Feb. 20, 1934. V. E. BAIRD ET AL 1,948,093

INSERT FOR CEMENTITIOUS SLABS

Filed Sept. 5, 1931

Fig. 1.

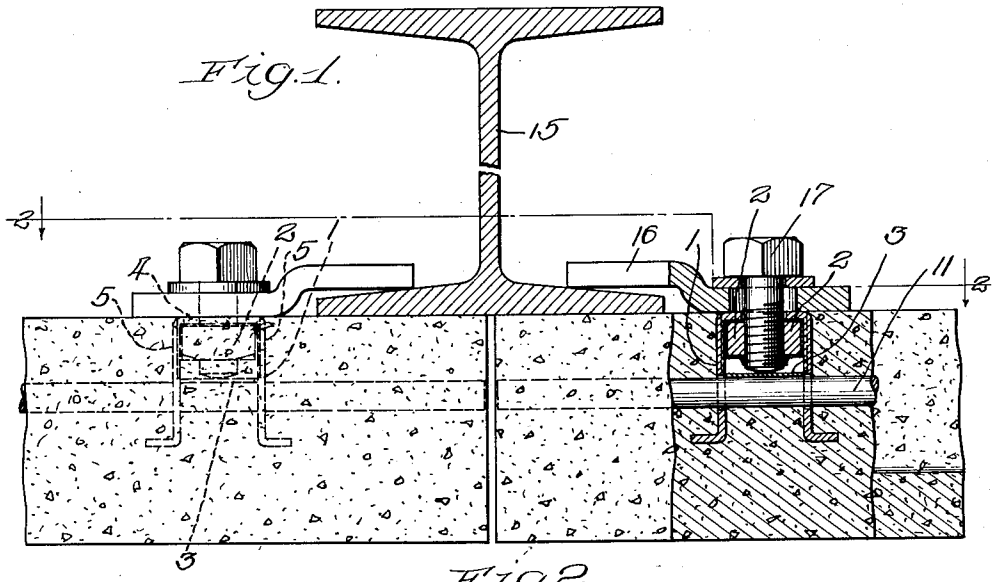
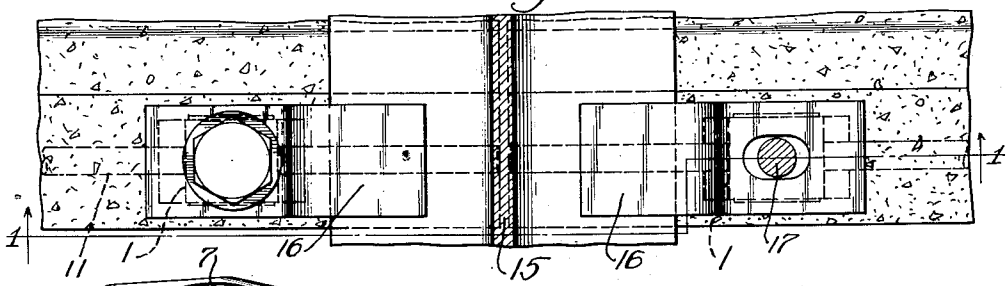


Fig. 2.



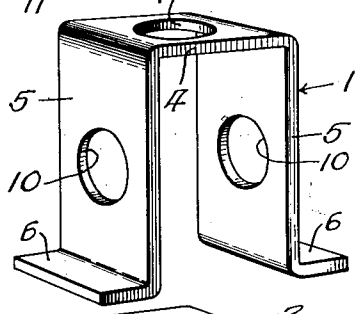
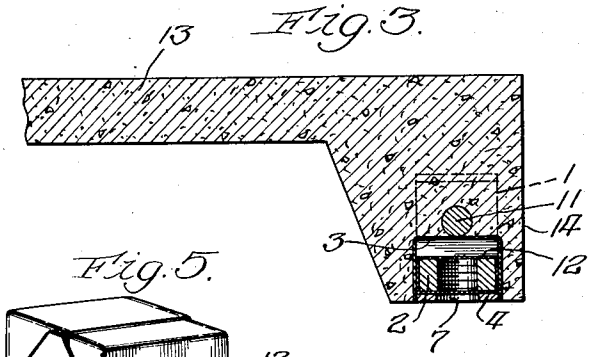


Fig. 3.



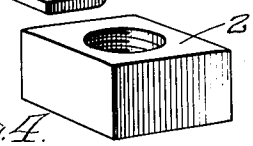
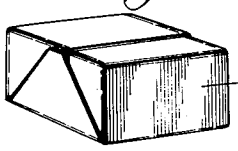
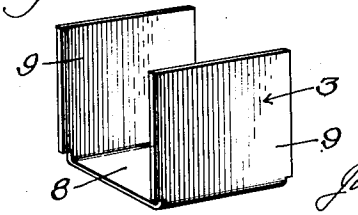


Fig. 4.

Fig. 5.





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INSERT FOR CEMENTITIOUS SLABS

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7 Claims. (Cl. 72—105)

This invention relates to an insert for cementitious slabs and has special reference to means for attaching slabs and the like formed of cementitious material to supports in the organization of walls, roofs, floors or other structures.

More particularly this invention relates to inserts imbedded in cementitious slabs and the like during the formation of the slabs and serves to receive securing means for attaching the cementitious slabs to supports. The inserts act to support and position reinforcing members in the slabs or other articles during the formation of the slabs, the reinforcing members in turn, acting to maintain the inserts in position in the forms used during the making of the slabs while the cementitious material is being poured therein and during the setting thereof, and also to hold the inserts in an assembled relation.

An object of this invention is to provide an insert for use in cementitious slabs, and the like, which is provided with securing members for the reception of supplementary securing members to secure the slabs to supports or other structures.

Another object of this invention is to provide an insert having provision for supporting and positioning a reinforcing member or rod in the slab during the pouring of the cementitious material and while it is setting.

Still another object is to provide an insert with a nut or other securing member therein, held in place by a cap which in turn is positioned and held in the assembly by the reinforcing member associated with the insert.

A further object is to provide a construction whereby inserts may be held in position in a form by reinforcing rods associated with said inserts during the pouring of the cementitious material and the setting thereof.

A still further object is to provide an insert for the accomplishment of the foregoing objects, which is simple in structure, may be easily assembled and utilized, and which is inexpensive to manufacture.

Further objects and advantages will be apparent from the following description when considered with the accompanying drawing in which latter;

Figure 1 is an end view partially in section of two slabs secured to a support with the inserts imbedded in the slabs showing one in side elevation and the other in vertical cross-section.

Fig. 2 is a view drawn on the line 2—2 of Fig. 1.

Fig. 3 is an end view of one of the slabs with an insert therein shown in cross-section and turned through 90° from the position shown in Fig. 1.

Fig. 4 is a view showing in perspective, elements comprising the insert before the assembly thereof; and

Fig. 5 is a perspective view of a socket member or nut encased in a coating of protective material.

Referring more particularly to the drawing, there is shown an insert comprising an anchor member 1, a nut or other socket member 2 and a cap member 3. The anchor member 1 is substantially U-shaped having a transverse or center portion 4, sides 5 and flanges 6 extending outwardly from the outer ends of the sides 5, which serve to increase the anchorage of the insert. An aperture 7 is formed in the center portion 4 to permit the insertion of a bolt or other securing means through the center portion 4.

The cap portion 3 is likewise substantially U-shaped having a transverse or center portion 8 and side portions 9. The center portion 8 is of substantially the same width as the distance between the inner surfaces of the sides 5 of the anchor member 1 so that the center portion 8 of the cap may be inserted in the anchor member 1. The length of the center portion 8 of the cap member is preferably substantially the same as the width of the center portion 4 of the anchor member 1 and the sides 9 of the cap member may be slightly wider than the center portion 8 thereof, as shown in Fig. 4. With this construction when the cap member 8 is inserted within the anchor member 1, the center portion 8 of the cap member will be spaced from the center portion 4 of the anchor member by the sides 9 of the cap which in turn preferably abut the edges of the sides 5 of the anchor member, thereby forming an enclosure within which the nut 2 is positioned. The length of the sides 9 of the cap member is less than the length of the sides 5 of the anchor member and may be somewhat greater than the width of the nut 2. The nut 2 is preferably square, with the dimensions thereof slightly smaller than the inside dimensions of the enclosure formed by the cap member and the anchor member so that the nut is held against rotation and also against longitudinal displacement.

Apertures 10 are formed in the sides of the anchor member 1 to permit a reinforcing member or rod 11, as shown in Fig. 1 to extend therethrough. These apertures are positioned so that the reinforcing rod or member extending there-

through will abut the outer surface of the center portion of the cap member 3 when the cap member is positioned at the inner end of the anchor member 1. In other words, the distance from the inner edges of the apertures 10 to the center portion 4 of the anchor member 1 is substantially the same as the length of the sides 9 of the cap member 3, although this distance may be greater if desired.

With a construction such as has been above set out, when the insert is assembled with the socket or nut 2 within the enclosure formed by the anchor member 1 and the cap member 3 and the reinforcing rod is extended through the aperture 10, the whole insert will be held in assembled position and will remain thus until the reinforcing rod is removed. As the inserts have to be handled a good deal while they are being placed in the forms in which the cementitious slabs are to be formed, it is very important that the various elements forming the insert will not fall out or become separated and that the whole may be handled as a unit. This is accomplished in the present invention by the use of the reinforcing rod extending through the apertures 10. Furthermore, it is generally desirable to employ a plurality of inserts associated with a reinforcing rod in a slab. In such a case the reinforcing rod with the plurality of inserts thereon may be easily handled as a unit, thus saving considerable time.

I prefer to use a casing 12 for covering the nut as shown in Fig. 5. It sometimes occurs that the cementitious mix, of which the slabs are made, accidently enters the threaded opening in the nut during the pouring of the mix. If this occurs, great difficulty is encountered in threading the bolt or other securing means into the nut. Furthermore, the moisture from the mix tends to cause the nut to rust or corrode making it more difficult to thread the bolt therein. In order to obviate these disadvantages, I encase the nut, before the same is placed in the insert, in a casing of frangible material which is preferably moisture proof such as wax paper, cellophane or some other similar material although it is not necessary that the material be moisture proof. When this is used the material may be easily punctured and the bolt may be threaded into the threaded opening in the nut.

For purposes of illustration, I have shown the inserts embodying this invention embedded in a slab of cementitious material having a main body portion 13 with lips or resting surfaces 14 formed at each side thereof, although the invention may be used in any other form of slab desired particularly those in which reinforcing rods or members are employed. In the form of slab shown, it has been found preferable to employ reinforcing rods in the lip portion 14 and therefore the inserts are shown as being positioned in that portion. In forming these slabs of cementitious material, the inserts with a reinforcing rod or member extending therethrough are positioned with the inner end or center portion 4 of the cap member resting on the bottom of the form. The cementitious mix is then poured in the form and about the inserts.

With the use of the present invention, it is unnecessary to fasten or secure the inserts to the form to prevent displacement thereof during the pouring of the mix, as the reinforcing rod passing through the inserts serves to maintain the inserts in proper position during this process. The inserts in turn support the reinforcing rods and position them the proper distance above the bottom of the form during the formation of the slabs, no other means being necessary for this purpose. After the mix has set, the form is removed and the slabs with the inserts are then ready for use.

In Fig. 1, two slabs are shown as connected to an I-beam 15. For this purpose securing bars 16 are placed over the foot portion of the I-beam and the other end, which is formed with an aperture therein, is secured to the slab by a securing member such as a bolt 17 passing through the aperture in the slab and threading into the nut 2 in the insert. As the nut is held within the insert and is prevented from rotation it is a simple matter to thread the end of the bolt therein and as the bolt is readily removable any size bolt may be used depending upon the use to which it is to be put.

With the foregoing construction, I have provided an insert which with a reinforcing rod extending therethrough is maintained at all times in an assembled position with the cap 3 maintaining the bolt 2 adjacent the inner end of the anchor member 1. The reinforcing rod in association with the insert prevents displacement of the inserts during the pouring of the mix and the inserts in turn support and position the reinforcing rods during the formation of the slabs.

I claim:

1. A device of the class described for use in cementitious products having a reinforcing member therein comprising an anchor member, a socket member for receiving a securing member positioned in said anchor member, a cap for enclosing said socket member to maintain the latter adjacent the inner end of said anchor member and against longitudinal displacement, said anchor member having apertures in opposite sides thereof outwardly of said cap member for receiving said reinforcing member therethrough adjacent the outer end of said cap whereby to maintain said cap and socket member adjacent the inner end of said anchor member and to support and position said reinforcing member during the formation of said products.

2. A device of the class described for use in cementitious products having a reinforcing member therein, comprising a substantially U-shaped anchor member, a nut for non-rotatably fitting into said anchor member and a substantially U-shaped cap member for enclosing said nut to maintain the same adjacent the inner end of said anchor member, said anchor member having apertures in the sides thereof outwardly of said cap member for receiving said reinforcing rod therethrough adjacent the outer end of said cap to maintain said cap and nut in the inner end of said anchor member and to support and position said reinforcing member during the formation of said products.

3. A device of the class described for use in cementitious products having a reinforcing member therein, comprising a substantially U-shaped anchor member having an aperture in the end thereof, a substantially U-shaped cap member for fitting in the inner end of said anchor member to form an enclosure, a nut for being positioned in said enclosure, said anchor member having apertures in the sides thereof for receiving said reinforcing rod therethrough, with the inner edges of said apertures at a distance from the inner end of said anchor member, substantially the same as the length of the sides of said cap member whereby said cap and said nut are

maintained at the inner end of said anchor member by the reinforcing rod and said reinforcing rod is supported and positioned during the forming of said products.

4. A device of the class described for use in cementitious products having a reinforcing member therein, comprising a substantially U-shaped anchor member having an aperture in the end thereof, a substantially U-shaped cap member for fitting in the inner end of said anchor member to form an enclosure, the end of said cap member being substantially the same width as the distance between the inner surfaces of the sides of said anchor member so it may fit therebetween, and the sides of the cap member being wider than the end thereof so as to abut the edges of the sides of said anchor member, whereby said cap member is held by said anchor member against movement other than longitudinal, and a nut for being positioned in said enclosure, said anchor member having apertures in the sides thereof for receiving said reinforcing rod therethrough at a distance from the inner end of said anchor member substantially the same as the length of the sides of said cap member, whereby said cap and nut are maintained at the inner end of said anchor member by the reinforcing member and the reinforcing member is supported and positioned during the forming of the products.

5. A device of the class described for use in cementitious products having a reinforcing member therein, comprising a substantially U-shaped anchor member having an aperture in the end thereof, a substantially U-shaped cap member for fitting in the inner end of said anchor member to form an enclosure, the end of said cap member being substantially the same width as the distance between the inner surfaces of the sides of said anchor member so it may fit therebetween, and the sides of the said cap member being wider than the end thereof so as to abut the edges of the sides of said anchor member, whereby said cap member is held by said anchor member against movement other than longitudinal, and a nut for being positioned in said enclosure, said nut being held against rotation by the sides of said enclosure, said anchor member having apertures in the sides thereof for receiving said reinforcing rod therethrough at a distance from the inner end of said anchor member substantially the same as the length of the sides of said cap member whereby said cap and nut are maintained at the inner end of said anchor member by the reinforcing member and the reinforcing member is supported and positioned during the forming of the products.

6. A device of the class described for use in cementitious products having a reinforcing member therein, comprising a substantially U-shaped anchor member having an aperture in the end thereof, a substantially U-shaped cap member for fitting in the inner end of said anchor member to form an enclosure, the end of said cap member being substantially the same width as the distance between the inner surfaces of the sides of said anchor member so it may fit therebetween, and the sides of said cap member being wider than the end thereof so as to abut the edges of the sides of said anchor member, the sides of said cap member being shorter than the sides of said anchor member, whereby said cap member is held by said anchor member against movement other than longitudinal, and a nut for being positioned in said enclosure, said anchor member having apertures in the sides thereof for receiving said reinforcing rod therethrough at a distance from the inner end of said anchor member substantially the same as the length of the sides of said cap member, whereby said cap and nut are maintained at the inner end of said anchor member by the reinforcing member, and the reinforcing member is supported and positioned during the forming of the products.

7. A device of the class described for use in cementitious products having a reinforcing member therein comprising a substantially U-shaped anchor member having an aperture in the end thereof, a nut for being positioned in said anchor member, and a substantially U-shaped cap member for fitting in the inner end of said anchor member to form an enclosure about said nut, the end of said cap member being substantially the same width as the distance between the inner surfaces of the sides of said anchor member so it may fit therebetween, and the sides of said cap member being wider than the end thereof so as to abut the edges of the sides of said anchor member, the sides of said cap being slightly longer than the thickness of said nut, whereby said cap member is held by said anchor member against movement other than longitudinal, said anchor member having apertures in the sides thereof for receiving a reinforcing rod therethrough at a distance from the inner end of said anchor member substantially the same as the length of the sides of said cap member, whereby said cap and nut are maintained at the inner end of said anchor member by the reinforcing member and said reinforcing member is supported and positioned during the forming of the products.

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