

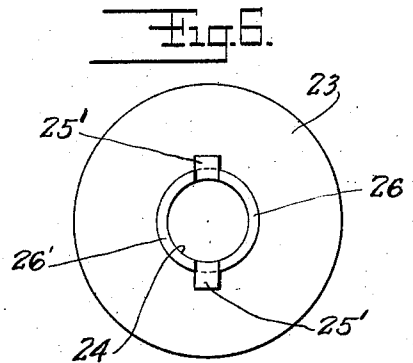
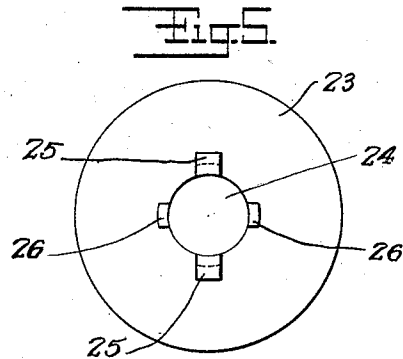
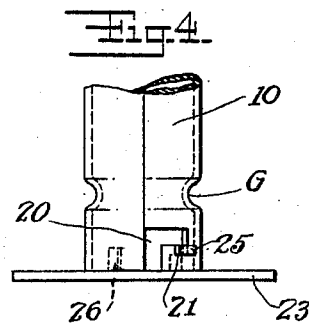
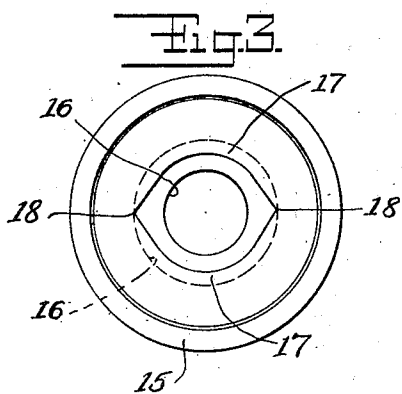
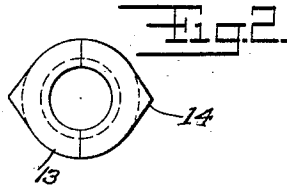
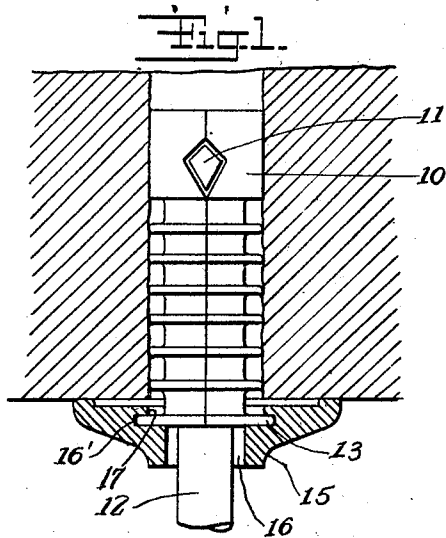
March 18, 1924.

C. C. TOMKINSON

1,487,291

EXPANSION SHIELD WITH INTERLOCKING CAP

Filed Feb. 23, 1921



Inventor
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By his Attorney
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UNITED STATES PATENT OFFICE.

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EXPANSION SHIELD WITH INTERLOCKING CAP.

Application filed February 23, 1921. Serial No. 447,292.

To all whom it may concern:

Be it known that I, CHARLES C. TOMKINSON, a citizen of the United States, and a resident of Plainfield, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Expansion Shields with Interlocking Caps (Case B), of which the following is a specification.

This invention relates to expansion shields such as are commonly anchored within bodies of solid material like concrete or masonry and is particularly concerned with the construction of an expansion shield and a cap designed for attachment thereto. The invention has for its object to provide a form of interlocking connection between the expansion shield and cap that will enable the parts to be brought into interlocking relation by relative rotation about a common axis. The novel features of construction and arrangement will appear from the detailed description thereof taken in connection with the accompanying drawing forming part of the specification and will be particularly pointed out in the appended claims.

In the drawings, Fig. 1 is a view partly in elevation and partly in section of one embodiment of my invention showing the expansion shield and cap in operative relation with respect to the body within which the shield is inserted.

Fig. 2 is a plan view of the cap-receiving end of expansion shield showing locking lugs thereon.

Fig. 3 is an enlarged plan view of the cap showing the opposed undercut flanges which are adapted to co-operate with the lugs on the expansion shield to effect interlocking engagement between the two.

Fig. 4 is an elevation of another form of my invention for securing interlocking engagement between an expansion shield and cap member by rotating the same about a common axis.

Fig. 5 is a plan view of the cap or collar shown in Fig. 4.

Fig. 6 is a modified form of collar adapted to be used with the expansion shield shown in Fig. 4.

Like characters of reference designate like parts throughout the several views.

The expansion shield may be of any preferred or desired form and may be expanded by any desired means. For convenience of

illustration the expansion shield has been shown as comprising a ribbed member 10 which is adapted to be expanded by a wedge member 11, a screw bolt 12 having threaded engagement with the wedge.

As shown in Fig. 1, the expansion shield has a series of annular flanges on its body and projecting from the flange 13 at the edge of the shield is a pair of oppositely disposed lugs 14. The cap has a bore 16 through which the bolt 12 passes and is recessed to receive the flange 13 and lugs 14, the recess being extended laterally as at 16' to a diameter equal to the distance between points of the lugs 13 whereby undercut flanges 17 are formed. This arrangement provides in effect a socket having undercut flanges, the opening to the socket being complementary to the lug-provided end of the expansion shield to permit said end to be entered therein. After such entry has been effected the cap is rotated on its axis until the lugs 14 underlie the flanges 17. In this position of the members separation of the same is prevented as will be readily understood.

As indicated in Figs. 4 to 6 interlocking engagement by rotation of the members of a common axis may be effected in a somewhat different manner. The outer end of the expansion member 10 is provided with an L-shaped slot 20, the transversely extending portion of which has a notch 21 for a purpose hereinafter mentioned. A pair of these slots is preferably provided, one in each half or member making up the shield. A cap plate 23 having a bore 24 is adapted to be held in locked engagement with the shield by means of hooked fingers 25 projecting from the plate adjacent the bore. These fingers are of a width to clear the longitudinal part of the L-shaped slots and of sufficient height to enable the hooked portion thereof to be turned into the transversely extending part of the slot and preferably resilient enough to seat themselves in the notches 21 in the slot. In order to more effectually center the shield 10 on the cap plate 23 the latter is provided with a pair of axially projecting guide lugs 26 disposed on opposite sides of the bore. The lugs 26 as well as the hooked fingers 25 are preferably stamped out of the plate 23 which may be of sheet metal.

While I prefer to provide the guide means

in the form of lugs 26 such means may take the form of an annular collar 26' of a diameter to enter the bore of the shield, the fingers 25' being bent outwardly from this collar. In Fig. 4 the shield is shown as made of sheet metal while in Fig. 1 it is shown as of cast metal. If the plate shown in Fig. 6 is to be used with a shield of cast metal, the L-shaped grooves are formed in the inner surface of the shield.

The cap of plates described herein provide a finished cover for the opening in which the expansion shield is placed instead of showing the edges thereof which are apt to be rough and unsightly. The cap shown in Fig. 1 is also ornamental in appearance. Its under surface is depressed except at its edge so that it will seat snugly against the surface of the wall.

While I have described the invention in considerable detail I desire it to be distinctly understood that no limitations are intended except as may be imposed by the appended claims.

What I claim is:

1. The combination with an expansion member and a cap member having a bore through which an expanding element may be entered into the expansion member, of means for effecting interlocking engagement between the members comprising radially extending projections on one of said members and a socket in the other of said members, locking engagement being effected by relative rotation of said members on a common axis.

2. The combination with an expansion member and a cap member having a bore through which an expanding element may be entered into the expansion members, of means for securing said members in interlocking engagement comprising an L-shaped slot in the expansion member and a hooked finger on the cap, locking engagement being effected by rotating the cap relatively to the expansion member.

3. The combination with an expansion member and a cap member having a bore through which an expanding element may be entered into the expansion members, of means for securing said members in interlocking engagement comprising an L-shaped slot in the expansion member and a hooked finger on the cap, locking engagement being effected by rotating the cap relatively to

the expansion member, and a notch in the slot cooperating with the hooked finger for holding the members against relative rotation.

4. The combination with an expansion member and a cap member having a bore through which an expanding element may be entered into the expansion member, of means for effecting interlocking engagement between the members comprising laterally extending projections on one of said members and a socket in the other of said members, locking engagement being effected by relative rotation of said members on a common axis.

5. The combination with an expansion member and a cap member having a bore therethrough, of means for effecting interlocking engagement between the members comprising laterally extending projections on one of said members and portions on the other member adapted to receive said lateral extensions in one position of said members and to interlock with said extensions upon the relative rotation of the members from said position.

6. The combination with an expansion member and a cap member of means for securing the members in interlocking engagement comprising a pair of oppositely arranged lugs on one member and oppositely disposed recessed portions on the other member, said portions being so arranged as to permit assembling of the members on relative longitudinal movement thereof when the members are in a predetermined position with reference to each other and to prevent separation of the members, when they have been relatively rotated from said position.

7. The combination with an expansion member and a cap member of means for securing the members in interlocking engagement comprising a pair of oppositely arranged lugs on one member and oppositely disposed recessed portions on the other member, said recessed portions being so disposed as to permit the passage of said lugs and having walls for retaining the lugs upon relative rotation of the members.

In witness whereof, I have hereunto set my hand this 18th day of February, 1921.

CHARLES C. TOMKINSON.

Witness:

I. B. MOORE.