UNITED STATES PATENT OFFICE.

EDWIN L. SIMPSON, OF BRIDGEPORT, CONNECTICUT.

IMPROVED WATER-PROOF COMPOUND AND VARNISH.

Specification forming part of Letters Patent No. **42,231**, dated April 5, 1864.

To all whom it may concern:

Be it known that I, EDWIN L. SIMPSON, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented a new and useful Water-Proof Compound or Varnish; and I do hereby declare the following to be a full, clear, and exact description of its combination and preparation.

My invention consists in combining with boiled vegetable oil, made more drying by adding thereto Prussian blue or other driers, a proportion of sulphur to produce a varnish or compound which, when applied to fabrics or other materials, will render the same impervious to water, and with a smooth glassy surface similar in appearance to "patent leather;" but the surface produced by application of my compound is more permanent, more flexible in all weathers or degrees of temperature without cracking, and is water-proof.

To enable others skilled in similar arts to compound and prepare my new compound or varnish, I will proceed to describe my manner of so doing.

Judgment is required in proportioning the several ingredients; but from long experience I find that the following proportions for most uses will produce the best and most glassy, black, and permanent compound and varnish: To one gallon of linseed or other vegetable oil I add, for the purpose of rendering it more drying, four to six ounces of Prussian blue, four to eight ounces of resin, one-half to one ounce of sugar of lead, one ounce of gum-draggen, one ounce of gum-dammar. Other driers may be used instead of those mentioned; but from my experience I prefer those above named. To this compound I add two to eight ounces of sulphur. Having these several articles of good quality and conveniently at hand, I first boil the oil with the Prussian blue in a kettle capable of containing two to three gallons until it will string several inches. The thicker it is boiled the less sulphur will be required for the final thickening. I now add the sugar of lead and resin. The introduction of these causes an agitation of the oil in proportion to its high or low temperature, and, were they introduced when the oil was at a boiling-point, would cause the oil to form so as to overflow the kettle. Therefore to prevent this I cool the oil before their introduction to such a degree as not to cause an overflow, and when this agitation shall have subsided (which it will do in a few minutes) I again raise the temperature until these last-mentioned ingredients are fully incorporated and until a temperature of from 350° to 375° Fahrenheit is attained. At this point I add the sulphur. The effect of this addition is first to reduce the temperature, but it very soon, and often very rapidly, increases the temperature, (owing to its chemical action upon the other ingredients,) and at the same time rapidly thickens the mixture until it has a tough, flexible, and soapy consistency. I now add spirits of turpentine or its equivalent in small quantities at short intervals to prevent the mixture from becoming too thick, and as the action of the sulphur thickens more turpentine or its equivalent must be added until from two to three pints have been added. The last half of the turpentine should be added more rapidly, in order to cool and stop all further thickening, and when all is thoroughly incorporated it should be sufficiently thin to spread with a brush if wanted for fine varnishing; but if wanted for a foundation or to form a surface to which to apply flocks it should be thicker, which may be done by further boiling or by using less turpentine or its equivalent. When used for the last-mentioned purpose I apply it by spreading with a knife or other spreader. When desired for a foundation or for filling up the pores of or interstices in the material to which it is to be applied, I find it advantageous to add and thoroughly incorporate therewith about three pounds of lamp-black.

The vessel in which this compound or varnish is prepared should be so arranged that it may be readily removed from the fire, or the fire from it, by which means the temperature can be properly regulated. After applying each coat of this varnish or compound to the material I subject the varnished material to a heat of about 240° Fahrenheit to dry for about forty-five minutes, more or less, as the temperature is higher or lower or according to the degree of dryness required; or the varnish or compound may be dried at a lower degree of temperature and afterward subjected to a higher degree of heat to obtain the more permanent and useful effects due to sulphur

when compounded with these ingredients, which is obtained between 240° and 275°.

Having thus fully set forth my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

The varnish or compound produced by combining sulphur with vegetable oil, (made drying in the manner substantially as described,) substantially in the manner and for the purpose as herein specified.

EDWIN L. SIMPSON.

Witnesses:

FRANCIS IVES,

URIAH WALLACE.