UNITED STATES PATENT OFFICE.

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ROAD COMPOSITION AND METHOD OF MAKING THE SAME.

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To all whom it may concern:

Be it known that I, THOMAS J. BARRETT, a citizen of the United States, residing at Bordentown, in the county of Burlington and State of New Jersey, have invented certain new and useful Improvements in Road Compositions and Methods of Making the Same, of which the following is a specification.

My invention relates to improvements in road compositions and method of making the same, the object of the invention being to provide an improved composition of gravel or stone mixed with oyster shells or clam shells, and sand, cement, and bitumen in an improved manner, whereby a road composition is made which is vastly cheaper than road beds of a similar nature commonly made and which form a composition that becomes hard and perfectly withstands the wear to which it is subjected.

A further object is to provide a composition of this character which may be mixed cold and in such a manner that the stone or gravel will be prepared to receive and be freely gripped by the bitumen even though the gravel and stone are cold.

With these and other objects in view, the invention consists in certain novel combinations of materials and certain novel steps in the method of assembling them as will be more fully hereinafter described and pointed out in the claims.

While my invention permits of a wide range of modification in order to give a road the surface desired, a preferred composition consists of washed gravel, bank gravel, stone (trap rock or crushed), which may be used separated or together in combination with sand, ground or crushed oyster shells or clam shells with bitumen or asphaltum or similar material, together with cement, all of which are mixed and gasolene utilized in the mixing by the formation of a flux consisting of gasolene and bitumen as will be hereinafter explained.

I give below a composition which is a most efficient one, and is as follows:

Washed gravel or bank gravel	6 parts.
Crushed oyster shells (or clam shells)	1 part.
Sand	1 part.
Cement	¼ of 1 part.
Flux, (bitumen 1 part, gasolene 3 parts)	¼ of 1 part.
Bitumen	1 part.

In using the term "bitumen", I would have it understood that I use this term in its broadest sense. While asphaltum is probably the best material for the purpose, and will be used where the expense warrants it, yet the invention is not limited to this particular material, but where a cheaper road bed is desired, other analogous materials may be used.

In mixing my improved composition, I employ the following steps: First, the gravel, crushed oyster shells or clam shells, sand, and cement are mixed in a suitable mixer, while cold, and as the mass is thoroughly agitated during the mixing operation, I inject, spray, or otherwise impregnate the mass with a flux consisting of bitumen dissolved in gasolene. This flux serves to prepare the surface of the cold stone or gravel, so that when the bitumen which is afterward added, is poured into the composition, it will grip the surface of the stone or gravel and securely lock all parts of the composition together without heating the aggregate either before or after adding the bitumen. The crushed oyster shells or clam shells serve not only to fill up all the small spaces between the larger gravel or stone, but the action of the hot bitumen causes the lime in the shells to form a slight mortar effect, which effect is increased by atmospheric action so that the entire mass when placed upon a road, quickly hardens, yet is tough and adapted to withstand hard usage. The bitumen is added while hot to the cold aggregate, and as it is added the gasolene of the previously added flux quickly evaporates and is lost out of the composition, but its action has already prepared the surface of the stone and gravel, so that the hot bitumen grips the same.

In carrying out the method, the operator watches the mass as it is mixed, and while the flux is being applied until the mixture is just ready for the hot bitumen, some judgment is necessary in carrying out the proportions of the flux with relation to the mass. Therefore, while the proportions above stated are preferable in some instances, under other conditions of the mixture, it might be desirable to change the proportions slightly. My invention is therefore capable of a wide range of modification, and while I have set forth what I believe to be a preferred composition and method, slight changes might be made which fairly fall

within the spirit and scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An improved method of forming road compositions consisting in mixing a base while cold with a flux consisting of gasolene and bitumen, and then adding hot bitumen.

2. An improved method of forming road compositions consisting in mixing a base (sand and gravel) with crushed shells (oyster or clam), agitating the same in a mixer, impregnating the cold mass with a flux consisting of gasolene and bitumen, and then adding hot bitumen.

3. An improved method of forming road compositions consisting in mixing a base (sand and gravel) with crushed shells (oyster or clam), sand, and cement, agitating the whole aggregate thus formed in a mixer, impregnating the same with a flux consisting of gasolene and bitumen, and then adding hot bitumen.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS J. BARRETT.

Witnesses:
LOUISE B. TAYLOR,
HAROLD B. WELLS.