To all whom it may concern:

Be it known that I, Frederick G. Jordan, a citizen of the United States, residing at Cement, in the county of Pend Oreille and State of Washington, have invented certain new and useful Improvements in Dampproofing Concrete Bodies, of which the following is a specification.

This invention relates to means and devices for perfecting damp and water-proofing cement and concrete articles, work and structures, and pertains especially to relative and registering arrangement of dampproofing elements within such concrete articles, work and structures.

The principal object of the invention is to provide plural elements, impenetrable by water, damp or moisture, which shall be contained in and constitute a component part of a concrete wall, block, slab or structure, said elements having concrete-holding apertures alternating with each other and with like apertures in like opposite and alternating dampproofing elements and thereby afford damp-proof concrete bodies for universal use, said concrete holders forming a concrete bond between said plural impenetrable elements, and said elements also constituting concrete reinforcement, similar to answering the same purpose as the reinforcement devices covered by my Patent No. 1,294,278.

In the accompanying drawings forming part of this application:

Fig. 1 is a perspective view, partly broken away, showing an application of the invention.

Fig. 2 is a detail plan view of part of a pair of plates shown in Fig. 1.

Fig. 3 is a detail perspective view of a pair of plates, as shown in Fig. 1, partly broken away.

Fig. 4 is an enlarged detail sectional view of part of what is shown in Fig. 1.

Fig. 5 is a fragmentary perspective view showing a plurality of what are termed "ashlar" blocks, as for a corner-wall, embodying my invention.

Figs. 6 and 7 are fragmentary sectional views showing interior construction of blocks in Fig. 5, upon a dampproof course.

Fig. 8 is a fragmentary sectional view of the interior structure, as would be embodied in circular containers.

Figs. 9 and 10 are further detailed sectional views, showing substantially the interior structure of thin walls, with the addition of metallic truss reinforcement.

Fig. 11 is a perspective view of a pair of modified form of plates partly broken away.

Fig. 12 is a detail sectional view showing the application of the plates shown in Fig. 11.

Fig. 13 is a detail perspective view showing part of a roofing tile embodying this invention.

Fig. 14 shows the invention applied to plastering.

The same reference characters denote the same parts throughout the several views of the drawings.

Several views of the drawings are used to illustrate only some of the uses or applications of the invention which comprises the construction and relative arrangement of the baffle plates or sheets in a body of concrete, and such showing does not cover all the various uses or capabilities of the plates for water and dampproofing concrete bodies.

In carrying out my invention I oppose, intercept, and effectually cut-off, prevent, dissipate and destroy capillary attraction in an article or structure containing the elements as sheets or plates of special construction and relative arrangement which also affords reinforcements, ties or bonds for strengthening and unitizing said elements with the body of cement or concrete material containing the same.

Referring to Fig. 1 of the drawings, the concrete "ashlar block" has three sheets or plates 1 molded therein adjacent to its low temperature face 2 opposite its high temperature face 3. Said sheets or plates are arranged parallel with each other and with said faces, and extend from end to end of the block and the top to the bottom faces of the block. Said plates are duplicates in construction and each comprises a plurality of openings or perforations 4 for the passage and retaining of concrete bonding members 5 in a molding operation. The opening edges of the sheets or plates are preferably turned as at 6 so that in placing the plates for water or dampproofing, said turned edges of one plate overlap like edges of the adjacent plate or plates, with a filling and bonding space between the plates for a layer or layers of colloidal filling or strata of enriched concrete as 7. The plate holes, openings or perforations 4 are
preferably of the same size and equal distance apart in each plate or sheet, and in proper molding position the openings 4 of certain plates alternate with the solid members 8 of adjacent plates, so that in molding position of the plurality plates the center of the openings 4 and the center of the intervening plate members 8 are on one common homologous axis as particularly shown at a, a, a, Fig. 2. The area of the openings 4 being less than the area of the solid members 8, in approximate relation of 40 per cent openings and 60 per cent solids, so that by said relative arrangement of a plurality of plates as shown especially in Figs. 1 and 4 of the drawings, the first plate adjacent the face 2 of a concrete body or block repels approximately 60 per cent of the moisture or dampness entering this face while 40 per cent thereof passing into the bed or strata 7 through the bonds 5 is met, cut off and repulsed by the solid members 8 in the next or second plate, and should any dampness in a lesser degree penetrate through the bonds or bond openings in the second plate such escape would be met, opposed and repulsed by the solid area or members 8 of the next or third plate, thereby completing positive repulsion and evaporation of all moistures and dampness.

The same results are attainable when the plates are assembled and relatively arranged in the various other forms and applications of the invention, now to be particularly referred to.

In Fig. 5 of the drawings, is illustrated a plurality of ashlar blocks 9 as for a corner of a wall, showing the baffle, hereinbefore described, damp-proofing the joints 9, and connecting on tying the blocks in vertical and horizontal position, with the block hollows 10 filled with rubble-concrete or broken stone and plastic material as 11. Figs. 5 and 7 illustrate, respectively, a hollow block 12 having bond all plates and set upon a concrete base containing the damp-proof strata, provided with the baffle plates, and said base has a lap point as 13, in the strata between the plates. Fig. 8 illustrates my water-proofed concrete hollow blocks in circular formation with double interlocking bed and header joints as 14. This form embodies double strata intervened by the body concrete, and each strata is provided with double baffle plates. These blocks are reinforced by a tension bar 15, and this particular construction is especially adaptable for the walls of circular containers such, for example, as water and oil tanks, grain storage, silos and the like.

Figs. 9 and 10 illustrate the application of my invention to truss-reinforced wall slabs, and paving flags when the latter are laid flat or when used jointly in both flat and vertical positions for damp-proofing the same, and the joints between. The overlapped joint as 17 is made water and damp-proof by having the solid portion of the baffle plates continuous and projecting beyond the joining edges of the slabs or flags, and these projecting portions of the plates are folded in interlocked position at 18. The brace bar or stringer 19 constitutes a concrete body of reinforcement, and this structure may form damp-proof walls and linings for various receptacles and containers, as well as monolithic-concrete walls and paving.

The invention is shown applied in and to roofing tiles as illustrated in Fig. 13 of the drawings, wherein the tile or plates follow the peculiar angles or forms of the tile as 20, and constitute a damp-proofing part thereof. Fig. 14 shows the application of the invention to a brick wall 21, having plastering 22 applied thereto, such plastering containing sheets of perforated water-proof fabric material as 23 relatively arranged as hereinbefore described, the cement-stucco damp-proof facing of the outer face of the brick wall being shown by the dotted lines 24.

Adverting to the modified form of baffling sheets or plates shown in Figs. 11 and 13, the same principle of alternating solid portions 25 and openings or perforations 26 is carried out as in the sheets or plates hereinbefore described, but these plates have relatively outwardly projecting angular points or ridges 27, from which extend inwardly projecting flanges 28, forming the sides of the openings 26. When the sheets or plates are assembled, these flanges form a square or angular cavity for the binding or water-proof strata 29 and interlocked with said strata, as clearly shown in Fig. 12. In this form of plate as well as in the other form hereinbefore described, the bond openings of one plate being centrally arranged so the solid portions of the adjacent plate, and the interposed edges of said openings of the plates overlapping, prevents direct capillary attraction.

As far as known to applicant, the attempts hereinafter made to render concrete moisture and damp-proof, have either completely insulated, separated, and disbonded the faces of a concrete body by interposing solid sheets of water and damp-proof material therebetween, or by relying upon air chambers or spaces, formed in the body of concrete by various means and devices, or by having a concrete body formed with separately functioning walls or faces having little structural strength, value, solidity and permanence. Such attempts have usually resulted in impairing the structural strength and value of a concrete body; wall or structure.
Although I have shown and referred to the baffle sheets for concrete being of sheet metal, I do not wish to confine myself to any particular material, nor to the size, shape and number of the bond openings and intervening solid portions of the sheet or relative proportions and for the purposes hereinbefore stated, nor do I wish to limit myself in the application of the invention, but reserve the right to make such changes and variations therein and in the practical utility thereof as may not be inconsistent with the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A damp-proof concrete body, comprising a plurality of perforated sheets embedded in such body, with a bonding strata of cementitious material therebetween, said sheets having alternate openings for said strata, and solid portions of greater area than said openings, said sheets having such relative arrangement as to locate the openings of one sheet centrally opposite the solid portions of the adjacent sheet.

2. A damp-proof concrete body, comprising a pair of sheets, each of said sheets having like bent and interturned openings and solid portions, embedded in such body of concrete cement material, with a cementitious colloidal bonding strata between and through the interturned openings of said sheets.

3. A damp-proof concrete body, comprising a plurality of plates having alternate interturned openings and solid portions embedded in said body, with a plastic colloidal bonding strata therebetween, portions of said strata extending through the openings, and a greater portion of said strata being confined between said plates.

4. A damp-proof concrete body, comprising a plurality of bent edged perforated sheets embedded in said body in separate parallel laminar position, and parallel with opposite faces, a bonding strata between said sheets, extending therethrough and solidly bonding with the concrete of said body.

5. A damp-proof concrete body, comprising a plurality of perforated plates assembled within such body in separate parallel position with the outer face of said body, the perforations of one plate being in true registering relation opposite the solid portions of the adjacent plates, said perforations having interturned edges, forming interlocking and interposing members with the strata.

6. A damp-proof concrete body, comprising a plurality of perforated plates assembled within such body, with the perforations of one plate opposite the solid portions of the adjacent plates, a bonding strata between and extending through the perforations of said plates, rabattting and projecting said plates and bonding strata, from said bodies forming a rabbeted and projecting interlocking damp-proof joint between said bodies.

7. A damp-proof concrete body, comprising a plurality of perforated sheets assembled and embedded within such body, the perforations of one sheet registering with the solid portions of the adjacent sheet, a colloidal bonding strata between, and extending through the perforations of said sheets, the edges of said perforated sheets left solid, projecting, lapped and folded, from the bed or joining faces of said bodies, forming an interlapped and locked damp and water-proof joint.

8. A damp-proof concrete body comprising a face layer of cement material, a perforated sheet of impervious material laid upon said layer, a layer of bonding strata laid upon said sheet; a second like sheet laid upon the strata, with the perforations of this sheet opposite the solid portions of the second sheet, a second layer of strata material, and a third sheet with its perforations truly registering with the solid portions of the second sheet, and an inner or completing layer of concrete material laid upon the third sheet, forming under pressure a solid homogeneous laminated body of damp-proofed concrete.

In witness whereof I hereunto set my hand in the presence of two witnesses.

FREDERICK G. JORDAN.

Witnesses:

C. T. BELT,
H. T. McKEEVER.