Feb. 19, 1929. 1,702,671

H. H. TOOGOOD

APPARATUS FOR CONSTRUCTING CONCRETE FORMS

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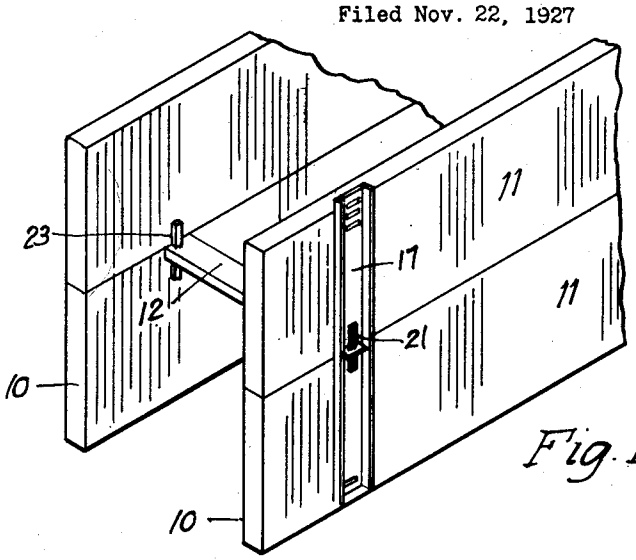


Fig. 1.

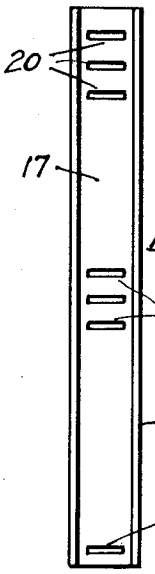


Fig. 5.

Fig. 2.

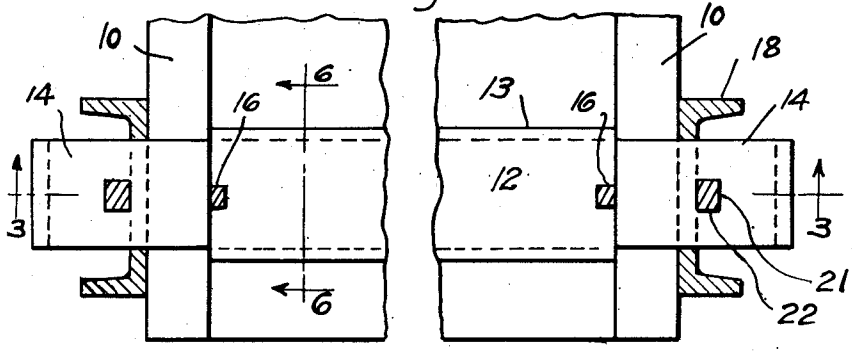


Fig. 6.



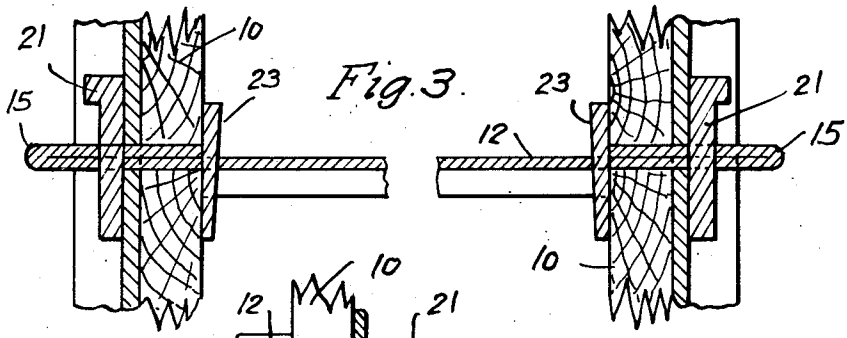


Fig. 3.

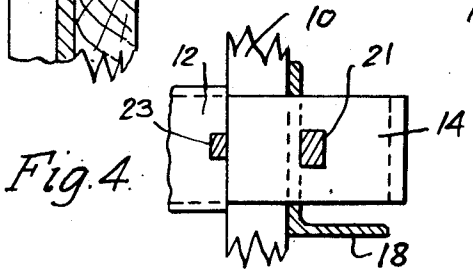


Fig. 4.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CONSTRUCTING CONCRETE FORMS.

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This invention relates to improvements in apparatus for constructing concrete forms and more particularly to a means for reinforcing and connecting the opposite wall elements of the form.

An important object of the present invention is to provide a pre-made tie for use in concrete forms, which may be readily inserted after the form has been constructed and before the wall is poured and which is thus capable of use in reinforcing weak spots in the form walls resulting from changes in the wall after the same has been built or for straightening badly warped or bent form elements in the wall.

The invention further includes the provision of vertical bracing elements for use with ties for engaging the outer faces of the wall elements of the form, of such construction that they may be employed to engage ties separated by different widths of the form wall elements and may be readily removed in wrecking the form.

A still further object of the invention is to provide a device of this character which may be applied to a wall without the use of nails, wires or other securing elements to hold the same in place.

These and other objects I attain by the construction shown in the accompanying drawing, wherein for the purpose of illustration is shown a preferred embodiment of my invention and wherein:—

Figure 1 is a perspective view showing a wall mold embodying my invention;

Figure 2 is a horizontal sectional view therethrough;

Figure 3 is a vertical sectional view therethrough;

Figure 4 is a view similar to that of Figure 2 showing a slightly modified form of member for engaging the outer face of the mold walls;

Figure 5 is a side elevation of the outer engaging member;

Figure 6 is a section on the line 6—6 of Figure 2.

Referring now more particularly to the drawing, the numeral 10 generally designates the side walls of a concrete form and 11 the elements thereof, the inner faces of which are spaced apart a predetermined distance to provide a given wall thickness in the cast wall. In accordance with my invention, I provide a pre-made sheet metal tie including a body 12, which may be reinforced or stiffened by the addition of ribs 13 and ends 14, which are preferably reinforced by doubling the metal at the ends, as indicated at 15. The body of the tie at each end thereof is formed with an opening 16 and is made of such length that the ends of the body are spaced apart a distance equal to the thickness of the wall to be constructed in the mold with which they are employed. This body is placed in position between the wall elements 10 of the mold with its ends 14 projecting between adjacent edges of the elements 11.

In combination with these ties, I provide vertically extending supports 17, which are formed of metal strips having at an edge or edges thereof a flange or flanges 18. By comparing Figures 2 and 4, it will be seen that these strips will be conveniently produced either from ordinary structural angle iron or channel iron, if so desired. In this strip are transversely extending slots 19 of a size to permit passage of the ends 14 of the ties. A single slot is preferably formed adjacent one end of the support and above this slot, the slots are arranged in groups 20, which are so spaced that the support may be employed in wall forms, where the elements 11 employed are of different standard widths. These supports are placed against the outer faces of the wall elements 10 and keys 21 are inserted through openings 22 formed in the tie ends 14 and properly spaced from the adjacent ends of the body. After the keys 21 are in position, wedges 23 are inserted through the openings 16 of the tie body and forcibly engaging the adjacent edges of the superimposed wall elements 11, bind them firmly to the vertically extending support, so that they will serve to remove any warp therefrom and to solidly hold the elements against the support without the use of securing elements.

It will be obvious that in dismantling the form after the structure has been poured, by removing the keys 21, the members 17 may be removed and the elements 11 thus removed without any damage thereto, so that they may be subsequently employed in other molds. The projecting ends 16 may either be removed or employed as anchoring means for a facing for the wall if the same is to be applied thereto.

Since the construction hereinbefore set forth is capable of a certain range of change and modification without materially depart-

ing from the spirit of the invention, I do not limit myself to such specific structure except as hereinafter claimed.

I claim:—

1. In a wall mold including opposed mold walls having wall elements stacked edge to edge, a pre-made sheet metal tie comprising a body of a length equal to the thickness of the wall to be produced and having openings at its ends, end members for said body adapted to project between adjacent edges of the elements of the wall at opposite sides thereof and vertically extending supports abutting the outer faces of the mold walls and having spaced openings for the passage of the projecting ends of the tie, said projecting ends having openings for the passage of keys abutting the supports to prevent withdrawal of the ends of the tie therethrough and wedges extending through the openings at the ends of the body and abutting the inner faces of the wall elements of the mold to maintain the same in engagement with the support.

2. In a wall mold including opposed mold walls having wall elements stacked edge to edge, a pre-made sheet metal tie comprising a body of a length equal to the thickness of the wall to be produced, end members for said body adapted to project between adjacent edges of the elements of the wall at opposite sides thereof and vertically extending supports abutting the outer faces of the mold walls and having spaced openings for the passage of the projecting ends of the tie, said projecting ends having openings for the passage of keys abutting the supports to prevent withdrawal of the ends of the tie therethrough and means associated with the body engaging the inner faces of the wall elements between adjacent edges of which its ends are extended for forcing said wall elements into engagement with said vertically extending supports.

3. In a wall mold including opposed mold walls having wall elements stacked edge to edge, a pre-made sheet metal tie comprising a body of a length equal to the thickness of the wall to be produced having means at its ends engaging the inner faces of the wall elements to limit the movement of the wall elements toward one another, end members for said body adapted to project between adjacent edges of the wall elements of the mold wall to the outer face of the mold wall and vertical supports keyed to said end members and abutting the outer faces of the wall elements between which said end members are directed.

4. In a wall mold including opposed mold walls having wall elements stacked edge to edge, a pre-made sheet metal tie comprising a body of a length equal to the thickness of the wall to be produced and having openings at its ends, end members for said body adapted to project between adjacent edges of the elements of the wall at opposite sides thereof and vertically extending supports abutting the outer faces of the mold walls and having spaced openings for the passage of the projecting ends of the tie, said projecting ends having openings for the passage of keys abutting the supports to prevent withdrawal of the ends of the tie therethrough and wedges extending through the openings at the ends of the body and abutting the inner faces of the wall elements of the mold to maintain the same in engagement with the support, one of the openings of said vertically extending supports being arranged in groups spaced from the first named opening to permit use of the supports with wall elements of different widths.

5. In a wall mold including opposed mold walls having wall elements stacked edge to edge, a pre-made sheet metal tie comprising a body of a length equal to the thickness of the wall to be produced and having openings at its ends, end members for said body adapted to project between adjacent edges of the elements of the wall at opposite sides thereof and vertically extending supports abutting the outer faces of the mold walls and having spaced openings for the passage of the projecting ends of the tie, said projecting ends having openings for the passage of keys abutting the supports to prevent withdrawal of the ends of the tie therethrough and wedges extending through the openings at the ends of the body and abutting the inner faces of the wall elements of the mold to maintain the same in engagement with the support, said vertically extending supports comprising metallic strips having a rigidifying flange along at least one edge thereof.

In testimony whereof I hereunto affix my signature.

HENRY HERBERT TOOGOOD.