UNITED STATES PATENT OFFICE.

CHARLES GOODYEAR, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN COVERING METALS WITH GUTTA-PERCHA AND CAOUTCHOUC.

Specification forming part of Letters Patent No. **10,106**, dated October 11, 1853.

To all whom it may concern:

Be it known that I, CHARLES GOODYEAR, of New Haven, in the State of Connecticut, have invented a new and useful Improvement in the Art or Method of Coating Metals with Caoutchouc or Gutta-Percha or their Compounds; and I do hereby declare that the following is a full, clear, and exact description thereof.

It has for a long time been a desideratum to be able to apply compounds of caoutchouc or gutta-percha in the vulcanized state to the surfaces of articles made of metal so as to cover and protect such surfaces, but hitherto it has not been found practicable; but by means of my invention I am enabled to use compounds of caoutchouc or gutta-percha for this purpose with great advantage, so as in the case of covered iron to rival the most expensive kinds of leather, while in point of economy and durability, and sometimes in point of ornament and beauty, this covering is very much superior to any other material.

My invention consists in the art or method of uniting compounds of caoutchouc or gutta-percha with articles composed wholly or partly of metal, so that the metal shall be wholly or partly covered by the compounds of caoutchouc or gutta-percha, which shall be subjected to a high degree of artificial heat and vulcanized after the covering shall have been applied. I take any article of metal—say of iron, for instance—which it is desired to cover in this way and generally roughen its surface, so that the caoutchouc or gutta-percha will, when vulcanized, adhere to it more firmly. I then prepare a compound of caoutchouc or gutta-percha susceptible of vulcanization, mixing with the caoutchouc or gutta-percha, when it is desired to form a vulcanized, hard, or rigid compound, from six to eight ounces of finely-divided sulphur with each pound of the gum; but other compounds of caoutchouc may be for some purposes advantageously used, sometimes alone, sometimes in combination with the hard compound, the compound of caoutchouc or gutta-percha being prepared according to the processes well known to manufacturers of vulcanized caoutchouc. I form the same into sheets of any desired thickness, sometimes one thirty-second part of an inch in thickness. The sheets thus prepared I cut into pieces of suitable shapes and apply them to the roughened surface of the iron or other surface intended to be covered, taking care to press the compound upon the article so as to expel all the air from between them and to cause the most perfect adhesion. I then subject the article thus covered with the compound to a high degree of artificial heat, from 260° to 300° Fahrenheit, from three to seven hours, using generally for this purpose heated steam in a steam-heater, bringing the heat up gradually from 220° to the highest point. After being thus heated it will be found that the compound will adhere to the surface of the article and form a covering ornamental, durable, and easily cleansed.

The hard compound may be polished and, if desired, varnished. I in this way cover the iron parts of fire-arms, the pieces or articles of iron used in or about harnesses or carriages—such as saddle-trees, buckles, hames, terrets, bits, stirrups, martingale-rings, dasher-irons, &c.—and articles intended to be used as furniture, either whole or in parts, the handles of knives and other instruments and tools, and a great variety of other objects.

Having thus described the nature of my invention and the nature of putting it into operation, what I claim, and desire to secure by Letters Patent, is—

The art or method of coating articles composed wholly or partly of metal with compounds of caoutchouc or gutta-percha, and subjecting the same to a high degree of artificial heat or the process of vulcanization, substantially as herein specified.

CHARLES GOODYEAR.

Witnesses:

JOSEPH H. DORR,
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