UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN ASPHALTIC PAVEMENTS.

Specification forming part of Letters Patent No. **111,151**, dated January 24, 1871.

To all whom it may concern:

Be it known that I, SAMUEL R. SCHARF, of Baltimore, in the State of Maryland, have invented a new and useful Improvement in Asphaltic Pavement for Streets and Carriageways; and I hereby declare that the following is a full description thereof:

My invention consists of an improved asphaltic pavement and of a new and peculiar arrangement of the materials and method of making the same as a whole; and, secondly, in the use of a stiff bitumen, without coal-tar, in the base or bottom layer of a stone and asphalt pavement.

My improved pavement is made in the following manner: In the first place the ground is properly prepared by rolling or otherwise compacting the same, so as to make a firm bed for the pavement. Then I take bitumen and mix the same with some of the last running of the heavy oil, when coal-tar is distilled into pitch. Broken stones or other suitable indestructible materials are wet with this mixture while hot, and then a layer of from four to seven inches put down and rolled with a roller weighing about one ton. Next I put down a layer, say from one to two inches, of broken stone, which is heated and then mixed with a hot mixture of bitumen and asphalt, in the proportion of one gallon of bitumen to one-half pound of asphalt. This layer is first rolled with a light roller, and then with a roller weighing about four tons. After this I put on a layer, say one or two inches thick, of a mixture of finely-broken stone or fine gravel, or both; also some carbonate of lime or hydraulic cement, all thoroughly mixed and wet with the above-described mixture of bitumen and asphalt. The mixture of bitumen and asphalt and also the other materials are first heated before mixing and laid down hot. This layer is thoroughly rolled like the second course or layer. As a finishing course I spread on some dust or carbonate of lime, and again roll thoroughly.

In some cases or climates the asphalt, carbonate of lime, and cement may in whole or in part be omitted. By using coal-tar bitumen in the base, the stones are held firmly in place, and will not work as when coal-tar is used. Thus I make a solid foundation. The heavy oil which is added to the base serves as a reservoir to replace slight evaporation from the surface, and thus preserves the life of the pavement, or prevents it from becoming brittle. The asphalt in the second and higher coats obviates the softening effects of the sun in summer. The carbonate of lime or hydraulic cement will retard or almost entirely prevent the evaporation of the heavy oil yet remaining in the bitumen; and, consequently, preserves the life of the material, as already mentioned. The bitumen which I use is made by distilling coal-tar over a slow fire, the distillation being continued as long as possible without burning or rendering the bitumen brittle when cold.

Having thus described my invention, I claim—

1. The above-described pavement as a whole, the same having first a base of stones mixed with and laid in stiff bitumen, (obtained from long distillation of coal-tar,) and then well rolled; second, a layer of smaller stones coated with a mixture of bitumen and asphalt, also rolled; third, a layer of fine gravel or broken stone wet with said mixture, likewise rolled; and finally, covered with carbonate of lime or water cement, and finished by rolling, substantially as set forth.

2. The use of stiff bitumen, without coal-tar, in the base of an asphalt and stone pavement, substantially as described.

Witnesses: SAML. R. SCHARF.

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