May 9, 1933. D. FINLEY 1,908,414

COVERING STRUCTURE

Filed Feb. 2, 1931

Fig. 1

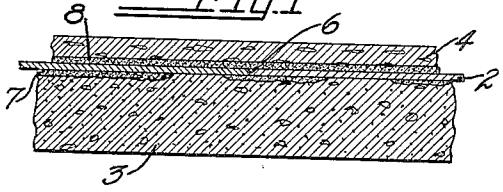


Fig. 5

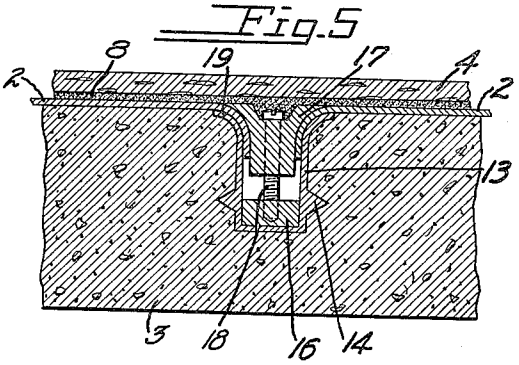


Fig. 2

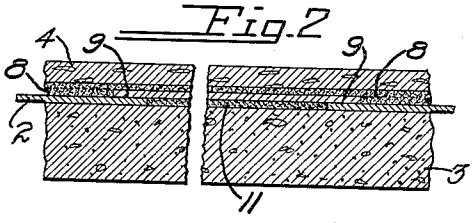


Fig. 3

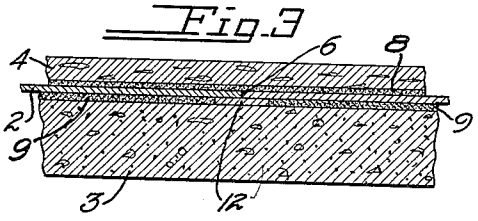


Fig. 6

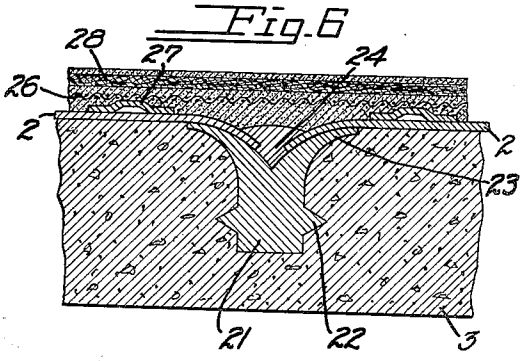
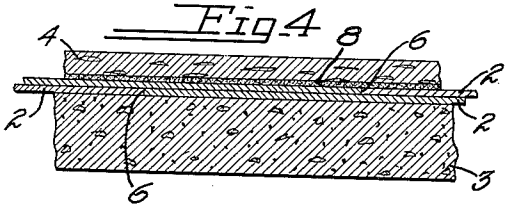


Fig. 4



INVENTOR.
DOZIER FINLEY.
BY Charles S. Evans
HIS ATTORNEY

Patented May 9, 1933 1,908,414

UNITED STATES PATENT OFFICE

DOZIER FINLEY, OF BERKELEY, CALIFORNIA, ASSIGNOR TO THE PARAFFINE COMPANIES, INC., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF DELAWARE

COVERING STRUCTURE

Application filed February 2, 1931. Serial No. 512,853.

My invention relates to a covering structure for pervious bases, and particularly to such a structure for covering surfaces exposed to moisture, such as concrete floors.

It is among the objects of my invention to prevent the moisture that percolates through a pervious base from wetting and subsequently rotting the top covering material.

A further object of my invention is to provide a protective layer on a moisture pervious base, to which a top covering may be permanently bonded.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of my invention. It is to be understood that I do not limit myself to this disclosure of species of my invention, as I may adopt variant embodiments thereof within the scope of the claims.

Referring to the drawing:

Figure 1 is a fragmentary vertical sectional view showing the covering structure embodying my invention; and

Figures 2, 3 and 4 are similar views showing modifications of the covering structure embodying my invention.

Figure 5 is a fragmentary vertical sectional view showing a device for fixing the sheets to a base; and

Figure 6 is a similar view showing another modification of my invention.

Broadly stated, the covering structure embodying my invention comprises a protective layer interposed between a top covering and a moisture pervious base; linoleum and concrete being examples of such coverings and bases. The protective layer is of moisture impervious material, preferably a corrosion and oxidation resistant metal. The metallic sheets are preferably suitably secured to the base, and the top covering is preferably bonded to the metallic protective layer by a suitable adhesive, such as a bituminous cement. Since the protective layer is impervious to moisture the bond is protected against destructive agencies operating from below. Furthermore, since the metallic sheets are preferably corrosion and oxidation resistant, the protective layer will not deteriorate. Consequently, means are provided for permanently securing a covering over a moisture pervious base.

In greater detail, Figure 1 shows the simplest embodiment of my invention, in which a protective layer, comprising the abutting sheets 2, is laid on a base, such as the concrete floor slab 3, to form a moisture impervious shield for a covering 4. These sheets are preferably of a corrosion and oxidation resistant metal, such as stainless, rustless, or galvanized iron; lead; zinc; aluminum; copper; brass; or other alloys. Certain non-metallic substances are also satisfactory, providing that the material is corrosion and oxidation resistant and does not otherwise deteriorate with age. Glass is an example of such material, but its application is different, and is therefore covered in a co-pending application Serial No. 512,852, filed February 2, 1931. An important feature of the metallic sheets is that they may be in a flexible form; this feature aiding materially in handling the sheets and facilitating in laying the sheets on a base.

If considerable moisture is encountered the butt joints 6 of the sheets 2 may be soldered or welded; and, if the floor is rough, a leveling layer 7 of cementitious material, such as a cement mortar, may be applied to the floor beneath the sheets. The top covering 4 may be of any suitable material, such as linoleum, and is preferably cemented to the sheets 2 by a suitable adhesive 8, such as a bituminous cement.

In Figure 2 is shown another method of applying the sheets, in which the edges 9 of the sheets are overlapped. The spaces formed beneath the overlapping sheets are preferably filled with a cementitious material 11, such as a mortar of Portland cement, in order to provide a level top surface. If very thin sheets are employed the cementitious material 11 may be omitted. This is determined, of course, by whether or not the overlapping edges would be sufficient to break a covering material such as linoleum, or whether or not the slight ridges caused would be undesirable. The overlapping

edges 9 may be soldered or welded to form a moisture tight joint.

In Figure 3, a strip 12 is inserted beneath the joint 6, to permit a better soldered, or welded, joint to be made than the construction of Figure 1 permits. Here again cementitious material 9 is shown beneath the sheets; it being obvious that this filling material may be omitted in the case of thin sheets.

Figure 4 shows two layers of abutting sheets, with the butt joints 6 in staggered relationship in the two layers. These joints may be soldered, or welded, to effect a very impervious covering. This construction naturally offers a smooth surface for the covering 4, providing the slab 3 is smooth, or has been leveled by applying suitable materials.

In underground rooms or other locations where conditions of moisture exist it may be desirable to apply the covering structure embodying my invention to the walls and ceilings as well as the floors. In this event clamp means are provided for securing the metal sheets. As shown in Figure 5, a trough 13 with the projections 14 is preferably imbedded in the concrete slab 3 to provide a workable foundation, and suitable spaced blocks 16 are preferably welded into the bottom of the trough. A clamping bar 17 is pulled down into the trough by means of screws 18 threaded into the blocks 16 to compress the edges of the sheets 2 against outward turned upper edges 19 of the trough. The heads of these screws are preferably countersunk into the clamping bar, so that a smooth surface will be presented to the covering material 4. Since the exterior surface of the trough is unbroken this forms a water-tight joint.

A trough will of course be employed for a given installation wherever it is necessary to fasten down the sheets, as in corners, and along the edges of strips. If very long runs must be made transverse troughs may also be employed to join the ends of strips. This will necessitate a cross joint in the trough, which may be readily built up by forming a welded miter joint as the troughs are placed.

In Figure 6 a variant type of imbedded fastening is shown. A bar 21, with the projections 22 is imbedded in the concrete slab 3 to provide anchoring means. The bar is suitably deformed, along its upper surface, into the flanges 23 forming a bearing surface on which the sheets 2 are fixed by means of a welded joint 24.

Concrete, brick, wood, and similar floors in warehouses, piers, loading platforms, machine shops, et cetera, wear away quite rapidly. Accordingly, a suitable covering, preferably a plastic surface covering comprising a bituminous treated fibrous sheet, such as described in United States Patent No. 1,610,019, is frequently employed to resist this surface wear. Considerable difficulty is encountered, however, in maintaining the bond between the top covering and a moisture pervious base, when the surface of the base is continually wet with moisture. It is believed that the bond is destroyed by chemical agents such as alkali reacting with the bonding material to loosen the covering, or by dissolved salts carried up thru the base and deposited under the covering to raise the covering and break the bond, or both.

An interposed protective layer of metal will prevent such occurrence, because it is practically completely impervious to moisture. Furthermore, the protective layer of metal is preferably corrosion and oxidation resistant; therefore, the protective layer itself will not deteriorate, and means are provided for permanently seaming the covering over a moisture pervious base. As an additional reinforcement, a foraminated sheet, such as the screen 26, may be fixed to the sheets 2 by the spacing bars 27. This screen provides an additional mechanical bond for uniting a covering 28 to the sheets 2. For the purposes of illustration, the covering 28 is shown comprising a bituminous treated fibrous sheet similar to the plastic pavement described in the patent above referred to.

I claim:

1. A covering structure for floors, pavements, and the like comprising a base, a smooth-surfaced layer of corrosion and oxidation resistant sheet metal overlying said base, and a fibrous covering bonded to said metal layer by a bituminous cement.

2. A covering structure for floors, pavements, and the like comprising a base, a plurality of abutting metallic sheets covering said base and presenting a smooth surface, metallic seam strips underlying the abutting portions of said sheets, and a fibrous covering bonded to said sheets.

3. A covering structure for floors, pavements, and the like comprising a base, a plurality of layers of metallic sheets covering said base and presenting a smooth surface, the sheets in each layer abutting and breaking joints with the sheets in an adjacent layer, and a fibrous covering bonded to said sheets.

4. A covering structure for floors, pavements, and the like comprising a base, a metallic sheet overlying said base, and a bituminous treated fibrous sheet adhesively secured directly to said metallic sheet.

5. A covering structure comprising a base, a metallic sheet secured to said base, a foraminated sheet secured to said metallic sheet, and a fibrous covering overlying said sheets and adhesively secured to the metallic sheet by a bituminous cement, said foraminated sheet being embedded in the cement to reinforce the bond between said fibrous covering and said metallic sheet.

6. A covering structure for floors, pave-

ments and the like comprising a base, a plurality of abutting metallic sheets covering said base and presenting a smooth surface, and a linoleum sheet adhesively secured directly to the smooth surface of said metal sheets.

7. A covering structure for floors, walls, pavements and the like comprising a base, a plurality of metallic sheets covering said base, clamp means secured in said base and engaging the edges of adjacent metallic sheets to secure said metallic sheets to said base, said sheets and clamp means presenting a smooth surface, and a fibrous covering adhesively secured to said surface.

In testimony whereof, I have hereunto set my hand.

DOZIER FINLEY.