

T. MASON.  
EXPANSION ANCHOR AND BOLT.  
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925,006.

Patented June 15, 1909.

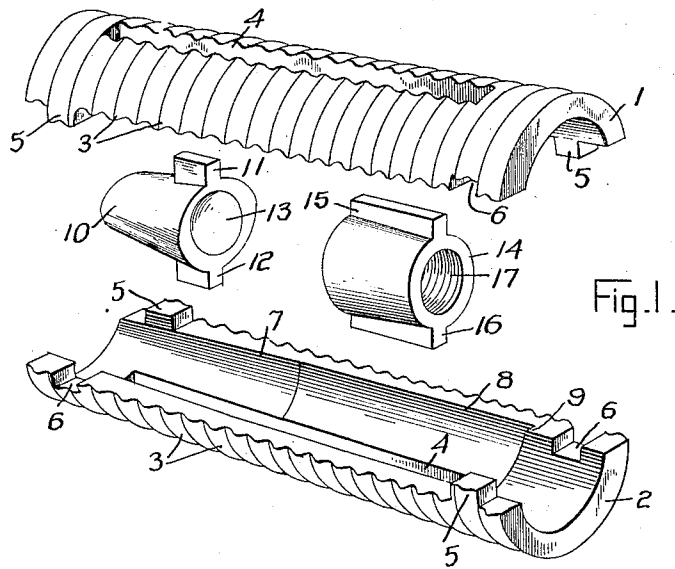


Fig. 1.

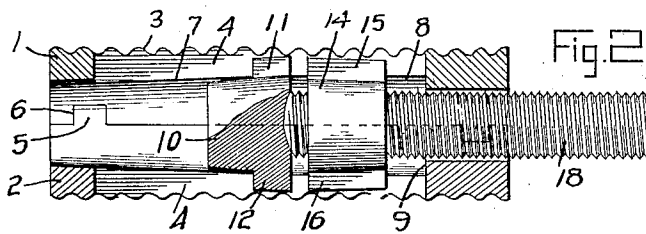


Fig. 2.

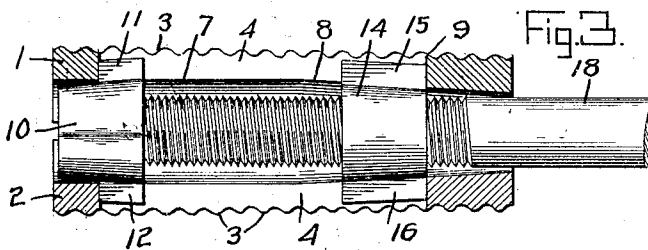


Fig. 3.

Witnesses

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# UNITED STATES PATENT OFFICE.

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## EXPANSION ANCHOR AND BOLT.

No. 925,006.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed June 27, 1908. Serial No. 440,643.

*To all whom it may concern:*

Be it known that I, THOMAS MASON, a citizen of the United States, and resident of the city, county, and State of New York, have invented certain new and useful Improvements in Expansion Anchors and Bolts, of which the following is a specification.

My invention relates to an improvement in expansion anchors and bolts for pipe hangers and the like, the object being to provide a simple and inexpensive device which can be inserted in the ceilings and walls of cement constructed buildings and sustain a heavy load or strain without the danger of breaking away or cracking the cement surrounding it, and which anchors, when once inserted, cannot be removed.

It is found in practice, when any of the conventional expansion bolts or anchors are used in the newly developed construction of cement or concrete buildings, that when the expanding means move forward when the bolt is screwed up, or when chisel-like wings, bearing only at the sharp edges are used as anchors in such buildings, there is a tendency to crack or break away the cement when the rod or screw is subjected to sustain any great weight, such as sprinkler pipes, filled with water. I overcome this serious objection in my improved anchor.

Referring to the accompanying drawing, Figure 1 is a horizontal perspective side elevation of the several parts of the anchor proper; Fig. 2 is a horizontal central sectional view, showing positions of the parts assembled, and Fig. 3 is a similar view, showing the anchor expanded.

Similar reference characters indicate like parts in the several views.

The sleeve is cylindrical, and is composed of two interengaging sections 1, 2, each of which is of like construction and each having its periphery provided with a series of concentric ribs 3. Each of the sections of the sleeve is provided at one end with a lug and a recess whereby the sections can interengage with each other, so as to be properly positioned, the lug is indicated by the reference character 5 and the recess by the reference character 6. The inner face of each section tapers from a point removed from each end toward the center as indicated by the reference characters 7 and 8, by such an arrangement the larger diameter is near the center of the sleeve, at the outer terminus of the tapering portion 8, the inner face of the sec-

tion is provided with a shoulder 9. Each of the sections is furthermore provided with a longitudinally extending slot 4 and which is of a length equal to the length of the tapering portion of the inner face of its respective section, the end walls of each slot 4 constituting shoulders to form abutments for the wings of a wedge and a nut to be presently referred to.

Arranged within the sleeve is an oval-shaped tapering wedge 10 provided at its larger end with a pair of diametrically opposed wings 11, 12, which extend into the slots 4. The wedge 10 at its larger end is recessed as at 13 for the reception of the end of an adjusting bolt or rod 18. Arranged within the sleeve is a slightly oval-shaped tapering nut 14 having its periphery formed with a pair of wings of a length equal to the length of the nut, the wings are indicated by the reference characters 15, 16, are diametrically opposed with respect to each other, and extend in the slots 4. The wings, 15, 16, are of a greater length than the wings 11, 12. The nut 14 is threaded as at 17, the said threads being adapted to be engaged by the threads of the adjusting bolt or rod 18. The nut 14 is oppositely disposed with respect to the wedge 10.

The manner of setting up and using the anchor is as follows: An opening being provided of sufficient depth and suitable diameter in the cement by drilling or otherwise, the anchor is then assembled, this is had in the following manner, the wedge is inserted in the center of one of the sections of the sleeve, the wings of the wedge entering the slot of said section, the nut is then inserted, the wings of nut also entering the slot in the said section, the other section of the sleeve is then laid on the first one, the lugs on the sections engaging in the recesses formed in the sections, the anchor can then be pushed into the opening. The bolt is screwed into and through the nut, and when the inner end of the bolt touches the recess of the wedge, the latter is pressed upwardly against the inner tapering part of the sleeve which is forced outward against the cement, the ribs on the surface embedding themselves in the material; the wings prevent the turning of the nut and wedge, and as the screwing in of the bolt continues, first one and then the other end of the sections of the sleeve will expand, this action depending upon the resistance of the material and of the wedge

and nut; that is to say, if the anchor is fully expanded at the top so that the resistance of the cement or surrounding material prevents any further expansion at that end, then the nut will travel downward until further movement is checked by the resistance of the material at the lower end; and should the nut travel the full distance until it strikes the inner shoulder, then additional pressure can be brought against the winged wedge by turning the bolt until the anchor is firmly seated or positioned in the supporting material. After once being thus seated, the bolt may be withdrawn, but the wedge and nut will remain in position and keep the anchor expanded.

The action of the two movable parts is such that owing to difference of the two tapers in the sleeve, the greatest pressure will be exerted at the inner or cone end where the cement or material is most solid, the expanding of the anchor being done without any strain on said material, and as the outward pressure is made entirely inside of the sleeve or anchor by the inclosed movable parts, there is no shifting or sliding movement of said sleeve.

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

An expansible anchor comprising a sleeve formed of two longitudinally extending

semi-cylindrical sections interengaging with each other and adapted to be shifted away from each other, each of said sections having its outer face provided with concentric ribs and its inner face tapering from a point removed from each end to the center, each of said sections furthermore provided with a longitudinally extending slot of a length equal to the length of the tapering portion of the inner face of its respective section, the end walls of each of said slots constituting shoulders, an oval-shaped tapering wedge positioned within the sleeve and having the larger end thereof provided with a pair of relatively short wings extending in said slots, said wedge further having its enlarged end recessed, an oval-shaped tapering nut arranged within the sleeve and provided with wings of a length equal to the length of the nut, said wings extending in said slots, said wedge and said nuts oppositely disposed with respect to each other, and an adjusting means extending through the nut and engaging with the wedge.

Signed at New York city in the county of New York and State of New York this eleventh day of June A. D. 1908.

THOMAS MASON.

Witnesses:

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