R. & T. WINANS.

Pavements.

No. 152,716. Patented June 30, 1874.

FIG. I.

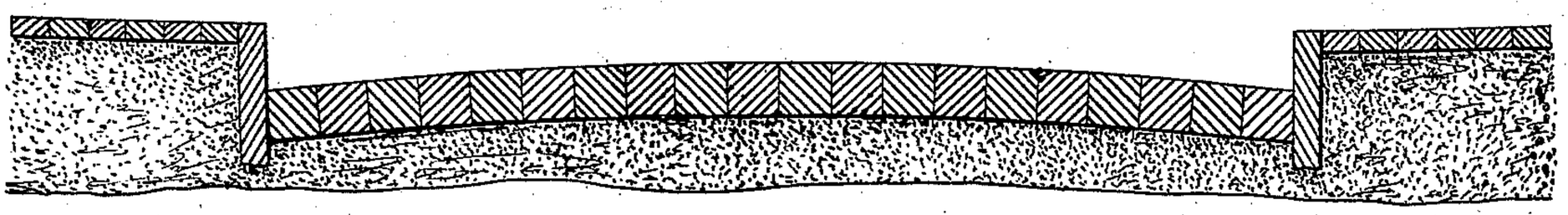


FIG. II

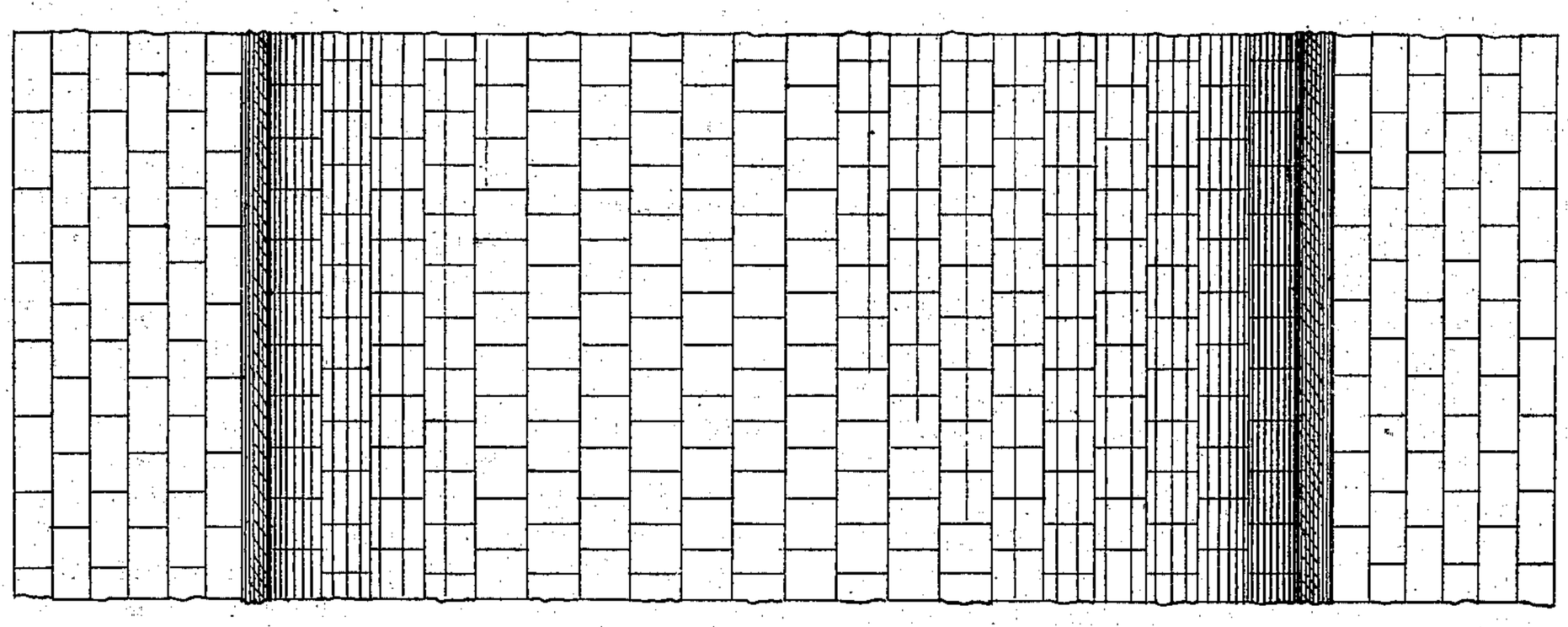
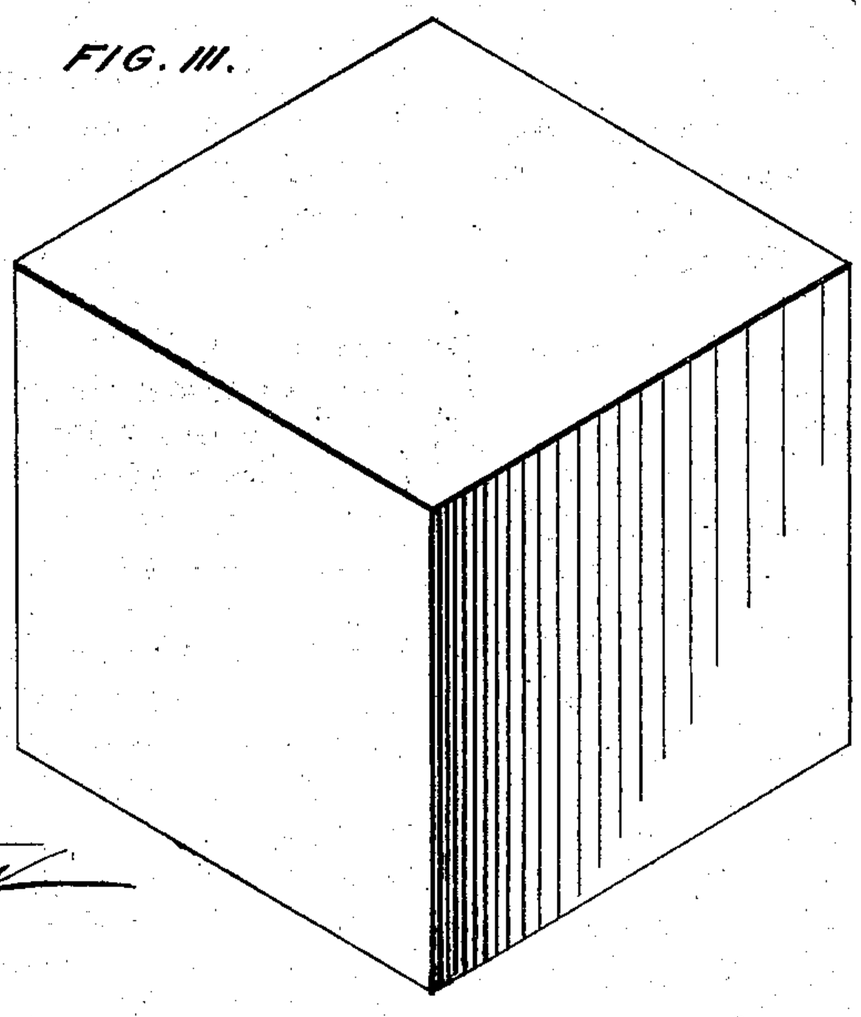


FIG. III.



WITNESSES:

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by atty

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UNITED STATES PATENT OFFICE.

ROSS WINANS AND THOMAS WINANS, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PAVEMENTS.

Specification forming part of Letters Patent No. **152,716**, dated June 30, 1874; application filed June 10, 1874.

To all whom it may concern:

Be it known that we, ROSS WINANS and THOMAS WINANS, of Baltimore, Maryland, have invented certain new and useful Improvements in Pavements for Carriage-Ways and other uses, of which the following is a specification:

There are several conditions absolutely indispensable to the production of a good pavement, especially for carriage-ways and streets. The first condition is, that the material used shall be durable; the second is, that it shall be of such nature or composition that it will not take a polish or become smooth and slippery by wear; the third is, that it shall be so formed that when laid it will preserve its position and avoid the unevenness and irregularity noticeable in ordinary block pavements. In a stone pavement it is well known that the material, although in its nature durable, yet becomes polished and very smooth by wear, whether cobble-stones or regularly-shaped blocks be employed. The cobble-stone pavement also soon gives in places, and becomes irregular and uneven. Concrete or asphalt paving material is not durable and will not wear, and the same objections obtain equally or even to a greater extent as regards wood pavements, which rot, and, besides, are liable to become rough and uneven. Not one of these pavements practically fulfills the above-specified conditions.

Now, the material we employ is that of which ordinary brick is made. This material will not wear smooth and so as to be slippery, but always presents a surface upon which the horses' feet can take sure hold and bearing. It only is necessary, therefore, to put this material in such form and shape as best to resist wear, and preserve to the street an even surface, free from irregularities, in order to approach, as nearly as possible, all the above-noted conditions.

We would state in the outset that we are aware bricks have been used for footways, and for carriage-ways as well. In either case, however, the bricks have been building-bricks of ordinary size and configuration. When laid flat, as on ordinary sidewalks, it is manifest that they are not in condition to resist heavy street travel. They present a surface greatly in excess of their depth or thickness, and are liable to be broken up, and when once broken the process of disintegration is rapid. Moreover, although laid side by side, yet as they have little thickness, comparatively, they obtain little lateral support from the contact of their contiguous edges, and so are liable to be tilted and depressed, thus producing irregularities, which, of course, hasten the destruction and wearing out of the pavement. A pavement so laid would, therefore, be entirely unfitted for carriage travel. This, indeed, has heretofore been recognized, and whenever the pavement has been designed for heavy travel the bricks have been laid on their longer edges. But this form of pavement is almost equally objectionable, and indeed is rarely used, except in the neighborhood of stables, and in making carriage-ways across ordinary brick sidewalks. The objections are, that the brick presents edges above and below that are too narrow to resist wear or take a proper bearing on the substructure. Each angle of the edge on the top will soon break off and wear away, leaving but a ridge along the center line of the edge, which, in turn, soon wears away to form fresh angles, that in turn wear, and so on. The wear of the exposed surface is thus very rapid. The narrowness of the under edges also prevents the brick from taking such a bearing as will assure it in its proper position, the edge cutting into the earth on which it rests, and so producing irregularities of surface in the pavement.

It is well recognized, therefore, that ordinary bricks will not answer for paving purposes where the street so paved is designed for carriage travel.

Now, we have practically overcome all the difficulties above named by making a pavement of hard-burned brick blocks of a cube form, with faces of sufficient area to prevent the wear incident to the use of bricks presenting narrow edges, to afford a good solid bottom bearing, to obtain the needed lateral support or bracing, and to possess the requisite strength to resist, without danger of breaking, the weight of the load resting on or passing over them.

We find that a brick block or cube six inches by six inches is of a size best adapted and

most available for our purposes. We do not, however, limit ourselves to that particular size, as the block may be made somewhat larger or smaller without materially changing the result. Nor is it absolutely necessary that the block should be an exact cube, although the cube is the form that, in practice, will produce the best results.

In laying our pavement we prefer a sand or gravel, or other equally solid and good substructure, well rolled and packed, and upon this are laid the brick blocks in the usual way of paving. Sand is spread over the pavement and allowed to there remain until the joints become packed and solid. A pavement of this kind can be laid as cheaply as cobble-stone. A practical test of nearly two years has demonstrated that it answers fully all the conditions above named. Although subjected to constant travel and use, induced in part by the smoothness and good condition of the pavement, the wear is inconsiderable, the pavement is free from irregularity, and at all times there is a good surface, which, while smooth, has no polish or gloss, and causes no slipping, and very little noise.

The accompanying drawing represents in Figure 1 a cross-section, and in Fig. 2 a plan, of a roadway composed of brick cubes, in accordance with our invention. Fig. 3 is a view on an enlarged scale of one of the cubes.

Having now described our invention, what we claim, and desire to secure by Letters Patent, is—

A pavement composed of brick blocks of the form and dimensions substantially as specified.

In testimony whereof we have hereunto signed our names this 5th day of June, A. D. 1874.

ROSS WINANS.
THOMAS WINANS.

Witnesses:
FERDINAND C. LATROBE,
W. S. WILKINSON.