H. H. LAMPERT.

SHORING DEVICE.

APPLICATION FILED JULY 22, 1916

1,298,970.

Patented Apr. 1, 1919

Fig 1

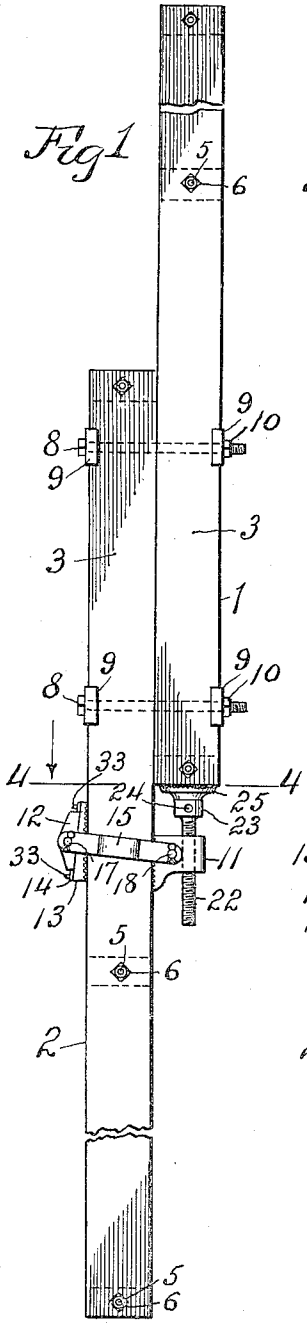


Fig 2

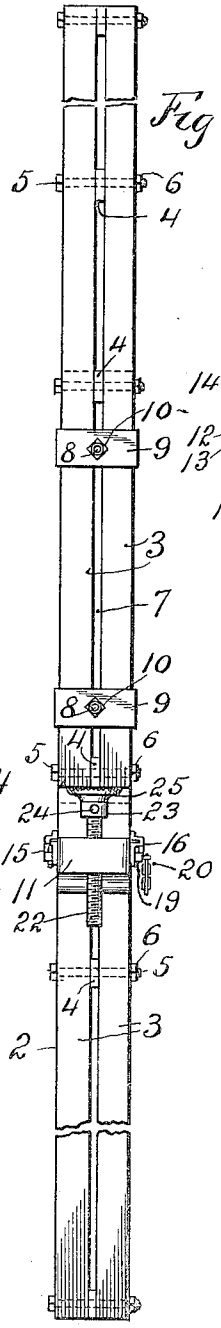


Fig 3

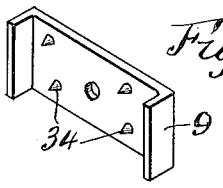


Fig 4

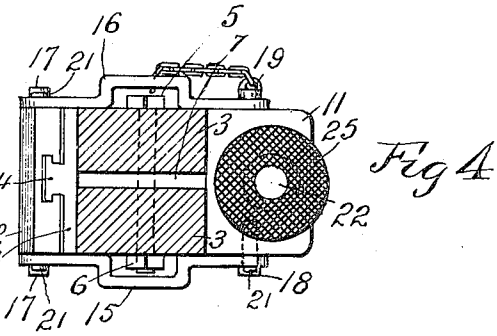


Fig 5

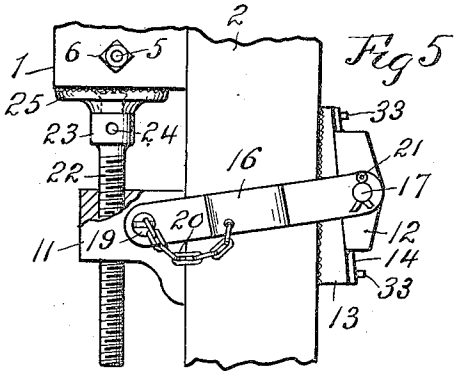


Fig 6

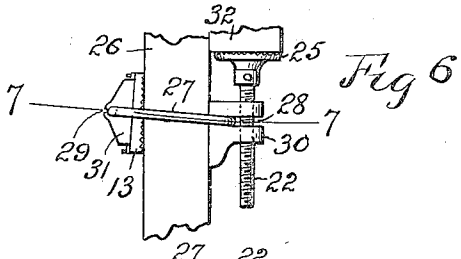
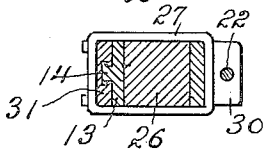


Fig 7



WITNESS:

R. C. Hamilton

INVENTOR.

Henry H. Lampert

BY

Warren D. House

His ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY H. LAMPERT, OF CHICAGO, ILLINOIS.

SHORING DEVICE.

1,298,970. Specification of Letters Patent. Patented Apr. 1, 1919.

Application filed July 22, 1916. Serial No. 110,765.

To all whom it may concern:

Be it known that I, HENRY H. LAMPERT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Shoring Devices, of which the following is a specification.

My invention relates to improvements in shoring devices.

It relates particularly to shoring devices in which an extensible strut is employed.

The object of my invention is to provide a shoring device comprising an extensible strut with novel means by which the strut may be extended to the proper length and reliably retained at such length.

A further object of my invention is to provide a novel jack for extending and supporting the strut.

Still another object of my invention is to provide a jack which is strong and durable, which may be easily applied in operative relationship to the strut, and which is easily operated.

Other novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings which illustrate my invention,

Figure 1 is a side elevation, partly broken away, of a shoring device which embodies the preferred form of my invention.

Fig. 2 is a view similar to Fig. 1 but looking in a direction at right angles to the direction in which Fig. 1 is viewed.

Fig. 3 is a perspective view of one of the strut clamping plates.

Fig. 4 is an enlarged cross section on the line 4—4 of Fig. 1.

Fig. 5 is an enlarged side elevation of the jack, partly broken away, which is shown in Fig. 1, a portion of the strut being shown with the jack applied to it.

Fig. 6 is a side elevation of a portion of a strut having mounted thereon a modified form of jack of my invention.

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

Similar reference characters designate similar parts in the different views.

The strut is composed, preferably, of an upper strut member 1 and a lower strut member 2, disposed parallel with each other, side by side, and provided with means by which they may be firmly clamped together and held from lateral and longitudinal movement, after they have been adjusted to the proper positions.

In the preferred form of my invention each strut member 1 and 2 comprises two parallel longitudinal timbers 3, which are spaced apart by spacing blocks 4, the timbers being held together by means of bolts 5 extending therethrough and through the blocks 4 respectively, the bolts 5 being provided with nuts 6.

The spacing apart of the timbers 3 forms between them slots 7, and through the slots 7 of opposite members are extended horizontal bolts 8 which also extend through oppositely disposed clamping plates 9, one of which is shown in Fig. 3, the clamping plates 9 being mounted respectively at and bearing against opposite sides of the strut members 1 and 2. To prevent lateral movement of the members 1 and 2 relatively to each other, there are provided two bolts 8 and two sets of clamping plates 9 respectively mounted on said bolts. The bolts 8 are vertically slidable in the slots 7 and are provided each with a head which bears against one of the clamping plates 9 and with a nut 10 which bears against the opposite clamping plate 9.

In the operation of the strut, the nuts 10 are loosened, following which the upper member 1 is vertically adjusted to the proper position, in which position the lower strut member 2 will rest upon the floor or other suitable support and the upper strut member 1 will be in position to carry the load which it is to temporarily support.

The nuts 10 are then tightened, thereby clamping the members 1 and 2 together and preventing the upper member 1 from slipping downwardly.

For the purpose of vertically adjusting the member 1, I provide a jack, the preferred embodiment of which is shown in Figs. 1, 2, 4 and 5. This jack is composed of the following described parts. 11 and 12 designates two clamping members adapted to be disposed at opposite sides of the strut member 2, the member 11 having a bearing directly against the strut member, and a wedge 13 being preferably inserted between the clamping member 12 and the strut member 2. The outer side of the wedge 13 is pro-

vided, preferably with a guide comprising an inwardly and upwardly inclined rib 14, T shape in cross section and slidably fitted in a similar shaped groove which forms a guide in the inner side of the clamping member 12.

Tying means for connecting the clamping members 11 and 12 are provided, preferably comprising two links 15 and 16, one set of ends of which are respectively pivoted on transverse axes to two projections or trunnions 17 provided at opposite sides of the clamping member 12.

The other set of ends of the links 15 and 16 are respectively pivoted to a projection or trunnion 18 at one side of the member 11 and to a horizontal pin 19, which is removably mounted in a hole provided therefor in the opposite side of the member 11. The pin 19 may be connected with the link 16 by a chain 20, to prevent the loss of the pin.

Cotter pins 21 may be provided in the trunnions 17 and 18 for releasably securing the links in operative position.

The clamping member 11 is provided with a vertical screw threaded hole in which is fitted a vertical screw 22 having at its upper end a head 23 provided with transverse holes 24 for receiving a bar, not shown, by which the screw may be turned. Swiveled on a vertical axis on the head 23 is a plate 25 which is adapted to support the lower end of the strut member 1.

Upon turning the screw 22 in the proper direction, the plate 25 will force upwardly the strut member 1 and at the same time the screw will bear downwardly upon the clamping member 11, the downward movement of which will be limited by the links 15 and 16 which will cause the member 11 and wedge 13 to tightly grip the strut member 2, so that the latter serves as a solid support upon which the strut member 1 may be upwardly forced by means of the screw 22.

Upon loosening the nuts 10 and turning the screw 22 in the proper direction, the strut member 1 may be moved vertically to the proper position for supporting the load to be carried. If desired, the jack may be used as permanent support for the strut member 1, in which case, the bolts 8, clamping plates 9 and nuts 10 serve to hold the members 1 and 2 from lateral movement relatively to each other. When the jack is to be used as a permanent support for the member 1 any suitable means for holding the members 1 and 2 from lateral displacement may be employed.

In case that it is desired to remove the jack for use elsewhere, after the member 1 has been adjusted to the proper position, the nuts 10 are tightened. The screw 22 is then turned so as to cause it to move downwardly clear of the member 1. The bolts 8, clamping plates 9 and nuts 10 will then hold the members 1 and 2 from longitudinal movement to any considerable extent, as well as holding them from lateral displacement.

The pin 19 may now be removed from the clamping member 11, upon which the link 16 may be swung on its trunnion 17 to a vertical position, thereby permitting the jack to be moved laterally from the strut member 2.

In the form of my invention shown in Figs. 6 and 7, the lower strut member 26 is embraced by a rectangular link 27 opposite ends of which are respectively pivotally mounted in two transverse grooves 28 and 29 provided respectively in the outer sides of two clamping members 30 and 31. The member 31 is adapted to bear against the strut member 26. A wedge 13, such as has already been described, bears against the opposite side of the strut member 26, and is provided on its outer side with a T shaped rib 14 slidably fitted in a similarly shaped upwardly and inwardly inclined groove in the inner side of the clamping member 31.

A vertical screw, 22 corresponding to the one already described, is fitted in a screw threaded vertical hole extending through the clamping member 30 and intersecting the groove 28 at the outer side of the link 27. The screw 22 has swiveled in its upper end a plate 25 which is adapted to support the upper strut member 32.

The jack shown in Figs. 6 and 7 is operated in a manner similar to the jack shown in Figs. 1, 2, 4 and 5. By turning the screw 22 in the proper direction, it will force upwardly against the strut member 32 and downwardly against the clamping member 30. The link 27 will prevent the member 30 from slipping downwardly to any appreciable extent, so that by continued turning of the screw 22 in the proper direction the strut member 32 may be forced vertically and held in the desired position of adjustment.

For limiting the sliding movement of the clamping member 12 and of the clamping member 31 on the wedge 13, the outer side of the latter may be provided with two stop pins 33 between which the clamping member may slide.

The clamping members or plates 9 are each, preferably, of U-shape so as to embrace three sides of a strut member. The transverse portion of the plate 9 may also be provided on its inner side with inwardly extending projections 34 for holding the plate from vertical slipping on the strut member.

Preferably the inner side of the wedge 13 is roughened, as shown, to prevent it from vertical slipping.

In the form of jack shown in Figs. 6 and 7, the jack can not be slipped laterally on or off from the strut member, but is slipped on and off the end of the strut member which is to carry it.

It do not limit my invention to the structure shown and described, as modifications,

within the scope of the appended claims, may be made without departing from the spirit of my invention.

What I claim is:—

1. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack having means for being secured to and supported by one of said members and adapted to engage and move the other member longitudinally.

2. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack having means for being secured to one of said members and provided with a longitudinally movable screw adapted to support and move the other member longitudinally.

3. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising two clamping members adapted to embrace opposite sides of one of said strut members, tying means connecting said clamping members, and means carried by one of said clamping members for supporting and longitudinally moving the other strut member.

4. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising two clamping members adapted to embrace opposite sides of one of said strut members, tying means connecting said clamping members, and a longitudinally movable screw having threaded engagement with one of said clamping members, and adapted to support and longitudinally move the other strut member.

5. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising two clamping members adapted to embrace opposite sides of one of said strut members, tying means connecting said clamping members, means carried by one of said clamping members for supporting and longitudinally moving the other strut member, and means by which the distance between said clamping members may be adjustably varied.

6. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack provided with means for clampingly embracing opposite sides of one of the strut members, and provided with means adapted for supporting and longitudinally moving the other strut member.

7. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack provided with means for clampingly embracing opposite sides of one of said strut members and provided with a longitudinally adjustable screw adapted to support and longitudinally move the other said member.

8. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising two clamping members adapted to embrace opposite sides of one of said strut members, tying means pivoted to and connecting said clamping members, and means carried by one of said clamping members for supporting and longitudinally moving the other strut member.

9. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising two clamping members adapted to respectively embrace opposite sides of one of said strut members, tying means pivoted to and connecting said clamping members, and a screw longitudinally adjustable in one of said clamping members and adapted to support and longitudinally move the other strut member.

10. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising means including a wedge for clamping opposite sides respectively of one of the strut members, and means carried by said clamping means for supporting and longitudinally moving the other strut member.

11. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising means including a wedge for clamping opposite sides respectively of one of the strut members, and a screw longitudinally adjustable on said clamping means and adapted to support and longitudinally move the other strut member.

12. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising two clamping members adapted to respectively embrace opposite sides of one of the strut members, two links pivotally connected on transverse axes with each of said clamping members, one of the links having means for being releasably connected with one of the clamping members, and means carried by one of said clamping members for supporting and longitudinally moving the other strut member.

13. In a shoring device, an extensible strut comprising two members longitudinally adjustable relatively to each other, and a jack comprising two clamping members adapted to respectively embrace opposite sides of one of the strut members, two links pivotally connected on transverse axes with said clamping members, one of the links having means for detachable engagement with one of the clamping members, and a screw longitudinally adjustable on one of the clamping

members and adapted to support and longitudinallly move the other strut member.

14. In a jack, two clamping members adapted to respectively embrace opposite sides of a strut, a link pivoted on a transverse axis to one of said clamping members, and a longitudinally adjustable screw mounted in one of said clamping members and adapted to support and longitudinally move a strut member.

15. In a jack, two clamping members adapted to respectively embrace opposite sides of a strut, two links connecting said clamping members, one of the links being pivoted on a transverse axis to one of the clamping members and having means for releasably engaging the other clamping member, and a longitudinally adjustable screw mounted in one of said clamping members and adapted to engage and longitudinally move a portion of the strut.

16. In a jack, two clamping members adapted to respectively embrace opposite sides of a strut, two links pivoted on transverse axes to said two clamping members, one link having means for being releasably engaged with one of the clamping members, and a longitudinally adjustable screw mounted in one of the clamping members and adapted to support and longitudinally move a portion of the strut.

17. In a jack, two clamping members longitudinally movable relatively to each other and adapted to respectively embrace opposite sides of a strut, tying means connecting said clamping members, and longitudinally adjustable means carried by one of said clamping members and adapted to support and longitudinally move a portion of said strut.

18. In a jack, two clamping members longitudinally movable relatively to each other and adapted to respectively embrace opposite sides of a strut, tying means connecting said clamping members, a longitudinally movable wedge adapted to have a bearing against said strut and slidably engaging one of said members, and means longitudinally movable on one of said clamping members adapted to support and longitudinally move a portion of the strut.

19. In a jack, two clamping members longitudinally movable relatively to each other and adapted to respectively embrace opposite sides of a strut, a longitudinally movable wedge adapted to bear against the strut and slidably engaging one of said members, tying means connecting said clamping members, and a longitudinally adjustable screw mounted in one of said clamping members and adapted to support and longitudinally move a portion of the strut.

20. In a jack, two clamping members adapted to respectively embrace opposite sides of a strut, the inner side of one of the clamping members having a longitudinal dove-tail groove, a wedge longitudinally movable in said groove, tying means connecting said clamping members, and longitudinally movable means mounted on one of the clamping members and adapted to support and longitudinally move a portion of the strut.

21. In a jack, two clamping members longitudinally movable relatively to each other and adapted to respectively embrace opposite sides of a strut, one clamping member having a longitudinal guide, a wedge slidable in said guide and adapted to bear against said strut, tying means connecting said clamping members, and a longitudinally adjustable screw carried by one of said clamping members and adapted to support and longitudinally move a portion of the strut.

22. In a jack, two clamping members longitudinally movable relatively to each other and adapted to respectively embrace opposite sides of a strut, one clamping member having a longitudinal guide, a wedge slidable in said guide and adapted to bear against said strut, a vertically adjustable screw mounted in the other clamping member and adapted to support and longitudinally move a portion of the strut, and two links connecting said clamping members, one of said links being detachably connected with one of the clamping members, and being movable on the other clamping member to a position which will permit lateral removal of the clamping members from the strut.

23. In a jack, two clamping members longitudinally movable relatively to each other and adapted to respectively embrace opposite sides of a strut, one clamping member having a longitudinal guide, a wedge slidable in said guide and adapted to bear against said strut, two links pivotally connected to said clamping members, one link having means for detachable engagement with one of the clamping members, and a screw longitudinally adjustable in one of the clamping members and adapted to support and longitudinally move a portion of the strut.

In testimony whereof I have signed my name to this specification.

HENRY H. LAMPERT.