

July 22, 1924.

1,502,508

L. A. LONGLEY

SECTIONAL STEEL FORM FOR CONCRETE CONSTRUCTIONS

Filed Dec. 31, 1921

2 Sheets-Sheet 1

Fig. 1.

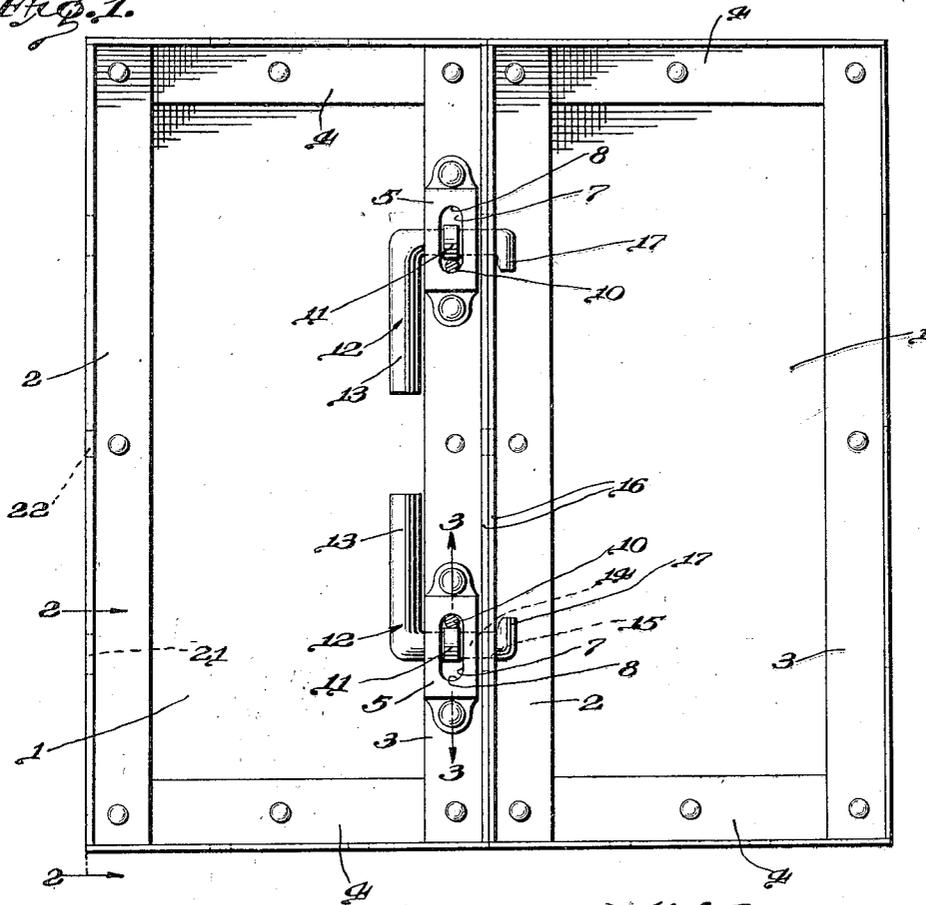


Fig. 2.

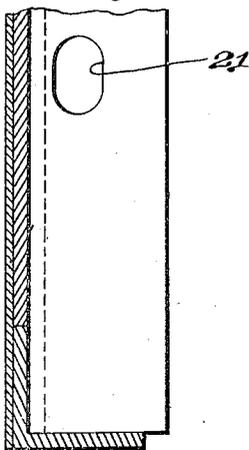
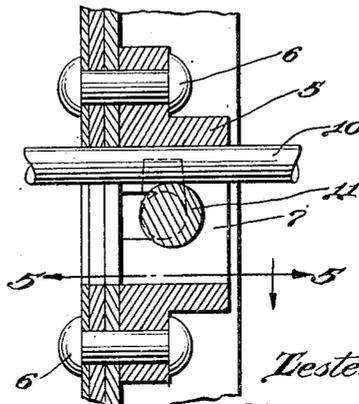


Fig. 3.



Testes A. Longley  
INVENTOR

BY Victor J. Evans  
ATTORNEY

ATTORNEY

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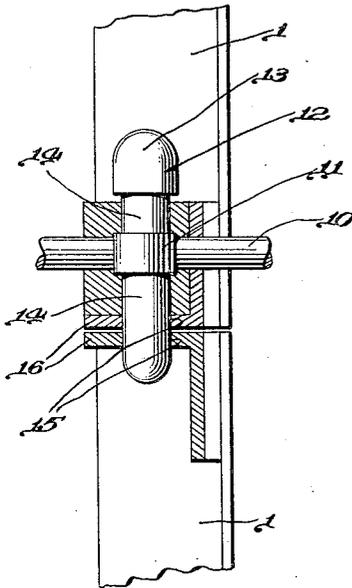
L. A. LONGLEY

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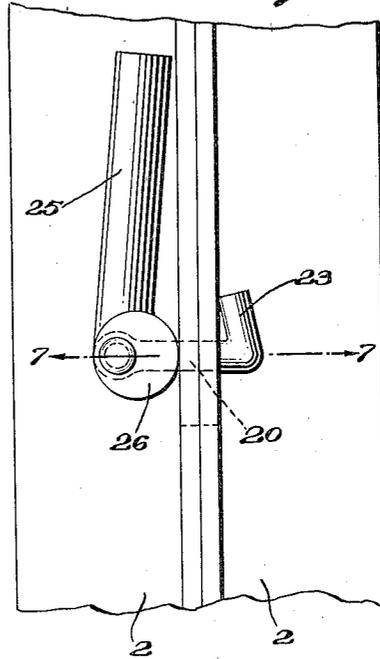
Filed Dec. 31, 1921

2 Sheets-Sheet 2

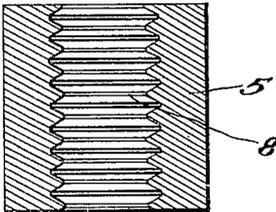
*Fig. 4.*



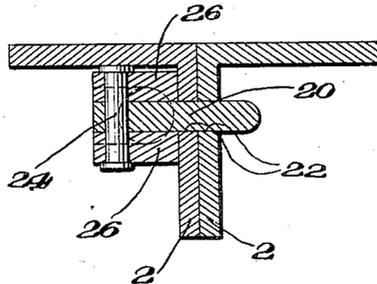
*Fig. 6.*



*Fig. 5.*



*Fig. 7.*



*Lester A. Longley*  
INVENTOR

BY *Victor J. Evans*  
ATTORNEY

# UNITED STATES PATENT OFFICE.

LESTER A. LONGLEY, OF OCONTO FALLS, WISCONSIN.

## SECTIONAL STEEL FORM FOR CONCRETE CONSTRUCTIONS.

Application filed December 31, 1921. Serial No. 526,223.

*To all whom it may concern:*

Be it known that I, LESTER A. LONGLEY, a citizen of the United States, residing at Oconto Falls, in the county of Oconto and State of Wisconsin, have invented new and useful Improvements in Sectional Steel Forms for Concrete Constructions, of which the following is a specification.

This invention relates to forms as used in concrete construction or building and an object of the invention is to provide sectional steel forms which may be securely connected in a detachable manner to provide the necessary forms for receiving the concrete or analogous plastic material.

Another object of this invention is to provide a sectional steel form or sections as specified which is reinforced by angle irons about their edges and which embodies in combination with the form sections or plates suitable tie and spreader rods which eliminate the bulging of the forms after the concrete mixture has been placed thereon and eliminates the use of wire ties and wooden spreaders as used in the present method of concrete form construction.

A further object of this invention is to provide a novel structure for connecting the sections of the form in proper connected relation, and also for securely gripping the combined tie rods and spreaders in such manner as to securely hold them in place during the forming of concrete walls, foundations, or the like.

Other objects of the invention will appear in the following detailed description taken in connection with the accompanying detailed drawings.

Fig. 1 is a front elevation of a plurality of the form sections showing them connected.

Fig. 2 is a detail section on the line 2—2 of Fig. 1.

Fig. 3 is a detail section on the line 3—3 of Fig. 1.

Fig. 4 is a detail cross section through the tie rod locking structure.

Fig. 5 is a detail section through a supporting bracket structure and taken on the line 5—5 of Fig. 3.

Fig. 6 is a side elevation of a clamping member used in the sectional steel forms.

Fig. 7 is a section on the line 7—7 of Fig. 6.

Referring more particularly to the draw-

ings, the improved steel form for concrete construction comprise plates 1 any number of which may be connected to provide the necessary length of the forms to receive the concrete or other plastic material of which the wall, foundation, or the like is to be constructed. The edges of these plates are reinforced by metal angle irons, 2 and 3, while the ends are reinforced by angle irons 4 all of which are riveted in any suitable manner to the plates 1. The angle irons 3 of certain of the plates 1 have brackets 5 riveted or otherwise suitably attached thereto as shown at 6, which brackets are provided with oblong or oval shape openings 7 the ends 8 of which are roughened or corrugated as clearly shown in Fig. 5 of the drawings, for biting engagement with the tie rods 10 which serve the dual function of tie rods and spreaders and eliminates the use of wire ties and wooden spreaders as commonly used in concrete form construction. The tie rods 10, it is to be understood, extend from the plates 1 at one side of the wall to the corresponding plates at the other side of the wall and they are clamped into biting engagement with the corrugated end surfaces 8 by cams 11 which are formed upon the locking levers 12. The locking levers 12 which are rockably carried by the brackets 5 extend transversely to the rods 10. The levers 12 include the operating handles 13, shanks 14, which ride in the bearings of the brackets 5 and extend through registering openings 15 formed in the abutting portions 16 of adjacent plates 1, as clearly shown in Figs. 1 and 4 of the drawings. The ends of the shanks which project through the openings 15 have locking lugs 17 formed thereon which clamp against the outer surfaces of the flange 16 on the member 1 adjacent to the member which carries the levers 12, thereby securely locking the two sections or plates connected as well as clamping the combined stay rod or tie and spreader in position.

In Figs. 6 and 7 of the drawings a locking member is shown which is used in connection with a liner for securing or fastening the liner (not shown) in a horizontal position along the sides of the sectional forms for the purpose of eliminating lateral movement of the forms while the concrete is being poured therein. This locking

device is comparatively simple in construction comprising a locking rod 20 which is adapted to extend through registering openings 21 which are in angle braces 2 or 3 and through openings in the liner which openings correspond with the openings 15 or may be centrally located substantially circular openings as shown at 22. The locking rod 20 has a lug or transverse extension 23 formed upon one end which is adapted to engage against one of the angle plates 2 as clearly shown in Fig. 6 of the drawings. The locking rod 20 is mounted upon a pin 24 which is in turn carried by the bifurcated end of the operating hand lever 25. The bifurcated end of the operating hand lever 25 has cams 26 formed thereon which are adapted to clamp against the angle plates 2 to draw the transverse extension or lug 23 also into engagement, clamping the meeting faces of the angle iron brace 2 between the perimeters of the cams 26 and the extension or lug 23.

It is, of course, to be understood that the invention may be constructed in other manners and the parts associated in other relations and, therefore, I do not desire to be limited in any manner except as set forth in the claims hereunto appended.

Having thus described my invention what I claim is:

1. In a device as set forth, a plate provided with tie rod receiving openings, tie rods, locking levers, clamping means on said locking levers for clamping engagement with said tie rods, said locking levers provided with transverse projections adapted for engagement with a second plate to maintain the plates in proper connected relation.

2. In a device as set forth, a plate provided with tie rod receiving openings, tie rods, locking levers, clamping means on said locking levers for clamping engagement with said tie rods, and means on said levers for

locking two adjacent plates in proper connected relation. 45

3. In a device as set forth, a plate provided with tie rod receiving openings, tie rods, brackets carried by said plate and provided with openings registering with said first named openings, locking levers carried by said brackets, cams on said locking levers for engagement with said tie rods and forcing them into gripping engagement with said brackets, said locking levers provided with transverse projections adapted for engagement with a second plate to maintain the plates in proper connected relation. 50 55

4. In a device as set forth, a plate provided with tie rod receiving openings, tie rods, brackets carried by said plate and provided with openings registering with said first named openings, locking levers carried by said brackets, cams on said locking levers for engagement with said tie rods and forcing them into gripping engagement with said brackets, said locking levers provided with transverse projections adapted for engagement with a second plate to maintain the plates in proper connected relation, the tie rod engaging surfaces of said brackets being roughened. 60 65 70

5. In a device as set forth, sectional form plates, angle bars reinforcing the edges of said plates, brackets carried by certain of said angle bars, said brackets, angle bars and plates provided with registering tie rod receiving openings, tie rods, locking levers rockably carried by said brackets, cams on said locking levers for engagement with said tie rods to force them into gripping engagement with said brackets, and means on said levers for locking two adjacent form sections connected. 75 80

In testimony whereof I affix my signature. 85

LESTER A. LONGLEY.