

J. E. KEGREISZ.
 EXPANSION ANCHOR.
 APPLICATION FILED APR. 29, 1915.

1,153,797.

Patented Sept. 14, 1915.

Fig. 1.

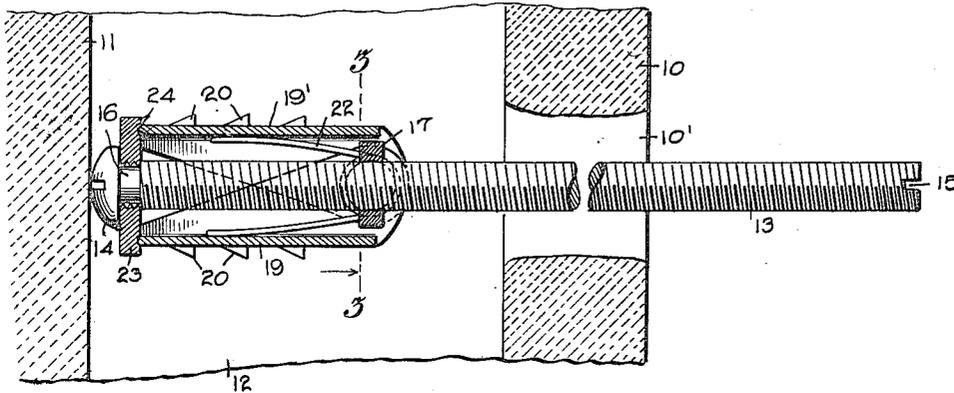


Fig. 2.

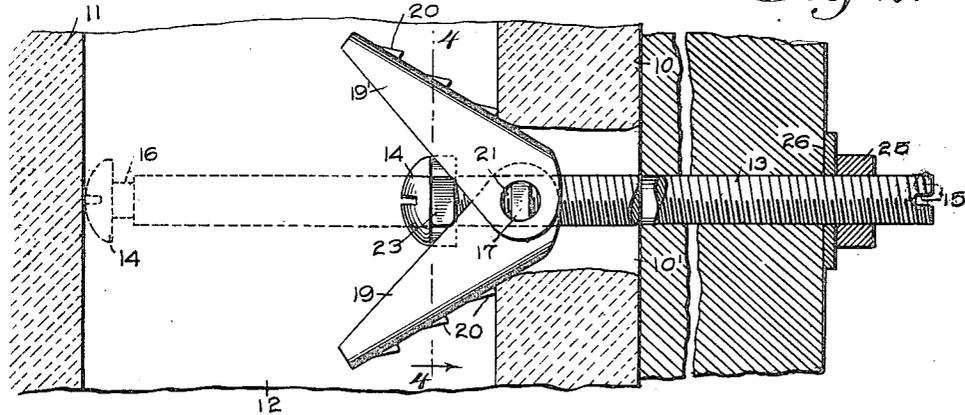


Fig. 3.

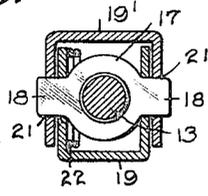
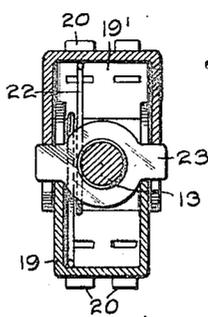


Fig. 4.



WITNESSES:

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EXPANSION-ANCHOR.

1,153,797.

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Application filed April 29, 1915. Serial No. 24,677.

To all whom it may concern:

Be it known that I, JULES EMILE KEGREISZ, a citizen of the United States, and a resident of the city of New York, Woodhaven, borough of Queens, in the county of Queens and State of New York, have invented a new and Improved Expansion-Anchor, of which the following is a full, clear, and exact description.

This invention relates to builders' hardware and has particular reference to devices in the nature of expansion bolts or the like for use in attaching timbers, planking, studding or the like, to walls of stone, concrete, hollow tile, etc.

Among the objects of the invention is to provide what I term an improved expansion anchor as distinguished from an expansion bolt, the main portion of which is adapted to be introduced into a hole formed in the wall, the device including a pair of wings pivoted coaxially of each other but so constructed and arranged with respect to the main bolt as to swing away from each other and toward the outer surface of the wall, whereas the usual practice with expansion bolts is to cause the wings to swing rearwardly from the front face or surface of the wall.

A further object of the invention is to provide a construction which will be stiffer and steadier in practice with respect to certain conditions as explained more in detail below.

The foregoing and other objects of the invention will hereinafter be more fully described and claimed and illustrated in the drawings forming a part of this specification in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a vertical longitudinal sectional view of my improvement with the parts in position as when being introduced into a hole or cavity in a hollow tile construction; Fig. 2 is a similar view of the wall construction but indicating the improved anchor in locking position in side elevation; Fig. 3 is a vertical transverse section on the line 3—3 of Fig. 1; and Fig. 4 is a similar view on the line 4—4 of Fig. 2.

The several parts of this device may be made of any suitable materials, and the relative sizes and proportions, as well as the general design of the mechanism, may be varied

to a considerable extent without departing from the spirit of the invention hereinafter more fully described and claimed.

Referring more particularly to the drawings, I show at 10 a front portion of a hollow tile wall through which has been formed a hole 10', and 11 indicates the rear wall of the tile or the wall bounding the main cavity 12 of the tile.

The main part of the anchor construction is a bolt 13 having a head 14 at its inner end and a groove 15 at its outer end. Adjacent the head the neck portion of the bolt is of short cylindrical form and has a smooth surface indicated at 16. Between the neck portion, however, and the outer end, the bolt is of uniform size and threaded throughout its length.

At 17 is indicated an anchor nut threaded upon the bolt and provided with oppositely extending lugs 18 having the same axis extending from opposite sides of the bolt and preferably coinciding with one diameter of the bolt. These lugs 18 constitute bearing points or pivots for a pair of wings 19 and 19' shown herein as being preferably of channel construction and of similar formation, though one is preferably sufficiently wider than the other to embrace said other in practice. Each of the wings includes a jaw portion having teeth 20 formed thereon for biting into the wall or sides of the hole 10'. These teeth may be formed in any suitable manner as by striking out the material when the jaws are made of sheet metal or the like. The side portions of each wing arranged in parallel planes serve to strengthen or reinforce the gripping or jaw portions of the wings and are formed with pivot holes 21 through which the studs or lugs 18 extend. As shown best in Figs. 3 and 4, the side portions of the wing 19' lie closely against the outer walls of the side portions of the wing 19. A spring 22 is shown coiled around the nut 17 and with its free ends bearing upwardly on the wings serving to cause them to swing outwardly and forwardly around the axis of the lugs 18.

At 23 is shown a follower somewhat similar in its structure to the nut 17, being internally threaded for coöperation with the threaded portion of the bolt 13, but being adapted at times to operate against the head 14 at the smooth neck 16 where it will be

unaffected by the bolt threads. The follower, as indicated in Fig. 1, is adapted to cooperate directly with the free ends of the wings for the purpose of holding them inwardly substantially parallel to each other and close to the bolt against the force of the spring 22. This interlocking action between the follower and the wings may be effected in various ways, but I have found that by forming shallow notches 24 in the outer face of the follower adjacent the ends thereof, the ends of the wings may be held by the follower for the purpose of permitting the insertion of the device into the hole or cavity formed in the wall but with a holding force easily overcome by tapping upon the outer end of the bolt by a wrench or screw driver or by any suitable means. When the wings are thus free from the follower, the spring acts upon them so as to throw the wings outwardly into substantial alinement with each other or at right angles to the axis of the bolt or until one or both of them are stopped by striking against the side of the hole or an inner partition of the wall structure. In other words, the wings under the force of the spring are thrown apart or toward the front face of the wall until they reach a wide open position or are stopped by striking an obstacle.

The next step ordinarily is for the operator to turn the bolt to the left so as to project it outwardly to a greater distance beyond the front face of the wall, the wings and the nut 17 being held from rotation at such time by the contact, above referred to, with the wall structure. While the bolt is thus being turned outwardly through or along the wings and nut 17, the follower 23 will be carried bodily in the same direction by means of the head 14, such operation continuing until the follower engages one or both of the wings, the end portions of the follower being carried by the bolt between both pairs of side portions of the wings as illustrated in Fig. 2, or else within the wing portions of the several wings in a position substantially at right angles to that of Fig. 2. In either event, however, the follower will be forced by the action of the bolt to cause the wings to spread and thereby positively lock them in open position. The full line showing in Fig. 2 may, therefore, be understood as one locking position of the device, the bolt and follower holding the wings in divergent relation to the bolt and thus preventing the withdrawal of the device from the wall. The outside work, such as studding, planking or the like, may then be applied to the bolt and secured thereon by the use of the usual nut 25 and washer 26. I prefer, however, for the bolt to be turned to the right after the parts are set in the position shown in Fig. 2, a screw driver or the like being applied to the groove 15 for

such purpose, until the head 14 strikes against the bottom of the hole 10' or against the rear wall 11 of the main opening 12 within the structure. The follower 23 being held frictionally by or between the wings at such time will not loosen the grip of the wings, and since the internal thread of the follower is the same as that of the nut 17 and bolt, the bolt may rotate freely there-through until the head strikes as described. Then, by giving the bolt a final rotation in the same direction, with the head acting against the rear wall, there will be a corresponding reaction set up through the bolt against the follower and wings giving the same a final positive setting with a corresponding stiffening or steadying of the entire bolt in the position shown in dotted lines in Fig. 2. It will be understood that the greater the force applied to the bolt, turning it toward the right with the head bearing against the fixed abutment, the greater will be the gripping action of the wings against the wall structure supporting the same.

In setting the device preparatory to its introduction into and through the wall hole 10', the wings are brought into parallelism adjacent the notches 24 of the follower where they will be held by the thumb and finger of one hand while the operator will rotate the bolt toward the left with the other hand to cause the nut 17 and wings to become interlocked lightly with said notches. The device may be disconnected from the wall by a reverse of the foregoing operation.

I claim:—

1. In a device of the character set forth, the combination of a threaded bolt having a head at one end and a smooth cylindrical neck portion adjacent the head, a follower journaled loosely upon said neck and having an internal thread adapted for cooperation with the bolt thread, a nut threaded upon the bolt, and a pair of wings pivoted upon said nut, said follower cooperating with the wings to hold them from movement around their pivots.

2. In a device of the character set forth, the combination of a bolt, a nut threaded thereon and movable relatively longitudinally of the bolt, and anchoring means pivoted coaxially of each other to said nut and movable laterally from the bolt and outwardly with respect to the same toward the outer end of the bolt into anchoring position.

3. In a device of the character set forth, the combination of a bolt having an external thread, a nut having an internal thread cooperating with the bolt thread and movable relatively thereof along the bolt, a pair of anchoring devices pivoted coaxially of each other upon said nut, and means serving to cause the wings to swing laterally from each

other and from the bolt and thence forwardly around their axis into anchoring position.

4. In an expansion anchor, the combination of a threaded bolt, a nut relatively movable along the same, said nut having oppositely disposed lugs extending laterally from the bolt, a pair of anchor wings each having a pair of parallel side portions pivoted upon said lugs around the same pivotal axis, and means adapted to be forced between the wings by the rotation of the bolt to cause the wings to be swung laterally with respect to each other around their axis into anchoring position.

5. In an expansion anchor, the combina-

tion of a bolt having a head at one end, a smooth neck portion adjacent the head and a thread extending between the neck portion and the opposite end, a nut mounted upon the threaded portion of the bolt, a pair of anchor wings pivoted upon the nut, a spring acting between the wings tending to force them apart and around their axis, and a member journaled upon the neck portion of the bolt cooperating with the ends of the wings to hold them from rotation.

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Witnesses:

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