

# United States Patent Office.

GEORGE HUGH SINCLAIR DUFFUS, OF BALTIMORE, MARYLAND, ASSIGNOR  
TO HIMSELF AND HENRY J. DAVISON, OF NEW YORK CITY.

Letters Patent No. 108,693, dated October 25, 1870.

## IMPROVEMENT IN CONCRETES FOR PAVEMENTS, &c.

The Schedule referred to in these Letters Patent and making part of the same

### *To all whom it may concern:*

Be it known that I, GEORGE HUGH SINCLAIR DUFFUS, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and improved Concrete to be used for Pavements, Roofing, the Lining or Coating of Cellars, and for other purposes where a compact and water-proof covering or lining is required; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to a new and improved concrete, consisting of the residuum of petroleum, combined with rosin, and with ashes and sand, or gravel, or equivalent substances, to serve as a body for the concrete.

The residuum of petroleum is obtained by treating the oil distilled from petroleum, or that distilled from bituminous coal, with the oil of vitriol, (sulphuric acid,) and has the character of an asphalt, a result due to the acid, which precipitates a large percentage of the bitumen into the residuum.

The following formula, designated by C, shows the proportions of the several ingredients used in preparing my improved concrete.

Residuum of petroleum, No. 2, five parts; rosin,

three parts; ashes, two parts; gravel, twenty-four parts.

The rosin and the residuum of petroleum are warmed, and stirred while being warmed, and when well incorporated together, the ashes and gravel, mixed with the warm composition, which may then be spread over the surface designed to receive it.

I would remark that the ashes I have employed has been that obtained from the burning of anthracite coal. That I consider preferable.

The gravel mentioned in the formula simply gives a body to the concrete, and sand or clay would answer as an equivalent therefor.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

The combination of the residuum of petroleum with rosin, ashes, and gravel, all being prepared in the manner and in the proportions specified, for the purposes set forth.

GEO. H. S. DUFFUS.

Witnesses:

A. R. HAIGHT,  
THEO. TUSCH.