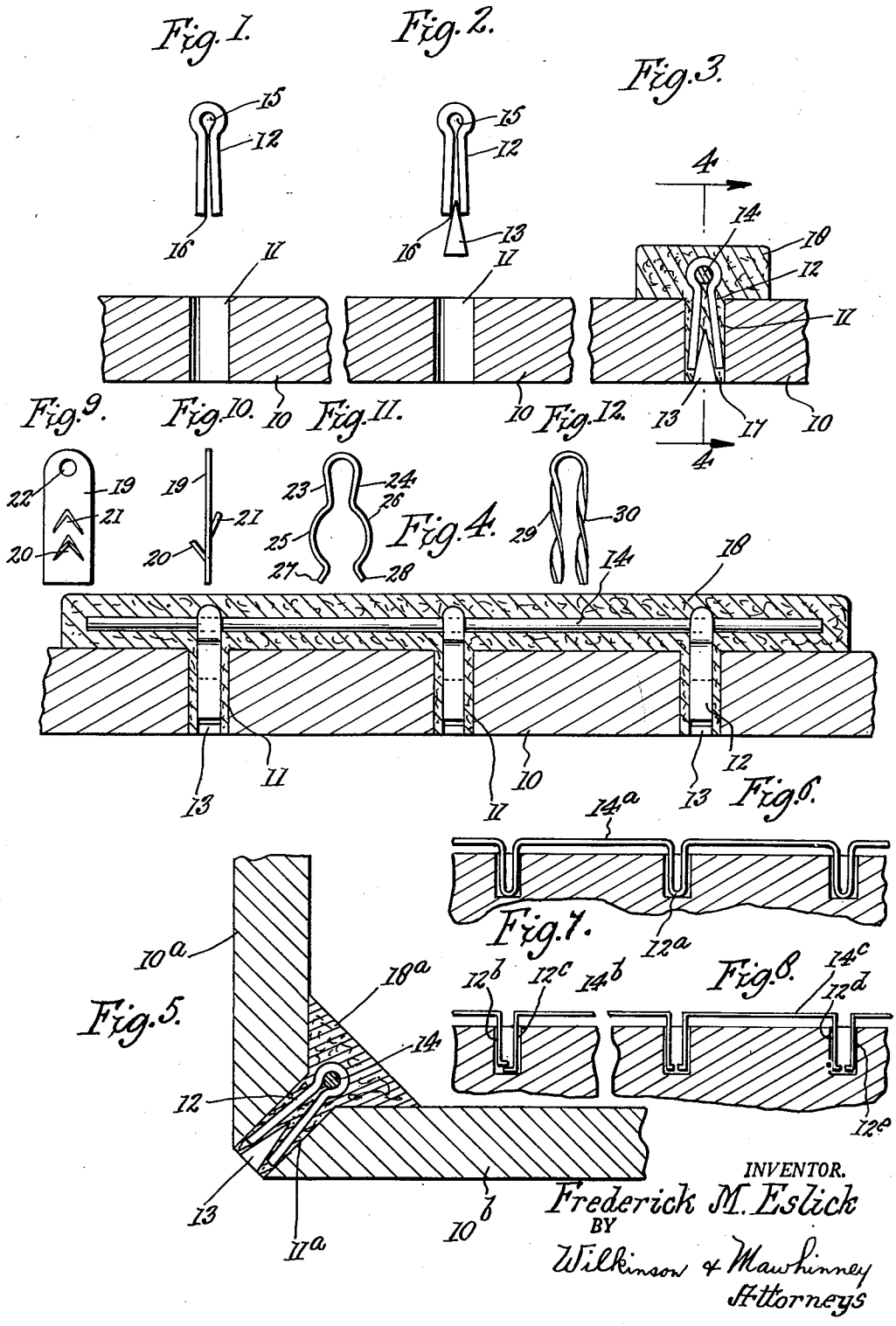
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REINFORCED PLASTIC PATCH FOR WALLS

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REINFORCED PLASTIC PATCH FOR WALLS

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5 Claims. (Cl. 72—28)

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The present invention relates to improvements in concrete plaster patches and methods for installing same and more particularly relates to an improved patch and the method of producing same for use over cracks in the walls or cellars or other places to the end that such cellars may be waterproofed from the inside.

Another object of the invention is to provide an improved patch and method of patching cracks or other imperfections in walls in which the steps of the method will be simple and their execution comparatively easy in that the same may be achieved by the uninitiated without previous experience and with implements usually found at hand so that emergency patches may be set up in a very short time.

A further object of the invention is to provide an improved patch and method of patching the same in which a strong bond of the patch material is made with the body of the wall upon which the patch is mounted and in which the matter of permanency of the patch is secured.

With the foregoing and other objects in view the invention will be more fully described hereinafter and more particularly pointed out in the appended claims.

In the drawings, in which like parts are denoted by the same reference characters throughout the several views,

Fig. 1 is a fragmentary vertical section of a wall prepared for installation of one of the patch anchors with a cotter key poised beyond the same;

Fig. 2 is a similar view showing the wedge in relation to the cotter key;

Fig. 3 is a similar view showing the anchor and patch completely installed;

Fig. 4 is a longitudinal section taken through the wall and patch on the line 4—4 of Fig. 3;

Fig. 5 is a horizontal sectional view taken through a cellar construction showing the method of mounting a corner patch;

Fig. 6 is a view similar to Fig. 4 showing a modification in which the anchors are integral with the reinforcing rod;

Figs. 7 and 8 are similar views showing modified forms of anchors made from the reinforcing rod;

Fig. 9 is a plan view of a modified form of anchor;

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Fig. 10 is an edge view of the same;

Figs. 11 and 12 are plan views of further modified forms of anchors.

Referring more particularly to the drawings, 10 designates a wall of a cellar or other compartment requiring a patch and 11 represents a hole or socket which is one of a number which are drilled or otherwise produced in the wall in and about the area of the crack. These holes may for instance be of the order of $\frac{3}{16}$'' x $\frac{1}{2}$''. Such holes are in any suitable number. In Fig. 4 three such holes are provided although any number may be used. The holes are adapted to receive anchors and then to be filled with cement; or such holes or sockets may be initially filled with cement or the like and the anchors subsequently may be driven into the same so as to become embedded in the cement body. Various forms of anchors are used. For instance cotter keys 12 and wedges 13 are shown in Figures 1 to 5 inclusive.

A reinforcing rod 14 is clamped in the eyes 15 of the cotter keys which are of resilient metal with the two legs partly open as indicated at 16 to initially admit the point of the wedge 13 in the act of initially assembling these two elements as shown in Fig. 2 preparatory to driving the same into the body of cement 17 as shown in Fig. 3. The cement 17 will of course offer resistance to the passage of the wedge 13 especially as the blunt edge of the wedge 13 is presented thereto and consequently the spring legs of the cotter keys 12 will be driven relatively over the inclined divergent walls of the wedge 13 with the result that the legs will be spread outwardly as shown in Fig. 3 thus performing two functions. In the first place the lower outer edges of the spring legs of the cotter keys may be caused by wedge action to firmly contact the opposite walls of the sockets 11 and thus tend to bind the anchor in place. Secondly the outwardly spread legs of the cotter keys 12 afford a dovetailed arrangement which cooperates with the masses of cement in the outer portions of the sockets 13 to confine the anchor against being pulled outwardly.

The anchors may be installed in place by hammering upon the outer portions of the eyes 15 of the cotter keys. Prior to driving the anchors in place or subsequently the reinforcing rod 14

may be passed through the eyes 15. However, this operation will usually be performed after all of the anchors are in place for the reason that in the initially sprung condition of the cotter keys as shown in Fig. 2 the eyes 15 will be smaller in diameter than that of the rod 14 so that the effect of the wedge entering between the legs of the cotter keys has the third function of opening the eyes 15 sufficiently to receive a reinforcing metal or other rod 14 of a desired diameter, and yet retain sufficient purchase upon that rod to grasp the same frictionally and resiliently.

Finally the body 18 of cement, plaster, concrete or other suitable material is placed or molded in or about the socket, the anchors and the reinforcing rod 14 to the thickness and length desired whereby to damp-proof the wall and to repair the crack and restore the wall to an initially repaired condition. The wire 14 may be mutilated if desired or may have projections thereon in order to better interlock with the concrete body 18.

Plaster may be made with Portland or hydraulic cement and with steel wool embedded therein. It is recommended that the wool be present in the proportion of approximately 1/20 by weight. Such plaster should be worked under and around the wire and anchors with the body 18 covering the wire a quarter inch or more. The patch thus becomes a piece of reinforced concrete securely anchored to the wall. The edges of the plaster will not crack or split off as they are reinforced with the steel wool.

The reinforcing spreads the strain developing at any one point over a much larger area and prevents the plaster from cracking. The plaster itself is attached to the wall by adhesion but it is further held and reinforced by the anchors and the rod 14.

When a protruding patch is undesirable the patch may be made in a groove about 1/4" square or larger and finished flush with the wall. The sockets or holes 11 may be about 2 to 4 inches apart depending upon the condition of the wall and the pressure expected. Neat Portland cement, glue, pitch and the like may be used as an adhesive.

Most cellars leak only after heavy rains but it is not always practicable to wait for dry weather to make repairs as leaks have to be stopped. These leaks can usually be stopped by caulking with hemp, rags, etc., but the same soon rot so that the leak returns, making it useless to plaster over the crack. By caulking these cracks with steel wool, preferably stainless, mixed with some substance that will not rot or easily wash out (hydraulic cement plaster, pitch, plumber's putty, etc.) the work will be permanent so that the wall may be patched and finished.

So far as Fig. 5 is concerned, there is shown therein an anchor disposed in a hole or socket 11^a in the corner between the walls 10^a and 10^b, while the patch 18^a is disposed across the corner and lodges against both walls 10^a and 10^b.

Referring more particularly to Figure 6 the reinforcing rod 14^a is so bent as to have anchors 12^a integrally formed therefrom by offsetting the rod into substantially U-shape. Such anchors may occur at intervals from 3" to 4" apart.

According to Figure 7 the reinforcing rod 14^b is made in sections or short lengths and the ends 12^b and 12^c are disposed parallel to one another in the sockets with inturned offset terminal flanges.

In Figure 8 the reinforcing rod 14^c is also made in sections with ends 12^d and 12^e within inturned flanges spaced and opposed to one another and arranged in the sockets.

Referring more particularly to Figures 9 and 10, 19 designates anchors made from sheet metal with the leg mutilated as indicated at 20 and 21 by stamping triangular spurs therefrom and bending the same outwardly in opposite directions about their base lines. An opening 22 is provided for the reinforcing rod.

Referring more particularly to Figure 11 a wire staple form of anchor is used having the legs 23 and 24 having bulged portions 25 and 26 and outturned terminals 27 and 28. The anchor is made from spring wire returned upon itself to form the legs and other portions noted and the reinforcing rod is adapted to fit in the space between the upper portions of the legs. The bulged portions 25 and 27 serve to compress the legs when the same is being inserted in place and they also form with adjacent parts angular constructions for bonding better with the cement.

Referring more particularly to Figure 12 a staple is made from a flat piece of spring metal having the legs 29 and 30 which are rotated upon a longitudinal median line whereby to produce a twisted formation in the flat ribbon construction or a spiral effect which will also better bond with the concrete.

Friction and adhesion will hold the concrete plug in the rough hole or socket. For additional strength the hole may be made deeper or the bottom of the hole may be enlarged. The anchors will not pull out of the concrete plug. There is little advantage in having the rod firmly held by the anchor as the surrounding concrete binds the two firmly together. It would be better if the cement was thin enough so that the wedge reached the bottom of the socket before the legs of the cotter keys spread very much; otherwise some of the cotter keys might jam before reaching the desired depth.

While I have disclosed herein the best form of the invention known to me at the present time I desire it to be understood that I reserve the right to make changes and modifications in the herein described embodiment of the invention provided such changes fall within the scope of the following claims.

What is claimed is:

1. An improved patch for repairing a cracked wall comprising a cotter key having an expansible eye with resilient relatively movable legs depending therefrom and extending into a socket in the wall, a wedge having its narrower end received between the legs without initially spreading the same, said wedge having its wider end supported in the socket to resist movement of the same while the cotter key is driven over the wedge, said legs being spread by the wedge and in frictional contact with the opposite walls of the socket, a reinforcing rod extending through said eye, and a body of plastic patch material extending about the rod and key and over the cracked wall.

2. An improved patch according to claim 1 in which a plurality of cotter keys are anchored in spaced sockets in the same manner as the first-named key, with said rod extending in common through the eyes of all the keys.

3. An improved patch as claimed in claim 1 in

which the spread legs of the cotter key form a dove-tail arrangement reacting against the cement in the outer part of the socket to prevent withdrawal of the anchor.

4. An improved patch as claimed in claim 1 in which the cotter key has legs with bulged portions and out-turned terminal ends.

5. An improved patch according to claim 1 in which the cotter key is made from a flat ribbon of metal bent U-shape to form legs and with the legs bent or twisted longitudinally.

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