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J. B. COLLINS.

ADJUSTABLE BRACE.

APPLICATION FILED SEPT. 19, 1907.

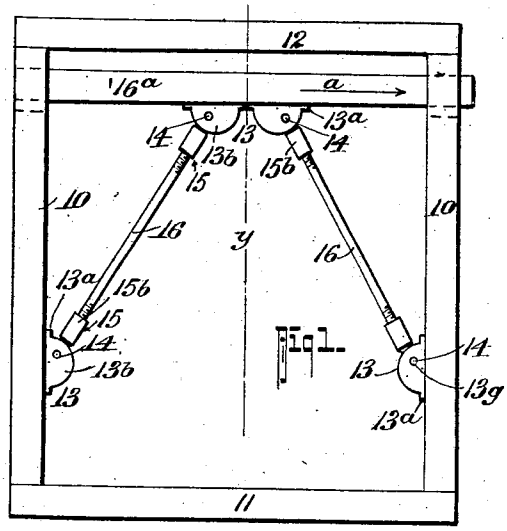


Fig. 1.

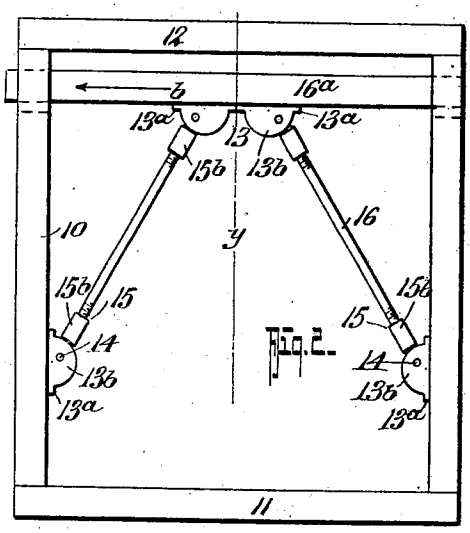


Fig. 2.

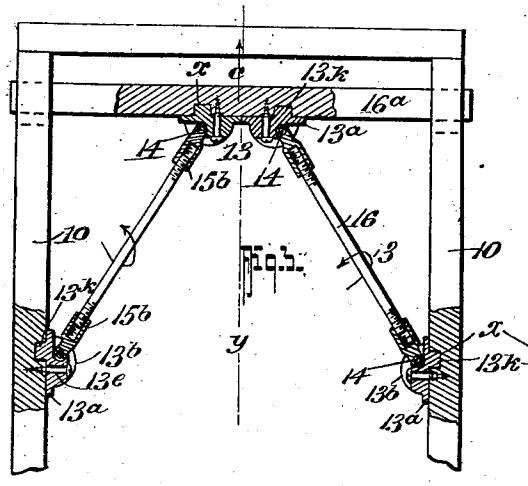


Fig. 3.

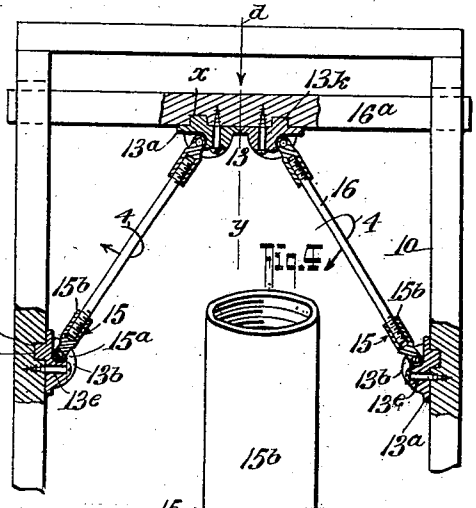


Fig. 4.

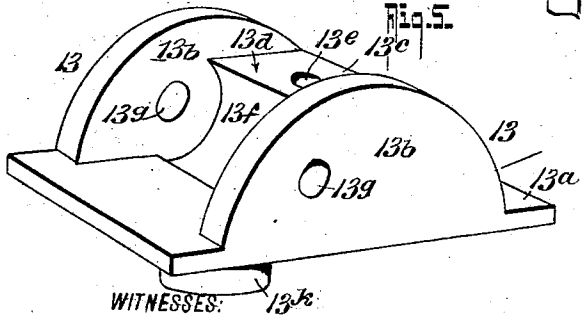


Fig. 5.

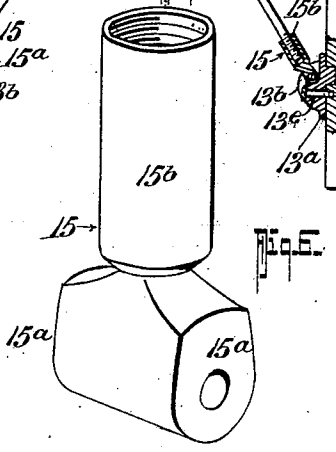


Fig. 6.

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ADJUSTABLE BRACE.

No. 879,524. Specification of Letters Patent. Patented Feb. 18, 1908.

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To all whom it may concern:

Be it known that I, JOHN B. COLLINS, residing at Eros, in the county of Jackson and State of Louisiana, have invented certain new and useful Improvements in Adjustable Braces, of which the following is a specification.

My invention relates to certain new and useful improvements in that class of adjustable braces used for bracing or trussing purposes in building and bridge construction, and in its generic nature my improved construction of brace has its parts so coöperatively designed and correlated whereby to effect a uniform and positive equalization of the pressure or strain of the structure braced or sustained thereby and in which the strain is so transmitted, to provide, as it were, a center bearing.

In its more complete nature, my present invention embodies an improved construction of brace capable of being readily applied at any portion of a building or bridge construction in which a truss or diagonal brace is applicable and in which the parts have such connection as to be readily adjustable to any angle, to varied lengths and to take up the usual contraction and expansion.

More specifically my invention consists in providing a brace having bracket portions, each of which brackets is provided with a lug to project into an aperture in the part to which it is made fast to relieve the strains on the securing screws (which may be entirely omitted, if desired) and also to provide an improved construction of bracket rod.

In the drawings,—Figure 1, is a front elevation of an adjustable brace mechanism which embodies my invention, the parts being set to impart pressure in the direction of the arrow *a*. Fig. 2, is a similar view showing the cross head or movable bar adjusted to another position to impart pressure in the direction of the arrow *b*. Fig. 3, is a vertical longitudinal section of the same, the parts being adjusted to impart a strain or pressure in the direction of the arrow *c*, the direction of movement of the two turn heads or buckles being indicated by the arrow 3, the parts of the framing being shown in elevation. Fig. 4, is a similar view showing the parts adjusted to effect a pressure or strain in the direction of the arrow *d*, the direction of movement of the turn buckles being indicated by the arrows 4. Fig. 5, is a perspective view showing one of the metal bracket parts that receive the heads or fulcrum bearings of the adjustably and removably held extension brace rod, Fig. 6, is a detail view of one of the fulcrum heads of the said bar or rods detached.

In the drawings in which like letters and numerals of reference indicate like parts in all of the figures I have shown a simple form of framing and by reference to the drawings, it will be seen that this framing consists of the end posts 10, the base sill 11 and the cross head or lintel bar 12; but I desire it understood that the precise arrangement of the framing shown is not a required form, as the braces presently described are adapted for use in all types of house or bridge construction where diagonal or truss braces are usually employed.

My present construction of brace rod consists essentially of metal brackets or castings 13, of a special form having a flat base 13^a and ears 13^b spaced apart and connected at one end by a transverse bridge member 13^b having a flat face 13^d lying parallel with the face of the base portion 13^a and in a plane between that containing the base portion and the outer or extreme edges of the ears 13^b. The bridge portion 13^c is apertured as at 13^e to permit passage of a securing screw by means of which the casting 13 may be firmly secured in place, if desired.

The bridge portion 13^c has a semi-circular face 13^f while the ears 13^b are apertured as at 13^g to permit passage of the bolts 14, which pass through the cylindrical bearing portion 15^a of the heads 15 which are fulcrumed between the ears 13^b, as shown. The heads 15 are provided with tubular socket extensions 15^b which are internally threaded to coöperate with the turn buckles or rods 16 as clearly shown in the drawings. The castings 13 have their base portions 13^a provided with lugs 13^k which are adapted to project into apertures *x* in the part to which the casting or bracket 13 is secured.

All of the brackets 13 used in my adjustable brace are of the same form so as to be interchangeable and in assembling the parts of my improved form of brace, I attach a pair of the brackets or castings 13 to the underside of the adjustable cross bar 16^a approximately centrally thereof, and to each of the vertical beams 10 I secure another casting 13. The castings 13 on the same side of

the vertical line y are joined through the medium of the turn buckles or connecting rods 16, as clearly shown in Figs. 1 and 2 of the drawings, the cross bar 16^a as well as the vertical posts 10 being provided with the apertures x to coöperate with the lug 13^k of the respective castings.

The manner in which my invention operates is substantially as follows; if it be desired to utilize my form of brace to take up the strain transmitted from above directly on the cross head or lintel bar 12, the strain is at a point where the two side braces pivotally connect with the cross bar or lintel 12, and from whence the strain is uniformly deflected in a lateral, diagonal and upward direction, and is thereby transmitted to the side beams.

In order to increase the side pressure against the cross bar from below and to cause the brace to act as it were as a jack, it becomes necessary merely to turn the two turn buckles or rods 16 in opposite directions, as indicated by the arrow 3, which causes the rods to become elongated and thereby thrusts the cross bar to exert increased pressure upwardly, it being apparent that irrespective of the lengthening and shortening of the cross bar, the strain on the cross bar or lintel is central, and is transmitted diagonally and in a uniform degree to the beams or studs.

As shown in Fig. 1, to increase the brace or pressure action of the cross bar or lintel in the direction of the arrow in Fig. 1, it is only necessary to shorten the turn buckle or rod at that side to which it is desired to shift or thrust the cross head and to correspondingly lengthen the turn buckle at the opposite side, the reverse adjustment of the brace mentioned being necessary to shift or thrust the strain on the cross bar or head in the opposite direction. To increase or diminish the up-thrust of the cross bar it is only necessary to adjust the length of the brace rods. Heretofore in braces of this type of which I am aware, it has been found in practice that owing to the strains exerted upon the securing screws the same will sooner or later become loose and no longer take hold on the beams, and furthermore when metal beams are used in connection with metal screws, there is a tendency to cause the screws to be sheared off and hence cause a slipping of the parts. In order to obviate these objectionable features, I have provided the brackets of my improved construction with the lugs 13^k to project into apertures in the parts against which the casting is abutted to relieve the strain from the screw and in fact I find that very often the screws may be wholly omitted or only a single screw used, as shown, to prevent turning of the casting on the lug. I have also provided the fulcrum head of the bracket with a tubular internally threaded extention to connect with the turn buckles or rods which are threaded into such extension instead of threading the extension into the turn buckles or rods as by so doing a smaller gage rod may be used with equal facility and thus cheapen the construction of the brace.

From the foregoing description taken in connection with the accompanying drawings it is thought the complete construction operation and advantages of my invention will be readily understood by those skilled in the art to which my invention appertains.

What I claim is:—

In a brace of the character described, a bracket comprising a base portion having a pair of apertured lugs, and a bridge portion connecting said lugs, said bridge portion being provided with a semi-circular seat and a flat face, a fulcrum head pivotally connected between said lugs to coöperate with said seat, a cylindrical lug projecting from one face of said base portion and adapted to enter an aperture in the part to which the base portion is adapted to be secured and to be completely inclosed in said apertured part, said fulcrum head having a tubular internally threaded extension, and said bridge having a screw receiving aperture, substantially as shown and described.

JOHN B. COLLINS.

Witnesses:
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