

United States Patent

Kaplan

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[54] ANCHOR BOLT

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[51] Int. Cl. F16b 13/06

[58] Field of Search 85/85, 84, 83, 86, 87, 73, 85/74, 75, 76, 71, 67, 69

FOREIGN PATENTS OR APPLICATIONS

263,008	11/1949	Switzerland	85/83
281,695	7/1952	Switzerland	85/83
1,106,798	3/1968	Great Britain	85/85
212,600	7/1956	Australia	85/71

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[57]

ABSTRACT

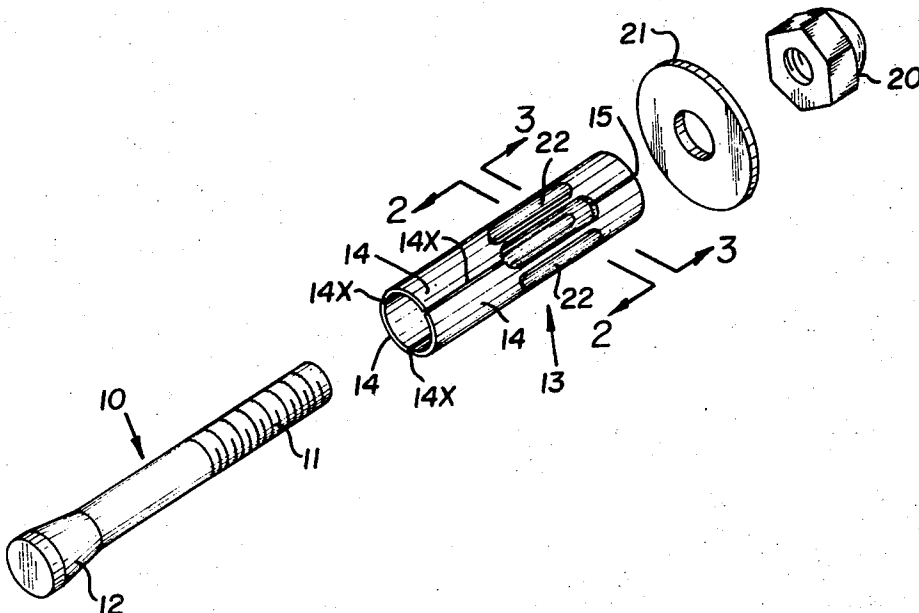
This invention relates to an improvement in anchor bolts having a plurality of slots forming sleeve legs having bridge portions of narrow width, said legs being moved outwardly in a drilled masonry well or hole to rigidly engage the well wall upon suitable operation of the bolt. The improvement consists of the provision of suitable stampings in said bridge portions to form projections adapted to engage the well wall in non-rotative engagement upon insertion in a well. Moreover, the stamped out projection re-enforces the narrow bridge portion of the sleeve thereby preventing premature collapse or roll-back upon insertion in close-fitting holes.

1 Claim, 4 Drawing Figures

[56] References Cited

UNITED STATES PATENTS

3,171,322	3/1965	Kaplan	85/77
1,474,980	11/1923	Ogden	85/75
1,802,270	4/1931	Rawlinus	85/85



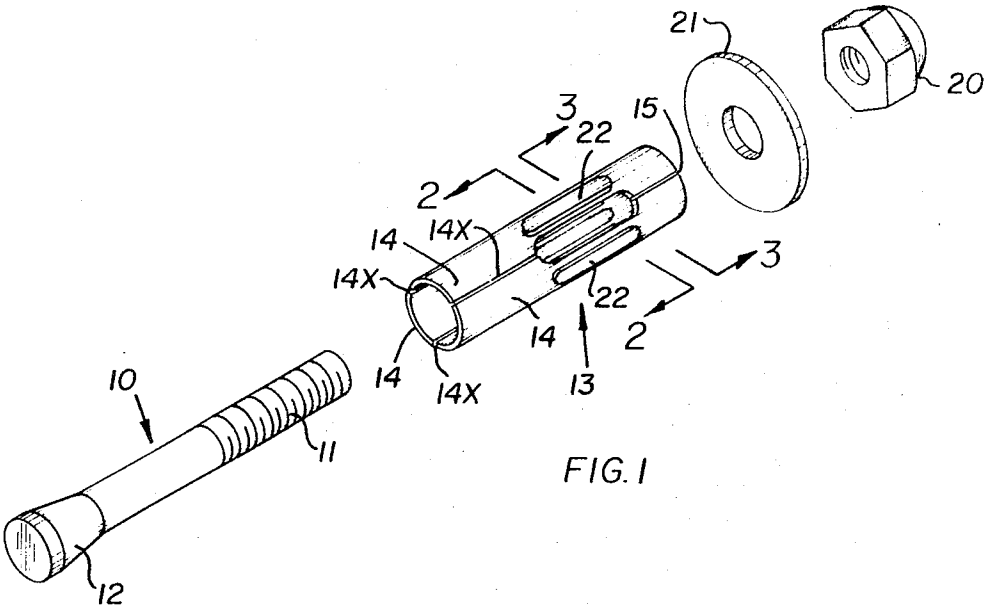


FIG. 1

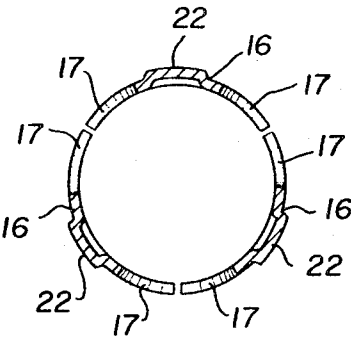


FIG. 2

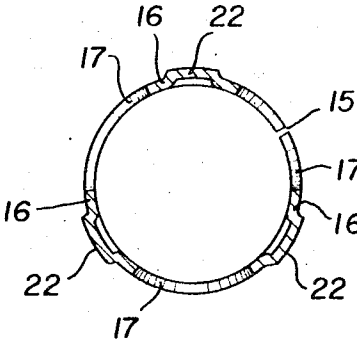


FIG. 3

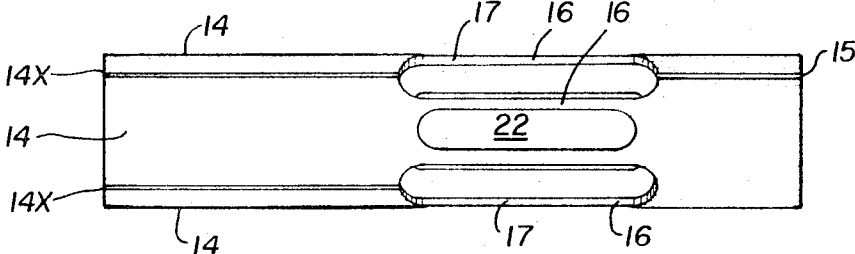


FIG. 4

ANCHOR BOLT

The conventional anchor bolt for use in masonry, concrete, cinderblock construction provides a fixed bolt to accommodate a wall fixture. However, the insertion of, for example, a sleeved anchor bolt into a slightly larger diameter hole drilled into a brick, concrete or other material often results in undesirable rotation of the sleeve when the bolt is actuated, because there is no gripping of the sleeve to the side of the drilled hole.

Moreover, the prior art sleeves of narrow bridge construction often exhibited premature collapse or rollback of one or more legs upon insertion into holes of like diameter or of too close a tolerance.

It is therefore an object of this invention to provide an improved anchor bolt which upon insertion into a suitably drilled hole will engage the hole wall at a plurality of spaced-apart stamped-out projections disposed in the sleeve thereof.

It is another object of this invention to provide suitably elongated stamped-out or rib-like projections in the bridge portions of the legs of the sleeve to prevent premature collapse or rollback and hence to linearly re-enforce said bridge portions.

It is also an object of this invention to provide an improved sleeve for an anchor bolt, said sleeve being re-enforced linearly for better insertion results by the provision of linear projections, said projections also functioning in a dual capacity to engage the walls of the material drilled non-rotatively.

These and other objects of this invention will become apparent upon reading the following descriptive disclosure of an illustrative embodiment of a sleeve deformable anchor bolt in which;

FIG. 1 is an exploded view of the improved anchor bolt showing the improved sleeve of this invention as a three legged sleeve formed by three elongated slots or apertures and showing also the stamped-out, embossed or rib-like projections disposed in the leg bridge portions located between apertures.

FIG. 2 is a section view taken on line 2—2 of FIG. 1 and showing the three legs separated one from another and showing in section the stamped-out projections disposed in the separate bridge portions of each sleeve leg.

FIG. 3 is a section view taken on line 3—3 of FIG. 1 and showing the sleeve linear cut-line that extends through the top cylindrical portion of the sleeve and

FIG. 4 is a side view of the improved sleeve showing an elongated embossed protuberance or projection disposed in a sleeve bridge portion disposed between the top and the bottom cylindrical portions of the sleeve.

This invention is an improvement over U.S. Pat. No. 3,171,322.

This invention consists of a conventional anchor bolt assembly having an improved sleeve. The anchor bolt assembly consists of a suitable bolt 10 having a threaded end portion 11 and an opposed tapered portion 12.

A sleeve 13 is provided with a bottom cylindrical portion of three legs 14 and a top cylindrical portion having a cut-line 15 therein and a plurality of three elongated bridge portions 16 of narrow width formed by three suitably wide elongated slots 17.

The cut-lines 14X separate the bottom cylindrical portion into the separate and deformable legs 14. These legs are deformed in the masonry well, as desired, by rotation of the conventional nut 20 having a threaded aperture and disposed

on bolt 10.

Preferably a washer 21 is disposed on the bolt 10 to engage the nut 20.

The critical feature and contribution of this invention is the provision of elongated stampings to form elongated projections 22 centrally in the narrow bridge portions 17. The turning of nut 20 on bolt 10, when the sleeve is held stationary, causes the tapered portion 12 of the bolt to be drawn into the sleeve 13 thereby pushing the legs 14 outwardly to fixedly engage the masonry well wall.

The projections 22 are in effect like ribs of a height suitable to grasp or seize the nearby masonry well wall. Drilling holes or wells into soft porous material such as cinder block often results in over-sized diameter holes. In such an event, the sleeve does not properly engage the cinder block and the anchor bolt rotates since there is no immediate sleeve expansion response.

To stop such undesirable rotation in oversized holes, said holes being oversized due to drills or whatsoever reason, the projections are provided with a suitable height of from 0.003 to 0.015 inches beyond the diameter of the sleeve itself. A three legged sleeve thus has three equally spaced-apart projections disposed 120° apart from each other. The height of the projection varies with the size of the anchor bolt. Thus a quarter inch diameter anchor bolt may have projections of 0.003 inches but the larger diameter anchor bolts would have higher projections.

In overall operational and structural effect, the ribs or projections disposed as expanded metal due to stamping in the narrow bridge portions of each leg strategically produces a novel and critical structure so that when inserted in tight fitting holes there is no collapse or rollback of the re-enforced legs whereas the same sleeve when disposed in a loosely fitting masonry hole functions to seize the hole wall. Thus the projections are re-enforcements that function longitudinally and non-rotatively in a simultaneous manner.

This invention is described herein by means of an illustrative embodiment, but it is not limited thereto since the protruberant projections may be varied in both size and height. The cut-line slits in the sleeve bottom portion extend to substantially the center of the slots thereby forming flexible legs having deformable bridge portions at the application of suitable force applied by the bolt nut.

I claim:

1. A sleeve deformable longitudinal anchor bolt for insertion into an seizure of a suitably drilled hole in masonry material consisting essentially of a bolt having a threaded end and a tapered end opposed thereto; a cylindrical non-bowed sleeve disposed on said bolt and provided with a plurality of circumferentially disposed elongated longitudinal aperture slots forming bridge portions therebetween, said sleeve having a smooth surface top and bottom portions, said bottom portion having a plurality of cut-line slits each extending to a slot to form a plurality of flexible legs engaging said tapered end of said bolt; a radially outwardly disposed imperforate protuberant projection of substantially the length of said bridge and having a substantially planar exterior surface and stamped centrally in each bridge portion for the re-enforcement thereof and seizure to the hole wall of said masonry material upon insertion therein; and a nut having a threaded aperture threaded on said bolt and adapted to expand said legs outwardly for locking engagement to said masonry material.

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