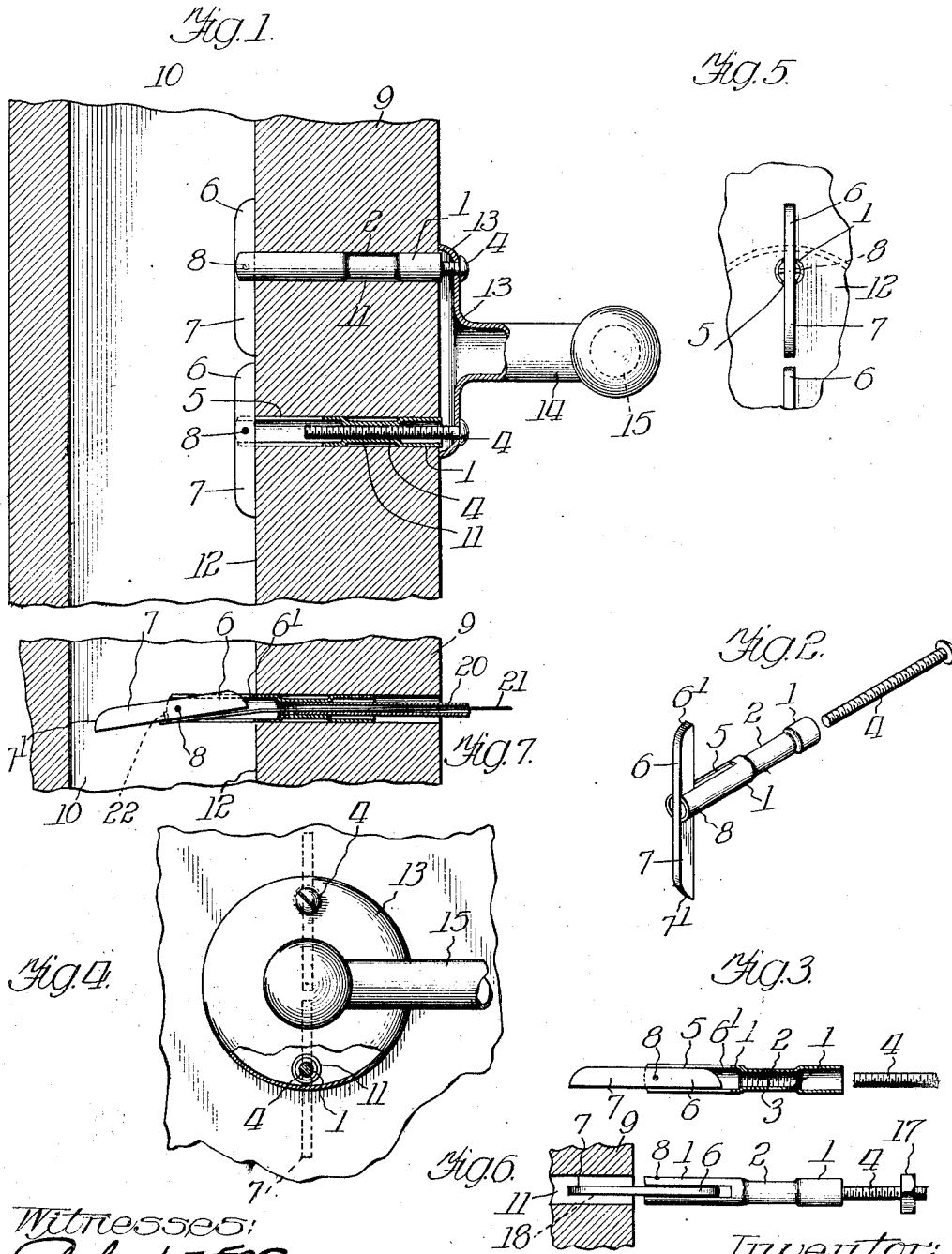


E. C. SMITH.
ANCHORING DEVICE OR BOLT.
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Patented Sept. 19, 1911.



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UNITED STATES PATENT OFFICE.

EDWARD C. SMITH, OF CHICAGO, ILLINOIS.

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Specification of Letters Patent. Patented Sept. 19, 1911.

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To all whom it may concern:

Be it known that I, EDWARD C. SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Anchoring Devices or Bolts, of which the following is a description.

My invention belongs to that general class of devices known as anchoring devices, or what are commonly called "toggle bolts" for anchoring bolts or screws in walls or the like, where the nature of the material of which the wall is made is such that it will not permit the bolt or screw to take a firm or secure hold, for illustration, where the walls are made of a composition of material or plaster, etc., that will easily crumble or break, it is difficult to satisfactorily secure fixtures thereto unless the bolts or screws are provided with means for engaging the wall. This is particularly true in the case where tile or hollow blocks or slabs are used or what is known as "wire plaster." In many places it is impossible, or inconvenient, to work at the back or inner face of the wall, so that means are employed that may be passed through the bolt or screw hole and engage one of the inner faces. Most of these appliances require a very large hole as compared with the bolt diameter.

My invention has among its objects the production of a small, simple, compact, convenient, efficient and satisfactory device of the kind described, that will pass through a comparatively small hole and afford a firm and permanent anchor for the bolt or screw. By the employment of my device it is necessary to make the opening through the wall only a trifle larger than the size of the bolt, a feature that is most important where the fixture to be secured has a narrow flange or where the screw holes are placed near the edge of the fixture or flange thereon. The device as preferably constructed may also be very readily removed from the hole without enlargement of the same or disfigurement of the wall.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding

parts: Figure 1 is a sectional view of a portion of a wall and the space back of the same, showing the device in use. Fig. 2 is a perspective view of my preferred form of device and the screw. Fig. 3 is a longitudinal sectional view in part of the same. Fig. 4 is a front elevation of a portion of a fixture and wall, parts of the same being broken away. Fig. 5 is a view in elevation of the inner face of the wall. Fig. 6 illustrates the manner of positioning the device in use. Fig. 7 illustrates the manner of removing the device.

Referring to the drawings, in which my preferred form of device is shown, 1 represents a member which is preferably tubular and cylindrical in form, provided with threads on the interior thereof for engagement with a bolt or screw 4. It is unnecessary to thread the member 1 throughout its length, and I therefore preferably contract the same in diameter throughout a portion of its length, as indicated at 2, and thread the same at the contracted portion, as shown at 3. The member 1 may be of any desired length and of any suitable material. At one end I provide a bar 6—7, which is pivotally secured by a pin 8, or its equivalent, on the interior of the tubular member 1, which is slotted on one or both sides as at 5. The bar 6—7 is preferably made with one end 7 a trifle longer than the other end 6, so that the force of gravity will tend to draw the bar down to operative position. It will be particularly noted that the member or bar 6—7 is of less width and thickness and greater length than the diameter of the tubular member 1, so that it does not extend beyond the same when in folded position, as shown in Figs. 3 or 6.

In Fig. 1, I show two toggle bolts for securing the fixture 14—15, provided with a flange 13 to the wall 9, which has a space 10 in back of the same. In use the holes 11 are drilled or bored through the wall 9, the holes being of such size that the tubular members will just pass through. The members are then preferably turned as shown in Fig. 6, and passed through the holes a sufficient distance to permit the end 6 to swing clear when the members are turned substantially as shown in Fig. 3. As soon as they are dropped into position to engage the inner face of the wall 9, the members 1 may be drawn outwardly, bringing the bar 6—7 against the inner face of the wall. If de-

sired, the foregoing ends may be formed and the bar 6—7 be of sufficient width so that the bar is frictionally held in any position. In this case if a screw or bolt of sufficient length is screwed against the curved or beveled end 6¹, it will open the bar, after which the bolt may be drawn into operative holding position. The members 1 may be of sufficient length to extend flush, or slightly beyond the outer face of the wall 9, as shown in Fig. 1. In cases where the wall is of greater thickness than the members 1, it is not necessary to have them extend to the face, as, for example, referring to Fig. 6, they might reach only to the dotted line 18. This is shown merely as an illustration, it being obvious that their position will depend upon the wall on which the bolts are used.

The bolts 4 may be passed through the holes in the flanges 13, either before or after the tubular members 1 and bars 6—7 have been arranged in position. The bolts may be in the form of bolts or screws, the head either being formed integrally, or, for example, in the form of a nut 17, as shown in Fig. 6, and washers or their equivalents may be employed as desired. Hence I do not wish to be understood as limiting myself to any particular form of bolt or screw or fixture.

In Fig. 7 I illustrate how the device may be removed when desired. Referring to the figure, the part 1 is pushed back until the bar 6—7 will clear the wall in folding, after which a wire 21, or its equivalent, may be inserted through the member 1 to fold the bar. In case it is not entirely folded, for example as shown in Fig. 7, the wall will engage the beveled or cam shaped end and entirely close or fold the device in removing. The wire may be provided with a hooked end 22 (see dotted lines in Fig. 7) so as to engage the end of the member 1, so that upon drawing the wire 21 outward the device is drawn through the hole 11. If desired the hollow tube 20 (see Fig. 7) may be provided and threaded to engage the threads on the interior of the tube. By means of this tube 20 the wire may be used to fold the bar as before described, the tube affording means for engaging and withdrawing the device.

As before mentioned, the device may be used wherever found applicable, but it is particularly convenient in securing fixtures, boxes, shelves, brackets, telephones, etc., in position on walls or ceilings, particularly when composed of a material of the character described. By making same in the form shown, it is very compact and requires a

hole of minimum size to insert or withdraw the device, thereby avoiding large holes and the necessity of plastering or putting around the screws or fixture flange, or boring a hole that will extend beyond the flange of the fixtures.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention. Hence I do not wish to be understood as limiting myself to the exact form, arrangement, construction or combination of parts herein shown and described or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:—

1. A device of the kind described, comprising an internally threaded tubular member, having a longitudinal slot on each side at one end thereof, a bar and means for pivotally securing said bar between its ends in said slot, said bar being of less thickness and width than the diameter of said tubular member and said tubular member having a passageway from end to end thereof for the insertion of an operating tool.

2. A device of the kind described, comprising a tubular member contracted in diameter throughout a portion of its length, and internally threaded at said contracted portion, said member slotted at one end on one side thereof, a bar arranged in said slotted end, and means for pivotally securing the bar thereto, said bar of a less thickness and width and greater length than the diameter of said tubular member.

3. In a device of the kind described, and in combination, a bolt and a member therefor, said member comprising a tubular member contracted in diameter throughout a portion of its length and internally threaded at said contracted portion and slotted at its outer end, a bar positioned in said slot, and means for pivotally securing the said bar thereto.

4. A device of the kind described, comprising a tubular member contracted in diameter throughout a portion of its length, said member being slotted at one end on one side thereof, a bar pivotally mounted in said slotted end, and operating means engaging said member at the contracted portion thereof.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD C. SMITH.

Witnesses:

ROY W. HILL,
CHARLES I. COBB.