Nov. 29, 1927. 1,651,072

W. H. M. SMALLMAN

BUILDING CONSTRUCTION

Filed May 20, 1926 2 Sheets-Sheet 1

Fig. 1.

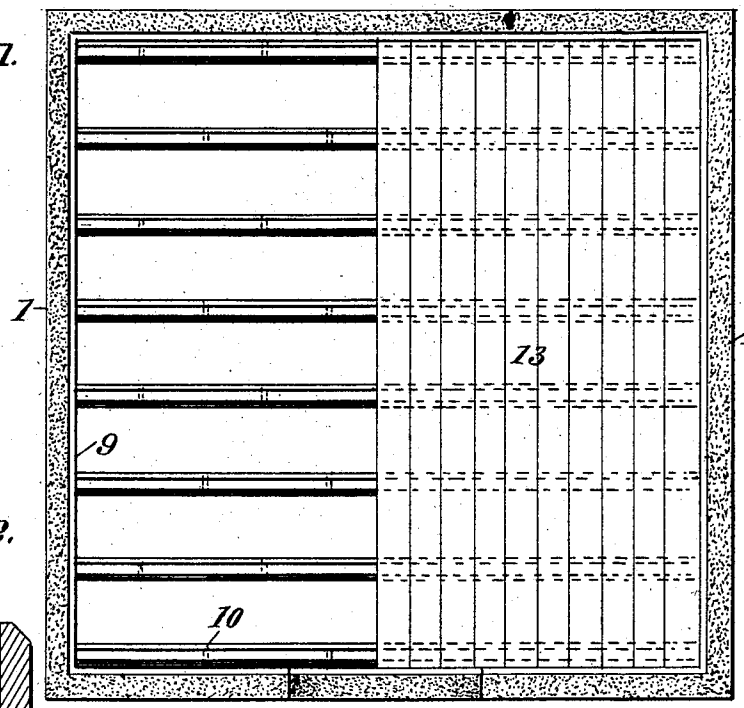


Fig. 2.

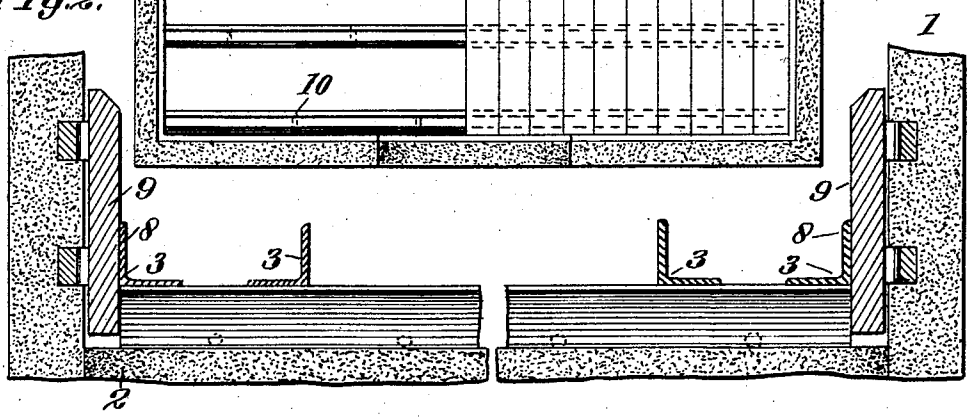


Fig. 3.

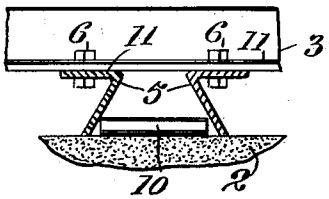
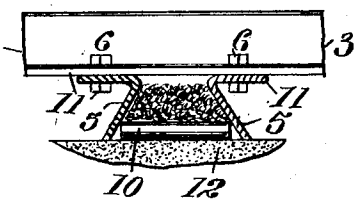


Fig. 4.



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Fig. 5.

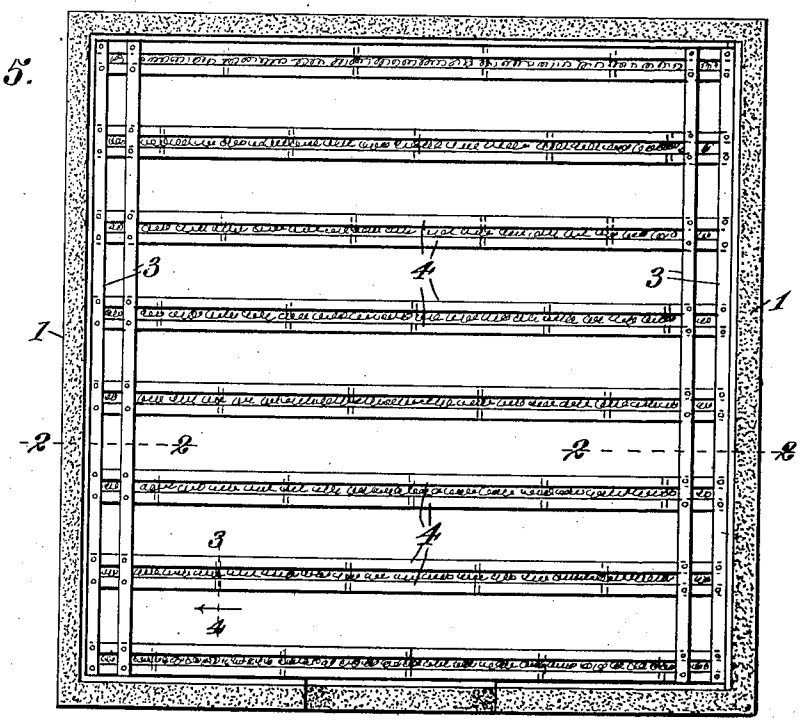


Fig. 6.

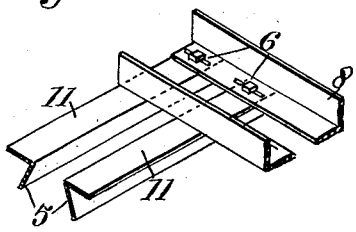


Fig. 8.

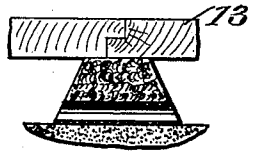


Fig. 9.

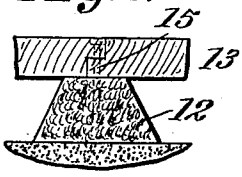
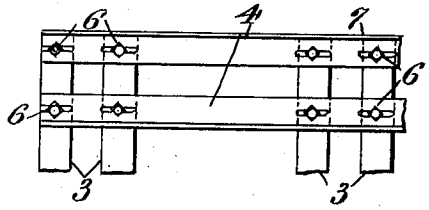


Fig. 7.



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Patented Nov. 29, 1927. 1,651,072

UNITED STATES PATENT OFFICE.

WILLIAM H. M. SMALLMAN, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO JOHN F. RILEY, OF SAN FRANCISCO, CALIFORNIA.

BUILDING CONSTRUCTION.

Application filed May 20, 1926. Serial No. 110,328.

This present invention relates to improvements in building construction and more particularly to composite molded floor sleepers on which is supported the wood floor members of a building flooring.

The invention has for its objects to provide a fire-proof composite sleeper structure of an imperishable material, penetrable to nails or like fastenings for securing the floor members thereto. To provide a structure which during the formation thereof permanently adheres to its supporting base, thereby overcoming the necessity of separate securing means for attaching it to its base, and a further object is to provide a structure which is capable of being transversely ventilated to avoid dead air spaces between the sleepers beneath the floor surface and its supporting surface. A further object is to provide an adjustable form of structure for assisting in the formation of the sleepers and by the use of which the sleeper structure may be cheaply and economically formed.

The invention consists primarily in the composite structure of an aggregate or binder consisting primarily of magnesite, silica, asbestos, wood fibre, talc and magnesium chloride intermixed in their proper proportions to constitute a plastic mass, which is molded directly onto the structure to support the same, and when set adheres permanently thereto.

To more fully comprehend the invention, reference is directed to the accompanying drawings, wherein—

Fig. 1 is a view in plan disclosing a flooring attached to and supported by my improved ventilated sleeper.

Fig. 2 is a transverse sectional view on line 2—2 of Fig. 5, disclosing the forms for use in casting the sleeper structure on a permanent base.

Fig. 3 is a view in detail section on the line 3—4 of Fig. 5, showing one of the ventilators disposed transversely of one of the sleeper forms, prior to the pouring of the sleeper forming plastic mass.

Fig. 4 is a similar view on line 3—4 of Fig. 5, after the pouring of the plastic mass.

Fig. 5 is a view in plan of a room, illustrating the forms to assist in the pouring of the plastic mass during the formation of the ventilated sleepers.

Fig. 6 is a view in detail perspective of a pair of sleeper forming angle members adjustably held to the side rail.

Fig. 7 is a view in detail top plan of a portion of the form disclosing the adjacent angle members for forming adjacent sleepers and adjustable within limits longitudinally of the side rail.

Fig. 8 is a sectional view in detail transversely of a completed sleeper, illustrating the ventilator extending transversely therethrough.

Fig. 9 is a similar view disclosing the solid portion of the sleeper and with its base adhering to the support.

In the drawings, wherein like characters of reference designate corresponding parts, the numerals 1 indicate side wall members of a room structure, and 2 a permanent floor, preferably of concrete or other fire-proof material.

Within the room is assembled a mold or sleeper forming frame, consisting of longitudinal pairs of side rail members 3 and parallel spaced pairs of sleeper forming angle bars 4. The opposing faces of the sleeper forming angle bars diverge from each other, as at 5, Figs. 3, 4 and 6 of the drawings, to enable the formation between adjacent members of a given pair of a sleeper having a relatively broad base and narrow top, when viewed in transverse section.

Each of the members 4 of any given pair are adjustably held by bolts 6 to the side rails 3, said rails being provided with slots 11 for receiving the bolts 6. These bolts and slotted construction enable the adjustment of the angle members 4 to and from each other to enable the formation of sleepers of desired widths by the use of a single form.

The form being laid, as in Fig. 5 of the drawings, with the outer upturned faces 8 of the side rails 3 bearing against the surfaces of the base boards 9, as in Fig. 2, the mass from which the sleepers are molded is compounded in the following manner:—

A dry mixture of magnesite, silica, asbestos, wood fibre and talc, in the proportions of approximately 40% magnesite; 30% silica; 10% asbestos; 15% wood fibre and 5% talc is thoroughly intermixed by any of the well known methods and after intermixed it is treated with an aqueous solution of magnesium chloride to afford a plastic mass. This mass, which is preferably of the con-

sistency of cement when the same is pourable, is deposited between the sleeper forming angle members 4 and is tamped therebetween after the tubular ventilators 10 have been positioned between the members 4, as indicated in Fig. 3 of the drawings. The tamping is continued until such time as the mass between the respective pairs of members 4 is free of voids or vents, and its upper surface is level with the top flanges 11 of the members 4.

A scraper is then moved longitudinally of the flanges 11 to insure the removal of projecting portions of the sleeper forming mass lying above the flanges 11.

In this plastic mass the magnesium chloride serves as a binder and a means for uniting the sleeper when set directly to its support. When set, the sleeper can, if necessary, be easily sawed, cut or tooled, and it can be readily penetrated by nails, spikes, lags and bolts and will tenaciously hold such fastenings.

While the above proportions are preferable they are, of course, not absolute, and may be varied within limits according to circumstances and the skill and discretion of the operator, dependent upon the desired strength of the finished product, its elasticity, hardness, consistency and penetrability.

After setting for approximately twenty-four hours, after being poured and tamped, the plastic mass hardens sufficiently to permit the removal of the form. On the removal of the form by any of the well known methods of separating the various parts, it will be found that the sleepers are adhering tightly and are permanently attached to the concrete member 2 without the aid of separate fastening means; this being accomplished by the action of the magnesium chloride in connection with the other ingredients of the plastic mass.

The sleepers thus formed and indicated by the numerals 12 are imperishable, sanitary, penetrable to nails and like fastenings, and contain ventilating means affording an air circulation between the same.

To the upper surfaces of the sleepers, all of which lie one level with the other, due to the utilization of the mold or molding frame in the formation thereof, are secured by nails or other fastening means, the main wood floor boards or members 13, the same being attached by nails or like securing means 15—Fig. 9.

I claim:—

1. In building construction sleepers composed of a nail penetrable body aggregate and a binder molded in a plastic condition onto the surface of a structural floor slab and when set the binder uniting the sleeper directly to the surface of the structural floor slab supporting the same, said sleeper projecting beyond the surface of the floor slab.

2. In building construction sleepers composed of magnesium chloride magnesite, asbestos and wood fibre molded in a plastic condition directly onto the surface of and when set adhering directly to a structural floor slab supporting the same.

3. In building construction composite nail penetrable sleepers composed of a body aggregate and a binder of magnesium chloride molded directly onto the surface of a structural floor slab, the setting of the binder uniting the sleeper directly to the surface of the structural floor slab.

4. In building construction composite nail penetrable sleepers composed of magnesite, asbestos, wood fibre, and a binder of an aqueous solution of magnesium chloride molded in a plastic condition directly onto and when set adhering directly to the upper surface of and projecting above a structural floor slab supporting the same.

5. In a building construction, a supporting slab of normally impenetrable plastic material, a floor sleeper of composite plastic nail penetrable material molded directly onto the surface of the slab extending outwardly therefrom, and when set adhering to the slab surface.

6. In building construction, a composite nail penetrable slab for molding in a plastic condition directly onto and when set, adhering directly to a structural floor slab supporting the same, said sleeper composed of magnesite, silicate, asbestos, wood fibre, talc and a binder of an aqueous solution of magnesium chloride.

7. In a building construction, a supporting slab of normally impenetrable plastic material, a floor sleeper of composite plastic nail penetrable material resting on the surface of the slab and extending outwardly therefrom, said floor sleeper provided with a vent opening extending transversely therethrough in a plane above the supporting slab.

In testimony whereof I have signed my name to this specification.

WILLIAM H. M. SMALLMAN.