

No. 725,983.

PATENTED APR. 21, 1903.

F. J. NASH.

ROAD, &c.

APPLICATION FILED NOV. 14, 1902.

NO MODEL.

Fig. 1.

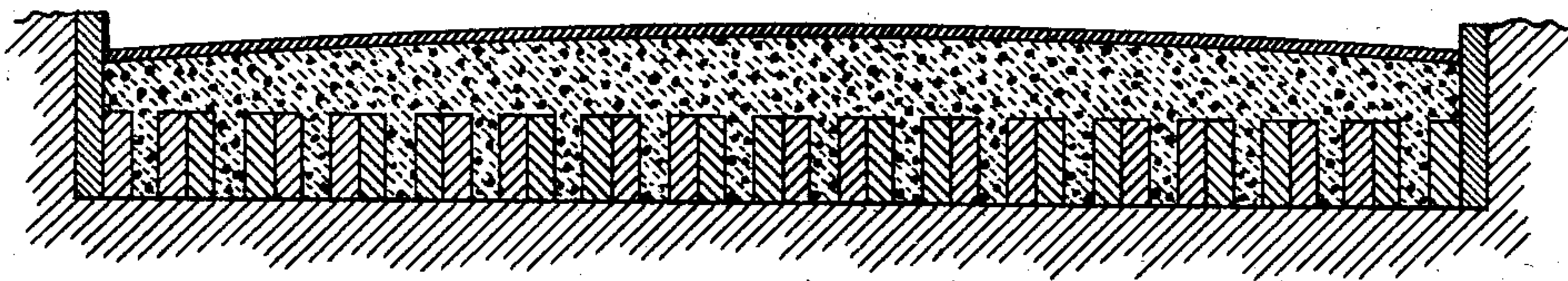


Fig. 2.

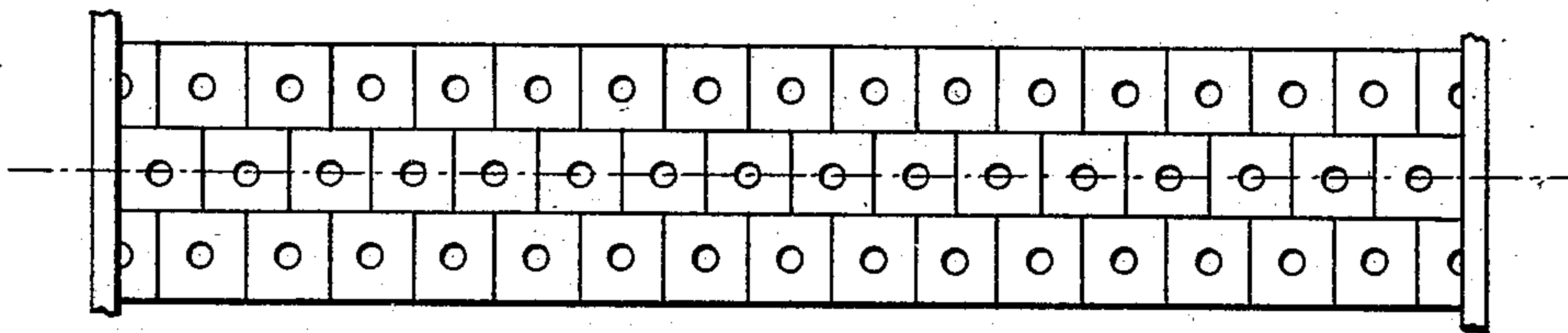
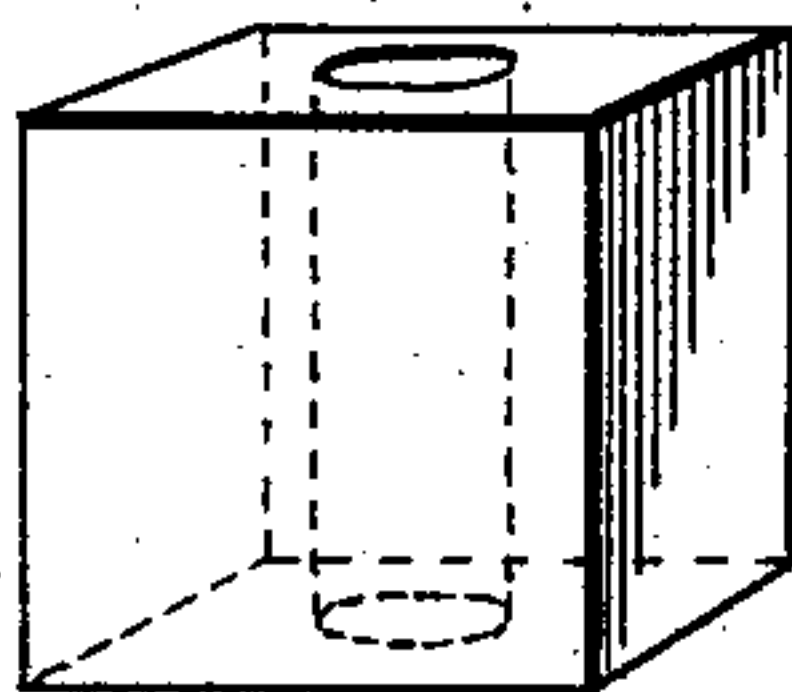


Fig. 3.



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UNITED STATES PATENT OFFICE.

FREDERIC J. NASH, OF NEW YORK, N. Y.

ROAD, &c.

SPECIFICATION forming part of Letters Patent No. 725,983, dated April 21, 1903.

Application filed November 14, 1902. Serial No. 131,385. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC J. NASH, a citizen of the United States, and a resident of the borough of Brooklyn, city and State of New York, have invented certain new and useful Improvements in Roads and the Like, of which the following is a description, illustrated by drawings.

The object of the invention is to produce a road-bed combining in a degree not heretofore obtained or obtainable the qualities of durability, cheapness of construction and of maintenance, and a surface that without being either too hard or slippery shall present a desirable smoothness for traffic.

In the drawings, Figure 1 shows a cross-section of a road-bed embodying the present invention. Fig. 2 shows in plan the lower layers of the road-bed, and Fig. 3 shows one of the blocks of which the lower layer of bed is composed.

I will describe the invention as applied, for example, to the construction upon suitable soil or good foundation of a road-bed twenty-five inches thick at the center or crown and twenty-three inches at the sides or gutters. After the soil has been properly prepared to receive such a road I employ as the lowermost layer blocks of good hard-burned brick, carefully and thoroughly burned without vitrifying any part. These blocks may be conveniently one-foot cubes with a hole through the center to facilitate the burning. They may be dipped in hot asphalt where it is desired to entirely prevent them from absorbing moisture. In so doing the blocks themselves should be hot in order to absorb the asphalt and get the best effects. I prefer to lay one course or layer of these bricks, breaking joints between the courses. Preferably also, though not necessarily, the brick blocks will stand so that the central holes are vertical, giving a columnar structure. These bricks are laid with cement, and as a cement I prefer to use a mixture of lime, silica sand, and brick-dust, the proportions of which may be considerably varied, according to the cost of lime and of sand at the spot where the road is being laid. I recommend, however, one-fourth part, by weight, of lime, one-fourth part silica or sand,

and one-half brick-dust. Next I put nine inches of coarse broken-brick concrete, thoroughly rammed down and made with cement, preferably the same cement as just described. The side of the pieces should be not more than two and a half inches longest diameter. Finally, as a wearing-surface I superpose four inches of special mosaic concrete. This concrete, which I have termed "mosaic concrete," is made of finely-broken trap-rock or other hard stone, or if this is not available then of broken brick, with sufficient cement, preferably of the special sort mentioned above, to make a good dense concrete. The size of the particles should not be more than a quarter to a half inch longest diameter. After this surface has been laid and rolled and smoothed the upper surfaces of the particles of hard trap-rock or other stone used will lie largely parallel with the surface of the road, so that when the cement surface is scraped away the mosaic of hard and refractory material set in a strong cement would be exposed to the wear. Preferably the surface is scraped in finishing, as the cement itself will not generally wear off evenly or leave an even surface if not so scraped off. The brick used throughout, as well for the brick-dust as for the blocks, should be thoroughly burned with extreme care to avoid vitrifying any of it, as that would turn it into weak, slippery, noisy, and glass-like material. The road so formed is impervious to rain or standing water, readily sheds water, embodies a foundation that can never wear out and a surface which is readily renewable, uniform, affording a minimum resistance to traffic without becoming slippery in wet weather, and capable of supporting and withstanding the heaviest traffic. Such a road instead of deteriorating with time becomes harder and better. It should, preferably, be specified that none of the pieces forming the layer of broken brick should be more than two and a half inches longest dimension. Such a road can be built in places where the cost of stone would be prohibitive, for it will be seen that with the exception of the lime and silex only clay soil or mud need be used in the composition of the road. Combining, as it does, burnt clay in three differ-

ent forms in the three different layers, it combines all the apparent advantages of the Telford, Tresaguet, and macadam, with the durability of the old Roman roads at a cost far less than any of these.

It must of course be understood that the number of layers and the thickness of each, as well as the sizes and the proportions named, may be somewhat varied without departing from the principles of the improvement.

Where the base-blocks are cubes twelve inches each way and with a hole four inches in diameter, the burning may be thorough without difficulty, as the thickness between the center hole and the sides is only four inches, and even on the diagonals there is no point more than three and a quarter inches from one of the surfaces of the block. If desired, more than a single hole may be used to facilitate the burning. Such brick blocks made, as they may be, from clay or even from less desirable soils need not be carefully shaped, as slight irregularities will not affect their efficiency for the purpose intended. Their form is one that may be readily molded, and they can therefore be manufactured and laid at a price far lower than that of the ordinary sizes and shapes of bricks.

Of the several parts of the improvement which constitutes the present invention it is clear that some may be used, though with less advantage, without the others.

I therefore claim the following features:

1. The improved structure for roadways and the like, comprising at least the following three layers: a lower layer consisting essentially of unvitified burned-brick blocks, an upper wearing layer, and an intermediate layer of non-vitreous burned-brick concrete, for substantially the purposes set forth.

2. The improved structure for roadways and the like, comprising a lower layer of non-vitrified burned-brick blocks, a superposed layer of burned-brick concrete, and a cohesive surface layer, for substantially the purposes set forth.

3. The improved structure for roadways and the like, comprising a lower layer of non-vitrified burned-brick blocks laid in cement in courses and provided with central holes vertically placed to afford a columnar-like support, and superposed layers forming the upper portions of the bed, for substantially the purposes set forth.

4. The improved structure for roadways and the like, comprising a lower layer of non-vitrified burned-brick blocks laid in cement in courses and provided with holes vertically placed to afford a columnar-like support, a superposed layer of burned-brick concrete, and a wearing layer, for substantially the purposes set forth.

5. The improved structure for roadways and the like, comprising a lower layer of non-vitrified burned-brick blocks laid in cement

in courses and provided with holes vertically placed to afford a columnar-like support, a superposed layer of burned-brick concrete, and a wearing layer consisting of mosaic cement as specified.

6. The improved structure for roadways and the like, comprising a lower layer or layers or foundation, an intermediate layer of broken-brick concrete containing lime-sand-and-brick-dust cement, and a suitable wearing-surface.

7. A road structure having a foundation of brick blocks laid with regularly-placed joints between them, a superposed layer of irregularly-placed and cemented burned-brick fragments, and a wearing-surface layer, for substantially the purposes set forth.

8. A road structure having a foundation of brick blocks laid with regularly-placed joints between them, a superposed layer of irregularly-placed and cemented burned-brick fragments, and a wearing layer of mosaic concrete, substantially as set forth.

9. A road structure combining with an exposed top layer, an intermediate layer consisting mainly of burned-brick derivatives, and a foundation layer of perforate burned-brick blocks, substantially as set forth.

10. A road structure combining with an exposed top layer, an intermediate layer consisting mainly of burned-brick derivatives, and a foundation layer of perforate burned-brick blocks cemented together and cemented to the said intermediate layer, and forming a substantially integral bed of brick derivatives, for the purposes set forth.

11. A road structure combining with an exposed top layer, an intermediate layer consisting mainly of burned-brick derivatives, and a foundation layer of perforate burned-brick blocks, the materials of all of the layers being cemented together and to the adjacent layers, forming an integral bed that is essentially brick.

12. A road structure having a foundation of relatively large brick block laid in a lime, silica, and brick-dust cement or concrete, an intermediate layer of relatively small brick derivatives and similar cement forming a concrete, and a surface layer secured thereupon, whereby the said foundation and the said intermediate layer differ in physical structure but are essentially of homogeneous materials, for the purposes set forth.

13. A road structure having in combination with a foundation and intermediate layer consisting mainly of brick derivatives, a wearing-surface comprising a mosaic cemented together and to the said intermediate brick-derivative layer, for substantially the purposes set forth.

14. A road structure having in combination with a foundation and intermediate layer consisting mainly of brick derivatives, a wearing-surface comprising a dense rocky mosaic

in a brick-dust cement which secures the said
mosaic together and to the said intermediate
layer, whereby a structure is formed having
the said block foundation with a hard wear-
5 ing-surface and consisting essentially of a
single homogeneous substance, to wit, hard-
burned non-vitreous materials derived from
clay.

In testimony whereof I have signed this
specification in the presence of two subscrib- to
ing witnesses.

FREDERIC J. NASH.

Witnesses:

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HAROLD BINNEY.