M. F. LYONS.

Tesselated or Mosaic Pavement.

No. 198,638. Patented Dec. 25, 1877.

Fig: 1.

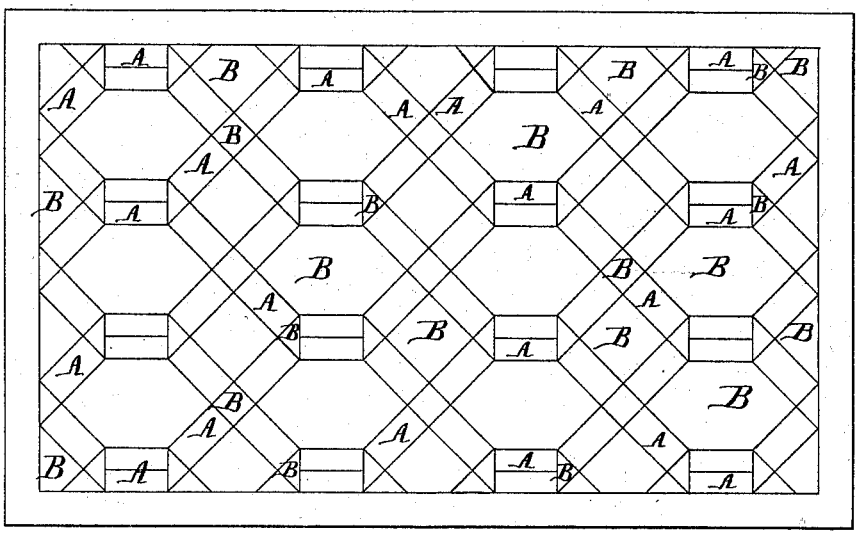
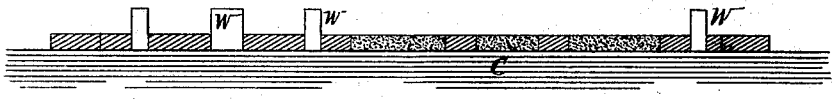


Fig: 2



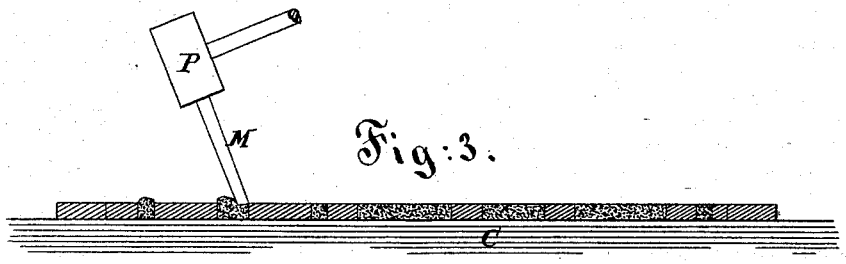


Fig: 3.

Witnesses:

W. F. Stetson

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UNITED STATES PATENT OFFICE.

MICHAEL F. LYONS, OF NEW YORK, N. Y.

IMPROVEMENT IN TESSELLATED OR MOSAIC PAVEMENTS.

Specification forming part of Letters Patent No. **198,638**, dated December 25, 1877; application filed October 29, 1877.

To all whom it may concern:

Be it known that I, MICHAEL F. LYONS, of New York city, county and State of New York, have invented new and useful Improvements relating to Tessellated or Mosaic Pavements, of which the following is a specification:

My pavement is made partly of bricks and partly of cement or plastic material, applied in a soft condition, and caused to harden in the intervening spaces. The general idea has been before proposed. I have devised important modifications in the mode of procedure, and in the resulting pavement.

I employ either ordinary bricks or compressed-face brick. I can apply them together in a great variety of relations, but always so as to leave considerable spaces between, which may be triangular, rectangular, diamond-shaped, or of various forms.

What I esteem as very important is, that I mix the soft material which is to harden in the spaces to such a consistency that it will not cohere without being forcibly rammed or compressed together, and, after laying the bricks on the previously-prepared bed of sand, or the like, in about the desired positions, deposit a quantity of the stiff paste in each space, and proceed to tamp.

An evil which I wish to avoid is the sticking of the whole pavement together as a single rigid sheet by the cohesion of the cement to the edges of the bricks, making it uncertain where the cracks will occur when the settling and disturbance subsequently occurs, which is almost inevitable in practice with pavements.

I find it is possible to employ the plastic material in such a condition of stiffness that on ramming it together its particles will unite each with each, and form a strong line, while they will not unite with the previously-baked and dry bricks which form the bounding walls. The compression by the blows upon the yielding material produces two effects: it induces the material to cohere, and crowds the bricks to the one side or the other, according as the ramming is more or less forcible on one side or the other, and according as the blows are directed either directly downward or obliquely to one side. I make the ramming or tamping effective to obtain both ends.

In order to apply the blows quite out to the edges of the large or small spaces filled with the soft material, I can apply a "set" of hard wood or other suitable material, which shall be made to apply against the sides of the adjacent bricks, and, being struck by a suitable implement on the top, shall induce the desired compression of the soft material. I fill the space by this means a little more than full, and afterward remove the surplus with a suitable scraper before it has hardened too much to admit thereof.

I can color the cement after it is in place, or can use colored cement, which shall be either uniform in all the spaces, or shall be alternately of different colors, or otherwise variegated, marbled, or the like.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a top view of the pavement complete. Fig. 2 is a vertical section while the material in two colors is being applied. Fig. 3 is a vertical section while in the act of being tamped or rammed.

Similar letters of reference indicate like parts in all the figures.

A A, &c., are bricks, applied together according to any suitable pattern. They may be uniform in kind or color or varied. B is a quantity of the cement applied in the form of a damp powder in a stiff and semi-plastic condition. It may be formed with lime, or it may be formed with sand or the like, with hot asphalt, or with various other materials; but it is essential that it be of such a nature that its particles shall adhere strongly together when compressed and allowed to harden, but shall not adhere with much force, if at all, to the adjacent bricks.

To make the pavement, a surface, C, is first prepared, which may be of sand or any suitable earthy or other material, to serve as a foundation. Upon this are laid the bricks A, according to any tasty pattern, so as to form considerable spaces, and a proper quantity of the slightly-adhesive material is placed in each of the cavities and tamped or rammed forcibly.

In Fig. 3, M is a set, and P a percussive instrument adapted to produce a blow of the

proper quality. The set may be held and the blows delivered perpendicularly or at various inclinations. The center part of each space may be rammed by direct blows of the hammer or other implement. The character of the mass B must be such that, on being thus compressed, it will not adhere much, if at all, to the bricks, but will adhere strongly together, forming durable hard masses, of the form required, which lie without adhesion to the bricks, and are capable of sinking or rising without imparting any corresponding motion to the adjacent part.

In the act of ramming, the bricks are liable to move more or less to one side or the other. I employ the variations which are practicable in the ramming process to move the bricks in one direction or another, as the experienced eye shall indicate is necessary to give a uniform position to the several bricks.

The edges of the bricks may be washed with clay, and allowed to become thoroughly dry previous to their being laid; but my experiments do not indicate such to be necessary in order to prevent the cement from sticking, if applied in a sufficiently hard condition.

In case I apply a little more than enough of the cement, the quantity projecting should be removed with a suitable scraper, and the surface thus produced rubbed down with a smoother; but I believe it practicable to apply just the right quantity, and to ram it with such skill as to leave the surface sufficiently smooth, and just about flush with the tops of the bricks.

The slightly-yielding surface may be strewn with powdered mineral or other material, which, being pressed into, or partly into, the plastic mass, will give a durable or ornamental surface, or both.

I can employ two or other number of colors in the bricks A, and two or other number of colors in the cement B. In the latter case I provide shapes of wood, W, which I apply temporarily in one set of spaces, while I supply the plastic material to the other; but in such case it is important that the shapes be removed and the plastic material of the new color be applied in those spaces before the spaces in the first are set, so that, by skillfully tamping, the places of the several bricks may be determined with reasonable exactness, without requiring extraneous means of holding the bricks during the laying, and without risk of disturbing the material after it is partially set.

I am aware that a concrete and tile pavement has heretofore been formed, consisting of sections with tile borders, filled in with concrete, and I therefore lay no claim to such invention.

I claim as my invention—

1. The within-described method of laying pavement, by forming sections with borders of brick, and filling in said sections with cement or plastic material, dampened and tamped, so that the particles of the cement will adhere closely with each other, but not with the brick, substantially as described, and for the purpose set forth.

2. The tessellated pavement herein described, consisting of sections with borders of brick filled in with cement or plastic material, the particles of the latter adhering with each other, but not with the brick, substantially as described, and for the purpose set forth.

In testimony whereof I have hereunto set my name in presence of two subscribing witnesses.

MICHAEL F. LYONS.

Witnesses:

E. G. THOMPSON,

CHAS. C. STETSON.