Oct. 21, 1958 E. W. LATIMER ET AL 2,856,646

BUILDING BRACE

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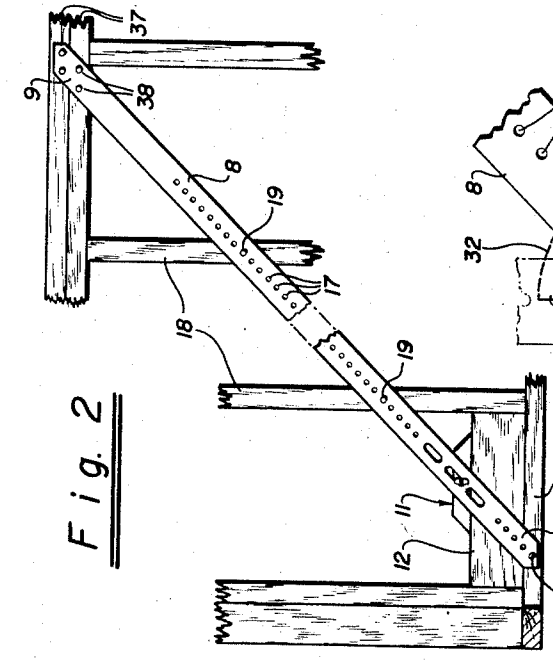


Fig. 2

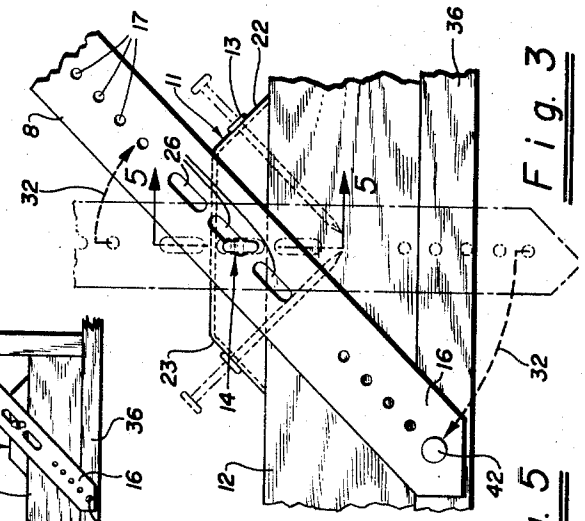


Fig. 3

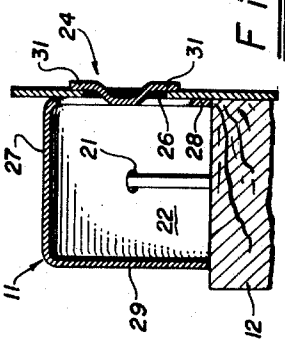


Fig. 5

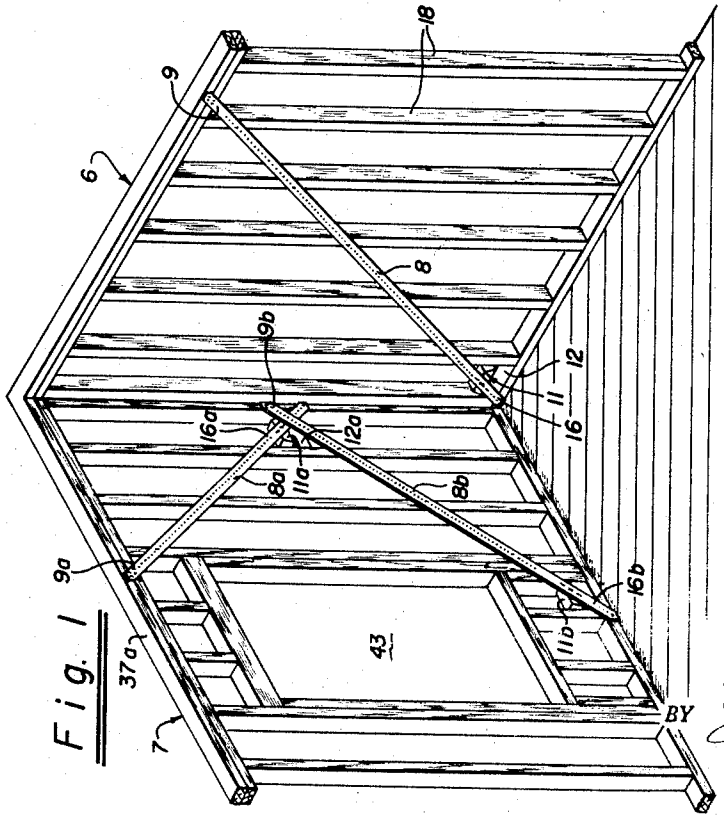


Fig. 1

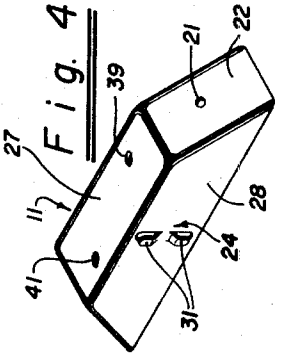


Fig. 4

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BUILDING BRACE

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6 Claims. (Cl. 20—4)

The invention relates to construction devices and more particularly to such devices as are designed for aiding in the erection and strengthening of studded walls in wood frame construction.

In conventional wood frame construction transverse or sway reinforcement is normally obtained by blocking between the studs with diagonally set lengths of lumber usually beveled at their ends for nailing to the studs or by setting into the faces of the studs a continuous length of lumber running diagonally across the wall face. Either method requires relatively costly, laborious and time-consuming operations in the framing of the building. It is accordingly an object of the present invention to provide a device of the character described which may be quickly and easily applied to the wall frame by rapid and straightforward nailing and without sawing, beveling, fitting, or the exercise of other special skills, whereby the construction and installation may be completed in minimum working time and at relatively low cost.

Another object of the present invention is to provide a building brace of the character described which will afford a much stronger and more durable reinforcement and bracing for the wall and which also leaves the space between the studs completely open and unobstructed for the most convenient inclusion therein of pipes, conduits, heating ducts and the like, without requiring any notching, cutting away or otherwise weakening of the bracing member.

The invention has other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by said drawings and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings (one sheet):

Figure 1 is a perspective view of a portion of a wood frame building with building braces constructed in accordance with the present invention applied thereto.

Figure 2 is a fragmentary side elevation of one of the walls and one of the building braces depicted in Figure 1, taken on an enlarged scale.

Figure 3 is a fragmentary side elevation of a part of the building brace and associated wall structure taken on a further enlarged scale.

Figure 4 is a perspective view of one of the members of the building brace.

Figure 5 is a fragmentary cross-sectional view taken substantially on the plane of line 5—5 of Figure 3.

The building brace of the present invention is particularly designed for use with wood frame building walls such as walls **6** and **7** illustrated in Figures 1 and 2 of the drawing, and consists, briefly, of a strap **8** adapted for fastening at one end **9** to the wall frame for diagonal extension therefrom, a slide block **11** adapted for mounting on and fastening to a diagonally remote part **12** of the frame, a

fastener **13** cooperating with block **11** and frame part **12** for setting the block on the frame part with sliding action, and means **14** connecting the strap **8** adjacent its other end **16** to the block **11** for tensioning of the strap upon setting of the block. Preferably the strap **8** is elongated and formed of thin sheet metal such as steel having a thickness which will permit its mounting across the face of the studs without notching or "letting in" of the strap into the studs and without obstructing or in any way interfering with the application of the plasterboard, plaster or other wall finish. Steel strap in the order of 1/16" is quite satisfactory for this purpose.

As another feature of the present invention the strap **8** is formed with a plurality of longitudinally spaced openings or perforations **17** for nailing of the strap to the horizontally spaced vertically extending studs **18** in the wall frame after tensioning of the strap as above explained. Nails **19**, shown in Figure 2, are used for this purpose. Preferably the holes in the strap are made slightly smaller than the diameter of nails **19** so as to force the metal of the strap into the wood of studs **18** upon driving home of nails **19**.

Fastening of the block **11** to the frame part **12** is preferably effected by nailing and to facilitate this operation, the block **11** is formed with a nail-receiving opening **21**, see Figures 4 and 5, arranged for toe-nailing of the block on the frame part **12** so as to obtain a setting of the block **11** accompanied by a small sliding action of the block **11** on part **12**. As will be best observed from Figures 3 and 4, the opening **21** is provided in an inclined end wall **22** of the block and preferably in the interest of adaptability and reversibility of parts, the opposite end wall **23** of the block is likewise beveled and provided with a nail-receiving opening so that similar toe-nailing and sliding movement of the block may be effected from this end also.

Connection of the strap to the block is here effected to permit swivel or pivoting action in view of the sliding action of the block on the frame piece **12**, and desirably the connection is made easily attachable and detachable. For this purpose a pin **24** is carried by the block for mounting in a bearing opening **26** in the strap.

For ease in manufacturing and for strength, the block may be pressed out or otherwise formed of hollow inverted cup shape having a top wall **27**, end walls **22** and **23**, and side walls **28** and **29**. If desired and as here shown, the pivotal connecting part **24** of the block may be formed as one or a pair of ears **31**, best seen in Figure 4, struck out from the side **28** of the block. These ears are here dimensioned for threading through one of a series of elongated openings **26** provided in the strap **8** for affording the detachable pivotal connection between the strap and the block. As will be noted from Figures 3 and 4, the two ears are here shown one vertically over the other, so that the strap **8** may be engaged on the ears **31** by first holding the strap vertically as depicted in phantom line in Figure 3, so as to align the lengthwise dimension of one of the slots **26** with the lengthwise dimension of the two tongues **31**, thus permitting one of the slots **26** to move over the tongues **31**. On subsequent rotation of the strap, as suggested by arrows **32** in Figure 3, to their normal inclined or diagonal position, usually 45°, the side walls of the engaged slotted opening **26** move to a caught position behind the ears, as best seen in Figures 3 and 5.

To install the building brace of the present invention on a wall frame as depicted in Figures 1 and 2, the block **11** is first set in position on a base member such as piece **12** mounted on the wall sill **36**. Nail **13** is started but not driven home. Strap **8** is hooked onto the ears **31** as above described, and rotated into its diagonal position as shown in the drawings, with the upper end **9** of the strap

against the top plates **37** of the wall frame. Strap end **9** is then nailed to the faces of plates **37**, using nails **38** extending through perforations provided in the upper end **9** of the strap for this purpose. Nail **13** is next driven home against beveled end wall **22** of the block so as to set the block securely on frame member **12** and at the same time obtain a small sliding action of the block on member **12** to tension the strap **8**. The block **11** is preferably permanently secured in this taut position of strap **8** by nailing through openings **39** and **41** in the top wall **27** of the block and also through the opening in the other end wall **23** of the block. With the block thus permanently secured and the strap **8** tightly drawn in tension across the faces of studs **18**, the strap is nailed to the studs **18** by nails **19** and is preferably also nailed to the base plate or sill **36** by nail **42** driven through an opening provided in strap end **16** for this purpose. As will be observed, the strap **8** may be of any desired length to cover customary building heights, as for example one or two stories. Where the wall is not sufficiently long to take a single 45° beveled brace, as for example wall **7** in Figure 1, where a window **43** or other wall opening may intervene, one or more straps, see straps **8***a* and **8***b*, may be foreshortened and mounted across a portion of the height of the wall as illustrated in Figure 1. As therein depicted, strap **8***a* is fastened at its upper end **9***a* to the top plates **37***a* and at its lower end **16***a* to a sliding block **11***a* mounted on a horizontal block **12***a* set between a pair of adjacent studs midway of their height. Strap **8***b* is here fixed at its upper end **9***b* to one of the studs midway of its height and extends diagonally downwardly generally perpendicular to strap **8***a*, and is connected at its lower end **16***b* to a slid block **11***b* mounted at the base of the wall in the manner illustrated in Figure 2. Complete cross-bracing may thus be easily obtained over any desired section of the wall. Also as will be understood, the strap member **8** may be mounted at either the normally inside or outside faces of the wall and may be extended on diagonals at either side of vertical so as to obtain a desired reversibility of parts as above explained.

We claim:

1. A diagonal brace for wood frame building walls comprising, a strap adapted for fastening at one end to the wall frame for diagonal extension therefrom, a slide block adapted for mounting on and fastening to a diagonally remote part of said frame, a fastener cooperating with said block for setting said block on said frame part with sliding action, and means connecting said strap adjacent its other end to said block for tensioning of said strap upon setting of said block.

2. A diagonal brace for wood frame building walls comprising, an elongated metal strap adapted for fastening at one end to the wall frame for diagonal extension therefrom, a slide block adapted for mounting on and fastening to a diagonally remote part of said frame, a fastener cooperating with said block for setting said block on said frame part with sliding action, and means pivotally connecting said strap adjacent its other end to said block for tensioning of said strap upon setting of said block.

3. A diagonal brace for wood frame building walls having horizontally spaced vertically extending studs comprising, an elongated metal strap adapted for fastening at one end to the wall frame for diagonal extension across said studs, a slide block adapted for mounting on and fastening to a diagonally remote part of said frame, a fastener cooperating with said block for setting said block on said frame part with sliding action, and means connecting said strap adjacent its other end to said block for tensioning of said strap upon setting of said block, said strap being formed with longitudinally spaced perforations for nailing of said strap to said studs after tensioning of said strap.

4. A diagonal brace for wood frame building walls comprising, a strap adapted for fastening at one end to the wall frame for diagonal extension therefrom, a slide block adapted for mounting on and fastening to a diagonally remote part of said frame, said block being formed with a nail-receiving opening arranged for toe-nailing said block to said frame part for setting said block on said frame part with sliding action, and means connecting said strap adjacent its other end to said block for tensioning of said strap upon setting of said block.

5. A diagonal brace for wood frame building walls having horizontally spaced vertically extending studs comprising, an elongated metal strap adapted for fastening at one end to the wall frame for diagonal extension across said studs, a slide block adapted for mounting on and fastening to a diagonally remote part of said frame and having an inclined end wall formed with a nail-receiving opening arranged for toe-nailing of said block to said frame part for setting said block on said frame part with sliding action, and a pin carried by said block formed for detachable pivotal connection to said strap adjacent its other end for tensioning of said strap upon setting of said block, said strap being formed with longitudinally spaced perforations for nailing said strap to said studs after tensioning of said strap.

6. A diagonal brace for wood frame building walls having horizontally spaced vertically extending studs comprising, an elongated metal strap adapted for fastening at one end to the wall frame for diagonal extension across said studs, a hollow metal slide block adapted for mounting on and fastening to a diagonally remote part of said frame and having an inclined end wall formed with a nail-receiving opening arranged for toe-nailing of said block to said frame part for setting said block on said frame part with sliding action, and an ear struck out from a side of said block, said strap being formed with an opening adjacent its other end dimensioned for receiving said ear for effecting a detachable pivotal connection between said strap and block for tensioning of said strap upon setting of said block, said strap being formed with longitudinally spaced perforations for nailing said strap to said studs after tensioning of said strap.

No references cited.