R. S. BLOME & W. J. SINEK.

PAVEMENT.

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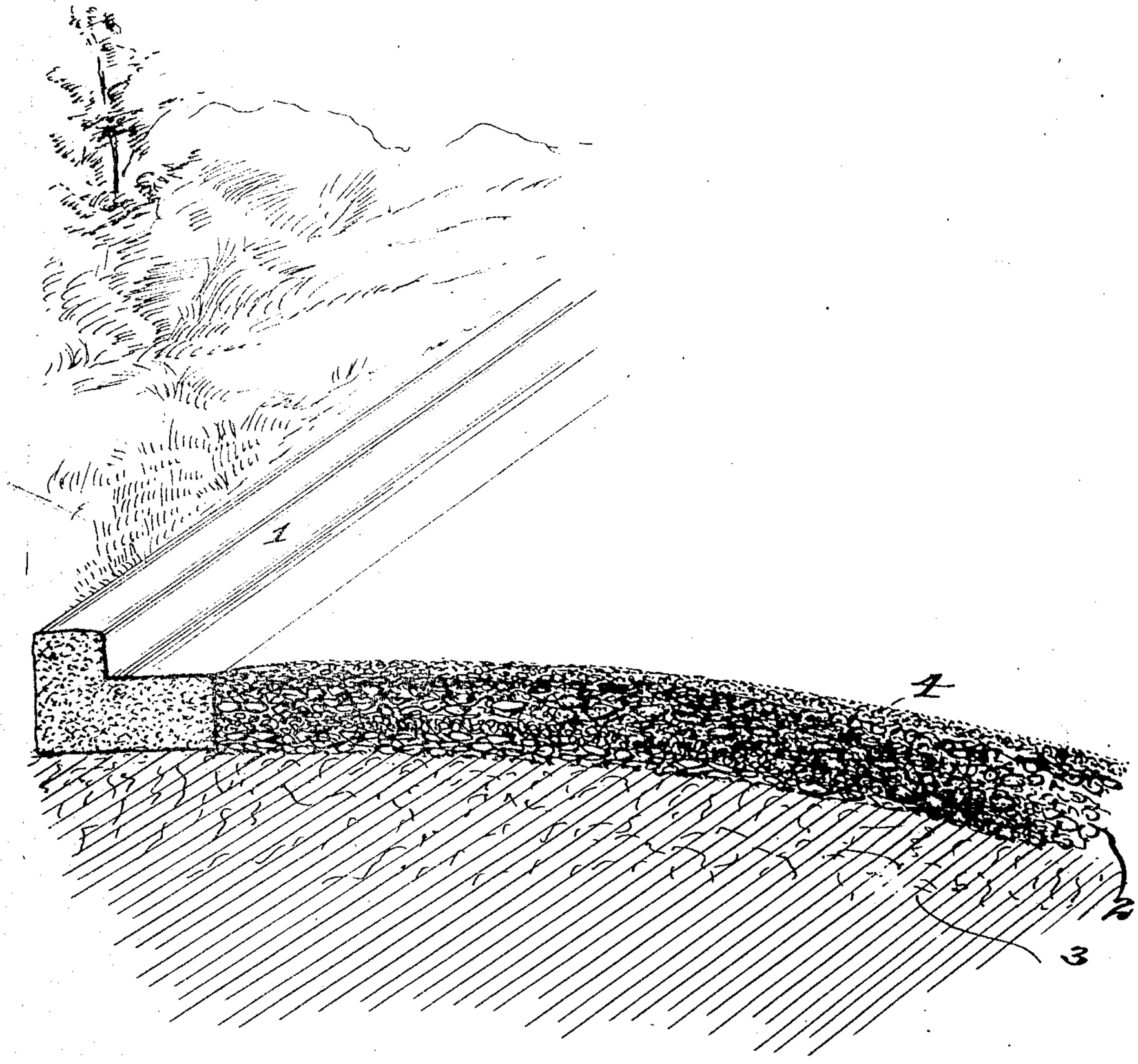
919,530. **Patented Apr. 27, 1909.**



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UNITED STATES PATENT OFFICE.

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PAVEMENT.

No. 919,530. Specification of Letters Patent. Patented April 27, 1909.

Application filed October 30, 1908. Serial No. 460,230.

To all whom it may concern:

Be it known that we, RUDOLPH S. BLOME and WILLIAM J. SINEK, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have jointly invented certain new and useful Improvements in Pavements, of which the following is a specification.

Our invention relates to concrete pavements and aims to produce a construction of this character which will be economical to manufacture, which will not require a brick, asphalt, or similar comparatively-expensive top layer or surface, and which will successfully withstand the modern rapid traffic, such as that of automobiles, which has demonstrated conclusively that the ordinary macadam roadway deteriorates rapidly and and in the long run is uneconomical to employ. We aim to produce a pavement composed solely of concrete. Similar pavements having concrete foundations have heretofore required an expensive wearing surface, whereas in our construction, by a careful selection of ingredients and the quantities and sizes used, we are enabled to provide a pavement having a comparatively inexpensive surface of concrete such as is suitable for country pikes and other highways or roadways having relatively light traffic.

Our improved pavement preferably consists of two strata or layers, the ingredients or constituents of the under one or foundation being so chosen that its upper portion will have sufficient voids of the proper size and number to enable the top or wearing surface to become securely anchored or locked thereto. In order to protect the sand particles in this upper wearing stratum or layer we incorporate therein sufficient broken stone or gravel or the like to prevent the sand particles from rolling free from or becoming detached from the surfacing. Unless these sand particles are in some way prevented from readily becoming loosened they will when freed from the binding cement act as a detrimental abradant to polish or smooth the pavement's surface, thereby rendering it slippery and dangerous.

As a result of our improved construction we are enabled to provide a pavement composed solely of concrete, which is not noisy or slippery, which will satisfactorily withstand the action of the elements and the traffic over the same, and which will be practically free from a tendency to become dusty, other than that which must necessarily be present in any construction subjected to the use and having the function of a pavement.

On the accompanying drawing, forming a part of this specification, we have illustrated a fragmentary section of our improved pavement, and on the drawing the reference character 1 refers to a curbing of the usual and ordinary construction, it being understood that the pavement proper is laid between the pair of curbings positioned along the side of the roadway. The foundation or lower stratum 2 of the pavement may in many cases be laid directly on the ground 3, and may preferably comprise a body substantially 5″ in thickness and composed of one part of Portland cement and eight parts of an aggregate consisting of 50% of what is known as 1½″ stone or gravel with all particles below ½″ size eliminated, 15% of ¼″ hard stone or gravel, and 35% of clean torpedo sand. This selection of sizes of ingredients is made necessary in order to produce a mass which will have sufficient voids or unoccupied spaces to receive enough of the material constituting the top wearing surface or layer, hereinafter described, to secure a firm union between the two, whereby the top surface is effectively anchored to this foundation. The above-mentioned concrete is first put down and then compacted, having in some instances a final thickness of approximately 5″, this dimension of course depending upon a variety of conditions and being variable to meet the especial conditions presented in each case. On this foundation or lower layer is superposed or placed a top wearing layer or surface 4 composed of one part of Portland cement, one part of coarse torpedo sand, and one part of a mass of hard particles or pieces such as broken stone, gravel, conglomerate, hard slag, or similar hard substance (equal in quantity to the volume of sand). This mass consists desirably of 25% of ¼″ size, 50% of ⅜″ size, and 25% of ½″ size, the ingredients having all finer or smaller particles eliminated, which may be accomplished if desired by the well-known method of screening. This top stratum when compacted enters the voids of the bottom-

foundation sufficiently to obtain a firm anchorage or attachment thereto, and it is to be understood that the measured definite quantities of broken stone, gravel, or the like, above mentioned, are employed in this top layer to protect the sand particles or grains from the effects of travel, such as the grinding of the wheels and other friction, thereby overcoming their tendency to roll out of the layer and act as an abrading substance to grind or polish the surface smooth and render the pavement objectionably dusty and slippery. Under usual conditions this top wearing layer may have a thickness of approximately 1", the whole thickness of the pavement being about 6", but it is to be remembered that this dimension may be varied as special requirements dictate.

The pavement can ordinarily be laid directly on the ground, excepting in cold climates when the underlying soil or ground is composed of clay or other heavy material, and where the effects of the elements must be contended with. In such locations and under such conditions we provide a drainage or foundation to prevent any detrimental action of the cold weather likely to occur, whereby the frost will not cause an upheaval or cracking of the pavement. As is customary, our improved pavement is constructed with a crown to carry away the flow of water thereon and to keep the pavement in a sanitary and satisfactory condition, this crown being desirably similar to that of the usual asphalt, brick, or other form of permanent pavement. The concrete is thoroughly tamped into place between forms and the final or top surfacing is worked with cork or wooden floats so that all particles of stone mentioned above will be covered. The resulting pavement is one which is not noisy, dusty, or slippery, and, as stated, is not of excessive cost, durability and other features and characteristics being taken into account.

We claim:

1. A pavement having a lower concrete stratum composed of substantially one part of Portland cement and eight parts of an aggregate consisting of approximately 50% of what is known as 1½" stone or gravel with all particles below ½" size eliminated, 15% of ¼" hard stone or gravel and 35% of clean torpedo sand, substantially as described.

2. A pavement having a top stratum composed of substantially one part of Portland cement, approximately one part of coarse torpedo sand, and substantially one part of a mass of hard particles or pieces, this mass consisting of 25% of ¼" size, 50% of ⅜" size, and 25% of ½" size and having the finer particles eliminated, substantially as described.

3. In a pavement, the combination of a lower concrete stratum composed of one part of Portland cement and eight parts of an aggregate consisting of 50% of what is known as 1½" stone or gravel with all particles below ½" size eliminated, 15% of ¼" hard stone or gravel, and 35% of clean torpedo sand, and a top wearing stratum composed of one part of Portland cement, one part of coarse torpedo sand, and one part of a mass of hard particles or pieces, this mass consisting of 25% of ¼" size, 50% of ⅜" size, and 25% of ½" size, and having the finer particles eliminated, substantially as described.

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