F. VON VERSEN & J. BICKEL.

Paving-Block.

No. 165,896. Patented July 20, 1875.

Fig. 1.

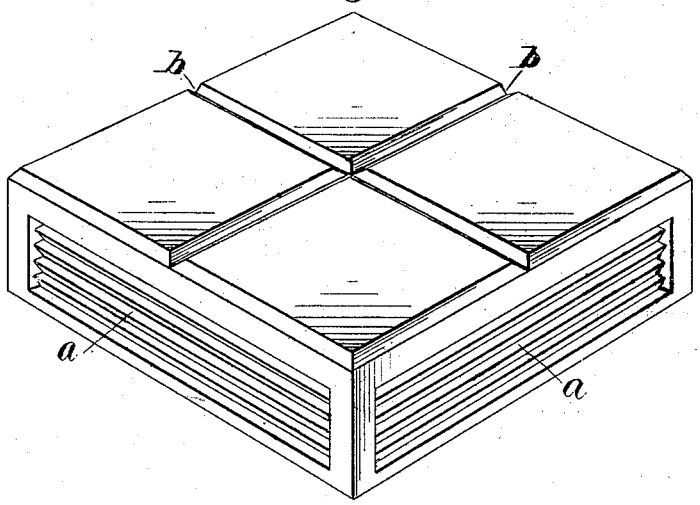
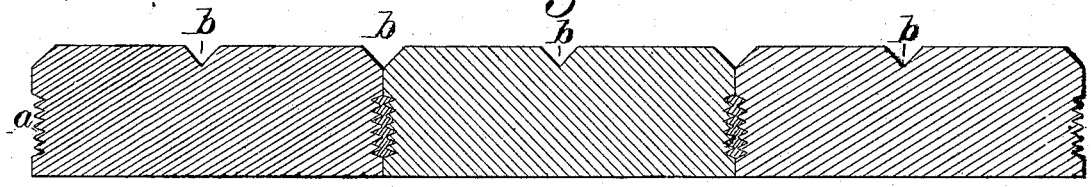


Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDERICK VON VERSEN AND JOHN BICKEL, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PAVING-BLOCKS.

Specification forming part of Letters Patent No. **165,896**, dated July 20, 1875; application filed June 24, 1875.

To all whom it may concern:

Be it known that we, FREDERICK VON VERSEN and JOHN BICKEL, of Baltimore, Maryland, have invented certain Improvements in Footwalks, of which the following is a specification:

The object of our invention is to provide a footwalk which shall be cheap, durable, pleasing in appearance, and impervious to water, and which shall also permit the water to flow from its surface without wetting the feet of pedestrians thereon.

The invention consists in the employment of blocks composed of protoxide of iron, ferruginous silica, and pulverized quartz or calcined clay, burned at a heat sufficient to vitrify the surface; in providing the blocks with longitudinal grooves in their edges to receive cement, for the purposes of producing water-tight joints and preventing displacement of the blocks; and in providing the upper face of the blocks with transverse channels and beveled edges, in order to permit the water to fall below the surface and flow from the walk without wetting the feet of those walking thereon.

Figure 1 represents a perspective view of one of our blocks or tiles; Fig. 2, a vertical cross-section of a pavement composed of a series of the blocks.

In the manufacture of our blocks we prepare a compound consisting of protoxide of iron, ferruginous silica, and pulverized quartz or calcined clay, in about the following proportions: Protoxide of iron, twenty-five parts; ferruginous silica, fifty parts; pulverized quartz, twenty-five parts. The compound, properly tempered with water, is thoroughly mixed until a uniform mass is produced, and is then molded into blocks of suitable form, and baked or burned in a kiln or oven, the temperature being finally raised until the surface of the blocks is vitrified, after which they are permitted to cool gradually in order to avoid fracturing the surface.

The blocks thus produced present a very hard and smooth surface, and are completely impervious to water, so that a pavement composed of them will not absorb or retain moisture, and consequently will neither remain damp and cold nor be subject to breakage in frosty weather, as is the case with those composed of brick and similar porous absorbent material. The blocks may be molded of any size and form desired, and, when required, coloring material of any suitable character may be introduced into the compound before it is molded.

In order to render pavements composed of our blocks perfectly water-proof, we provide the edges of the blocks with longitudinal grooves, *a*, to receive hydraulic or other cement, which is introduced between the blocks at the time of laying them in place. The cement, in addition to preventing the passage of moisture between the blocks, serves also to hold the edges of the blocks in position, and prevent the surface of the pavement from becoming uneven.

In order to facilitate the flow of water from the pavement, and to prevent the same from flowing across the surface and dampening the feet of pedestrians, we provide the blocks with transverse channels *b* in their upper faces, and also bevel their upper edges, so as to produce channels between the adjacent blocks, as shown in the drawing. The water, flowing down into the channels, readily escapes from the pavement without passing over and wetting its surface.

While it is obvious that the grooved sides, the channels, and the beveled edges are advantageous features, they may either or all of them be dispensed with. While it is obvious that any suitable clay may be employed after adding thereto the lacking ingredients of the compound, it is, of course, desirable to employ a clay having in a natural state the nearest resemblance to the required compound.

What we claim as our invention is—

A paving block or tile composed of the ingredients hereinbefore stated, and burned until a vitreous surface is produced, with or without the grooves *a* and channels *b*, or either of them.

FREDERICK VON VERSEN.
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