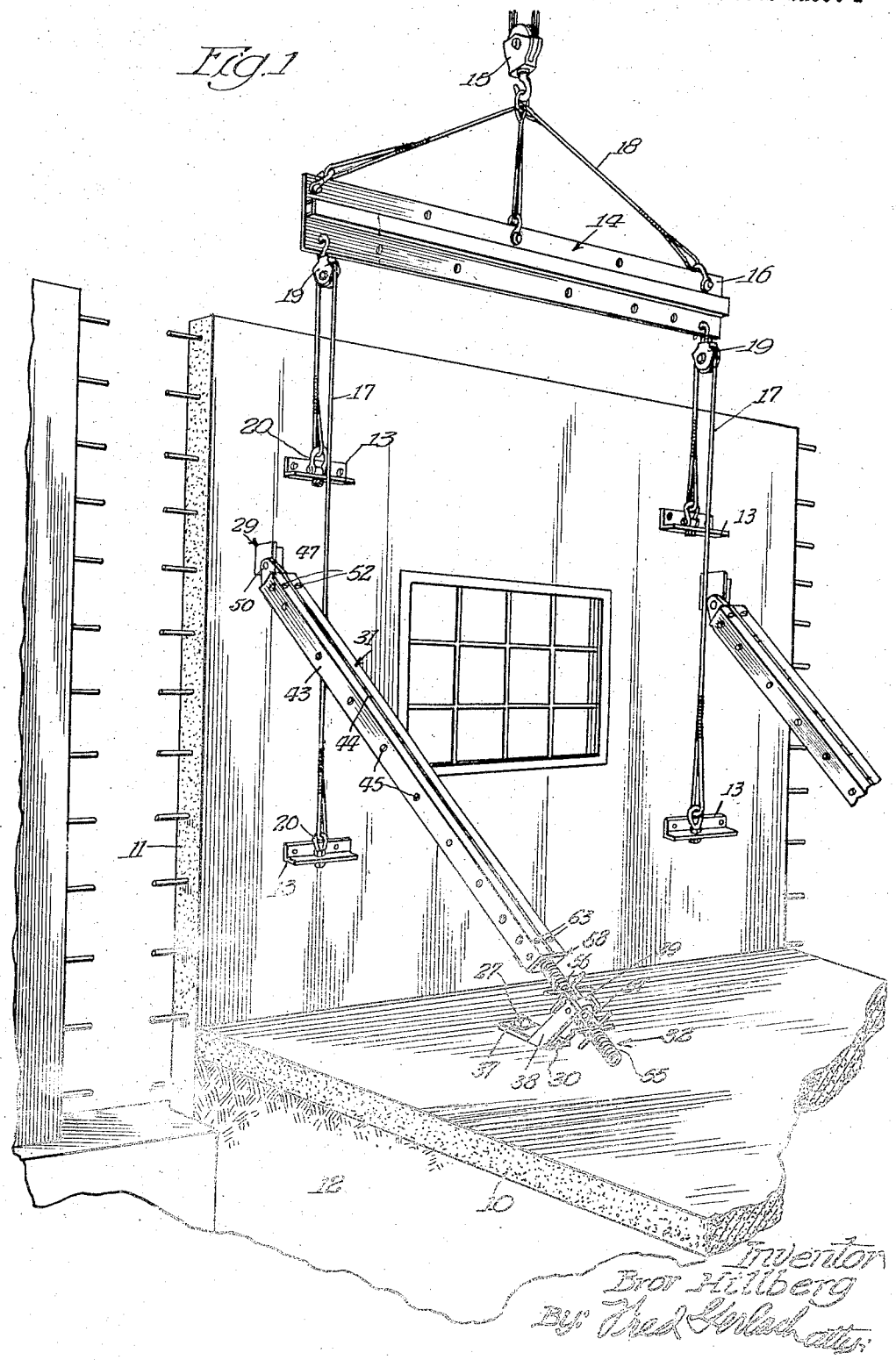
July 27, 1954 B. HILLBERG 2,684,824

ADJUSTABLE BRACE

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Fig. 1

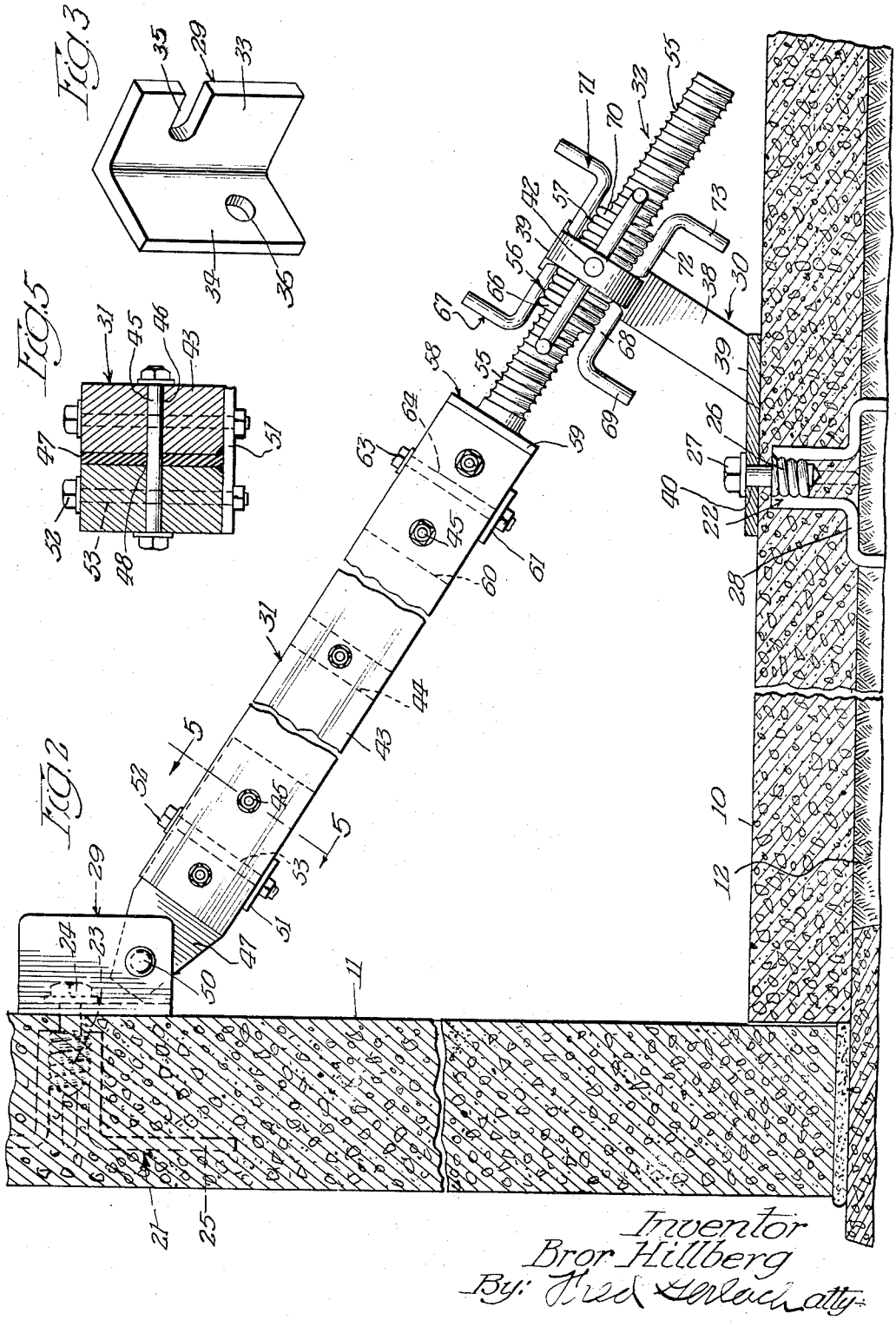


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ADJUSTABLE BRACE

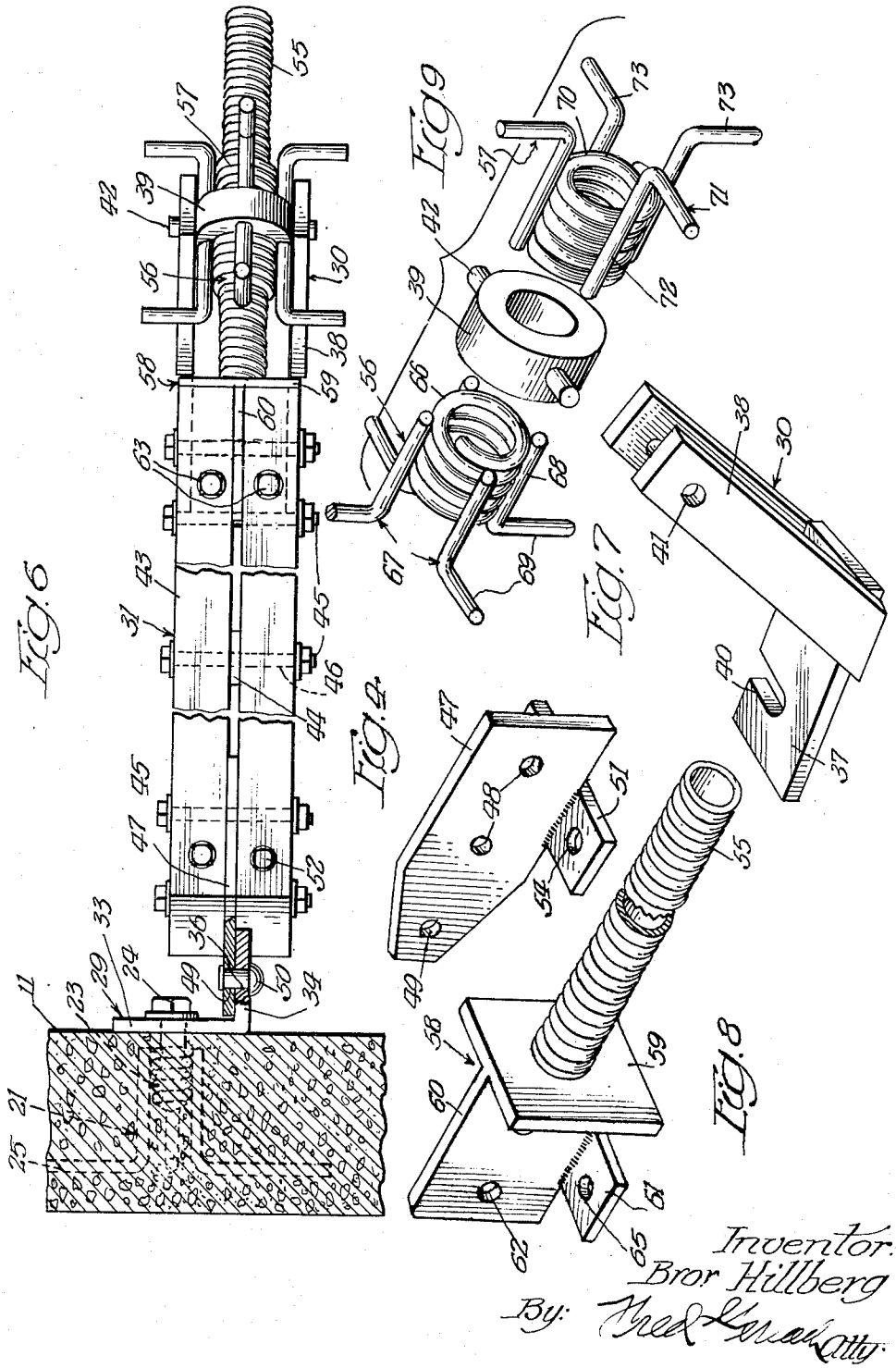
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ADJUSTABLE BRACE

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2,684,824

ADJUSTABLE BRACE

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8 Claims. (Cl. 248—354)

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The present invention relates generally to adjustable braces. More particularly the invention relates to that type of brace which is adapted for use in connection with the construction of a concrete building, serves, after a wall slab is placed next to a floor slab by a crane or like hoisting mechanism, to hold the wall slab in position while it is being secured in place, consists of a bracket with means for detachably securing it to the inner surface of the wall slab, a bracket with means for detachably securing it to the top surface of the floor slab, and a straight inclined or diagonally disposed strut between the two brackets, and has means whereby it may be longitudinally adjusted in order that the wall slab may be tilted outwards or inwards into any desired angular position with respect to the floor slab as a preliminary to securing it in place.

In connection with construction of a concrete building it is now common practice at the site of the building to form on the usual fill at the site a rectangular horizontally extending frame, then to pour concrete into the bottom portion of the frame interior for floor slab forming purposes, then to overlie the poured concrete with a film or layer of nonadhesive material, and finally to pour concrete into the upper portion of the frame interior for wall slab forming purposes. After hardening or setting of the concrete and removal of the mold forming frame the concrete wall slab is swung upwards and manipulated into an upstanding position next to one edge of the floor slab. After proper positioning of the wall slab the latter is suitably secured in place. The aforementioned practice or technique is inexpensive but requires the use of a brace of the aforementioned type in order to hold the wall slab in the desired angular position with respect to the floor slab while it is being secured in place.

One object of this invention is to provide an adjustable brace of the type under consideration which is an improvement upon, and has certain inherent advantages over, previously designed or proposed braces for the same purpose and is characterized by high efficiency and strength, facility of longitudinal adjustment and low cost of fabrication.

Another object of the invention is to provide an adjustable brace of the aforementioned type in which the wall slab engaging bracket is of simple and novel design and is connected to the upper end of the strut by a horizontal pivot element in order that it and the strut are capable of tilting relatively to one another in a vertical plane.

Another object of the invention is to provide

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an adjustable brace of the type under consideration in which the floor slab engaging bracket consists of a bottom member, a pair of spaced apart upwardly inclined side members at opposite sides of the bottom member, and a tiltable collar between the upper ends of the side members, and the means for effecting longitudinal adjustment of the brace consists of (1) an elongated externally threaded element which is connected to the lower end of the strut, extends slidably through the tiltable collar and is in parallel relation with the strut, and (2) two wing nuts which are mounted rotatably on the elongated externally threaded element, are positioned at opposite sides of the collar and are so arranged that when the uppermost nut is tightened, after loosening of the lowermost nut, it causes the strut to slide upwards and effect outward tilting of the wall slab and when the lowermost nut is tightened, after loosening of the uppermost nut, it causes the strut to slide downwards and effect inward tilting of the wall slab.

A further object of the invention is to provide an adjustable brace of the type and character under consideration in which the strut is so constructed that it possesses great durability and strength and the upper end of the elongated externally threaded element is connected to the lower end of the strut in a novel and simple manner.

A still further object of the invention is to provide an adjustable brace which is generally of new and improved construction and effectively and efficiently fulfills its intended purpose.

Other objects of the invention and the various advantages and characteristics of the present brace 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 drawings which accompany and form 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 showing an adjustable brace embodying the invention in operative relation with a concrete wall slab and a concrete floor slab after placement of the wall slab next to the floor slab by an overhead crane;

Figure 2 is a fragmentary side elevation of the brace, the floor slab engaging bracket of the brace being shown in section for illustrative purposes;

Figure 3 is a perspective of the wall slab engaging bracket;

Figure 4 is a perspective of the metallic plate which is connected to the upper end of the strut and together with the horizontal pivot element serves tiltably to connect the upper end of the strut to the wall slab engaging bracket;

Figure 5 is an enlarged transverse section taken on the line 5—5 of Figure 2;

Figure 6 is a fragmentary plan view of the brace, certain parts of the aforementioned metallic plate and the wall slab engaging bracket being shown in section for purposes of illustration;

Figure 7 is a perspective of the floor slab engaging bracket of the brace;

Figure 8 is a perspective of the elongated externally threaded element constituting a part of the means for effecting longitudinal adjustment of the brace; and

Figure 9 is a perspective of the tiltable collar and the two wing nuts.

The adjustable brace that is illustrated in the drawings constitutes the preferred form or embodiment of the invention. It is adapted for use in connection with a floor slab 10 and a wall slab 11 and serves, as described hereafter more in detail, to hold the wall slab 11 in an upright position next to the floor slab while it is being secured in place in connection with the construction or formation of a concrete building. The floor slab 10 is shown as resting on a fill or foundation 12 at the site where the building is to be erected. It is contemplated that in connection with fabrication of the building a rectangular horizontally extending frame (not shown) will be placed on the fill 12. After the frame is suitably secured or anchored in place concrete in plastic form is poured into the bottom portion of the frame interior in order to form the floor slab 10. After pouring of the concrete for such slab a film or layer of nonadhesive material is applied to the top surface of the concrete. Thereafter concrete is poured into the upper portion of the frame interior in order to form the wall slab 11. Directly after pouring the concrete for the wall slab four bracket-like attaching members 13 are embedded in the corner portions of the upper surface of the wall slab. After hardening or setting of the concrete for the two slabs the wall slab is connected by way of a harness 14 to a cable supported hook equipped block 15 on a crane or other hoisting mechanism (not shown). As shown in Figure 1, the harness 14 comprises a rigid horizontally extending harness member 16 and a pair of depending cables 17 at the ends of the member. The harness member 16 is provided with a cable arrangement 18 whereby it is connected to the hook on the block 15. The central portions of the cables 17 extend around depending sheaves 19 on the ends of the harness member 16 and the ends of such cables are provided with eye-bolts or clevises 20 whereby they may be connected to the bracket-like attaching members 13 on the corner portions of the wall slab 11. After the wall slab 11 is attached to the hook equipped block 15 by the hardness 14 it is first lifted by the aforementioned crane or other hoisting mechanism and then tilted into a substantially vertical position. After the tilting operation the wall slab is manipulated so as to position its bottom marginal portion in abutting relation with one of the side marginal portions of the floor slab, as shown in Figure 1 of the drawings. The wall slab 11 is provided with an anchoring device 21 and the floor slab 10 is provided with an anchoring device 22. The anchoring device 21 comprises a nut-like member 23 and a lag screw 24 and is located at the upper portion of the wall slab when the latter is in its wall forming position. The nut-like member 23 is in the form of a wire helix. It is embedded in the wall slab directly inwards of the latter's inner surface and embodies a plurality of L-shaped heavy wire legs 25 whereby it is maintained in firmly interlocked relation with the concrete in which it is embedded. The lag screw 24 is arranged so that the threaded shank thereof is in screw threaded relation with the interior of the nutlike member 23 and its head is disposed a small distance away from the inner surface of the wall slab 11. It is contemplated that the nut-like member 23 of the anchoring device 21 will be embedded in the wall slab at the time the concrete for the latter is poured and that the lag screw 24 will be connected to the nut-like member 23 after the wall slab is manipulated into its upstanding position as hereinbefore described. The anchoring device 22 comprises a nut-like member 26 and a lag screw 27 and is located at the central portion of the floor slab 10 and in substantially the same vertical plane as the anchoring device 21. The nut-like member 26 is in the form of a wire helix. It is embedded in the floor slab directly beneath the top surface thereof and embodies a plurality of irregularly shaped heavy wire legs 28 whereby it is maintained in firmly interlocked relation with the concrete in which it is embedded. The lag screw 27 is arranged so that the threaded shank thereof is in screw threaded relation with the interior of the nut-like member 26 and its head is disposed a small distance above the top surface of the floor slab 10. It is contemplated that the nut-like member 26 of the anchoring device 22 will be embedded in the floor slab at the time the concrete for the latter is poured and that the lag screw 27 will be connected to the nut-like member 26 after the wall slab 11 is manipulated into its upstanding position.

The brace is of unitary character and as its main components or parts comprises a wall slab engaging bracket 29, a floor slab engaging bracket 30, an inclined or diagonally disposed strut 31 between the two brackets and an adjustable connection 32 between the bracket 30 and the lower end of the strut 31.

The wall slab engaging bracket 29 is formed of steel or other suitable metal and comprises a flat rectangular vertically extending part 33 and a flat rectangular vertically extending part 34 at right angles to the part 33. The last mentioned part is adapted to fit flatly against the inner surface of the wall slab 11 and has in the upper portion of one side margin thereof a horizontally extending notch 35 for receiving the head-equipped end of the shank of the lag screw 24, as best shown in Figure 6. The part 34 of the bracket 29 is connected to, and formed integrally with, the other side margin of the part 33. It projects away from the wall slab when the bracket 29 is in its operative position and embodies in its lower portion a hole 36. The latter, as shown in Figures 2 and 3, is disposed beneath the notch 35 in the bracket part 33. In connection with use of the brace after the wall slab is initially manipulated into place by the crane or other hoisting mechanism, the lag screw 24 of the anchoring device 21 is turned so as to shift it out-

wards to a limited extent with respect to the nut-like member 23. Thereafter the part 33 of the bracket 29 is placed against the inner surface of the wall slab 11 and is slid laterally until the head-equipped end of the shank of the lag screw 24 is seated in the notch 35. Thereafter the lag screw 24 is tightened until the bracket 29 is firmly clamped against the inner surface of the wall slab. The anchoring device 21 constitutes means for detachably clamping or securing the bracket 29 against the inner surface of the wall slab.

The floor slab engaging bracket 30 is formed of steel or other suitable metal and consists of a rectangular bottom member 37, a pair of spaced apart upwardly inclined side members 38 at opposite sides of the bottom member, and a collar 39. The bottom member 37 is of plate-like character and is adapted when in its operative position and viewed from above to extend at right angles to the wall slab 11 and has in the end portion thereof that is nearer to the wall slab a laterally extending notch 40 for receiving the head-equipped end of the lag screw 27 of the anchoring device 22. In connection with use of the brace the lag screw 27 is loosened to a small extent and then the bottom member 37 of the bracket 30, after being placed on the top surface of the floor slab 10, is manipulated and shifted laterally in order to bring the head-equipped end of the lag screw 27 into seated relation with the notch 40. Thereafter the lag screw is tightened in order firmly to clamp the bottom member 37 of the bracket 30 against the top surface of the floor slab. The anchoring device 22 constitutes means for detachably securing or clamping the bracket 30 to the top surface of the floor slab. The spaced apart side members 38 of the floor slab engaging bracket 30 are of strip-like character and are upwardly inclined in a direction away from the wall slab engaging bracket 29. The lower ends of the side members fit against, and are welded to, the end portions of the side edges of the bottom member 37 that are remote from the laterally extending notch 40. The upper ends of the side members 38 are provided with aligned or coaxial transversely extending holes 41. The collar 39 is disposed between the upper ends of the side members 38 and embodies at the sides thereof integral outwardly extending coaxial trunnions 42 which are journalled in the holes 41 and support the collar so that it is capable of tilting back and forth about a horizontal axis.

The strut 31 is upwardly inclined in the direction of the wall slab 11 when the brace is in its operative position and comprises a pair of coextensive side by side but laterally spaced wooden bars 43. The latter are preferably in the form of 2 x 4's and are maintained in spaced apart relation by way of a series of equidistantly spaced wooden spacer strips 44 between the central portions of the inner or opposed side surfaces of the bars. Horizontally extending nut equipped bolts 45 extend through aligned transverse holes 46 in the bars 43 and serve to hold the bars in connected relation. In addition to the wooden bars 43 the strut 31 comprises an elongated metallic plate 47. One end portion of this plate fits between the upper ends of the bars 43 and is secured in place by way of the two uppermost bolts 45. The central portions of the shanks of such bolts extend through holes 48 in said one end portion of the plate 47. The other end portion of the plate projects beyond the end surfaces of the bars 43, fits against the lower portion of the part 34 of the wall slab engaging bracket 29 and

is provided with a transverse circular hole 49 which is the same in size as, and registers with, the hole 36 in the bracket part 34. A pivot element 50 extends through the holes 36 and 49 and serves so to connect the bracket 29 and the upper end of the strut as to permit the latter to tilt relatively to one another in a vertical plane. Preferably the pivot element 50 is in the form of a rivet in order that it remains permanently in place. The end portion of the plate 47 that is clamped between the upper ends of the wooden bars 43 of the strut has the bottom edge thereof welded to the central portion of a transversely extending metallic strip 51. As shown in Figure 5, the end portions of the strip 51 underlie the upper ends of the bars 43. Two nut equipped bolts 52 extend through holes 53 in the upper ends of the bars 43 and holes 54 in the end portions of the strip 51 and serve to hold said upper ends of the bars and the end portions of the strip in clamped relation.

The adjustable connection 32 of the brace comprises an elongated externally threaded element 55 and a pair of wing nuts 56 and 57. The element 55 is preferably in the form of a metallic tube and is connected to the lower end of the strut 31 by a metallic plate structure 58. It is disposed in parallel relation with the strut and extends slidably through the tiltable collar 39. The metallic plate structure 58 is of unitary character and consists of a transversely extending plate 59, a longitudinally extending plate 60 and a transversely extending plate 61. The The transversely extending plate 59 is welded to the upper end of the externally threaded element 55 and abuts directly against the lower end surfaces of the wooden bars 43. The longitudinally extending plate 60 fits between the lower ends of the bars 43 and has the lower end portion thereof welded to the central portion of the transversely extending plate 59. The two lowermost bolts 45 extend through holes 62 in the longitudinally extending plate 60 and serve to hold the plate structure 58 in connected relation with the lower ends of the wooden bars 43. The transversely extending plate 61 underlies the lower ends of the bars 43 and has its central portion welded to the central portion of the lower edge of the longitudinally extending plate 60. Nut equipped bolts 63 extend through holes 64 in the lower ends of the bars 43 and holes 65 in the end portions of the transversely extending plate 61 and coact with the two lowermost bolts 45 fixedly to connect the plate structure 58 to the lower end of the strut 31. The wing nuts 56 and 57 are mounted rotatably on the externally threaded element 55 and are positioned at opposite sides of the tiltable collar 39. The nut 56 is located on the upper side of the collar and consists of a wire helix 66 and four L-shaped wings 67. The wings 67 are disposed 90° apart. They are preferably formed of metallic rods and consist of parts 68 and right angle handle forming parts 69. The parts 68 of the wings extend lengthwise of the wire helix 66 and are welded to the outer periphery thereof. The right angle handle forming parts 69 are connected to, and extend outwards from, the upper ends of the parts 68. The inner periphery of the wire helix 66 forms an internal screw thread which is in threaded relation with the external screw thread on the elongated element 55. When the wing nut 56 is turned so that it feeds downwards with respect to the element 55 it operates to slide the strut 31 upwards in a direction lengthwise of

the strut. The nut 57 is located on the lower side of the collar 39 and consists of a wire helix 70 and four L-shaped wings 71. The wings 71 are disposed 90° apart. They are preferably formed of metallic rods and consist of parts 72 and right angle handle forming parts 73. The parts 72 of the wings 71 extend lengthwise of the wire helix 70 and are welded to the outer periphery thereof. The right angle handle forming parts 73 are connected to, and extend outwards from, the lower ends of the parts 72. The inner periphery of the wire helix 70 forms an internal screw thread which is in threaded relation with the external screw thread on the elongated element 55. When the wing nut 57 is turned so that it feeds upwards with respect to the element 55 it operates to slide the strut 31 downwards in a direction lengthwise of the strut.

When, after manipulation of the wall slab 11 into the position shown in Figure 1 of the drawings, it is desired to use the brace the bracket 29 is connected to the anchoring device 21 and the bracket 30 is connected to the anchoring device 22 as heretofore described. As soon as the lag screws 24 and 27 are tightened the brace holds the wall slab 11 in fixed relation with the floor slab 10. If it is desired, as a preliminary to permanently securing the wall slab in place, to tilt the wall slab outwards, the wing nut 57 is first loosened and thereafter the wing nut 56 is turned so as to feed it downward with respect to the externally threaded element 55. Such turning movement on the part of the wing nut 56 results in the strut 31 sliding upwards and effecting outward tilting of the wall slab. As soon as the wall slab is tilted outwards to the desired extent the wing nut 57 is tightened against the lower side of the collar 39 in order positively but releasably to lock the strut in place. In the event it is desired to tilt or swing the wall slab inwards the wing nut 56 is loosened and the wing nut 57 is turned in such direction as to cause it to feed upwards with respect to the externally threaded element 55. Such turning movement on the part of the wing nut 57 results in the strut 31 sliding downwards and effecting inward tilting of the wall slab. As soon as the wall slab is tilted inwards to the desired extent the wing nut 56 is tightened against the upper side of the collar 39 so that it serves with the wing nut 57 securely but releasably to lock the strut against longitudinal displacement or movement. In connection with sliding movement of the strut by turning of the wing nuts the pivot element 50 permits the upper end of the strut to tilt relatively to the wall slab engaging bracket 29 and the collar 39 permits the lower end of the strut to tilt vertically relatively to the floor slab engaging bracket 30.

The herein described adjustable brace effectively and efficiently fulfills its intended purpose and, due to its particular construction, may be fabricated or produced at a comparatively low cost. It is both strong and durable and may be adjusted with facility due to the specific construction and design of the adjustable connection 32 consisting of the elongated externally threaded element 55 and the wing nuts 56 and 57.

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. As a new article of manufacture, an adjustable brace adapted, after a wall slab is placed next to a floor slab in connection with the construction of a concrete building, to hold the wall slab in position while it is being secured in place and comprising a first bracket provided with means for detachably securing it to the inner surface of the wall slab at a location above the floor slab, a second bracket provided with means for detachably securing it to the top surface of the floor slab at a location away from the wall slab and embodying a collar mounted to tilt freely about a horizontal axis, a rigid upwardly inclined strut having horizontal pivot means between its upper end and the first bracket whereby it and said first bracket are free to tilt relatively to one another in a vertical plane, and an adjustable connection extending between the second bracket and the lower end of the strut and consisting of an elongated upwardly inclined externally threaded element extending through the collar, disposed in parallel relation with the strut, and having the upper end thereof connected fixedly to the lower end of the strut, and nut means mounted rotatably on the element and arranged in coacting relation with the collar, said connection being adapted when the nut means is turned in one direction so to coact with the collar as positively to slide the element and strut longitudinally in one direction with respect to the second bracket and when the nut means is turned in the opposite direction so to coact with said collar as positively to slide the element and strut longitudinally in the opposite direction with respect to said second bracket.

2. As a new article of manufacture, an adjustable brace adapted, after a wall slab is placed next to a floor slab in connection with the construction of a concrete building, to hold the wall slab in position while it is being secured in place and comprising a first bracket provided with means for detachably securing it to the inner surface of the wall slab at a location above the floor slab, a second bracket provided with means for detachably securing it to the top surface of the floor slab at a location away from the wall slab and embodying a collar mounted to tilt freely about a horizontal axis, a straight rigid upwardly inclined strut having horizontal pivot means between its upper end and the first bracket whereby it and said first bracket are free to tilt relatively to one another in a vertical plane, and an adjustable connection extending between the second bracket and the lower end of the strut and consisting of an elongated upwardly inclined externally threaded element extending slidably through the collar, disposed in parallel relation with the strut, and having the upper end thereof connected fixedly to the lower end of the strut, and a pair of wing nuts mounted rotatably on the element and disposed on opposite sides of the collar, said connection being adapted when one of the nuts is tightened against the collar after loosening of the other nut positively to slide the element and strut longitudinally in one direction with respect to the second bracket and when the other nut is tightened against the collar after loosening of said one nut positively to slide the element and strut longitudinally in the opposite direction with respect to said collar.

3. As a new article of manufacture, an adjustable brace adapted, after a wall slab is placed

next to a floor slab in connection with the construction of a concrete building, to hold the wall slab in position while it is being secured in place and comprising a first bracket provided with means for detachably securing it to the inner surface of the wall slab at a location above the floor slab, a second bracket provided with means for detachably securing it to the top surface of the floor slab at a location away from the wall slab and consisting of a bottom member, a pair of spaced apart upwardly extending side members with aligned holes at their upper ends and a collar disposed between the side members and having at the sides thereof horizontal trunnions journalled in said holes and serving to support the collar so that it is free to tilt about a horizontal axis, a rigid upwardly inclined strut having horizontal pivot means between its upper end and the first bracket whereby it and said first bracket are free to tilt relatively to one another in a vertical plane, and an adjustable connection extending between the second bracket and the lower end of the strut and consisting of an elongated upwardly inclined externally threaded element extending through the collar, disposed in parallel relation with the strut and having the upper end thereof connected fixedly to the lower end of said strut, and nut means mounted rotatably on the element and arranged in coacting relation with the collar, said connection being adapted when the nut means is turned in one direction so to coact with the collar as positively to slide the element and strut longitudinally in one direction with respect to the second bracket and when the nut means is turned in the opposite direction so to coact with the collar as positively to slide the element and strut longitudinally in the opposite direction with respect to said second bracket.

4. As a new article of manufacture, an adjustable brace adapted, after a wall slab is placed next to a floor slab in connection with the construction of a concrete building, to hold the wall slab in position while it is being secured in place and comprising a first bracket provided with means for detachably securing it to the inner surface of the wall slab at a location above the floor slab, a second bracket provided with means for detachably securing it to the top surface of the floor slab at a location away from the wall slab and consisting of a bottom member, a pair of spaced apart upwardly extending side members with aligned holes at their upper ends and a collar disposed between the side members and having at the sides thereof horizontal trunnions journalled in said holes and serving to support the collar so that it is free to tilt about a horizontal axis, a rigid upwardly inclined strut having horizontal pivot means between its upper end and the first bracket whereby it and said first bracket are free to tilt relatively to one another in a vertical plane, and an adjustable connection extending between the second bracket and the lower end of the strut, consisting of an elongated upwardly inclined externally threaded element extending slidably through the collar, disposed in parallel relation with the strut, and having the upper end thereof connected fixedly to the lower end of the strut, and a pair of wing nuts mounted rotatably on the element, disposed on opposite sides of the collar and consisting of wire helixes and L-shaped wings fixed to the other peripheries of the helixes, said connection being adapted when one of the nuts is tightened against the collar after loosening of the other nut positively to slide the element and strut longitudinally in one direction with respect to the second bracket and when the other nut is tightened against the collar after loosening of said one nut positively to slide the element and strut longitudinally in the opposite direction with respect to said second bracket.

5. As a new article of manufacture, an adjustable brace adapted, after a wall slab is placed next to a floor slab in connection with the construction of a concrete building, to hold the wall slab in position while it is being secured in place and comprising a first bracket provided with means for detachably securing it to the inner surface of the wall slab at a location above the floor slab, and embodying a part extending inwards at right angles to the wall slab, a second bracket provided with means for detachably securing it to the top surface of the floor slab at a location away from the wall slab and embodying a collar mounted to tilt freely about a horizontal axis, a rigid upwardly inclined strut comprising a pair of side by side spaced apart bars and an elongated plate having one end portion thereof clamped between the upper ends of the bars and its other end portion projecting thereabove, a horizontal pivot element extending transversely through said part of the first bracket and said other end portion of the plate and forming a pivotal connection whereby said first bracket and the upper end of the strut are permitted to tilt relatively to one another in a vertical plane, and an adjustable connection extending between the second bracket and the lower end of the strut, consisting of an elongated upwardly inclined externally threaded element extending through the collar disposed in parallel relation with the strut and having the upper end thereof connected fixedly to the lower end of the strut, and nut means mounted rotatably on the element and arranged in coacting relation with the collar said connection being adapted when the nut means is turned in one direction so to coact with the collar as positively to slide the element and strut longitudinally in one direction with respect to the second bracket and when the nut means is turned in the opposite direction so to coact with said collar as positively to slide the element and strut longitudinally in the opposite direction with respect to said second bracket.

6. As a new article of manufacture, an adjustable brace adapted, after a wall slab is placed next to a floor slab in connection with the construction of a concrete building, to hold the wall slab in position while it is being secured in place and comprising a first bracket provided with means for detachably securing it to the inner surface of the wall slab at a location above the floor slab, a second bracket provided with means for detachably securing it to the top surface of the floor slab at a location away from the wall slab and embodying a collar mounted to tilt freely about a horizontal axis, a rigid upwardly inclined strut having horizontal pivot means between its upper end and the first bracket whereby it and said first bracket are free to tilt relatively to one another in a vertical plane and comprising a pair of side by side spaced apart bars, and an adjustable connection extending between the second bracket and the lower end of the strut, consisting of an elongated upwardly inclined externally threaded element extending through the collar and provided at its upper end with a longitudinally extending plate fitting between, and in clamped relation with, the lower ends of the bars, and nut means mounted rotatably on the ele-

ment and arranged in coacting relation with the collar, said connection being adapted when the nut means is turned in one direction so to coact with the collar as positively to slide the element and strut longitudinally in one direction with respect to the second bracket and when the nut means is turned in the opposite direction so to coact with the collar as positively to slide the element and strut longitudinally in the opposite direction with respect to said second bracket.

7. As a new article of manufacture, an adjustable brace adapted, after a wall slab is placed next to a floor slab in connection with the construction of a concrete building, to hold the wall slab in position while it is being secured in place and comprising a first bracket provided with means for detachably securing it to the inner surface of the wall slab at a location above the floor slab and embodying a part extending inwards at right angles to the wall slab, a second bracket provided with means for detachably securing it to the top surface of the floor slab at a location away from the wall slab and embodying a collar mounted to tilt freely about a horizontal axis, a rigid upwardly extending strut comprising a pair of side by side spaced apart bars and an elongated plate having one end portion thereof clamped between the upper ends of the bars and its other end projecting therebeyond, a horizontal pivot element extending transversely through said part of the first bracket and said other end portion of the plate and forming a pivotal connection whereby said first bracket and the upper end of the strut are permitted to tilt relatively to one another in a vertical plane, and an adjustable connection extending between the second bracket and the lower end of the strut and consisting of an elongated upwardly inclined externally threaded element extending through the collar, disposed in parallel relation with the strut, and provided at its upper end with a longitudinally extending plate fitting between, and in clamped relation with, the lower ends of the bars, and nut means mounted rotatably on the element and arranged in coacting relation with the collar, said adjustable connection being adapted when the nut means is turned in one direction so to coact with the collar as positively to slide the element and strut longitudinally in one direction with respect to the second bracket and when the nut means is turned in the other direction so to coact with said collar as positively to slide the element and strut longitudinally in the opposite direction with respect to said second bracket.

8. As a new article of manufacture, an adjustable brace adapted, after a wall slab is placed next to a floor slab in connection with the construction of a concrete building, to hold the wall slab in position while it is being secured in place and comprising a first bracket provided with means for detachably securing it to the inner surface of the wall slab at a location above the floor slab and embodying a part extending inwards at right angles to the wall slab, a second bracket provided with means for detachably securing it to the top surface of the floor slab at a location away from the wall slab and consisting of a floor slab engaging bottom member, a pair of spaced apart upwardly extending side members with aligned holes in their upper ends and a collar disposed between the side members and having at the sides thereof horizontal trunnions journalled in said holes and serving to support the collar so that it is free to tilt about a horizontal axis, a straight rigid upwardly inclined strut comprising a pair of side by side spaced apart bars and an elongated plate having one end portion thereof clamped between the upper ends of the bars and its other end portion projecting therebeyond, a horizontal pivot element extending transversely through said part of the first bracket and said other end portion of the plate and forming a pivotal connection whereby said first bracket and the upper end of the strut are permitted to tilt relatively to one another in a vertical plane, and an adjustable connection extending between the second bracket and the lower end of the strut and consisting of an elongated upwardly inclined externally threaded tubular element extending slidably through the collar and provided at its upper end with a fixed longitudinally extending plate fitting between, and in clamped relation with, the lower ends of the bars, and a pair of wing nuts mounted rotatably on the element, disposed on opposite sides of the collar and consisting of wire helixes and L-shaped wings fixed to the outer peripheries of the helixes, said adjustable connection being adapted when one of the nuts is tightened against the collar after loosening of the other nut positively to slide the element and strut longitudinally in one direction with respect to the second bracket and when the other nut is tightened against the collar after loosening of said one nut positively to slide the element and strut longitudinally in the opposite direction with respect to said second bracket.

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