S. E. GROSS.

STONE PAVEMENTS.

No. 188,357. Patented March 13, 1877.

Fig. 1.

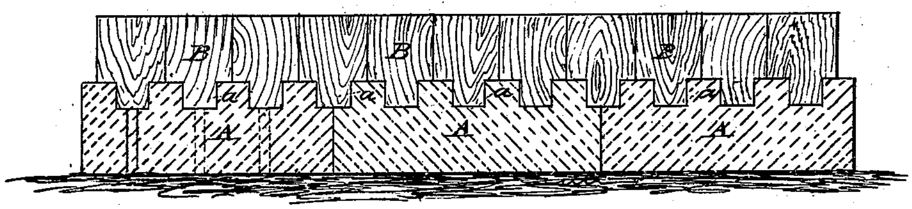


Fig. 2.

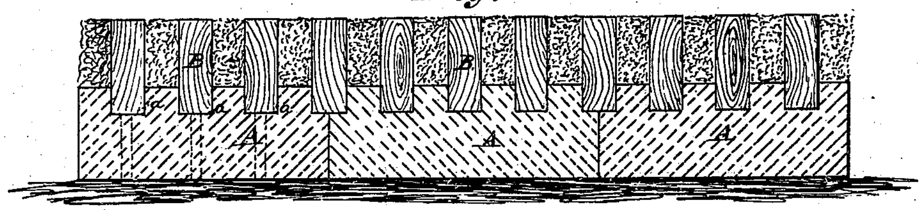


Fig. 3.

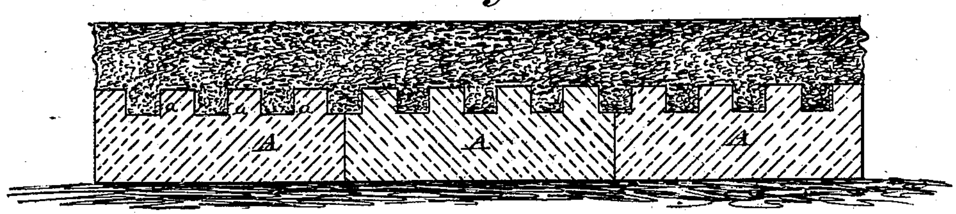
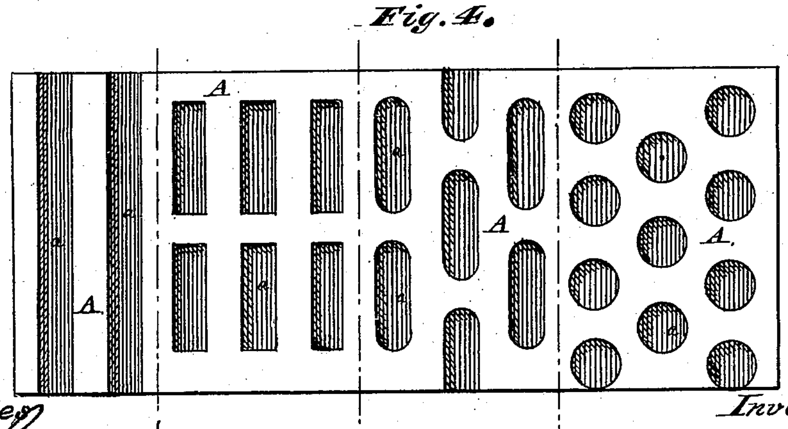


Fig. 4.



Witnesses
B. W. [illegible]
Jos. S. K. Plant

Inventor
Samuel E. Gross

UNITED STATES PATENT OFFICE.

SAMUEL E. GROSS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN STONE PAVEMENTS.

Specification forming part of Letters Patent No. **188,357**, dated March 13, 1877; application filed February 28, 1877.

To all whom it may concern:

Be it known that I, SAMUEL E. GROSS, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Pavements, which is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of one form of my pavement. Figs. 2 and 3 are longitudinal vertical sections of modifications of the same; and Fig. 4, a top view of the grooved, recessed, or cellular natural-stone foundation slabs or blocks.

Preliminary to the exact description of my invention, I may be permitted to state that in it I have endeavored to avoid many of the well-recognized defects of known pavements, and to combine in it many of the requisites which I conceive to be necessary to the successful pavement of the future for streets and roadways, namely: first, independent durability, permanence, and solidity of the foundation structure, combined with partial elasticity of the upper or wearing surface of a pavement; second, facility of taking up to excavate for water and gas mains, renewing, replacing, or repairing any part of the pavement without disturbing the integrity of the other portions thereof; third, a simple and inexpensive mechanical union of the upper wearing-surface with the foundation, so that while the former rests upon and is retained in position by the latter, yet the former can be readily changed, repaired, or renewed without disturbing the latter; fourth, simplicity of construction and abundance of material.

Referring to the drawings, A designates in all the figures natural-stone slabs or blocks, provided with recesses *a*, in which the wood, stone, brick, or composite blocks B are inserted or placed, or which act as keys to the concrete or composite wearing-surface, as shown in Fig. 3.

I have selected natural stone for my foundation, upon and in which the wearing-surface is placed, because they are more durable and less expensive in most localities than iron, concrete, riprap, burned earth blocks, or artificial stone, and because, by the use of the improved machinery now extant for working stone, any desired shape and surface configuration can be effected with but little more than the expense of handling the stone; and, besides, durability, bulk, and weight are necessary to the stability of a good foundation, which can be effected in natural stone more readily and cheaply than in any other material. These natural-stone foundation slabs or blocks may be of any suitable or desirable form and size, and in their upper sides or surfaces I form cells, channels, grooves, cavities, or hollow compartments of any suitable or desirable form, size, and depth. These blocks may be either uniform or differing in size and shape, and the cells, channels, grooves, cavities, and hollow compartments may be either uniform or irregular in form, size, and depth, and in their succession and arrangement. Upon these blocks, properly laid upon a suitable foundation, I place the upper or wearing course of any suitable material or materials, and of any desired thickness.

In many cases wooden blocks are preferable for the wearing-surface, in combination with the foundation stone blocks so constructed. The wooden blocks may be of any suitable or desirable form, size, and height, placed either wholly (as in Fig. 2) or in part in and upon the natural-stone foundation-blocks, (as in Fig. 1,) and held and retained in their places, either wholly or in part, by the cells, channels, grooves, cavities, or hollow compartments of the stone blocks, the interstices, if any, being filled with any suitable material. For wooden blocks I prefer oblong rectangular stone blocks, in the upper sides of which parallel longitudinal channels are formed, about one inch, more or less, in depth, and about four inches in width, leaving a tongue or ridge of stone between each channel of one inch or more in width, and in which channels, continuously arranged, I place the wooden blocks; but I do not limit myself to this form and method of construction and combination. The repairing or renewing of the upper section of a pavement so constructed can be made with great ease and little expense, for any disintegrated or depressed block or blocks can be removed without disturbance to any other part of the pavement and replaced by wooden blocks of sufficient height to cause a smooth and level road-surface, and upon a foundation more firm and secure than when first laid.

In other cases, and as shown in Fig. 3, asphaltum, bituminous, or other concrete, or compositions of any suitable character, may be used, in combination with the recessed stone foundation, for the top or wearing-surface.

In case the upper or wearing surface of the pavement is not water-tight or water-proof, either in material or construction, or both, and sufficient drainage is not afforded in the construction of the pavement by suitable curvature or inclination of the sub-bed, or of the stone foundation-blocks, or formation of the channels, cells, &c., or otherwise, any number of holes, at suitable intervals, may be made in any or all of the channels, cells, &c., extending through the blocks, thus furnishing an outlet for drainage.

In constructing my pavement, the road-bed is excavated to the proper depth of any desirable grade or form, the natural-stone foundation slabs or blocks are now laid down, either on the natural earth or on a sub-bed of concrete, gravel, broken stone, sand, asphaltum, or any other suitable substance or substances. The stone blocks should be firmly and evenly laid, and may be connected or supported at their sides, one with or by the other, by any of the well-known devices, or not, as may be preferable. The upper course or wearing-surface is then put down by such methods as are most suitable and best adapted to the particular substance or substances used in any given or particular case for the purposes of a pavement for a street or roadway.

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

1. A pavement in which grooved, cellular, or channeled natural-stone slabs or blocks are used as a foundation for a surface or wearing course of any suitable material or materials, substantially as described.

2. In combination with the natural-stone slabs or blocks, provided with cells, channels, grooves, or hollow compartments, the blocks B, which form the wearing-surface or upper section, all constructed as described, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of February, A. D. 1877.

SAMUEL E. GROSS.

Witnesses:

JOS. T. K. PLANT,

B. W. SUMMY.