Aug. 31, 1965 G. F. BOWDEN 3,203,660

T-HEAD STABILIZER FOR A SHORE

Filed Aug. 26, 1964

Fig. 1

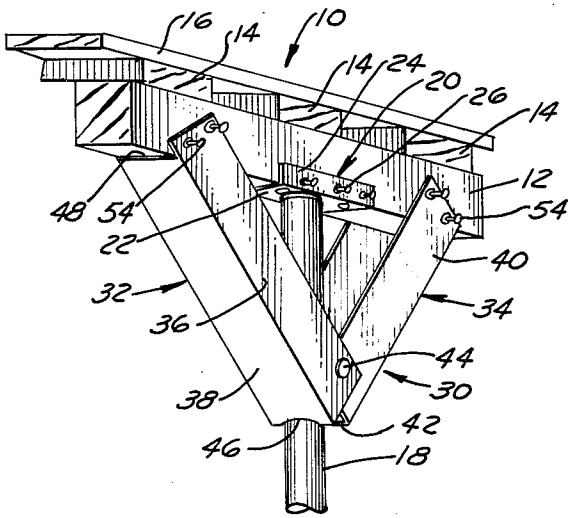


Fig. 3

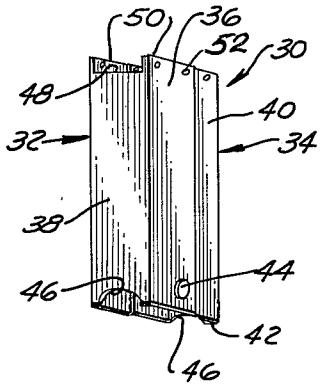


Fig. 2

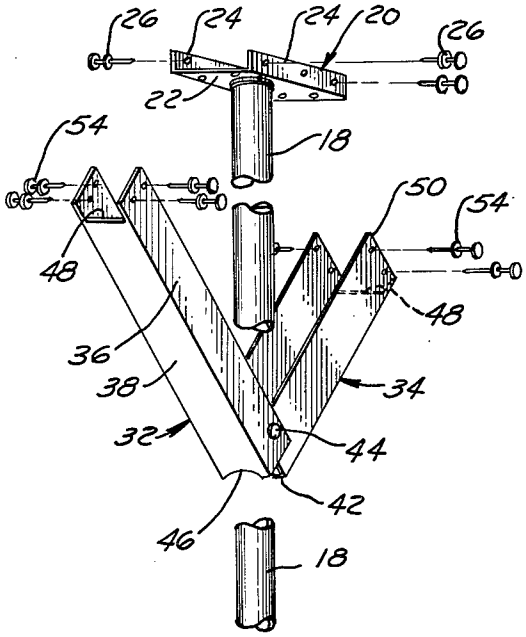
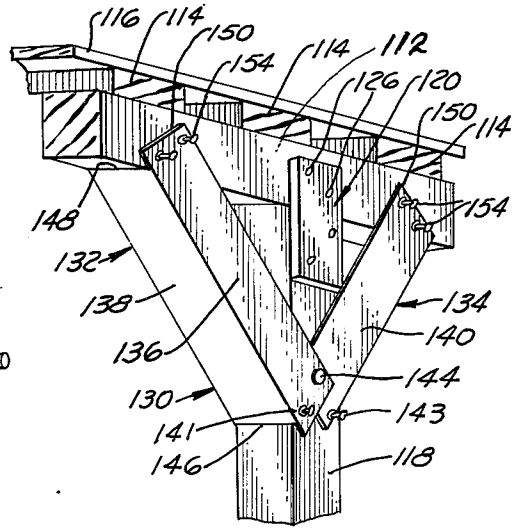


Fig. 4



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Fig. 1

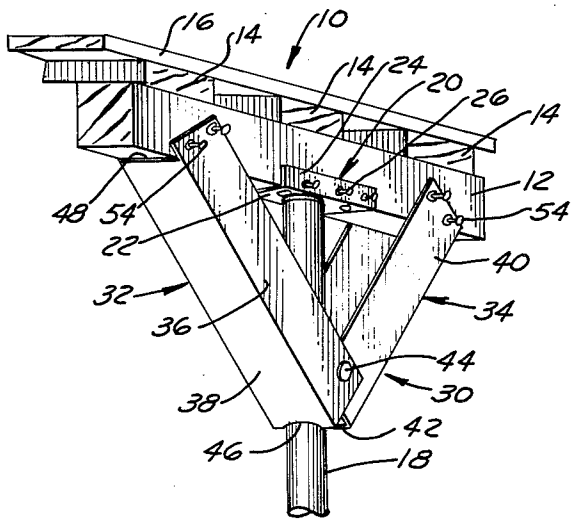


Fig. 3

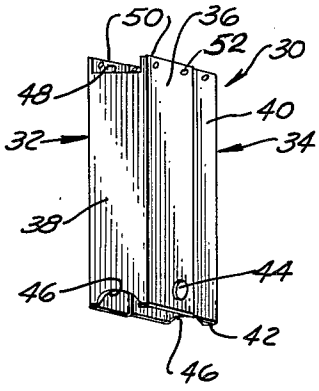


Fig. 2

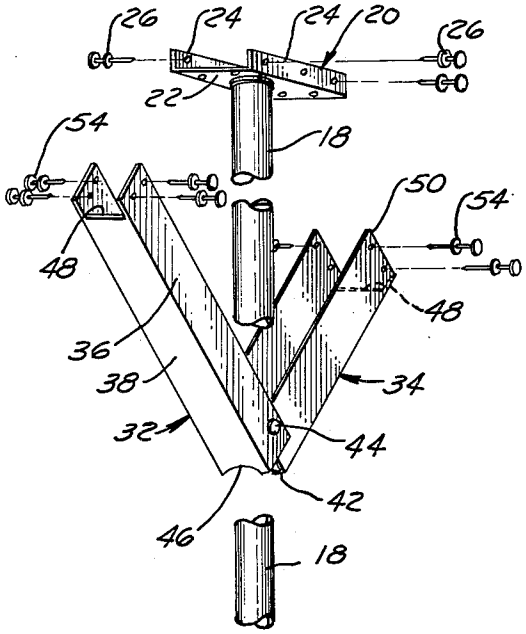
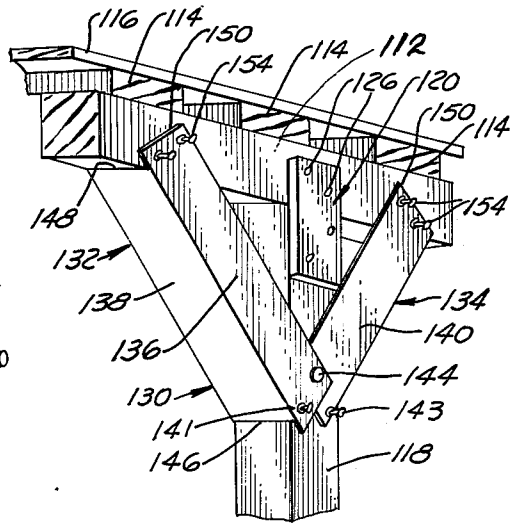


Fig. 4



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3,203,660

T-HEAD STABILIZER FOR A SHORE

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7 Claims. (Cl. 248—357)

The present invention relates generally to T-head stabilizers and has particular reference to a novel means for rendering rigid the support which is offered by an upstanding shore to a T-head in the form of a horizontal beam, such as a stringer, at the upper end of the shore.

The invention, in one form thereof, is adapted for use in connection with a cylindrical tubular steel shore while, in another form, the invention is adapted for use in connection with a wooden shore which is rectangular in cross section. In both forms, however, the invention is applicable to a T-head consisting of a horizontal beam or stringer which is of the wooden type and is of rectangular cross section.

The stabilizing action of the present T-head stabilizer is afforded by the use of two diagonal or upwardly and outwardly inclined struts or braces which extend between the upper end region of the associated shore and the horizontal beam at the upper end of the shore. Heretofore, the provision of a stabilizer in the form of a diagonal brace support for a tubular steel shore, especially a cylindrical shore, has been considered impractical for lack of suitable anchor points for the diagonal brace support on the steel shore. Either the shore has had to be drilled and tapped for reception of anchor screws or constricting shore clamps have had to be devised. In the case of a wooden shore, the nailing of the braces of the diagonal brace support to the upper end of the shore has been considered necessary. In either event, the magnitude or amount of support that is offered by the diagonal brace support to the horizontal beam has been no greater than the shear strength of the anchor screws or nails that are employed for fastening the braces to the upper end of the shore. Furthermore, careful fitting of the various parts of the stabilizer has been required.

The present invention is designed to obviate the above noted limitations that are attendant upon the attainment of efficient stabilizing means between a shore (steel or wood) and the horizontal beam which the shore supports and, accordingly, the invention contemplates the provision of a unitary T-head stabilizer which consists of two similar stabilizer braces, the two braces being so designed and hingedly connected together that they may be swung between a nested folded condition wherein they consume but little space, and an unfolded or extended operative condition wherein they may be readily applied to the associated shore without requiring the use of fastening screws, nails or other means, and will find firm anchor support on the shore for beam-stabilizing purposes.

The provision of such a T-head stabilizer being the principal object of the invention, it is a further object to provide a stabilizer which, when operatively installed on the associated shore, will find reaction support on the shore solely by an automatic clamping action which increases in proportion to the load such, for example, as poured wet concrete on the slab form that is supported by the horizontal beam and, consequently, is incapable of slipping with respect to the shore.

Another object of the invention is to provide such a T-head stabilizer which, when operatively installed on the associated shore and applied to the horizontal beam at the upper end of the shore, will find reaction support not only on one side of the beam as is the case in connection with a nailed brace stabilizer, but on both sides of the beam, as well as on the underneath or bottom side of the beam, thereby resulting in an extremely rigid and strong stabilizing support for the beam.

A still further object of the invention is to provide in connection with a shore and horizontal beam support a stabilizer which offers dual diagonal brace support for the beam and in which, when the stabilizer is operatively mounted in place, a degree of stable equilibrium is offered between the two diagonal or upwardly and outwardly extending braces, one brace assuming a compressional relationship when the other brace assumes a tensional relationship and vice versa.

A similar and related object is to provide a T-head stabilizer in which the compressional-tensional relationship that is outlined above is the result of a direct connection between the two braces and is not transmitted from one brace to the other through the body of the shore so that the shore is not subjected to repeated stresses tending to deform it.

Numerous other objects and advantages of the invention, not at this time enumerated, will readily suggest themselves as the following description ensues.

In the accompanying single sheet of drawings forming a part of this specification, two illustrative embodiments of the invention have been shown.

In these drawings:

FIG. 1 is a fragmentary perspective view of a typical concrete floor slab form installation showing one form of T-head stabilizer embodying the present invention operatively applied to a steel shore that is associated with the installation;

FIG. 2 is an exploded perspective view of a portion of the structure that is shown in FIG. 1;

FIG. 3 is a perspective view of the improved T-head stabilizer in its folded condition; and

FIG. 4 is a fragmentary perspective view similar to FIG. 1 but showing a modified form of stabilizer operatively applied to the upper end of a wooden shore.

Referring now to the drawings in detail and in particular to FIGS. 1 and 2, a typical concrete floor slab form installation is illustrated in FIG. 1 and designated in its entirety by the reference number **10**. The installation includes a horizontal stringer **12** in the form of a wooden beam of the 4" x 4" variety and on the upper side of which there is supported a series of transversely extending horizontal facing-supporting boards **14** which, in turn, serve to support a plywood facing **16** on which wet concrete is adapted to be poured for slab-forming purposes. The stringer **12** is supported by a series of upstanding, cylindrical steel shores, one of which is illustrated in FIGS. 1 and 2 and designated by the reference numeral **18**. The upper end of the shore **18** carries a horizontal U-shaped cradle **20** consisting of a flat rectangular plate **22** having upturned side flanges **24** which straddle the stringer **12** and are secured thereto by nails **26**.

The T-head stabilizer of the present invention is designated in its entirety by the reference numeral **30** and it is comprised of two principal parts, namely, two similar juxtapositioned braces **32** and **34**, each brace being in the form of a length of channel stock. When the stabilizer is in its operative position, the two braces extend upwardly and outwardly in opposite directions as shown in FIG. 1. The brace **32** comprises a pair of side flanges **36** and an intermediate or interconnecting web **38**, while the brace **34** comprises a pair of side flanges **40** and an intermediate or interconnecting web **42**.

The width of the web **38** of the brace **32** is slightly greater than the width of the web **42** of the brace **34** so that the two braces may be nested together as shown in FIG. 2 with the flanges **36** straddling the flanges **40**. The lower end of each flange **36** is pivotally secured to the lower end of the adjacent or associated flange **40** by

means of a pivot pin in the form of a rivet **44** which passes through adjacent corner regions of the two flanges. The two braces **32** and **34** are thus capable of relative swinging movement with respect to each other between the folded position which is shown or illustrated in FIG. 3 and wherein the braces are in contiguity and extend in parallelism with the flanges **36** and **40** slightly overlapping each other, and the extended position which is illustrated in FIGS. 1 and 2 and wherein the two braces extend approximately at a right angle to each other.

At the lower or proximate ends of the braces **32** and **34**, the webs **38** and **42** are relieved so as to provide relatively shallow arcuate relief notches **46** conforming in curvature to substantially the curvature of the cylindrical body of the shore **18**. At the upper or distal ends of the braces, the webs **38** and **42** are relieved to provide straight, transversely extending edges **48** which lie short distances within the longitudinal confines of the braces and, in effect, provide pairs of spaced apart attachment ears **50** which fully straddle the side faces of the stringer **12** and by means of which the braces may be secured to the stringer **12** as will be described presently. A pair of nail holes **52** is formed in each of the attachment ears **50**, these holes being adapted for reception therethrough of nails **54** by means of which the ears may be fixedly secured to the stringer **12**.

Assembly of the T-head stabilizer **30** in a given installation may be effected by bringing the two braces **32** and **34** to the approximate extended positions in which they are shown in FIG. 2, and then threading the shore **18**, base end first, through the void which exists between the two notches **46**. The shore may then be erected beneath the stringer **12** by first nailing the cradle **20** in position beneath the stringer and then adjusting the shore for height in any suitable manner. After the shore is in proper position with the stringer **12** is mounted on its upper end, the T-head stabilizer **30** may be partially folded or collapsed to widen the void between the notches **46** for clearance purposes to the end that the stabilizer may be slid vertically upwardly and extended to the fullest extent of which it is capable as shown in FIG. 1. To insure rigidity of the structure as a whole, the braces **38** and **40** are spread as far apart as possible, thus causing the arcuate edge portions of the notches **46** to seize the shore **18** therebetween, while at the same time the straight edges **48** at the upper or distal ends of the webs **38** and **42** are brought into line-to-line contact with the underneath face or side of the stringer **12** and the ears **50** of the two braces are brought into straddle relation with the stringer. After the manipulation of the stabilizer, the nails **54** are driven through the holes **52** and into the sides of the stringer **12**. In this manner, the two braces **32** and **34** are placed under slight flexion so that a rigid stabilizer structure results.

Although the lower or proximate ends of the two braces **32** and **34** of the T-head stabilizer **30** are not fastened directly to the shore **18**, slippage of the stabilizer downwardly on the shore **18** is precluded, even under the downward thrust exerted by the weight of the wet concrete when the latter is poured upon the plywood facing **16**. Any flexing of the stringer **12** which may arise by reason of the weight of the poured concrete and which involves downward movement of the stringer at the two regions of support thereof by the braces **32** and **34** will tend to increase the binding action of the edges of the arcuate notches **46** against the shore **18** so that downward slipping movement of the stabilizer with respect to the shore **18** is effectively prevented. Swaying or tilting of the stringer **12** with respect to the shore **18** is resisted by the combined action of the two braces **32** and **34**, one brace being placed under tension while the other brace is placed under compression and vice versa, depending upon the direction of the forces that are applied to the stringer.

It is to be noted at this point that the various fastening nails **26** and **54** that are employed for securing the cradle **20** and the braces **32** and **34** to the stringer **12** are of the double-headed type to facilitate their removal during dismantling of the installation. After such dismantling, the T-head stabilizer **30** is available for reuse in a future installation. Preferably, the shore **18** is of an extensible adjustable type, in which case the proximate ends of the two braces **32** and **34** of the stabilizer are caused to cooperate with the uppermost vertically adjustable section of the shore so that adjustments of the stringer for height may be made after the shore stabilizer has been operatively installed thereon.

In FIG. 4 a slightly modified form of T-head stabilizer **130** is shown, such stabilizer being designed specifically for use in connection with a wooden shore such as the shore **118**. The exemplary installation which has been selected for illustrative purposes in connection with the T-head stabilizer **130** is similar to the previously described installation **30**. Similarly, the modified form of T-head stabilizer **130** is similar in many respects to the T-head stabilizer **30**. Therefore, in order to avoid needless repetition of description, similar reference numerals but of a higher order have been applied to the corresponding parts as between the shore stabilizers of FIGS. 1 and 4.

The concrete floor slab form installation **110** remains substantially the same as the installation **10** but the upstanding supporting shore **118** is in the form of a conventional wooden shore of the 4" x 4" variety. The cradle **20** of the stabilizer **30** has been omitted from the stabilizer **130** in favor of a pair of wooden patch boards on opposite sides of the stringer **112**. One of such wooden patch boards is shown at **120** and it is contemplated that the boards will be secured by nails **126** to both the stringer **112** and the upper end of the shore **118**.

The T-head stabilizer **130** remains substantially the same as the stabilizer **30** with the exception of the fact that the webs **138** and **142** of the two similar upwardly and outwardly extending braces **132** and **134** are relieved at their lower ends to provide linearly straight edges **146** instead of the arcuate notches **46** that are associated with the webs **38** and **42** of the two braces of the shore stabilizer **30**. Additionally, the extreme lower regions of the side flanges **136** and **140** are provided with nail holes **141** fo rthe reception therethrough of nails **143** by means of which the lower ends of the side flanges may be fixedly secured to the shore **118** if desired. The provision of the nail holes **141** is optional and these holes may be dispensed with if desired.

The manner of installation of the T-head stabilizer **130** is similar to the manner of installation of the stabilizer **130** except for the fact that, due to the absence of the cradle **20** on the upper end of the shore **118**, the shore may be threaded through the void existing between the opposed straight edges **146** of the webs **138** and **142** in either direction prior to erection of the shore **118**. Similarly, the functioning of the installed stabilizer **130** is substantially identical to the functioning of the T-head stabilizer **30** so that a detailed description thereof is deemed to be unnecessary.

The invention is not to be limited to the exact arrangement of parts shown in the accompanying drawings or described in this specification as various changes in the details of construction may be resorted to without departing from the spirit or scope of the invention. Therefore, only insofar as the invention has particularly been pointed out in the accompanying claims is the same to be limited.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

1. In a concrete slab form installation, the combination with an elongated horizontally disposed form-supporting wooden stringer of uniformly rectangular cross section positioned so that its side faces extend vertically, and a vertically disposed supporting shore having its up-

per end connected to and disposed in supporting relationship with respect to a medial region of said stringer, of a stabilizer for rendering rigid the connection between the shore and the stringer, said stabilizer comprising two similar equal length stabilizer braces each of which is in the form of a length of metal channel stock including spaced apart parallel side flanges and an intermediate connecting web, said braces extending diagonally in brace-like fashion between the shore and the stringer on opposite sides of the shore with the lower edges of the webs bearing against the opposite sides respectively of the shore and the upper edges of the webs bearing against the underneath side of the stringer at regions equally spaced from said medial region, the side flanges of the two braces being directed inwardly toward the shore with adjacent pairs of channel flanges straddling the shore and overlapping each other in the lower regions of the braces, a pivot pin pivotally connecting the lower ends of each adjacent pair of flanges in the overlapping regions thereof, the side flanges of the two braces straddling the side faces of the stringer in the upper regions of the braces, and means fixedly securing said upper regions of the braces to said side faces of the stringer.

2. In a concrete slab form installation, the combination set forth in claim 1, wherein the transverse width of the web of one of the braces is greater than the transverse width of the web of the other brace, and wherein the side flanges of said one brace straddle the side flanges of said other brace.

3. In a concrete slab form installation, the combination set forth in claim 1 and wherein the lower edge of the web of each brace is provided with a cut away portion providing a shore-engaging edge conforming in contour to the contour of the shore at its region of engagement with said lower edge.

4. In a concrete slab form installation, the combination set forth in claim 1 and wherein the upper edge of the web of each brace is provided with a cut away portion whereby the upper edge of the web terminates short of the upper edges of the adjacent side flanges, thereby permitting the upper edge of the adjacent side flanges to straddle fully, the side of the stringer.

5. In a concrete slab form installation, the combination set forth in claim 1, wherein the upper edge of the web of each brace is provided with a cut away portion whereby the upper edge of the web terminates short of the upper edges of the adjacent side flanges, thereby permitting the upper edges of the adjacent side flanges to straddle fully the side faces of the stringer, and wherein the lower edges of the web of each brace is provided with a cut away portion providing a shore-engaging edge conforming in contour to the contour of the shore at its region of engagement with said lower edge.

6. In a concrete slab form installation, the combination with an elongated horizontally disposed form-supporting wooden stringer of uniformly rectangular cross section positioned so that its side faces extend vertically, and a vertically disposed cylindrical supporting shore having its upper end connected to and disposed in supporting relationship with respect to a medial region of said stringer, of a stabilizer for rendering rigid the connection between the shore and the stringer, said stabilizer comprising two similar equal length stabilizer braces each of which is in the form of a length of metal channel stock

including spaced apart parallel side flanges and an intermediate connection web, said braces extending diagonally in brace-like fashion between the shore and the stringer on opposite sides of the shore with the lower edges of the webs being formed with relief notches presenting arcuate edges bearing against the opposite sides respectively of the cylindrical shore and the upper edges of the webs bearing against the underneath side of the stringer at regions equally spaced from said medial region, the side flanges of the two braces being directed inwardly toward the shore with adjacent pairs of side flanges straddling the shore and overlapping each other in the lower regions of the braces, a pivot pin pivotally connecting each adjacent pair of side flanges in the overlapping regions thereof, the side flanges of the two braces straddling the side faces of the stringer in the upper regions of the legs, the upper regions of said side flanges being formed with nail holes therethrough, and nails extending through said nail holes and extending into said stringer through the side faces thereof.

7. In a concrete slab form installation, the combination with an elongated horizontally disposed form-supporting wooden stringer of uniformly rectangular cross section positioned so that its side faces extend vertically, and a vertically disposed cylindrical metal supporting shore having its upper end connected to and disposed in supporting relationship with respect to a medial region of said stringer, of a stabilizer for rendering rigid the connection between the shore and the stringer, said stabilizer comprising two similar equal length stabilizer braces each of which is in the form of a length of metal channel stock including spaced apart parallel side flanges and an intermediate connecting web, said braces extending diagonally in brace-like fashion between the shore and the stringer on opposite sides of the shore with the lower edges of the webs being formed with relief notches presenting arcuate edges bearing against the opposite sides respectively of the cylindrical shore and the upper edges of the webs engaging and bearing against the underneath side of the stringer at regions equally spaced from said medial region, the side flanges of the two braces being directed inwardly toward the shore with adjacent pairs of side flanges straddling the shore and overlapping each other in the lower regions of the braces, a pivot pin pivotally connecting each adjacent pair of side flanges in the overlapping regions thereof, the side flanges of the two braces straddling the side faces of the stringer in the upper regions of the braces, and means fixedly securing said upper regions of the braces to said side faces of the stringer, the engagement between said arcuate edges of the relief notches and the opposite sides of the cylindrical shore constituting the sole connecting means between the shore stabilizer and the shore.

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