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A. J. HODAPP

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FORM TIE FOR CONCRETE STRUCTURES

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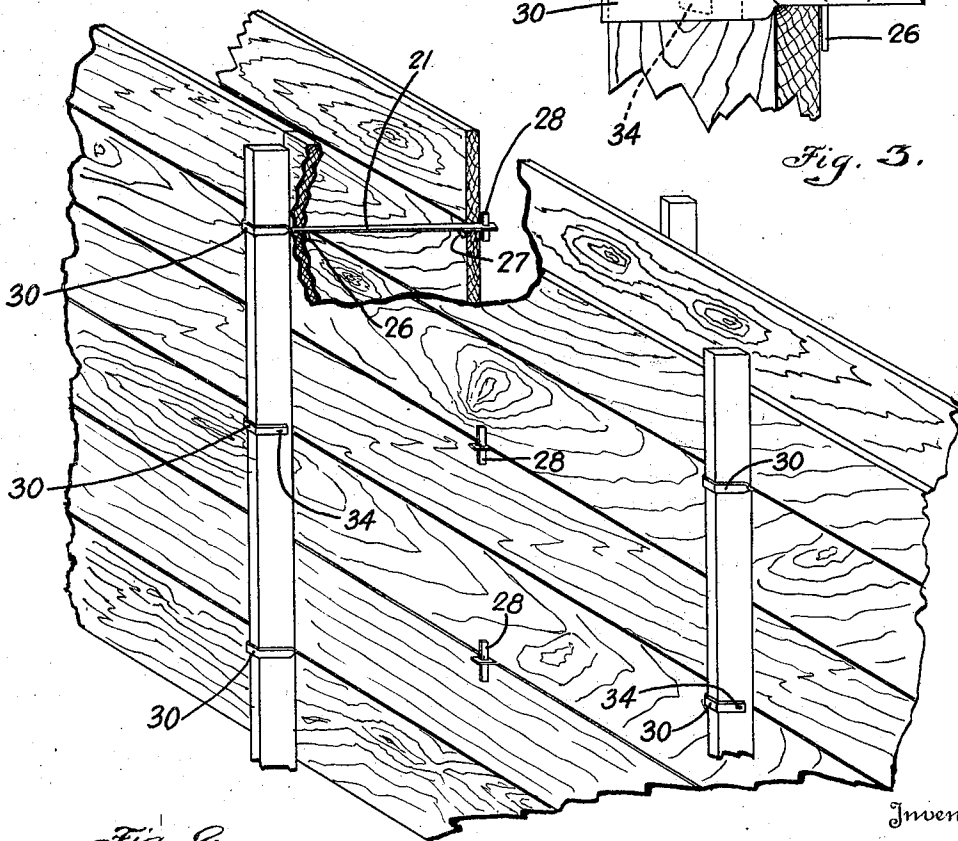
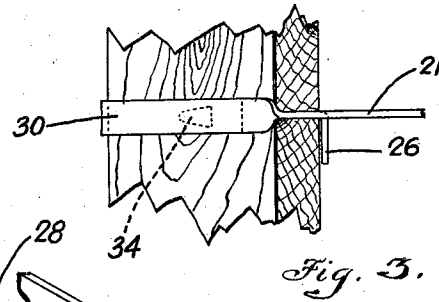
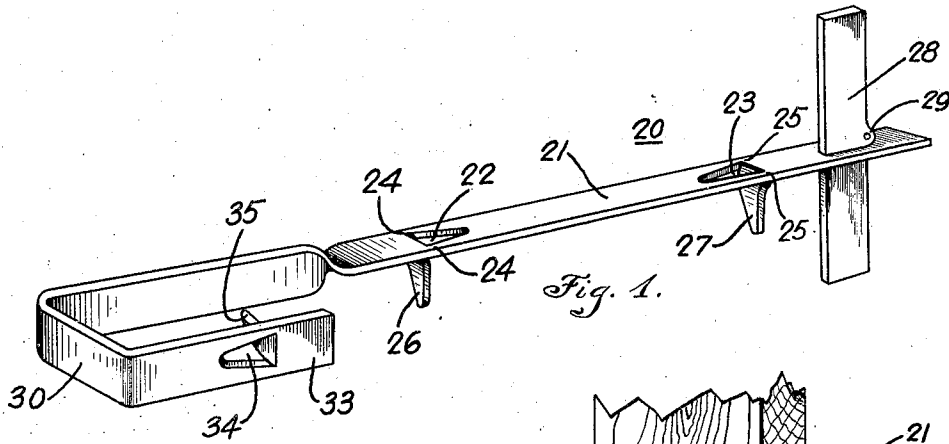


Fig. 2.

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FORM TIE FOR CONCRETE STRUCTURES

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This invention relates to improvements in molding forms for concrete construction work.

It is among the objects of the present invention to provide a form for concrete construction work having a minimum number of parts and which is easily assembled and disassembled.

Another object is to reduce the cost of material and labor in providing a form for concrete construction work.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings in which a preferred embodiment of one form of the present invention is clearly shown.

In the drawings:

Fig. 1 is a perspective view of a metal strut for a concrete molding form.

Fig. 2 is a fragmentary perspective view of a form, a certain portion thereof being broken away to show how a strut supports both walls thereof.

Fig. 3 is a detail view showing the strut attached to a post and supporting adjacent boards.

In building forms for concrete construction work it is usually the custom to provide two rows of upright supporting members comprising equally spaced posts having spacer elements therebetween and held together by means of adjustable brackets or tie members passing from a post in one row to a post in the other row. The retaining walls usually comprise boards stacked edgewise and nailed to the posts.

This invention reduces the number of upright posts by one-half due to the fact that the posts in each row are staggered, that is, the posts in one row are directly opposite the intermediate points between adjacent posts in the other row.

The necessity of adjusting the tie members to the proper wall thickness is eliminated by the present invention for different struts are made for different thicknesses of wall.

In Fig. 1 the strut designated in whole by the numeral 20 comprises the main body portion 21 having properly spaced pierced por-

tions 22 and 23 which provide reduced cross sectional areas 24 and 25 respectively. The metal pierced from the areas 22 and 23 is bent to provide angular supporting members 26 and 27 respectively.

Spaced from the member 27 a distance equal to the thickness of the boards to be used in the retaining walls is a cross-arm 28 extending through an aperture in the strut. This cross-arm is provided with peened sections 29 so that it is removably supported on the strut.

At a distance from the member 26 equal to the space between 27 and 28, the strut is twisted at ninety degrees bringing the flat surface of the body portion 21 at right angles to the flat surface of this end portion. Two right angled bends are provided to form a hook or loop 30 in the end of the strut, said loop being adapted to fit about the upright posts. Adjacent the free end 33 of the loop a pierced portion 34 provides an inwardly extending tongue 35 which is driven into the post to secure the strut thereupon.

The above described strut is utilized in the following manner: First two rows of posts are provided so that a post in the one row is substantially opposite the center between adjacent posts in the other row. A board is then placed against both rows of posts and struts are placed over the boards so that the board in one wall fits into the spaces between the cross-arms 28 and supporting members 27 and the other board between members 26 and one row of posts about which the struts are fitted. A blow of a hammer on the free ends 33 of the respective struts will sink their tongues 35 into their respective posts thereby securely anchoring the struts to the posts.

Now a board is stacked edgewise upon each of the other boards, or more specifically, upon the struts which are holding the lower boards properly spaced. Struts are placed upon the posts in the other row and secured the same as the struts on the posts in the first mentioned row, thus retaining the second row of boards.

The struts for the third row of boards are again anchored to the first mentioned row of posts, however, alternate struts anchored to the same post are reversed so that the stresses

are directed first on one side then on the other side of the post. Thus twisting of the post is substantially avoided.

From the foregoing, and by referring to Fig. 2, it may be seen that struts on the posts in one row support alternate boards, holding such boards in the one supporting wall clamped against said posts in this one row, and holding such boards in the other supporting relation at points intermediate the adjacent posts in the opposite row, thus giving the effect of twice the number of supporting posts.

After the concrete has hardened, the looped ends of the struts may be bent to permit removal of the posts. The posts having been removed, the boards are easily lifted from behind the cross-arms 28, after which a blow of a hammer on each end of the strut protruding from the concrete wall will cause the strut to break at the reduced cross-sectional areas 24 and 25 which are substantially flush with the surfaces of the concrete wall.

The easy breaking of the struts substantially eliminates the possibility of leaks and the portion of the strut retained within the wall provides a reinforcement therefor.

While the form of embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A molding form for concrete construction work comprising in combination, spaced rows of upright posts having the posts of one row arranged in staggered relation to the posts in the other row; a plurality of boards stacked edgewise against each row of posts, providing spaced retaining walls; and struts secured at one end to a post and extending therefrom between the boards of both retaining walls, said struts having provisions for retaining the boards of one retaining wall in stacked relation against the one row of posts and the boards of the opposite retaining wall in properly spaced, stacked relation to the first mentioned retaining wall.

2. A molding form for concrete construction work comprising in combination, spaced rows of upright posts having the posts of one row arranged in staggered relation to the posts in the other row; a plurality of boards stacked edgewise against each row of posts, providing spaced retaining walls; and sheet metal struts each having provisions for removably securing one end to a post, said struts extending from the supporting posts, between the boards of the spaced retaining walls and having means provided thereon for holding the boards of the respective walls properly spaced and in stacked relation against the respective posts.

3. A molding form for concrete construction work comprising in combination, spaced

rows of upright posts having the posts of one row arranged in staggered relation to the posts in the other row; a plurality of boards stacked edgewise against each row of posts, providing spaced retaining walls; and comparatively thin, metallic struts each having one end removably anchored to a post and extending between the boards of both retaining walls, said struts having pierced portions providing ears which engage adjacent surfaces of the boards in both walls for holding said boards in spaced relation and against their respective posts; said struts having cross-arms provided adjacent their free ends for reinforcing the boards to hold them in properly spaced relation at points intermediate adjacent posts in one row.

4. A molding form for concrete construction work comprising in combination, spaced rows of upright posts having the posts of one row arranged in staggered relation relative to the posts in the other row; a plurality of boards stacked edgewise against each row of posts, providing spaced retaining walls; and comparatively thin, metallic struts each having one end looped about a post so as to be removably secured thereto and extending from the posts between the boards of both retaining walls, said struts having integral ear portions which are adapted to engage the boards and hold them against their respective row of posts in properly spaced and stacked relation, said struts also having a removable cross-arm to reinforce the boards between adjacent posts in a row.

5. A spacing and supporting device for retaining walls comprising, a flat metal strut having a hook end including an anchoring ear; integral angular supporting members spaced from said hook end, and a removable cross-arm spaced from the angular supporting member spaced more remotely from the hook end.

6. A spacing and supporting device for retaining walls comprising, a flat metal strut having spaced pierced portions providing reduced cross-sectional areas and angular ears; a cross-arm removably supported on said strut in spaced relation to one of said angular ears; and a hook portion including an anchoring means, formed in the strut in spaced relation to the other of said angular ears.

7. A spacing and supporting device for retaining walls comprising, a metal strut having a hook-shaped end, an angular portion adjacent the hook-shaped end, a second angular portion spaced from the first mentioned angular portion, and a removable cross arm in spaced relation with the second angular portion.

8. A spacing and supporting device for retaining walls comprising, a metal strut having a hook-shaped end, an angular ear struck from one portion of the hook-shaped

end and extending inwardly, a second angular ear struck from the metal strut and spaced from the hook shaped end, a third angular ear struck from the metal strut in properly spaced relation to the second angular ear, and a cross arm removably supported by the strut intermediate the third angular ear and the end of the strut.

9. A spacing and supporting device for retaining walls comprising, a flat metallic strut having a hook portion and a body portion, the strut being twisted adjacent the hook portion so that the wider side of said hook portion is substantially at right angles to the wider side of the body portion, an angular member on the body portion in properly spaced relation with the twist in the strut, a second angular member in the body of the strut in spaced relation with the first mentioned angular member, a cross arm removably supported in an aperture provided in the body of the strut in properly spaced relation with the second angular member.

In testimony whereof I hereto affix my signature.

ALBERT J. HODAPP.

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