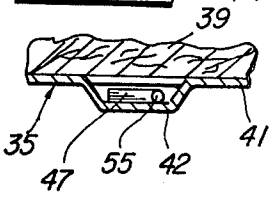


FIG - 14



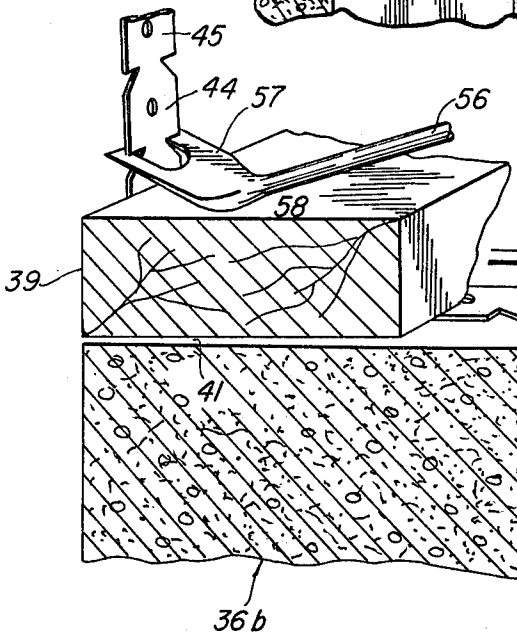
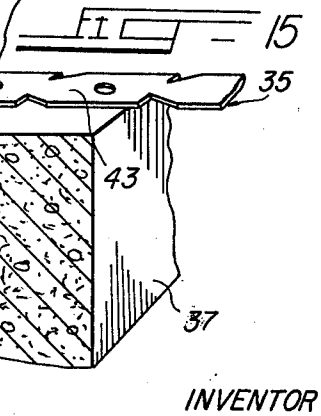


FIG - 15



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3,494,090

DEVICES FOR TYING WOODEN MEMBERS TO BRICK AND MASONRY WALLS

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Int. Cl. E04b 1/38, 2/06
U.S. Cl. 52—713 5 Claims

ABSTRACT OF THE DISCLOSURE

Means for anchoring and typing a wooden member to the upper tier of a brick or concrete block wall construction, or to a composite brick and concrete block wall construction, including, a tying member which is adapted to underlie the wooden member between the latter and the upper surface of the wall construction and having portions adapted to be bent around the sides and over the top of the wooden member and fastened thereto. An anchoring member embodied in the device is swivelly attached to and depends from the tying member and in use is anchored in the wall construction. The swivel connection between the tying member and the anchoring member enables the parts to be stacked and shipped in flat form and to be readily positioned at the point of use.

PRIOR ART

It is common practice in the art of building construction to tie a wooden member such as a plank, board, two-by-four, or the like, to a top tier of bricks or to a top row of concrete blocks used in wall construction so that the superstructure of the building may be attached to the wooden member to complete the building construction.

Various forms of such anchoring and tying devices have been used heretofore including rod-like members which are so designed and constructed as to be inserted into and through the wooden member but the use of such devices has commonly necessitated cutting off unneeded or superfluous end portions thereof with resulting labor and expense involved in so doing by the carpenters and masons involved in the work.

Other forms of prior tying devices have necessitated drilling holes in the wooden members to provide a countersunk anchoring space for a threaded nut, or the like, attached to the threaded portion of the tie member extended through the wooden member into a brick or masonry wall with resulting time and expense involved in so doing by the workman.

OBJECTS

An object of the present invention is to provide a new and improved anchoring and tying device for tying a wooden board, such as a plank, or the like, to a brick or concrete masonry wall, and which is so designed and constructed that it may be stacked, packaged and shipped in a flat condition.

A further object of the invention is to provide a new and improved anchoring and tying device for tying a wooden board, such as a plank, or the like, to a brick or masonry wall with a minimum of time and labor of the carpenters and masons engaged in the work.

An additional object of the invention is to provide new and improved anchoring and tying devices which are adapted for use with wooden members of varying dimensions, and which are so designed and constructed that when anchored in position of use they will maintain a flat co-planar relationship with the upper surface of the wooden member.

An additional object of the invention is to provide a new and improved anchoring and tying device which is

particularly adapted for use in tying wooden members of varying dimensions to masonry walls.

A further object of the invention is to provide in one form thereof a tying device which prior to use and when packaged and in handling is free from hazardous hook elements.

DESCRIPTION OF THE FIGURES

In the drawings:

FIG. 1 is a fragmentary perspective view of a combination masonry and brick wall construction showing a preferred form of anchoring and tying device associated therewith;

FIG. 2 is a transverse vertical sectional view on line **2—2** in FIG. 1;

FIG. 3 is a top plan view of the embodiment of the new anchoring and tying device illustrated in FIGS. 1 and 2;

FIG. 4 is a side elevational view of the new anchoring and tying device illustrated in FIGS. 1, 2 and 3 and showing the same in extended form;

FIG. 5 is a fragmentary perspective view of a concrete block or like masonry wall construction showing another form of the new anchoring and tying device associated therewith;

FIG. 6 is a transverse vertical sectional view on line **6—6** in FIG. 5;

FIG. 7 is a vertical sectional view on line **7—7** in FIG. 6;

FIG. 8 is a fragmentary perspective view illustrating another use of the form of the new anchoring and tying device which is illustrated in FIGS. 5, 6 and 7;

FIG. 9 is a sectional plan view on line **9—9** in FIG. 8;

FIG. 10 is a fragmentary sectional plan view illustrating a modification of the form of the new anchoring and tying device shown in FIGS. 8 and 9;

FIG. 11 is a top plan view of the form of the new anchoring and tying device illustrated in FIGS. 5, 6, 7, 8, 9 and 10;

FIG. 12 is a fragmentary vertical sectional view illustrating the use of the form of the new anchoring device shown in FIGS. 5, 6, 7, 8, 9 and 10;

FIG. 13 is a fragmentary sectional view on line **13—13** on FIG. 12 illustrating the manner of the use of the form of the new anchoring device illustrated in FIGS. 5, 6, 7, 8, 9 and 10;

FIG. 14 is a fragmentary sectional detail view similar to FIG. 13 but showing the part in a different position; and

FIG. 15 is an enlarged sectional view illustrating one manner of installing the form of the new anchoring and tying device shown in FIGS. 5 to 11, inclusive.

A typical and preferred embodiment of the new anchoring and tying device is illustrated in FIGS. 1, 2, 3 and 4 of the drawings, wherein it is generally indicated at **15**, and is shown as being used in conjunction with a combination masonry and brick wall **16**, and which embodies tiers of concrete blocks **17** and bricks **18** above which are wooden plank members **20** or the like.

The new anchoring and tying device **15** is adapted for use in anchoring and tying the wooden plank members **20** to the uppermost tiers of concrete blocks **17** and bricks **18** so that the superstructure of a building may be built upon and attached to the wooden plank members **20**.

The new anchoring and tying devices **15** may be made of bendable steel, wire or rod-like material and comprises (as seen in use) a horizontally extending gripping or tying member **21** and an upright or vertically extending anchoring member **22**. The gripping or tying member **21** includes a body portion **23** and an upwardly inwardly extending arm **24** which terminates in a piercing point

end portion **26**. The anchoring member **22** includes a body **27** having at its upper end a looped portion **28** which encircles the body portion **23** of the gripping member **21**. The new anchoring and tying device **15** also includes a brace member **29** which extends angularly upwardly from the vertically extending body **27** of the anchoring member **22** to one outer end portion of the horizontally extending body portion **23**. The lower end portion of the brace member **29** may be fastened to the upright member **27** in any suitable manner, as by means of a loop **30** which encircles the body of the upright member **27**, and at its upper end the brace member **29** has a swivel loop portion **31** which encircles the horizontally extending body portion **23** of the tying and gripping member **21**.

The anchoring member **22** has a horizontally extending corrugated lower anchoring base portion **32**.

In the use of the form of the new anchoring and tying device illustrated in FIGS. 1 to 4, inclusive, the same may be mounted in position of use, as shown in FIGS. 1 and 2, with the anchoring member **27** extending vertically in a mortar joint, as **33**, between the brick wall component **18** and the concrete block component **17** of the wall structure **16**, and with the horizontally extending corrugated arm **32** lying in a mortar joint, as **19**, between the tiers of concrete blocks **17**. When so arranged the horizontally extending body portion **23** of the tying and gripping member **21** extends across under the wooden plank member **20**, and when so initially applied the new anchoring and tying device **15** has the geometrical form in which it is shown in FIG. 4 with the arm **24** extending upwardly along one side of the wooden plank member **20**. The upper end portion **25** of the arm **24** is then bent horizontally over the upper surface of the wooden plank member **20** and the piercing point portion **26** thereof is bent downwardly into the wooden plank member **26**, whereupon the parts **24**, **25** and **26** appear in the portion in which they are shown in FIGS. 1 and 2. The outer end portion **34** of the body portion **23** of the gripping member **21** is then bent over the upper surface of the wooden plank member **20** to provide the gripping portion **34**, as shown in FIGS. 1 and 2.

When the parts are so arranged, the new anchoring and tying device **15** firmly anchors or ties the wooden plank member **20** to the combination brick and masonry wall construction **16–17–18–19** without the use of nails or other fastening devices.

The new anchoring device **15** is readily adapted for use with masonry of concrete block and brick wall construction and wooden plank members **20** of the various sizes and dimensions, and may be readily positioned in use as shown. In addition, it has the further advantage which resides in the fact that it may be stacked, packed and shipped in a collapsed or flat form, as illustrated in FIG. 3.

A modification of the invention is illustrated in FIGS. 5, 6, 7, 11, 12 and 13 of the drawings wherein it is generally indicated at **35**, and is shown as being used in conjunction with a masonry wall construction **36** which is composed entirely of concrete blocks **37** united by mortar joints **38** with the wooden plank members **39** lying above the upper surface of the uppermost tier of concrete blocks **37**. As shown, each of the concrete blocks **37** has a recess or cell cavity **40** therein.

The new anchoring and tying device **35**, as shown in FIGS. 5, 6, 7, 11, 12 and 13 comprises a generally rectangular shaped main body portion **41**, which may be made of suitable sheet metal stamping such as steel, or aluminum, or the like. Supporting loop bracket portions **42** are struck from and depend from the lower surface of the main body member **41**, for a reason which will be pointed out hereinafter.

A tying strap arm portion **43** is formed integrally with and extends centrally from the body portion **41** at one side thereof, and a second tying strap portion **44** is formed integrally with and extends centrally from the main body portion **41** at the opposite side thereof. The tying strap arm **44** has an outer end portion **45** and openings **49** are formed in the arm **44**. Similarly, the arm **43** has an outer end portion **53** and openings **54** are provided in the arm **43** for a reason which will be pointed out hereinafter.

The new anchoring and tying device **35** includes a plurality of anchoring rod members **46**, each of which includes an upper swivel arm portion **47** which is projected through one of the depending supporting loop bracket portions **42** in the main body portion **41** and as its lower end each of the anchoring rod members **46** has an anchoring foot portion **48** which extends right angularly from the body of the anchoring rod member **46** and may be embedded in concrete or like filler **50** which may be arranged in the cell or intra-wall spacer **40** of each of the concrete blocks **37** (FIGS. 6 and 7).

In addition each of the swivel arm portions **47** has a depending portion **55** at one end thereof which serves to prevent the swivel arm **47** from being retracted out of the corresponding loop bracket portion **42**.

In the use of the anchoring and tying device **35** illustrated in FIGS. 5, 6, 7, 11, 12 and 13, a series of the anchoring and tying devices **35** may be inserted at intervals along the concrete block wall construction **36–37** with the anchoring rods **46–48** disposed in the cells or recesses **51** of the concrete blocks **37** and in a body of the concrete or like filter **50** therein. When the parts are thus arranged, as in FIGS. 6 and 7 the main body portion **41** of each anchoring and tying device **35** is disposed below the plank member **39** and above the upper surface of the uppermost tier of concrete blocks **36–37**. The arm portion **43** is then bent upwardly along one side of the wooden plank member **39** and then horizontally over the upper surface of the wooden plank member **39** so that it is disposed in the position in which it is shown in FIGS. 5 and 6. The arm **44–45** is then bent upwardly over the upper surface thereof so that it appears as shown in FIGS. 5 and 6.

One suitable manner of bending the arms **43** and **44** is illustrated in FIG. 15 of the drawings and may be accomplished by inserting the jaw **57** of a suitable tool **56** upon the wooden plank member **39** with the jaw portion **57** thereof embracing only the strap arm portion **44** and with the bend **58** of the tool **56** resting on the upper surface of the wooden plank member **39**, whereupon the tool **56** may be forced downwardly, on the bend **58** thereof, so as to tighten the strap arm portions **43** and **44** about the wooden member **39**. The same procedure may be followed with the strap arm portion **43**.

When the new anchoring and tying device **35** is thus disposed in position of use, in which it is shown in FIGS. 5, 6 and 7, the anchoring rod members **46–48** depend from the supporting loop bracket portions **42** into the cells or recesses **51** in the concrete blocks **37** and are anchored therein by the concrete or like filler **50** with which each of the cells **51** in the concrete blocks **37** may be filled.

It will thus be seen that the new anchoring and tying device **35** effectively anchors the wooden plank member **39** to the concrete block wall construction **36–37**, while at the same time, it is adapted to be used with concrete block constructions and wooden members of various sizes since it may be readily made in various sizes and shapes.

At the same time, the new anchoring and tying device **35** may be packed and shipped in flat form, as in FIG. 11, thereby expediting the packing and shipment thereof.

Another mode of use of the new anchoring and tying device **35** is illustrated in FIGS. 8 and 9 of the drawings, and those parts thereof which are similar to or correspond to the parts of the new anchoring and tying device **35** shown in FIGS. 5, 6, 7, 11, 12 and 13 have been given the same reference numerals followed by the additional and distinguishing reference character *a*.

The form and construction of the new anchoring and tying device **35***a*, which is illustrated in FIGS. 8 and 9,

are substantially the same as that shown in FIGS. 5, 6, 7, 11, 12 and 13 and differ therefrom only in the manner in which the device is used. Thus, in the form of the invention illustrated in FIGS. 8 and 9, the new anchoring and tying device **35***a* is shown or being used to tie a vertical extending wooden plate member or board **58** against the side of a concrete block wall **36***a*. To this end the new anchoring and tying device **35***a* is positioned, as shown at the left in FIG. 8 and in FIG. 9, with the anchoring rods **46***a* extending horizontally across the upper surface of the one row of concrete blocks **37***a*, and between two rows of the concrete blocks **37***a*, and with the angled end portions **48***a* of the anchoring rod members **46***a* extending laterally outwardly, as shown in FIG. 9. When so disposed the main body portion **41***a* of the new anchoring and tying device **35***a* may be disposed as shown at the left in FIG. 8 and the strap arm portion **43***a* and **44***a* may then be bent around the vertically extending board member **58**, as shown at the right in FIG. 8, and with the anchoring rod members **46***a*–**48***a* embedded in the concrete or mortar filler **50***a* in the cell **51***a* of the corresponding one of the concrete blocks **37***a*, as in FIG. 9. In this manner, the new anchoring and tying device **35***a* may be used to tie the wooden plate member or board **58** to the concrete block wall **36***a*.

A modification of the form of the invention illustrated in FIGS. 8 and 9 is shown in FIG. 10 and since this form of the invention is substantially similar to that shown in FIGS. 8 and 9 corresponding parts thereof have been given the same reference numerals followed by the additional and distinguishing reference character *b*.

The form of the invention shown in FIG. 10 differs from that shown in FIGS. 8 and 9 only in the shape of the angled anchoring end portions **48***b*—**48***b* which are angled laterally inwardly in the manner shown in FIG. 10, rather than laterally outwardly, as in FIG. 9 and or may be bent into the mortar or concrete filler **50***b* in the cell **40***b* of the concrete block, as shown in FIG. 10.

It will thus be seen from the foregoing description, considered in conjunction with the accompanying drawings, that the present invention provides new and improved anchoring and tying devices for tying wooden members to combination brick and masonry walls, or to concrete block walls, or the like, and that the invention thus has the desirable advantage and characteristics and accomplishes its intended objects .

I claim:

1. An anchoring and tying device for tying a wooden member having side marginal edges and upper and lower surfaces to a brick or masonry wall construction comprising a horizontally extending tying member including

(1) a main body portion adapted to extend between the lower surface of the said wooden member and the upper surface of the uppermost tier of brick or masonry units in the wall construction, and having:

(a) arm portions extending laterally from the said main body portion and adapted to be bent upwardly over the side marginal edges of the wooden member and thence over the upper surface thereof; and

(b) an anchoring member swivelly attached to and depending from the said main body portion of said tying member:

(1) the said anchoring member having at its upper end a swivel loop portion which encircles the said main body portion of the said tying member; and

(2) the said anchoring and tying device including a brace member extending angularly between the said anchoring member and the said tying member and having its lower end portion attached to the said anchoring member and having at its upper end a swivel loop portion which encircles the said main body portion of the said tying member.

2. An anchoring and tying device for tying a wooden member having side surfaces and a top surface to a masonry wall construction, which includes mortar, comprising:

(1) a generally rectangular flat main body portion adapted to underlie the said wooden member between the latter and a surface of said masonry wall construction;

(2) arm portions extending angularly from the said generally flat main body portion at opposite sides thereof and adapted to embrace portions of the said side and top surfaces of the said wooden member;

(3) an anchoring member including a body having a lower end portion and having

(a) an upper end portion swivelly attached to and depending from the said main body portion of the said tying member and having at its lower end portion

(1) an anchoring portion extending angularly from the said body thereof and adapted to be anchored in the said mortar of the said masonry wall construction; and

(2) means for swivelly attaching the said upper end portion of the said anchoring member to the said main body portion of the said tying member;

(b) said main body portion of said tying member having

(1) generally parallel side edges and generally parallel end edges; and

(2) in which the said arm portions are formed integrally with the said main body portion and project laterally from the said generally parallel end edges thereof between the said generally parallel side edges; and in which the said means for swivelly attaching the upper end portion of the said anchoring member to the said generally rectangular-shaped body portion of the said anchoring and tying device includes a supporting loop bracket formed integrally in the said generally rectangular-shaped body portion of the said anchoring and tying device on the bottom surface of the latter and extending therebelow; and in which the said anchoring member has an upper arm portion swivelly mounted in the said supporting loop bracket portion below said bottom surface.

3. An anchoring and tying device as defined in claim **2** in which the said generally rectangular-shaped body portion thereof has

(a) a plurality of the said supporting loop bracket portions formed integrally therewith in the bottom surface thereof; and in which the said anchoring and tying device includes

(b) a plurality of the said anchoring members each including

(1) an upper arm portion swivelly mounted in one of the said supporting loop bracket portions below the said generally rectangular-shaped main body portion of the said anchoring and tying device.

4. An anchoring and tying device as defined in claim **2** in which the said upper arm portion of said anchoring member has an angled end portion preventing withdrawal of the said upper arm portion of the said anchoring member from the said supporting loop bracket portion.

5. An anchoring and tying device as defined in claim **2** in which at least one of the said arm portions has

(a) side edges having

(b) notches formed therein for the reception of a tool

for tightening the said arm portions about the said wooden member.

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U.S. Cl. X.R.

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