

# UNITED STATES PATENT OFFICE.

ROYALL GIVENS, OF CORPUS CHRISTI, TEXAS.

## SOOT-PREVENTING COMPOSITION.

SPECIFICATION forming part of Letters Patent No. 523,117, dated July 17, 1894.

Application filed April 23, 1894. Serial No. 508,667. (No specimens.)

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

Be it known that I, ROYALL GIVENS, a citizen of the United States, residing in the city of Corpus Christi, in the county of Nueces and State of Texas, have invented certain new and useful Improvements in Soot-Preventing Compositions, of which the following is a specification.

My invention relates to an improved soot-preventing composition, which is used by being sprinkled over the coal and which furnishes a more complete combustion of the carbon-particles carried along by the products of combustion, so that the deposit of soot into smoke-pipes, flues and chimneys is prevented, while at the same time the coal is prevented from forming cinders and large clinkers; and for these purposes my invention consists of a soot-preventing composition, which is composed of a mixture of powdered metallic zinc, powdered calcium-chloride and powdered ammonium-chloride, which are mixed together in the following proportions:—powdered metallic zinc, seventy-five parts by weight; powdered calcium chloride, twenty parts by weight; powdered ammonium chloride, five parts by weight.

The ingredients are carefully mixed together and used by being sprinkled in small quantities over the burning fuel, say, a teaspoonful more or less at a time. By the heat of the fire the zinc acts on the carbonic acid in the products of combustion, reduces the same and forms zinc oxide and carbonic oxide, which is combustible gas and serves to

burn the cinders and other parts of carbon, that are carried along in the smoke, so as to prevent them from settling with the condensed moisture in the stove-pipes, flues and chimneys. Simultaneously the moisture contained in the fuel is dissociated, so as to generate oxygen and hydrogen, both gases aiding combustion and assisting likewise in the prevention of deposits.

By thus preventing the formation of soot, not only the danger of fire due to the burning of the soot in flues and chimneys is prevented, but also the scaling of the grates and interior surfaces of stoves and the corrosive influence of the moisture in the fuel are prevented. At the same time any obnoxious gases arising from the combustion of the fuel are destroyed and thereby very satisfactory results obtained at comparatively small expense.

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

A soot-preventing composition, composed of a mixture of powdered metallic zinc, powdered calcium chloride and powdered ammonium-chloride, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ROYALL GIVENS.

Witnesses:

SIDNEY ALLEN,  
GEO. W. JARWIN.