

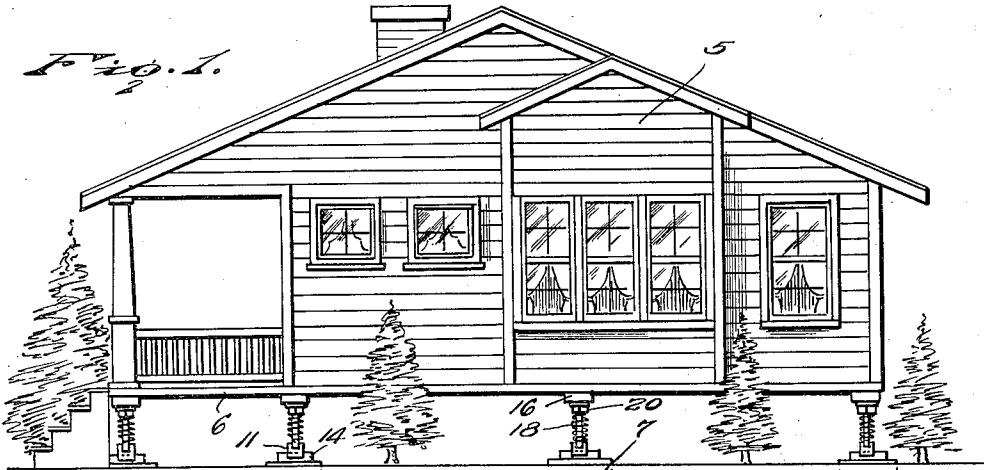
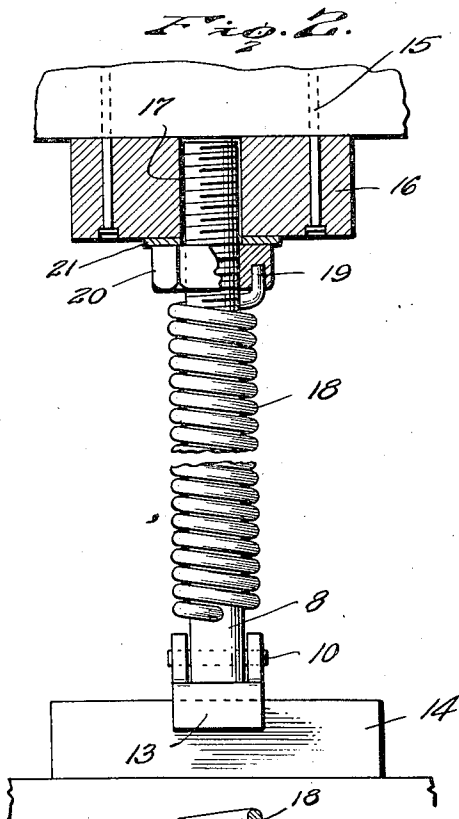
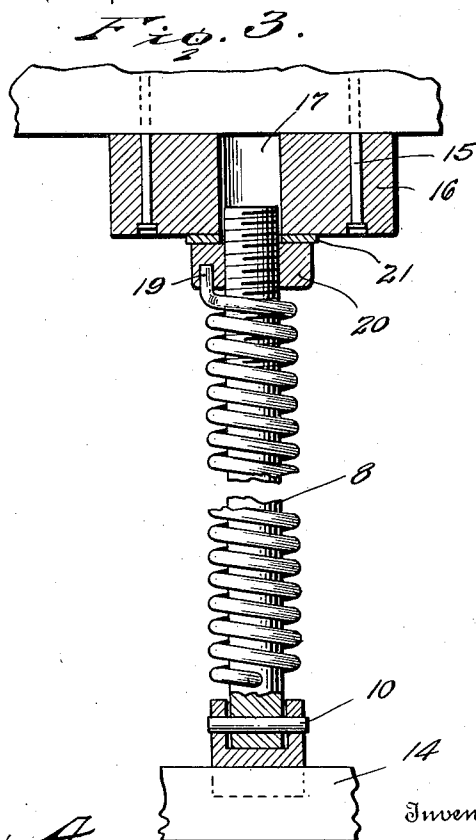
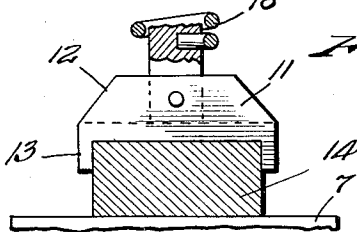
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AUTOMATIC FLOOR JOIST ADJUSTER

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AUTOMATIC FLOOR JOIST ADJUSTER

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4 Claims. (Cl. 254-98)

This invention relates to building construction and more particularly to means for automatically maintaining the floor joists thereof firm and level regardless of the nature of the soil on which the building is erected.

In certain sections of the country, considerable difficulty is experienced in providing a firm foundation or underpinning for dwellings and other buildings due to the instability of the soil which tends to constantly shift or settle beneath the floor joists, thereby causing the joists to sag or break and often rendering the building unsafe for occupancy.

The object of the invention, therefore, is to provide a floor joist adjuster of simple and inexpensive construction adapted to be interposed between a joist and a suitable ground support and which will automatically compensate for settling or shifting of the soil beneath the joist and keep said joist firm, rigid and perfectly level at all times.

A further object is to provide a joist adjuster comprising a threaded rod having a coiled spring mounted thereon and operatively connected with a nut adapted to engage a bearing block on the joist so that, should the foundation soil shift or settle, the spring will expand and automatically force the nut against said bearing block and thus provide a firm underpinning for the building.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

In the accompanying drawing forming a part of this specification and in which similar numerals of reference indicate corresponding parts in all the figures of the drawing,

Figure 1 is a side elevation of a dwelling house showing my improved joist adjuster in position thereon.

Figure 2 is a side elevation partly in section of one of the joist adjusters showing the normal position thereof.

Figure 3 is a similar view showing the action of the coil spring and adjusting nut when the soil shifts or settles.

Figure 4 is a detail side elevation of the base support for the adjusting rod.

The improved joist adjuster forming the subject-matter of the present invention is adapted for application to any type of building and, by way of illustration, is shown in connection with a dwelling house 5 of conventional construction, in which 6 represents the joists and 7 the masonry piers disposed beneath the joists, as shown. The device comprises a rod 8 having its upper end

threaded, at 9, and its lower end fastened by a screw or rivet 10 to a supporting shoe 11. The shoe 11 is provided with upstanding ears 12 through which the rivet 10 passes, said shoe being formed with depending lugs 13 adapted to fit over a brick or other conventional support 14 resting on the adjacent pier 7.

Disposed beneath the joists 6 at predetermined points and fastened thereto by bolts or similar fastening devices 15 are bearing blocks 16, each having an opening 17 formed therein which receives the threaded end of the adjacent bolt 8, the diameter of the opening 17 being such as to permit free rotation of the bolt therein. Surrounding the bolt 8 is a coil spring 18, the lower end of which is fastened to said bolt immediately above the supporting shoe 11, while the upper end of the spring is bent laterally to form an upstanding pin 19 which fits within a correspondingly shaped socket in an adjusting nut 20. A washer 21 is preferably interposed between the nut 20 and the face of the adjacent bearing block 16 so as to prevent excessive wear thereon.

In using the device, an ordinary brick 14 is placed upon the masonry pier 7 and the supporting shoe 11 positioned thereon with the lugs 13 engaging the opposite faces of the brick and with the threaded end of the rod 8 extended within the opening 17 of the bearing block 16, as best shown in Figure 2 of the drawing. Under normal conditions, the nut 20 will bear against the washer 21 and thus form a firm support or underpinning for the joists. Should the soil beneath the joists or adjacent the masonry pier 7 shift or settle, however, the spring 18 will expand and automatically rotate the nut 20 so as to hold the nut firmly against the bearing block 16 and thus maintain the joists firm, rigid and level regardless of the shifting of the soil beneath said joists. In other words, the bolt, nut and spring constitute a means for automatically compensating for shifting or settling of the soil so that, irrespective of soil conditions, the joists of a house will be firmly held in a horizontal position at all times and liability of sagging and breaking of said joists effectually obviated.

It will, of course, be understood that as many of the floor adjusters may be employed as is found desirable or necessary and that they may be arranged at any desired intervals in the length of the joists. It will also be understood that the masonry piers are not absolutely necessary as any other desired support for the supporting shoes may be employed if desired. It will, furthermore, be understood that the adjusting de-

vices may be made in different sizes and shapes according to the use to which they are put. While the adjuster is particularly designed for use on the joists of buildings, it will, of course, be understood that said adjuster may be used with equally good results for shoring up mine shafts, tunnels and the like and for various other purposes without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new is:

1. The combination with a floor joist and support, of a bearing block secured to the joist and provided with an opening, a rod interposed vertically between the support and bearing block and loosely fitted in said opening, a base for said rod engaging the support to prevent turning of the rod, a nut threaded on the rod and engaging the bearing block, and a coil spring operatively connected with the rod and nut respectively for automatically rotating the nut in engagement with the bearing block upon downward displacement of the support.

2. The combination with a floor joist and support, of a bearing block secured to the joist and having an opening therein, a shoe engaging the support, a vertically disposed threaded rod having the lower end thereof secured to the shoe and its upper end extended within the opening in the bearing block, a nut engaging the threads on the rod and normally engaging the under face of the bearing block, and a coil spring encircling the rod and having one end thereof secured to said rod and its other end engaging the nut for automatically rotating the nut to

hold it in contact with the bearing block upon displacement of the support.

3. The combination with a floor joist and support, of a bearing block secured to the joist and having an opening therein, a shoe fitted to the support to prevent turning of the shoe upon the support, the shoe being provided with upstanding ears, a rod having its lower end secured between said ears and its upper end threaded and slidably mounted in the opening in the bearing block, a nut engaging the threads on the rod, a washer interposed between the nut and bearing block, and a coil spring having one end thereof secured to the rod and its other end fastened to the nut for automatically rotating the nut in engagement with the washer upon displacement of the support.

4. A floor adjuster comprising a supporting shoe having upstanding ears and depending retaining lugs adapted to engage side faces of a suitable support and prevent turning of the shoe upon the support, a bearing block adapted to be secured to a joist and having an opening therein, a rod having its lower end fastened between the ears of the shoe and its upper end threaded and slidably mounted in the opening in the bearing block, a nut threaded on the rod for engaging the under face of the bearing block, and a coil spring surrounding the rod and having one end thereof secured to said rod and its other end seated in an opening in the nut for rotating said nut against the bearing block upon expansion of the spring.

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