UNITED STATES PATENT OFFICE.

JOSEPH HAY AMIES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE AMIES ASPHALT COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF SOUTH DAKOTA.

PAVING COMPOSITION.

942,237. Specification of Letters Patent. Patented Dec. 7, 1909.

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To all whom it may concern:

Be it known that I, JOSEPH HAY AMIES, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Paving Composition, of which the following is a specification.

This invention has reference to the employment of gas or coal tar or like materials in manufacturing a composition for paving making and like uses.

Artificial gas is generally used for lighting and fuel purposes and in its manufacture in the small villages and towns, not more in most cases than ten to twenty barrels of gas or coal tar will result per month, in the said manufacturing of gas. This tar is now placed in costly barrels and shipped to central locations, where it is utilized for many manufacturing purposes, the residuum resulting from such uses is in the form of a hard coal or gas tar pitch. This hard pitch is the material usually employed in paving making and like uses. Many elements, useful for paving making, having been extracted, the result is a poor article for street or road making.

The chief object of the invention is to take the said tar at the points where it is produced, and in the first instance manufacture it into a paving composition. The usual bituminous elements entering into paving compositions will become very scarce and almost unobtainable, owing to their enormous consumption and demand. My method of employing the above said tar will to a great degree relieve the scarcity and cut off a large amount of the expense and reduce the cost of paving compositions to a minimum.

From the well at the gas making plants I pump liquid tar into portable tanks mounted upon suitable vehicles and take it at once to the location where I make the paving composition. Preferably I employ the said tar at once. The reason for this will occur as my process is explained. It is desirable that the well at the gas making plant should be tight, allowing of as little evaporation of the volatile elements as possible. The said tar contains a considerable amount of water when first produced, and in this thin condition will readily mix, while cold, with cold mineral matters. Indeed I prefer not to apply heat to the said tar, as I wish to retain elements that would be driven off by heat. I may use crushed stone, slag, pebbles, soil or fibers or any such like materials, mixing the tar therewith while all are in a cold state. The tendency of tar is to work up from the bottom of the constructed road and work to the surface where air and water soon cause disintegration. I obviate this defect by my process.

My process is as follows:—I place the mineral or other materials I am about to employ upon a mixing board or in a mixing machine, and mix them well with the said tar. I then coat them with powdered calcium oxid. I may use calcium hydrate, for this purpose, but the former is preferable. The composition thus formed can now be placed in a storage house or elevated bin, or it may remain in the open, if it is not needed for immediate use. In this condition it can be sold to the general contractor, for use at his convenience for road, street, sidewalk, or path construction, or like uses. The composition thus made will be of a very superior quality. The objections to the use of coal tar or gas tar for the above purposes will be obviated by my process, because the calcium oxid takes up the water and light volatile oils of the said tar and converts and fixes them; thus, greatly needed elements of the tar are preserved, instead of being lost, as is usually the case. In the ordinary employment of tar for paving making the water remains intimate in combination with some of the lighter oils of the tar and causes early disintegration thereof. Another objection in employing undistilled tar for paving purposes, is the fact that it is too sensitive to the sun's heat, and will usually bleed and run on the surface of the street. The only way now adopted to prevent this disagreeable result is by placing a heavy coating of grit or screenings, sand or fine crushed stone over the tar, thus burying it quite deeply. This practice results in a very lean road or street surfacing that will soon wear away. This difficulty I obviate by my process. I also make a composition indifferent to changes of temperature and eliminate aging. Bleeding or greasing of the surface of my pavement is unknown. I am however not confined to gas or coal tar. I may in the above manner employ the residuum of

petroleum and crude oil refineries, and the lime, sludge of beet sugar and cane sugar refineries, and still bottom of turpentine vats, and sludge from garbage incinerating plants. All these waste materials can be separately or combinedly employed in the composition I manufacture for paving making, owing to the effect of the calcium oxid, as I employ it. I may also use any of the above mentioned materials on a road and sprinkle thereon the calcium oxid or calcium hydrate, then adding sand, screenings, or the like and rolling, thus making the mixture *in situ*.

What I claim is:—

The herein described composition which consists in mixing coal tar, and the like, with suitable elements such as crushed stone and the like, and adding and mixing therewith calcium oxid or calicum hydrate for the purposes set forth.

In testimony whereof I hereunto sign my name.

JOSEPH HAY AMIES.

Witnesses:

WILLIAM J. JACKSON,

S. F. KOCH.