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TELESCOPIC GIRDER FOR SHUTTERING WORK

Filed May 31, 1957

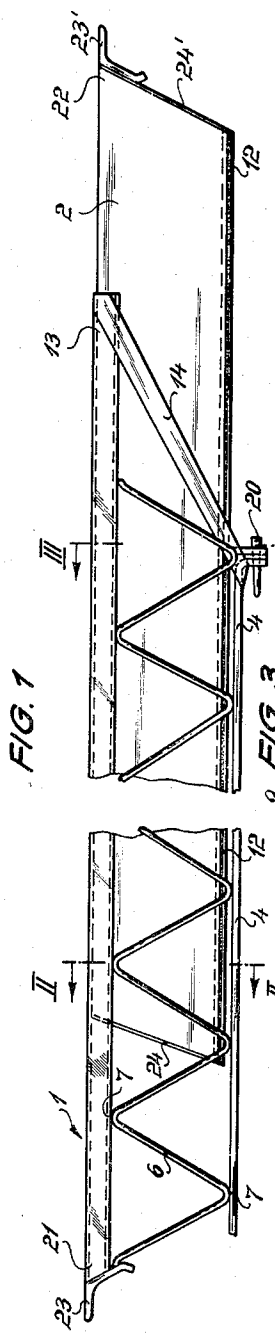


FIG. 1

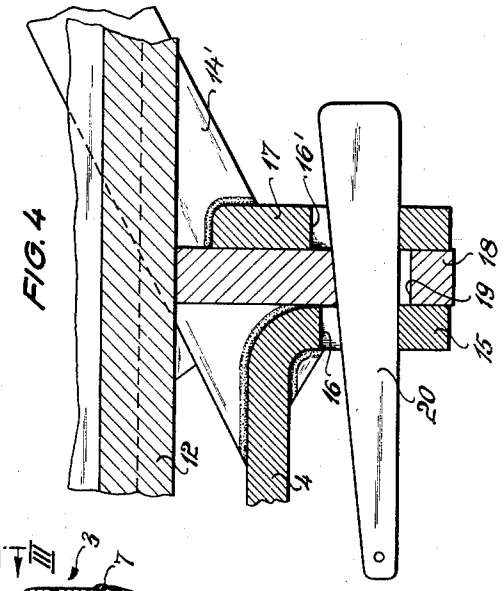


FIG. 4

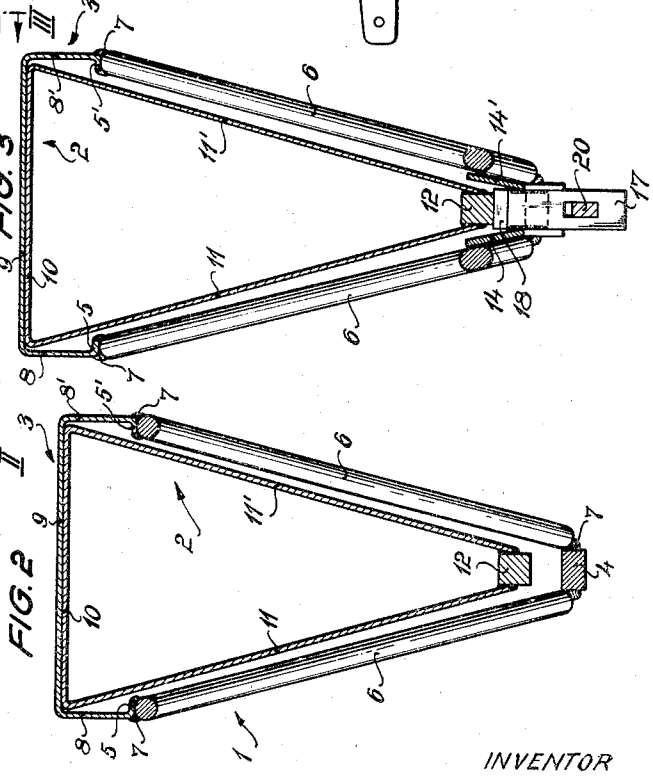


FIG. 3

FIG. 2

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TELESCOPIC GIRDER FOR SHUTTERING WORK

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3 Claims. (Cl. 189—37)

This invention relates to a telescopic girder comprising two or more girders arranged to be telescoped one into the other.

It is known to arrange girders in telescopic relation whereby several girders are placed one into the other so that they may be continuously adjusted in length over a certain distance.

The primary object of this invention is to provide a telescopic girder construction with a means for firmly locking the girders in adjusted position which can be readily locked and unlocked.

Another object of this invention is to provide a lock for telescopic girders which may be locked and unlocked over a long period of time without becoming defective because of wear, etc.

A further object is to provide such a lock which may be very quickly locked and unlocked with the use of a tool or tools which are readily available on a construction site.

The foregoing objects and others ancillary thereto are accomplished according to a preferred embodiment of the invention, wherein the outer girder of the telescopic girder construction is provided on its lower surface with a locking device which includes two spaced members depending from the outer girder. A pressure element is disposed between said members and its upper surface engages the inner girder. A wedge is disposed through the spaced members and is movable to urge the pressure element upwardly which forces the inner girder into frictional contact with the outer girder.

According to the invention the lower belt of the outer girder is at its ends bent downwards near one end thereof, and a further flat steel bar which extends parallel to the downwardly bent end is welded adjacent the end of the lower belt to lateral bracings. This flat steel bar and also the downwardly bent end of the lower belt are provided with slots to receive a wedge having a relatively flat wedge face. Between both, a pressure receiving element is arranged which also is provided with a slot. It may be pressed against the lower belt of the inner girder by means of the wedge. The arrangement of the downwardly bent end of the lower belt constitutes an especially simple and advantageous support to receive the connection by means of the wedge. The ends or one end of the outer girder and always one end of the inner girder are provided in known manner with claws which are level with the upper girder and which are used to place the ends of the girder upon supporting walls and the like.

The invention will now be described with reference to the accompanying drawings which show one form of embodiment.

Fig. 1 shows a side elevation of the girder according to the invention,

Fig. 2 shows a section through the girder along the line II—II of Fig. 1,

Fig. 3 shows a section through the girder along the line III—III of Fig. 1, and

Fig. 4 shows on an enlarged scale the arrangement of the wedge connection according to the invention.

Into the outer girder **1** the inner girder **2** is placed. The upper belt **3** of the outer girder **1** is constituted by an upper member having an inverted U-shaped cross-section, the lower belt **4** by a rectangular rolled profile.

Each shank **5** and **5'** of the upper belt is connected to the lower belt **4** through a zigzag shaped profile iron **6** preferably a round bar or oval bar iron whereby the ends of each peak are welded at the point **7** to the lower belt **4** or the upper belt **3**. The cross section of the outer girder may have a substantially triangular form, whereby the sideward shanks are constituted by the profile iron **6** or the shanks **8** and **8'** of the upper belt **3** of the upper belt and whereby the third side is constituted by the side **9** of the upper belt interconnecting the shanks **8, 8'**.

The inner girder **2** may be constructed of triangular cross section with complete walls and formed from sheet metal by bending. The external dimensions of the inner girder cross section are smaller than the interior dimensions of the outer girder cross section. The one side wall of the triangular profile of the inner girder forms the upper belt **10** and the two shanks **11, 11'** of the triangular profile are welded with their ends to the lower belt **12** which is of rectangular shape whereby the closed box is obtained.

The profiles of the inner and outer girder have a great resistance against torsion owing to their triangular closed construction. The outer girder has a low weight owing to the braced construction of its side walls. The inner girder, however, is formed as a girder with complete side walls so that its lower belt may take up the load from the bracing connection at any desired place. The bracing connection or locking means is described below.

The upper belt **3** is longer than the lower belt **4** so that its ends project beyond the ends of the lower belt. The end **13** of the upper belt is connected by means of braces **14** and **14'** to the last connection point of the zigzag connection of the lower belt. The end **15** of the lower belt **4** of the outer girder is vertically bent downwardly and has an aperture **16**. A flat iron **17** is welded parallel to the end **15** of the lower belt between the braces **14** and **14'** and is also provided with an aperture **16'**. A pressure exerting element **18** with an aperture **19** is displaceably arranged in vertical direction and guided between the end **15** and the flat steel bar **17**. A wedge **20** is pushed through the apertures **16', 19** and **16** and rests upon the lower surfaces of the apertures **16, 16'**. When the wedge **20** is driven in, the element **18** is lifted and pressed against the lower belt **12** of the inner girder so that it bears against the inner surface of the upper belt **3** of the outer girder **1**, whereby a rigid connection between the inner girder and the outer girder is obtained.

The wedge **20** has a relatively small pitch so that it is once self-hemming and on the other hand allows a slow yielding of the bracing if the connection is loosened when the girder is under load.

To the end **21** of the upper belt of the outer girder **1** and to the end **22** of the inner girder **2** claws **23** or **23'** are welded in known manner which are used to place the ends of the girder upon supporting walls or other supports. At the front faces of the inner girder reinforcing profiles **24, 24'** are provided between upper and lower belts whereby the reinforcing profile **24'** is in connection with the claw **23'**.

What I claim is:

1. A telescopic girder construction comprising an outer girder and an inner girder partially positioned therein and both having reenforced portions on one side and

frictional engaging surfaces on the side opposite said portions, the inner girder being of smaller cross-sectional dimensions than said outer girder to permit free sliding movement between said girders and said surfaces, and wedge lock means connecting said reenforced portions at a station below said girders and including two spaced members depending from the reenforced portion of the outer girder, a pressure element disposed intermediate said members and abutting against the reenforced portion of said inner girder, and pressure exerting means between said members and said element to urge the latter and thus the reenforced portion and the frictional surface of the inner girder toward the frictional surface of the outer girder.

2. A telescopic girder according to claim 1 wherein said pressure exerting means comprises a wedge, said depending members having aligned apertures and said pressure element having an aperture generally alignable with said member apertures, said wedge extending through all of said apertures.

3. A telescopic girder according to claim 2 wherein

one of said depending members is formed by a bent portion of the reenforced portion of the outer girder and the other being formed by a plate welded to the outer girder, and said wedge having a vertical taper.

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