(No Model.)

E. L. RANSOME.

ILLUMINATING FLOOR.

No. 518,045. Patented Apr. 10, 1894.

Fig. 1.

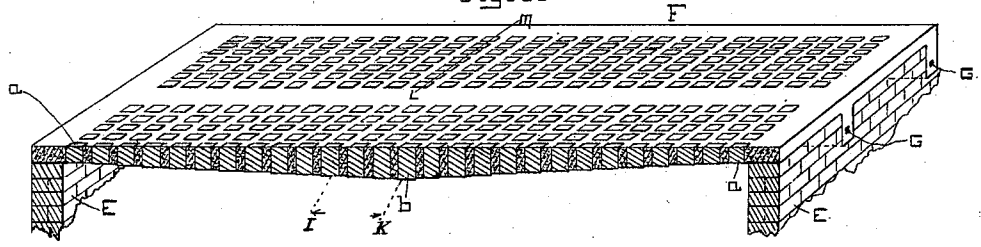


Fig. 2.

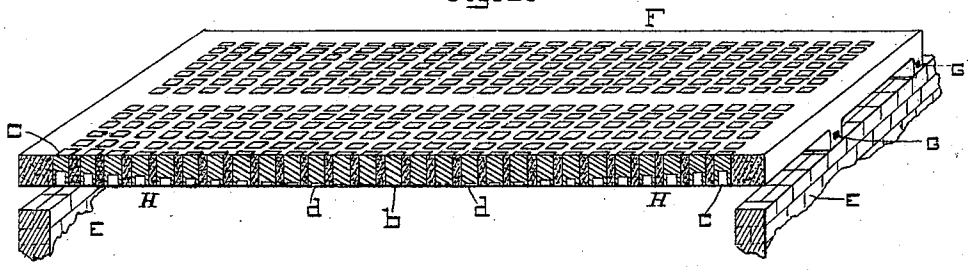


Fig. 3.

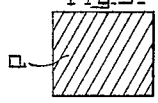


Fig. 7.

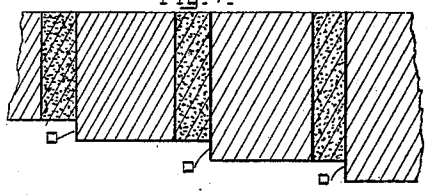


Fig. 4.

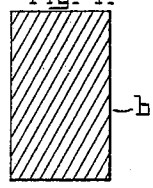


Fig. 5.

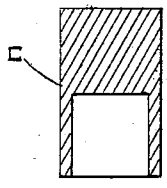


Fig. 8.

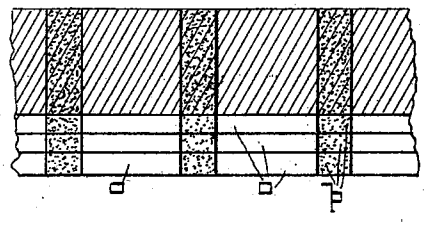
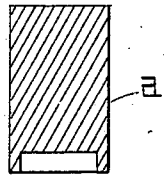


Fig. 6.



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ERNEST LESLIE RANSOME, OF OAKLAND, CALIFORNIA.

ILLUMINATING-FLOOR.

SPECIFICATION forming part of Letters Patent No. 518,045, dated April 10, 1894.

Application filed November 13, 1893. Serial No. 490,816. (No model.)

To all whom it may concern:

Be it known that I, ERNEST LESLIE RANSOME, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented an Improvement in Illuminating-Floors; and I hereby declare the following to a be full, clear, and exact description of the same.

My improvement relates to the method of making illuminating panels for which Letters Patent No. 448,993 were issued to me on March 24, 1891. This method is used in the construction of self-supporting concrete floors, in which the weight of the floor, together with its load, is carried over the space between the floor supports, by the inherent strength of the floor itself, without the aid of iron beams, after the manner of a beam or plank spanning any space. In such a position the floor is subjected to two principal strains, viz.: a tensile strain and a compressive strain. The tensile strain occurs at the lower part of the floor, and is resisted and taken up by means of twisted iron bars embedded in the concrete, or by other means. The compressive strain occurs in the upper portion of the floor, and is, in floors, equally loaded, greatest at the center of the distance between the supports, and dies out, or ceases, upon approaching them. This strain is usually sustained by the concrete. In applying illuminating glasses to these floors upon my system, the glass becomes an integral part of the floor, and is subjected to the same strains as the concrete, of which it becomes a monolithical part. These glasses are embedded in the concrete of the floor in the usual way, by being placed into the "falsework" upon which the floor is built, and having the concrete, or cement of the slab in its soft state, put about and between them monolithically with the formation of the slab itself. All of which is fully understood by those skilled in the art. In floors of large spans, and carrying heavy loads, these strains become very great, and in some cases necessitate the use of glasses six inches in thickness at the point of greatest strain; whereas, in the same panel near to the supports, there is no need for the glasses to be any thicker than is necessary to withstand the ordinary traffic of the floor, say some inch or less in thickness.

My improvement consists of illuminating panels or floors, constructed with glasses of various strengths arranged in systematic order, relative to the strains that they are calculated to withstand; the weakest glasses being placed nearest to the floor supports, and the strongest glasses being in or about the center of the distance between these supports, the intermediate rows of glasses being properly graduated from the weakest to the strongest, or vice versa, to withstand the strain of the position they occupy. This variation in strength is obtained by making the thickness of the glass vary, the thinnest glasses being placed nearest to the supports of the floor, and the thickest glasses at the point of greatest strain, which, as before stated, usually is about the center of the distance between the supports. These glasses may be solid and of varying thicknesses, or, for convenience of construction, they may be made all of one maximum depth, and the required variations of strength obtained by coring out the under surface of the glass so as to obtain a varying thickness.

In the accompanying drawings, illustrative of my invention, Figures 1 and 2 are perspective drawings, partly in section, of this construction. Figs. 3, 4, 5, and 6 are sectional drawings of the glasses, which may be square, round, or of any other suitable shape on plan. Figs. 7 and 8 shown details of construction, to which further reference is made hereinafter.

a is a glass of minimum thickness, *b* a glass of maximum thickness, *c* a cored glass of minimum thickness, *d* a cored glass of nearly the maximum thickness; *b*, *c*, and *d* are all of the same depth.

E is a supporting wall, F a floor, G an iron tension bar.

In Fig. 1, I show a section of floor F supported upon walls E, E, having its tensile strain carried and sustained in the well known way by bars G. Glasses are monolithically embedded in the floor as usual, the thin glasses *a* being placed nearest to the supporting walls E, E, and the thickest glasses *b* being placed in or about the center of the distance between walls E, E, as shown.

As many intermediate thicknesses of glasses may be placed between the central glasses of maximum thickness *b*, and the end glasses of minimum thickness *a*, as is deemed expedient.

The under surface of the concrete floor or panel is, by preference, stepped, to suit the varying thickness of the different rows of glasses. By using glasses rectangular in plan, and making each step coincide with a side face of a row of the glasses, a brilliant effect will be given to the under side of the floor. Details of this construction are illustrated by Figs. 7 and 8, of which Fig. 7 is a longitudinal section through floor F, Fig. 1, from *i* to *k*, and Fig. 8, is a cross section of the floor taken on line *l* and *m*. Constructed in this way, the surface of each step is largely glass, the exception being only narrow faces of cement between the glasses. Thus in Fig. 8, surfaces *o*, *o*, *o*, are glass, while surfaces *p*, *p*, *p*, are cement. The light falling through the glasses from above, and radiating through surfaces *o*, *o*, *o*, gives a very bright and pleasing appearance to the under side of the floor.

In order to avoid difficulties of construction of the stepped under side of floor F, in Fig. 1, I sometimes make these glasses all of one uniform depth, equal to the depth of the glass of maximum thickness, and vary the thickness of the body of the glasses to suit by coring out the under surface as shown in Figs. 5 and 6; in which glasses *c* and *d* are of the same depth as the maximum thick glass *b*, but *c* is cored out to the thickness of *a*, and *d* is cored out only slightly so as to vary but little from the maximum thickness. The relative position of these glasses in the panel or floor is shown in Fig. 2.

By maintaining a uniform depth in the glasses I am able to form a flat under surface to the panel or floor, as at H, Fig. 2, and to make the floor or panel of one uniform thickness, excepting only the variations within the glasses aforesaid.

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

1. In an illuminating panel, or floor, a system of glasses of various strengths duly graduated and placed in proper relative order to themselves, and to the floor, for resisting the calculated floor strains, substantially as described.

2. An illuminating panel or floor having an off-set on the under side, the surface of which is formed in part by the face of the illuminating glass, substantially as described.

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