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APPARATUS FOR REPAIRING BASEMENT WALL

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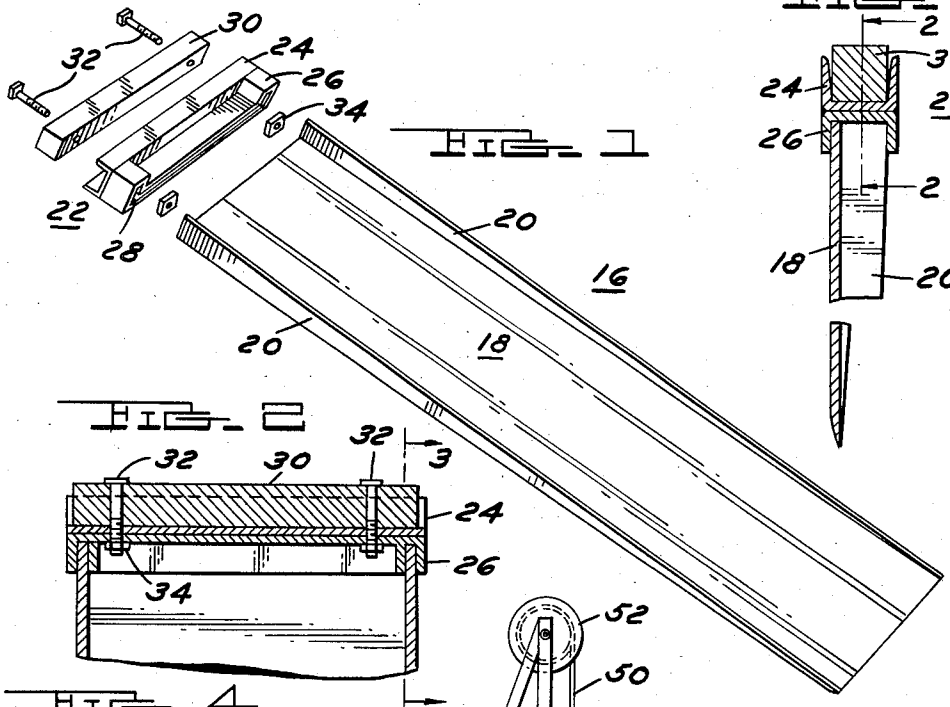


FIG. 1

FIG. 3

FIG. 2

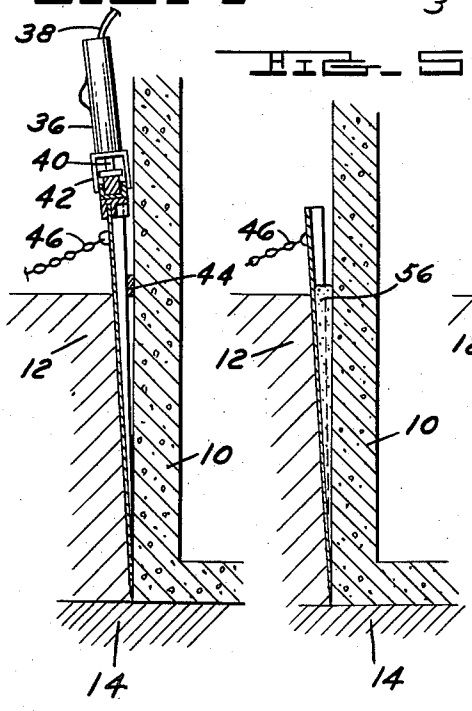


FIG. 4

FIG. 5

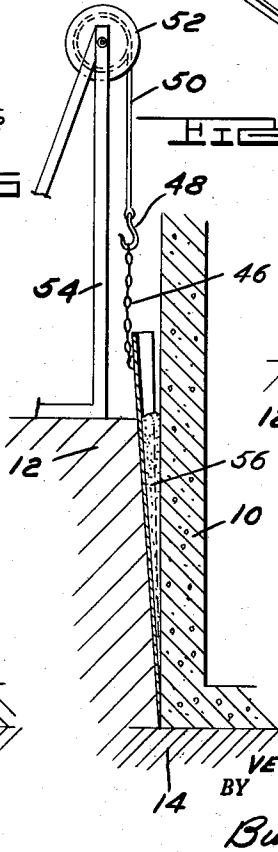


FIG. 6

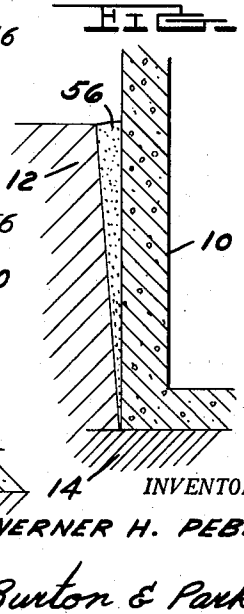


FIG. 7

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APPARATUS FOR REPAIRING BASEMENT WALL

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4 Claims. (Cl. 72—128)

This invention relates to an improved apparatus for repairing a leak, crack or other break in a basement wall or that portion of a foundation wall disposed below the ground.

An object is to provide improved apparatus for use in repairing a wall leak below the ground line; the apparatus is adaptable for use to accomplish a satisfactory repair without excavating the earth from alongside the wall sufficiently to permit a workman within the excavation to make the repairs by plastering, coating, or the like.

Another object is the provision of simple apparatus whereby the repair of the wall may be carried out quickly and easily and with the minimum amount of labor and material and the repair which is accomplished is satisfactory and permanent.

Another object is the provision of improved apparatus whereby leak-sealing composition material may be deposited alongside and adjacent the outer side of that portion of an underground wall wherein there is a leak and may be so deposited in place without excavating the earth from such portion of the wall.

Other objects, advantages, and meritorious features of the invention will more fully appear from the following description, claims, and accompanying drawing, wherein:

Fig. 1 is a perspective of a material-depositing tool of my invention;

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 3;

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a vertical sectional view partly in elevation showing the apparatus in use;

Fig. 5 is a sectional view taken on the same line as Fig. 4 showing the material deposited in place;

Fig. 6 is a view taken on the same line as Fig. 5 but showing the tool being withdrawn; and

Fig. 7 is a view taken on the same line as Figs. 4, 5, and 6 showing the completion of the repair with the tool removed.

This particular invention comprehends the repair of cracks or the like in foundation or basement walls below the level of the ground and comprises the depositing of suitable sealing material alongside the outer surface of the cracked portion of the wall between the wall and the ground. The material deposited is of a character which absorbs moisture and swells and forms a viscous mass which seals the crack in the wall and which constitutes an effective and a permanent seal.

In the drawing a foundation wall is indicated by the numeral **10**. Such may be a concrete wall or the like. The adjacent earth is indicated by the numeral **12**. Such wall would normally be disposed upon a footing indicated by the numeral **14**. The improved tool whereby I carry out the depositing of the material in the ground alongside the wall comprises an elongate trough-shaped element **16** shown in perspective in Fig. 1. This may be formed of suitable metal. Aluminum is a satisfactory material of

light weight. This tool being channel-shaped in cross section has a bottom portion **18** and two side wall portions **20**. The side wall portions taper from the top to the bottom of the tool and so that at the bottom they are flush with the bottom wall as shown in Fig. 3. The channel element or tool might be provided in a suitable length to extend through the ground to the normal depth of the wall as, for example, a length of six feet and have a width of one foot. The side wall portions might have a height or width at the top of two inches tapering to substantially zero at the bottom.

The upper end of the element **16** is provided with a removable cap or crown member **22** which comprises a channel-shaped upper portion **24** and a lower portion **26**. The upper portion **24** and the lower portion **26** may be welded together as shown in Figs. 2 and 3. The lower portion **26** is hollowed out as at **28** to be received over the upper end of the channel member **16** seating thereover as shown in Figs. 2 and 3. An impact member which may be formed of brass or the like is indicated as **30**. This impact member is adapted to be received within the channel of the upper member **24** as shown in Figs. 2 and 3. It is adapted to be held therein by bolts **32** extending therethrough and provided with nuts **34** as shown in Figs. 1 and 2.

In use the tool is driven into the ground alongside the cracked portion of the wall as shown in Fig. 4 in which figure an air hammer apparatus **36** is provided. **38** indicates the pneumatic line leading to the cylinder and **40** indictaes the hammer per se. The cylinder has a forked portion **42** which is adapted to be received over the cap or crown assembly so that the blows may be applied to the impact member **30** to drive the tool into the ground alongside the wall. In order to hold the upper end of the tool sufficiently away from the wall to facilitate such driving, a guide or spacer **44** may be provided as shown in Fig. 4 Obviously the tool might be driven into the ground manually with a sledge hammer.

The chain **46** is provided to be picked up by the hook **48** of a cable **50** which cable may extend over a pulley **52** carried by a frame assembly **54** as shown in Fig. 6 so as to facilitate withdrawal of the tool from the ground after the completion of the operation.

When the tool has been driven into the ground into the position shown in Fig. 5 the earth will have been urged or shoved away on the inside of the trough or channel-shaped tool for a slight distance. Within the cavity thus formed a suitable dry, water-absorbent sealing material **56** may be deposited. This will flow down and fill the cavity. A suitable material is essentially bentonite and a particular kind of bentonite which has been employed and found satisfactory is Volclay bentonite put out by American Colloid Co. Such material is placed in the cavity in a dry powdered form. Upon deposit of the dry powdered bentonite within the cavity formed by the tool, the tool is withdrawn therefrom leaving the material within the cavity.

Water may then be poured thereupon if desired. However, it has been found that the dry powder will pick up enough water from the ground, particularly if the ground is at all moist. After picking up water the material forms a sort of gel becoming a viscous liquid mass and expands. The material expands to several times its normal size and such that it fills and seals the break or crack in the wall. As its expanse is limited by the size of the cavity within the ground, such expanse forces the material tightly against and over the cracked portion of the wall so as to form an effective seal thereover.

The tool **16** may be withdrawn upon deposit of the bentonite and as shown in Fig. 7 the cavity will be filled with the material **56**. As hereinabove described this

material picks up moisture from the adjacent earth. As it picks up moisture it swells and becomes a gelatinous, viscous mass. It will swell to completely fill the cavity and even become embedded in the earth and in some instances swell sufficiently to extrude slightly above the ground line. It constitutes an effective seal over the cracked side of the foundation wall and a seal which constitutes an effective barrier to the passage of moisture through the wall. It not only constitutes a barrier to moisture through the crack and seals the same but if the crack becomes larger with the passage of time, the material will serve as a seal for the varying crack.

What I claim is:

1. Mechanism of the character described comprising: an elongate tool in the form of a plate which is channel-shaped in cross section having a bottom wall and opposed side walls and the side walls of which channel taper from one end of the plate toward the other, said plate having a length substantially greater than its width, said plate provided at the end of which the sides are of maximum width with an end portion overlying impact-transmitting relation such end of the sides and bottom wall and having an impact-receiving face extending transversely of the channel-shaped plate to receive impacts of a driving hammer, and provided at the opposite end with side walls tapering substantially flush with the bottom wall.

2. Mechanism of the character described comprising, in combination, an elongate tool of a plate-like character channel-shaped in cross section and having a bottom wall and side walls which taper from one end of the plate to the opposite end thereof and to a point substantially flush with the bottom wall, said bottom wall having a width greater than the combined heights of the two side walls, said tool provided at the end of which the sides are of maximum width with a removable impact

receiving cap portion, said cap portion adapted to be removably received over such end of the tool embracing both of the side walls and the bottom wall thereof.

3. Mechanism as defined in claim 2 characterized in that the cap portion which is removably coupled with the end of the plate includes a separable impact block removably mounted thereon and projecting thereabove and adapted to receive the blows of impact means.

4. Mechanism as defined in claim 2 characterized in that the cap portion which is removably coupled with the end of the plate includes a lower portion and an upper portion, the lower portion being hollowed out to seat under the bottom and the sides of the elongate plate at the end at which the sides are of greatest width, said lower portion provided with an upwardly open channel, the upper portion being an impact block adapted to be seated within said channel and project above the side walls of the channel.

References Cited in the file of this patent

UNITED STATES PATENTS

530,646	Macleod	Dec. 11, 1894
559,941	Gilman	May 12, 1896
738,312	Friestedt	Sept. 8, 1903
1,125,436	Atchison	Jan. 19, 1915
1,361,579	Heeter	Dec. 7, 1920
1,835,367	Becker et al.	Dec. 8, 1931
1,918,886	Amand	July 18, 1933
2,036,123	Dahlander	Mar. 31, 1936
2,094,703	Hitzman	Oct. 5, 1937
2,277,286	Bechtner	Mar. 24, 1942
2,334,779	Luff	Nov. 23, 1943
2,664,741	Nicholson	Jan. 5, 1954