(No Model.)

# P. J. LOCKWOOD.

## DOOR BRACE OR STAY.

No. 275,832. Patented Apr. 17, 1883.

Fig. 1

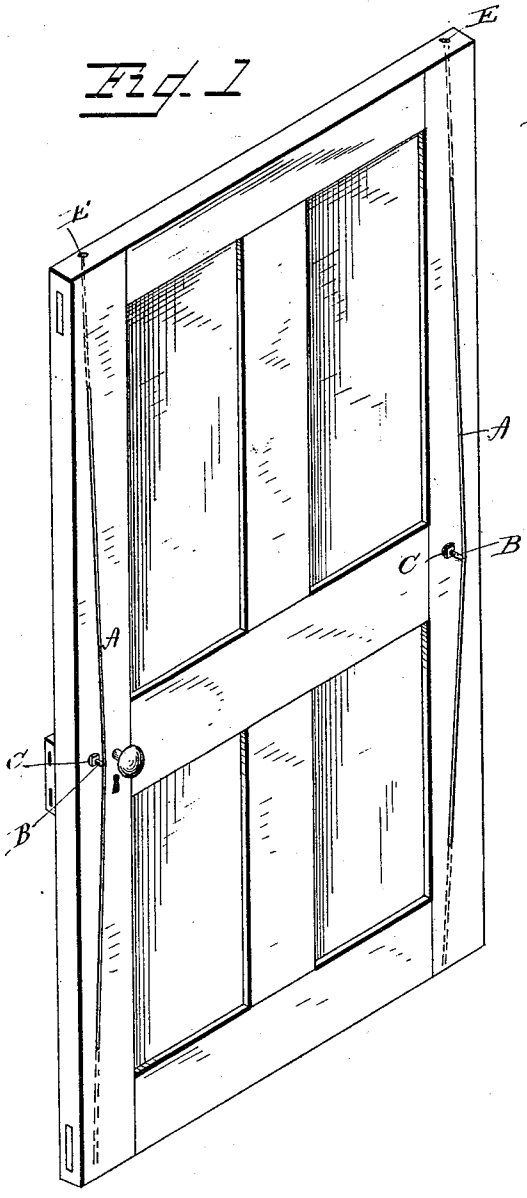
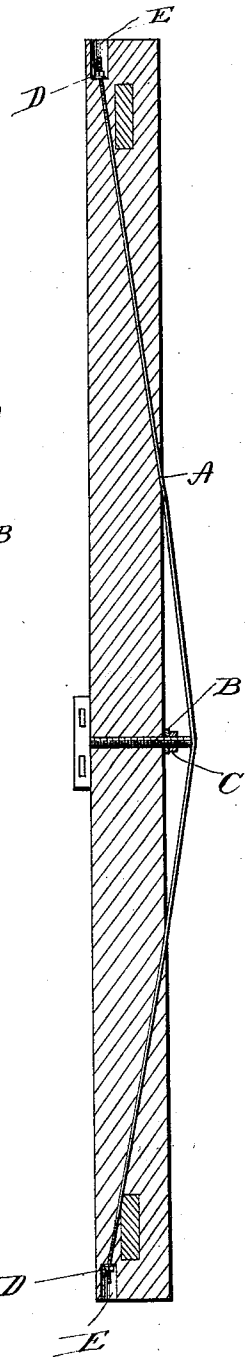



Fig. 2




WITNESSES

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# UNITED STATES PATENT OFFICE.

PHILO J. LOCKWOOD, OF AUBURN, INDIANA.

## DOOR BRACE OR STAY.

SPECIFICATION forming part of Letters Patent No. 275,832, dated April 17, 1883.

Application filed January 31, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, PHILO J. LOCKWOOD, a citizen of the United States of America, residing at Auburn, in the county of De Kalb and State of Indiana, have invented certain new and useful Improvements in Door-Braces, Door-Stays, and Door-Straighteners, likewise applicable to window blinds and shutters, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improved device to be used upon doors, shutters, and window-blinds for the purpose of making them staunch and strong, and to hold them in any desired shape, and to straighten those which are warped and crooked, to which this device may apply. Doors as the same are now constructed and used are liable to warp and spring and yield to slight pressure, and are also subject to warp where one side is subject to greater exposure to damp atmosphere than the other side. This last-named difficulty is more frequently experienced with outside doors to dwellings and store-buildings. Window blinds and shutters are likewise subject to warp, and also to be slammed by the wind and storms, and as a consequence in their present frail structure are broken and shattered. The same difficulty is likewise experienced with screen-doors, which are usually constructed of light timber, and subject to warp and slamming and hard usage.

Now, to overcome these difficulties in warping and springing, and to make the structure of doors, blinds, and shutters when combined with the application of my device more strong and firm than can be otherwise attained, and to straighten warped and crooked doors, blinds, and shutters cheaply and effectually, being the objects of this invention, I will illustrate it by the accompanying drawings.

Figure 1 is a view of a door with this invention applied to one side. Fig. 2 is a view of the edge of a door, with a portion of the edge cut away to show the application of this device as the same is applied to either side or end of a door, blind, or shutter.

Similar letters refer to similar parts throughout the two figures.

A represents a steel rod or wire of any equivalent metallic substance, and of such size as necessity may require, (however, a No. 6 steel wire is sufficiently strong for any ordinary door one and three-eighths inch thick by two feet eight inches wide by six feet eight inches high,) and of a length nearly equal to the length or width of the door or the place to be used may require, with a screw-thread cut upon both ends, (or one end, if desired, to provide a fastening otherwise for the other end of the rod,) which threaded ends are provided with appropriate tap-nuts and washers, as indicated by D D and seen in Fig. 2.

B is an iron tension-pin, and is provided with a screw-thread cut nearly its whole length, with a circular groove cut in the outer end, in which groove-rod A rests. This tension-pin and screw-thread is provided with an appropriate nut and washer, (indicated by C.)

Having thus described the several parts, and now to instruct those skilled how to apply the same, I would direct that a hole be bored downward from the top of the door, near the corners, with, say, a thirteen-sixteenths bit, and as close to, say, the inside of the door as possible, (and not cut away the inner surface of the door with the bit,) to such a depth as will provide a sufficient countersink for the tap-nut and washer D, which hole and countersink are represented in Fig. 2 by E. This hole should be, for neatness and convenience, as near the outer edge of the door as possible and admit the rod A to pass inside of the door jambs or casings when closing the door. When this hole is bored as aforesaid, a similar hole should be bored in the opposite lower corner upward, of the same depth and size, which is also indicated by E in Fig. 2, and then take a small drill-bit of as near the diameter of the rod to be used as possible and bore from the bottom of this countersink in an oblique direction toward the lower opposite side of the door, using, lastly, a bit of the same size as the first drill-bit, but quite extended in length, (the longer the better,) so that the point of the bit may come out as far down as possible on the outside of the door and as near the edge of the door or structure as is consistent with the casings, that the rod may not come in contact with the casing of the door. When this is done, insert the rod and place the washers and tap-nuts thereon, as indicated by D D in Fig. 2, and with a box-wrench turn them up with such

force as will bring the door, blind, or shutter nearly into line, or if in line, and additional strength be the object, then turn them up firmly, and then, at the highest crowning-point, (if the object be to straighten a crooked door, if not, then at the weakest point, near the middle of the rod,) insert the tension-pin by boring a hole of appropriate size and depth in the shutter, door, or blind, with the nut turned as close to the grooved end as possible and with washer under the nut, and then spring the rod from the door and lay it in the groove. Bore and insert as many rods as is desired on the several sides and ends of the door, blind, or shutter in a similar way, and then take a wrench and turn the nuts on the several tension-pins as may be required to straighten or strengthen the structure to which it is applied, projecting the tension-pin as little as is consistent with the desired strength. Usually one-half inch projection is all that is required to either straighten, strengthen, or hold in position any common door or other structure, and by so doing the rod is not forced out in the way of the knob of the door. I do not confine myself, however, to just this mode of making the application of the principles of this device to a door, blind, or shutter—as, for example, when the door or structure is large, instead of boring a hole from the bottom of the countersink, a groove or furrow may be plowed in the door or structure and the rod laid therein, and this furrow filled in on top of the rod when laid with wood or putty, or both, or any other substance. The rods may be provided with swaged ends instead of threads and nuts; or the ends may be passed directly through the doors at the ends and clasped or fastened by any known fastening. Nor do I confine myself to the exact shape of the tension-pin, nor the use of a tension-pin at all, nor the distance from the edges or corners at which the rods are placed, nor the direction at which the rods cross the door or structure.

I am aware that this mode of bracing, staying, and trussing has been long since used in bridges and roof-supports and other structures. I therefore do not claim this general principle of bracing and staying as new; but

What I do claim as new is—

The tension-brace or truss rod or rods, to strengthen, straighten, and hold in shape doors, shutters, and window-blinds, as indicated by A, B, C, D, and E, substantially as shown and set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

PHILO J. LOCKWOOD.

Witnesses:
H. C. HUNTEMANN,
N. E. CHAFFEE.