March 30, 1937. J. L. BOETTNER 2,075,262

WALL TIE

Filed Feb. 14, 1936

Fig. 1

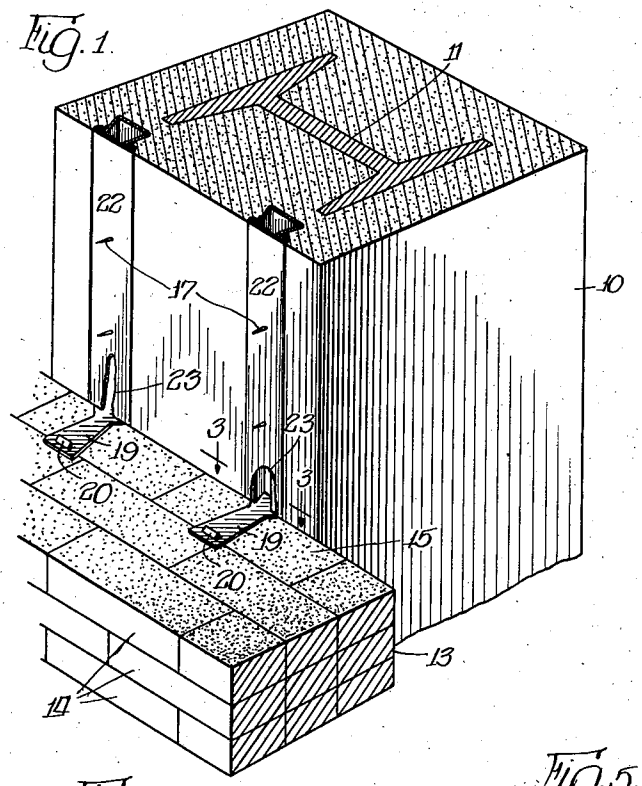


Fig. 4

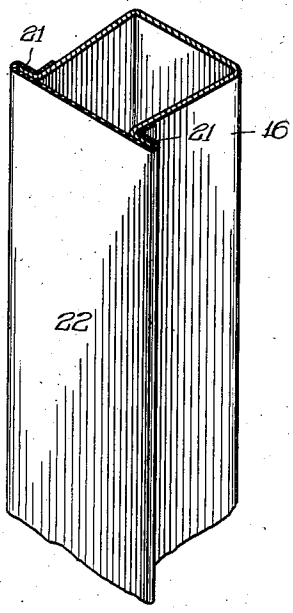


Fig. 2

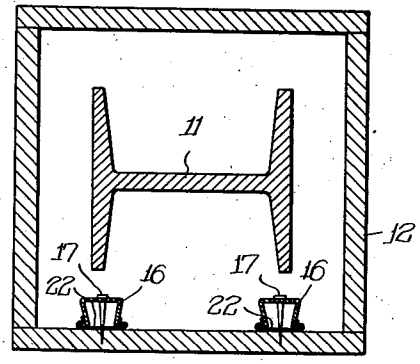


Fig. 5

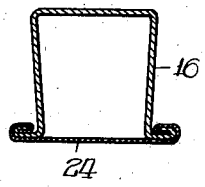


Fig. 6

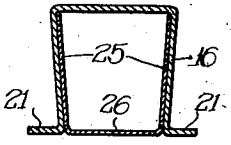
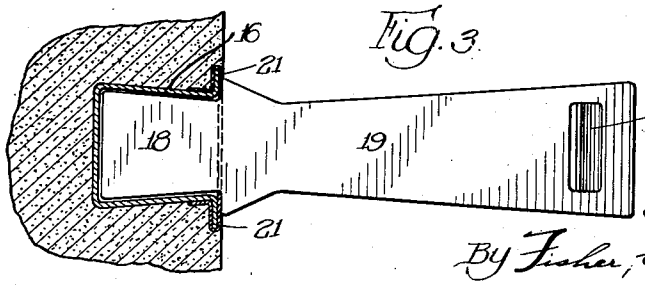


Fig. 3



Inventor:
Joseph L. Boettner,
By Fisher, Clapp, Sears & Pond,
attys.

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2,075,262

WALL TIE

Joseph L. Boettner, Chicago, Ill., assignor to Universal Form Clamp Co., Chicago, Ill., a corporation of Illinois

Application February 14, 1936, Serial No. 63,865

4 Claims. (Cl. 72—103)

This invention relates to the general art of masonry and concrete structures, and more specifically to bonding and tying devices for such structures.

In a well known form of such devices vertical metal anchor channels, usually of dovetail form in cross section, are embedded in the surface portion of a concrete column, and in these channels are inserted at intervals the correspondingly shaped heads of key strips, the body portions of the key strips projecting from the side of the column and having transverse corrugations or teeth that are embedded in the mortar of a masonry facing that is built up entirely or partly around the column to conceal the latter. These anchor channels are usually nailed to the inner surface of the wall of the wooden form of the concrete column, with the open side of the channel bar against the wall of the form. As the concrete is poured into the form it is usually stirred by mechanical agitators or stirrers to eliminate voids in the concrete body, and this often has the effect of loosening the nails by which the channel bar anchors are attached to the form, so that a considerable portion of the wet concrete works through the joints between the wall of the form and the edges of the anchor, more or less clogging and filling the latter, so that the mason has difficulty in entering and properly positioning the heads of the key strips in the anchor bars and frequently finds it necessary to dig the concrete out of the anchor bars before he can properly enter and place the heads of the key strips; and this involves extra labor and loss of time.

The object of this invention is to provide a cure for this fault, and this is accomplished by providing a readily frangible seal for the open side of the anchor bar that effectively prevents the entrance of any wet concrete into the anchor bar during the concrete pouring operation, and is readily cut out and removed by the mason at points opposite the key strip locations when applying the key strips. This seal may take a variety of forms, as will later appear.

Illustrative embodiments of the invention are shown in the accompanying drawing, in which:—

Fig. 1 is a fragmentary perspective elevation of a concrete column and a masonry facing therefor bonded thereto by key strips engaged with one form of my improved anchor bar.

Fig. 2 is a horizontal section of a column form, showing the customary I-beam reinforcement set therein, and a pair of my improved anchor bars nailed to a wall of the form.

Fig. 3 is an enlarged horizontal section on the line 3—3 of Fig. 1, omitting the masonry facing.

Fig. 4 is a fragmentary perspective elevation of one form of anchor bar.

Figs. 5 and 6 are horizontal sections of anchor bars equipped with different sealing devices that may be employed within the purview of the invention.

Referring to the drawing, 10 designates a concrete column built around a vertical steel reinforcement such as the I-beam 11, the concrete being poured into a rectangular wooden form 12 (Fig. 2). 13 designates as an entirety a masonry facing herein indicated as composed of bricks 14 bonded by mortar 15. 16 designates as an entirety a channel anchor bar, usually of sheet metal, and, in the present instance, of dovetail cross section. Before the wet concrete is poured into the form these anchor bars are secured to the inner surface of one or more walls of the form 12 as by nails 17. The key strip is a substantially flat metal member comprising a head 18 shaped to fit the interior of the anchor bar 16, a shank 19 and an outwardly struck tooth 20 which, through engagement with the mortar bond of the facing structure, securely bonds and ties the facing to the concrete column.

As before stated, it has heretofore been the custom to nail the anchor bar 16 to the inner surface of a wall of the form with the open side of the anchor bar covered by the wall, and on account of the stirring and agitating of the wet concrete as it fills the form, the fastening nails often work loose so that cracks are formed at the edges of the anchor bar through which more or less of the concrete flows into and clogs the interior of the anchor bar, thus making it difficult to properly enter the head 18 of the key strip. In accordance with my present invention this is prevented by sealing the open side of the anchor bar by means of a frangible or displaceable material that prevents the wet concrete from working into the bar. I have herein illustrated several practical sealing means for this purpose. The anchor bar 16 is customarily formed with outwardly directed flanges 21 on its free edges, and in Figs. 1 to 4 inclusive, I show a thin, readily frangible metal strip 22 covering the open side of the anchor bar 16 with its edge portions folded and tightly clamped over the flanges 21. This covering strip is so thin that, as the mason in building up the wall 13 reaches the point where a key strip is to be applied, he can readily rupture the wall, as shown at 23 in Fig. 1, with the key strip or other suitable tool sufficiently to enter the

head 18 of the key strip into the anchor bar and then turn the head and shank into a horizontal plane.

In lieu of employing a thin metal membrane, a membrane of tough fibrous material such as craft paper, strip cellulose, or rubber may be employed, as indicated in Fig. 5 wherein 24 indicates the fibrous or rubber strip shown as attached to the anchor bar by having its marginal portions inter-rolled with the flanges of the bar. Fig. 6 shows another form of sealing device consisting of a thin U-shaped metal member, the two sides 25 of which are readily compressible for insertion into the anchor bar, and the transverse member 26 of which spans and forms a closure or filler for the open side of the anchor bar. When using this device the transverse wall 26 may be readily ruptured for the insertion of the key strip.

When using the metal or paper seals indicated in Figs. 1 to 5 inclusive, the edges of the sealing strip, instead of being rolled around or interfolded with the edges of the anchor bar, may be secured thereto by a suitable adhesive, or the latter may be used in conjunction with the rolling and folding operations.

From the foregoing it will be seen that the improvement of my invention effectively does away with the annoyance of the clogging of the anchor bar by concrete creeping in at the edges of the latter as the concrete is poured into the form and stirred, thus saving both time and labor in the erection of the masonry facing and its bonding to the concrete column or wall.

By the terms "frangible seal", "frangible material", and "frangible member" as used in the specification and claims is meant a closure in the nature of a thin perforable membrane completely spanning the open side of the anchor bar that can be readily ruptured in situ and opened for the insertion of the head of the key strip by a blow of the latter or the mason's trowel as the building up of the facing proceeds.

I claim:

1. As an element of a bonding and tying device for masonry and concrete structures, a channel anchor bar, and a transversely flexible U-shaped filler member in said bar having a frangible transverse member extending across and closing the open side of said bar.

2. As an element of a bonding and tying device for masonry and concrete structures, a channel anchor bar, and a U-shaped metal filler member adapted to be inserted open side foremost into said anchor bar with its side limbs lying in contact with the side limbs of said anchor bar and its transverse limb flush with and forming a closure for the open side of said anchor bar.

3. As an element of a bonding and tying device for masonry and concrete structures, a channel anchor bar of dovetail form in cross section, and a U-shaped filler member for said anchor bar having compressible side limbs whereby it may be inserted open side foremost into said anchor bar with its transverse limb forming a closure for the open side of said anchor bar.

4. As an element of a bonding and tying device for masonry and concrete structures, a channel anchor bar of dovetail form in cross section, and a U-shaped filler member for said anchor bar of thin metal having compressible side limbs whereby it may be inserted open side foremost into said anchor bar with its side limbs lying in contact throughout with the side limbs of said anchor bar and its transverse limb flush with and forming a closure for the open side of said anchor bar.

JOSEPH L. BOETTNER.