

UNITED STATES PATENT OFFICE.

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FIBROUS PAVEMENT.

SPECIFICATION forming part of Letters Patent No. 512,645, dated January 9, 1894.

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To all whom it may concern:

Be it known that I, JOSEPH H. AMIES, a citizen of the United States, residing in the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Fibrous Pavements, of which the following is a specification.

The object of my invention is to produce a durable, elastic, and practically noiseless and dustless roadbed and street pavement. To effect this I use weeds, briars, twigs, bagasse, peats, shavings, wire-grass, straw, swamp-grass, corn-fodder, palmettos, weeds, and other fibrous materials. I do not reduce these fibers to a pulpy condition, but they are torn into shreds by a picking machine designed for that purpose. They are then thoroughly saturated in a resinous pitch known as kidney oil. This oil, which maintains a liquid condition, is procured by the distillation of a vegetable pitch. This resinous composition is brought to the boiling point in a suitable tank properly placed over a furnace. The said fibrous materials, having been placed in a metal open work vessel, or basket, are then submerged into the boiling resin, and detained there sufficiently long to allow the said resin to penetrate them and drive out all moisture and fill the air cells. The object of this treatment is to expel all matters which would induce decay; the kidney-oil being preservative of vegetable substances, and possessed of great adhesive powers and toughness and elasticity in combination with fibers. The vessel or basket containing the saturated fibers will then be raised just above the boiling resin, and within the tank, where, owing to the heat, the fibers will be freed of all surplus resin. After being subjected to this treatment they are placed in forming molds made of metal, which are heated to a proper temperature, and subjected to suitable pressure, or the action of trip hammers, one or both.

Kidney-oil is a term used among resin oil distillers, and denotes a product which is one of the results of the distillation of gum turpentine, which is obtained from the pitch pine tree. It may be had in different degrees of consistency, according to the number of distillations to which it has been subject. What I use is a heavy gummy substance, which flows slowly. I reduce it to a thin penetrating fluid by boiling.

The foregoing process may be adopted at the location where the roadbed or pavement is to be laid, and the material may be put down in a plastic condition and there pressed and beaten into shape and condition by rollers and by being carefully tamped. In building a road through a marshy section I would thoroughly underdrain the roadbed by digging at convenient distances wells on either side of the road, and fill the same with stones, into which I would lead the drain channels. I would then lay down a corduroy of limbs and branches of trees, and cover the same with sand, clay and stone. When this is thoroughly leveled and smooth, I would place thereon my plastic composition, either in blocks or in a plastic condition. On the face of this I would roll gravel, grit, talc, or sawdust, or all combined, and have the same after rolling well tamped. My roadbed or pavement will then be complete.

I am aware that grasses, weeds, straw, and other vegetable fibers have been used in plastic compositions; also that clay, sand, cement, and other mineral matters have been component parts of the same; also that coal-tar and bitumen have been employed in the same. None of these do I claim, but

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

1. A practically noiseless and dustless roadbed and pavement composed of vegetable fibers saturated with "kidney-oil" and compacted together by suitable pressure, substantially as described.

2. In plastic compositions for road-beds and pavements the treatment of fibrous materials by saturating them in boiling "kidney-oil" in order to expel natural moisture and fill the air cells which induce decay, and thereafter compacting same together by suitable pressure, or by beating with tamping irons; said "kidney-oil" constituting, in addition to its preservative qualities, the adhesiveness necessary to secure said result, substantially as described.

JOSEPH H. AMIES.

Witnesses:

JOHN VAVASOUR-NOEL,
JOS. A. ROBERTSON.