

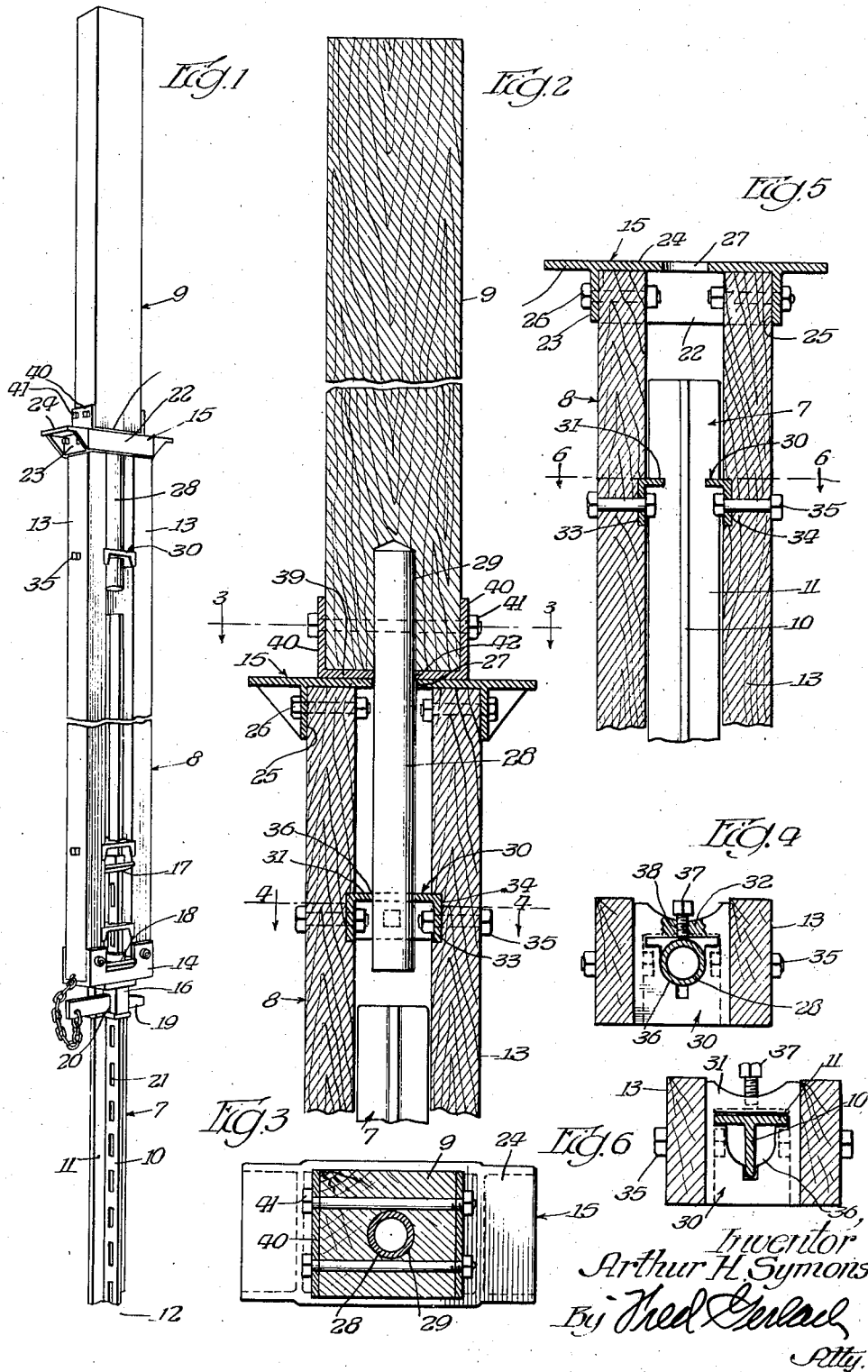
Jan. 30, 1945.

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2,368,385

SHORE

Filed June 16, 1943



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UNITED STATES PATENT OFFICE

2,368,385

SHORE

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Application June 16, 1943, Serial No. 490,993

6 Claims. (Cl. 248—354)

The present invention relates generally to shores. More particularly the invention relates to that type of shore which is primarily adapted for use in connection with building construction and the like and comprises (1) a lower strut which is adapted to rest upon a foundation or other fixed structures; (2) an upper strut which consists of a pair of laterally spaced, parallel, upstanding timbers, is slidably connected to the lower strut and embodies at the lower end thereof means for releasably locking it in the various positions into which it is slid or vertically adjusted and at its upper end a metallic head bracket having a flat top wall; and (3) a removable extension strut which is adapted to rest on the top wall of the head bracket and serves as a medium for increasing the over-all length of the upper strut in instances where an exceptionally long shore is required.

One object of the invention is to provide an extensible shore of this type which is an improvement upon, and has certain inherent advantages over, previously designed shores and is characterized by the fact that it includes a novel readily detachable connection for maintaining the extension strut in its operative position wherein it rests upon the top wall of the head bracket and is in longitudinal alignment with the upper and lower struts.

Another object of the invention is to provide a shore of the last mentioned character in which the readily detachable connection between the extension strut and the upper end of the upper strut comprises a rod which is secured to, and depends from, the lower end of the extension strut and is adapted when the extension strut is in its operative position to have the lower end thereof extend through a central hole in the top wall of the head bracket and fit between the upper ends of the two laterally spaced timbers constituting the upper strut, and in addition comprises a crosspiece which extends between the two timbers at a point beneath the head bracket and has a hole therein for receiving the lower extremity of the rod.

Another object of the invention is to provide a shore of the type and character under consideration in which the extension strut is in the form of a timber, has a longitudinal socket in the lower end thereof into which the upper end of the rod is driven and embodies a metallic bottom plate which is adapted to rest flatly on the top wall of the head bracket when the extension strut is in its normal or operative position and is provided at opposite margins thereof

with upstanding flanges which lap the adjacent portions of the lower end of the extension strut, are cross connected by bolts extending through the lower end of the extension strut, and are adapted upon tightening of the bolts to compress the lower end of the extension strut so as positively or firmly to lock the upper end of the rod in the socket.

A further object of the invention is to provide a shore of the aforementioned character in which the crosspiece between the upper ends of the timbers constituting the upper strut has clamping means in the form of a set screw for holding the lower end of the rod in fixed relation with the crosspiece when the extension strut is in its operative position, and is so designed, so far as the hole therein is concerned, that it is adapted when the extension strut is not in use, to receive and laterally support the upper end of the lower strut upon full collapsing or downward shift of the upper strut with respect to the lower strut.

A still further object of the invention is to provide an extensible shore which is generally of new and improved construction and is not only durable but also capable of being manufactured at a low or reasonable cost.

Other objects of the invention and the various advantages and characteristics of the present shore will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a perspective of an extensible shore embodying the invention;

Figure 2 is a vertical or longitudinal section showing the extension strut in connected or attached relation with the upper end of the upper strut;

Figure 3 is a transverse section taken on the line 3—3 of Figure 2 and illustrating in detail the manner in which the bolts for cross connecting the upstanding flanges of the bottom plate of the extension strut serve when tightened to contract the lower end of the extension strut so as to lock the upper end of the rod in the socket in the lower end of the extension strut;

Figure 4 is a transverse section taken on the

line 4—4 of Figure 2 and showing the manner in which the crosspiece between the upper ends of the timbers constituting the upper strut serves to receive and hold in place the lower end of the rod when the extension strut is in its normal position;

Figure 5 is a vertical section of the upper end of the upper strut, showing the manner in which the crosspiece receives and serves laterally to support the upper end of the lower strut when the extension strut is not in use and the upper strut is lowered to substantially its fullest extent with respect to the lower strut; and

Figure 6 is a transverse section on the line 6—6 of Figure 5.

The shore which is shown in the drawing constitutes the preferred form or embodiment of the invention. It is primarily designed or adapted for use in connection with building construction and the like and as its main or principal parts comprises a lower strut 7, an upper strut 8 and an extension strut 9. As hereinafter pointed out, the extension strut is adapted to be used when it is desired to increase the over-all length of the upper strut 8 in instances where an exceptionally long shore is required.

The lower strut 7 is in the form of a metallic structural element of T-shaped cross section and comprises a web 10 and a coextensive flange 11. As shown in Figures 1, 5 and 6, the flange is formed integrally with one margin of the web 10 and projects outwards in opposite directions therefrom. The lower end of the strut 7 is provided with a shoe 12 and this is adapted to rest on a foundation or other structure (not shown). When the shore is in its operation position the lower strut 7 extends vertically.

The upper strut 8 is longitudinally aligned with, and is vertically adjustable relatively to, the lower strut 7. It consists of a pair of laterally spaced, parallel, upstanding timbers 13 and embodies a bottom bracket 14 and a head bracket 15 at its upper end. These two brackets serve to hold the timbers 13 in laterally spaced relation. The bottom bracket 14 is of U-shaped cross section and embodies a centrally positioned, depending extension 16. The latter has a vertically extending open ended channel of T-shaped cross section in which the lower strut 7 fits slidably. The timbers 13 of the upper strut 8 are spaced apart so that they are in straddled relation with the lower strut 7 and receive the upper end of the lower strut therebetween. The extension 16 serves as a slide type bearing for permitting the upper strut to slide vertically relatively to the lower strut. A plate 17 surrounds the upper end of the lower strut 7 and is pivotally supported between the lower ends of the timbers 8 so that it is free to tilt vertically to a limited extent. This plate is adapted so to coact with a lever (not shown) as to effect raising of the upper strut 8 with respect to the lower strut. A clutch plate 18 surrounds the upper end of the lower strut 7 at a point beneath the plate 17 and is pivotally connected to the lower ends of the timbers 13 so that it is free to tilt to a limited extent. This clutch plate serves automatically to hold the upper strut in the various positions into which it is raised and is adapted when tilted downwards by way of the aforementioned lever to release the upper strut so that it slides downwards. The plate 17 and the clutch plate 18 form no part of the present invention and constitute the subject matter of an application for United States Letters Patent filed by me on July 26, 1943, Serial No. 496,127. A wedge

19 is slidably mounted in a transverse slot or channel 20 in the extension 16 and coacts with a longitudinal series of slots 21 in the web 10 of the lower strut additionally to lock the upper strut in its various adjusted positions with respect to the lower strut. The head bracket 15 is in the form of a one-piece metal casting and comprises a pair of spaced apart, parallel, opposed side walls 22, a pair of spaced apart, parallel, opposed end walls 23, and a flat rectangular top wall 24. The end walls 23 extend between, and are connected to, the ends of the side walls 22 and define with the side walls and the top wall 24 a downwardly facing socket 25 for the upper ends of the timbers 13. The top wall 24 forms a flat bearing surface for the extension strut 9 and is adapted when the extension strut is not in use to support an L head or T head type of crossbar (not shown). Bolts 26 extend through aligned holes in the end walls 23 and the upper ends of the timbers 13 and serve fixedly to secure the head bracket 15 in place and also to hold the upper ends of the timbers 13 in fixed spaced relation. The central portion of the top wall 24 is provided with a circular hole 27 and this is positioned centrally with respect to, and communicates with, the space between the timbers 13 constituting the upper strut 8.

The extension strut 9 is adapted when in use to rest on the top wall 24 of the head bracket 15 and serves as an extension of the upper strut 8. It is in the form of a timber of rectangular cross section and is provided at its lower end with a depending longitudinally extending rod 28. The latter serves detachably or releasably to hold the extension strut 9 in its normal or operative position and has the upper end thereof driven into a bore formed socket 29 in the lower end of the timber constituting the extension strut 9. The lower end of the rod 28 is adapted to extend through the hole 27 of the top wall 24 of the head bracket 15 and fit between the upper ends of the timbers 13, as shown in Figure 2. In assembling the extension strut 9 with respect to the upper strut 8 the extension strut is positioned above the upper strut and is then manipulated so as to bring the rod 28 into alignment with the hole 27. Thereafter it is lowered so as to cause the lower exposed end of the rod to slide through the hole 27 and enter the space between the upper ends of said timbers 13. In order to hold the lower end of the rod 28 against lateral displacement when the extension strut 9 is in its operative or normal position a crosspiece 30 is provided. This crosspiece is preferably in the form of a metal casting and extends between the upper ends of the timbers 13 at a point beneath the head bracket 15. It comprises a top wall 31 and a depending U-shaped flange. The latter consists of a side piece 32 and a pair of end pieces 33. The end pieces 33 of the flange fit within transverse grooves 34 in the inner faces of the timbers 13 and are secured in place by way of bolts 35. The latter, as best shown in Figure 5, extend through aligned holes in the end pieces 33 and the adjacent portions of the timbers 13. The top wall 31 is provided with a hole 36 which is shaped snugly to receive the lower end of the rod 28 when the extension strut 9 is in its operative position. The crosspiece 30 operates in effect as a bearing for the lower end of the rod and holds the latter against lateral displacement. The hole 36 is vertically aligned with the hole 27 in the top wall 24 of the head bracket 15. In order to hold the extension strut 9 in connected relation with the up-

per strut and prevent it from turning about the axis of the rod 28 a set screw 37 is provided. This set screw extends through a transverse screw thread equipped hole 38 in the side piece 32 of the U-shaped flange that forms a part of the crosspiece 30. When the extension strut 9 is in its operative position wherein the lower end of the rod 28 extends through the holes 27 and 36 and the set screw 37 is tightened the rod is held in clamped or locked relation with the crosspiece 30 with the result that the extension strut 9 is rigidly or fixedly connected to the upper strut 8 and is held against rotation relatively thereto. The set screw 37 is so positioned that the inner end thereof faces in the direction of the hole 36. When it is desired to release the rod 28 in connection with removal of the extension strut 9 the set screw 37 is loosened. The head bracket 15, the rod 28 and the crosspiece 30 constitute a readily detachable connection between the upper end of the upper strut 8 and the lower end of the extension strut 9. As shown in Figures 4 and 6, the hole 36 in the top wall 31 of the crosspiece 30 is so shaped that it not only serves snugly to receive the lower end of the rod 28 when the extension strut 9 is in its operative position, but also to receive, and form a bearing for, the upper end of the lower strut 7 when the extension strut is not in use and the upper strut 8 is collapsed or shifted downwards to a point where the upper ends of the timbers 13 straddle the upper end of the lower strut 7.

In addition to the rod 28 the extension strut 9 embodies a metallic rectangular bottom plate 39. This plate fits flatly against the bottom face of the extension strut and is provided at opposite margins thereof with upstanding flanges 40. The latter lap the adjacent portions of the lower end of the extension strut 9, as shown in Figures 2 and 3, and are cross-connected by way of a pair of bolts 41. The latter are arranged in straddled relation with the upper socket enclosed end of the rod 29 and extend through aligned holes in the flanges 40 and the lower end of the extension strut. When the bolts are tightened to their fullest extent the flanges 40 are urged inwards and serve so as to compress or contract the lower end of the extension strut as positively or firmly to lock the upper end of the rod 28 in the socket 29. The plate 39 is adapted to rest flatly on the top wall of the head bracket 15 when the extension strut 9 is in its operative position and has a central hole 42 for accommodating the rod 28. The latter is preferably in the form of a pipe. The metallic bottom plate 39 with its opposed upstanding flanges 40 serves not only to compress the lower end of the extension strut around the upper end of the rod 28 but also to prevent splintering of the lower end of the extension strut and forms a flat bottom bearing surface for engaging flatly the top wall 24 of the head bracket 15.

When it is desired to use the extension strut 9 in connection with use of the shore the set screw 37 is loosened. Thereafter the extension strut is positioned over the upper end of the upper strut 8 and manipulated so as to bring the lower or exposed end of the rod 28 into alignment with the hole 27 in the top wall of the head bracket 15. After the extension strut is so positioned it is lowered so as to cause the lower end of the rod 28 to slide through the hole 27 and also through the hole 36 in the top wall 33 of the crosspiece 30. When the extension strut is lowered to its fullest extent the metallic plate 39 abuts flatly

against the top wall 24 of the head bracket 15. After the extension strut 9 is manipulated into place the set screw is tightened so as to lock the rod 28 against rotative as well as axial displacement. Tightening of the set screw results in the extension strut being fixedly secured in its operative position.

The herein described shore effectively and efficiently fulfills its intended purpose and is characterized by the fact that the extension strut 9 may be quickly and readily attached to, and detached from, the upper strut 8. It is also characterized by the fact that it is durable and capable of being manufactured at a low and reasonable cost.

The invention is not to be understood as restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

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

1. A shore comprising an upstanding lower strut, an upper strut embodying a pair of elongated upstanding laterally spaced members in straddled relation with the lower strut, adapted to slide vertically relatively to said lower strut, and having a head bracket connected to the upper ends of the members and provided with a flat top wall with a hole in the central portion thereof communicating with the space between said upper ends of the members, and also having a crosspiece extending across said space at a point beneath the head bracket and having a hole therein in alignment with the hole in the top wall, a removable selectively usable timber type extension strut adapted when in use to rest flatly on the top wall of the head bracket and form a longitudinal continuation of the main strut and having a flat bottom surface with a centrally disposed socket leading upwards therefrom, a rod having one end thereof extending into, and fixed within, the socket and its other end adapted to extend through the two aforementioned holes and hold said extension strut against lateral displacement with respect to said upper strut, and releasable means associated with said crosspiece for locking said other end of the rod to said crosspiece when it is in its extension strut holding position.

2. A shore comprising a main upstanding strut having a flat horizontal bearing surface at its upper end and a socket leading downwards from said surface, a selectively usable timber type extension strut adapted when in use to assume an operative position wherein it rests on the bearing surface and forms a longitudinal continuation of the main strut, and having a flat bottom surface with a bore leading upwards therefrom, and a rod having one end thereof fixed within the bore and its other end adapted to extend into the socket and hold said extension strut against lateral displacement with respect to the main strut when it is in its operative position.

3. A shore comprising a main upstanding strut having a flat horizontal bearing surface at its upper end and a socket leading downwards from said surface, a selectively usable timber type extension strut adapted when in use to assume an operative position wherein it rests on the bearing surface and forms a longitudinal continuation of the main strut, and having a flat bottom surface with a bore leading upwards therefrom, a rod having one end thereof driven into the bore

and its other end adapted to extend into the socket and hold said extension strut against lateral displacement with respect to the main strut when it is in its said operative position, and means for compressing the lower end of the extension strut around said one end of the rod.

4. A shore comprising a main upstanding strut having a flat horizontal bearing surface at its upper end and a socket leading downwards from said surface, a selectively usable timber type extension strut adapted when in use to assume an operative position wherein it rests on the bearing surface and forms a longitudinal continuation of the main strut, and having a flat bottom surface with a bore leading upwards therefrom, a rod having one end thereof driven into the bore and its other end adapted to extend into the socket and hold said extension strut against lateral displacement with respect to the main strut when it is in its said operative position, a metallic plate fitting against said bottom face of the extension strut and having a hole therein in registry with the bore for accommodating said one end of the rod and in addition a pair of opposed upstanding marginal flanges arranged in lapped relation with the adjacent portions of the extension strut, and a bolt extending through the flanges and the extension strut and serving when tightened to compress the lower end of the extension strut around said one end of the rod.

5. A shore comprising a main strut embodying a pair of elongated upstanding laterally spaced members, a head bracket connected to the upper ends of the members and provided with a flat top wall with a hole in the central portion thereof communicating with the space between said upper ends of the members, a selectively usable timber type extension strut adapted when in use to assume an operative position wherein it rests on the top wall of the head bracket and forms a longitudinal continuation of the main strut, and having a flat bottom surface with a centrally disposed bore formed socket leading upwards therefrom, a rod having one end thereof driven into the socket and its other end adapted

to extend through the hole into said space and hold said extension strut against lateral displacement with respect to the main strut when it is in its operative position, a metallic plate fitting against the bottom surface of the extension strut and having a hole therein in registry with the socket for accommodating said one end of the rod and in addition a pair of opposed upstanding marginal flanges arranged in lapped relation with the adjacent portions of the extension strut, and a pair of bolts extending through the flanges and the lower end of the extension strut and arranged in straddled relation with the rod and adapted when tightened to urge the flanges inwards into a position wherein they compress said lower end of the strut around said one end of the rod.

6. A shore comprising an upstanding lower strut, an upper strut embodying a pair of elongated upstanding laterally spaced members in straddled relation with the lower strut, adapted to slide vertically relatively to the lower strut, and having a head bracket connected to the upper ends of the members and provided with a flat top wall having a hole in the central portion thereof communicating with the space between said upper ends of the members, a selectively usable extension strut adapted when in use to rest on the top wall of the head bracket and form a longitudinal continuation of the upper strut and having a depending rod adapted to extend through the hole into said space and hold said extension strut against lateral displacement with respect to the upper strut, and a crosspiece extending across said space at a point beneath the head bracket and having a hole therein adapted when the upper strut is in a raised position with respect to the lower strut and the extension strut is in use to receive the lower end of the rod and further adapted when the extension strut is not in use and the upper strut is lowered with respect to the lower strut to receive and guide the upper end of said lower strut.

ARTHUR H. SYMONS.