UNITED STATES PATENT OFFICE.

WM. E. RIDER AND JOHN MURPHY, OF NEW YORK, N. Y.

IMPROVEMENT IN DESULPHURIZING GUTTA-PERCHA AND LIKE GUMS.

Specification forming part of Letters Patent No. **11,906**, dated November 7, 1854.

To all whom it may concern:

Be it known that we, WILLIAM E. RIDER and JOHN MURPHY, of the city, county, and State of New York, have invented a new and useful Improvement in the Process of Vulcanizing Gutta-Percha, India-Rubber, and other Vulcanizable Gums; and we do hereby declare that the following is a full and exact description thereof.

The nature of our invention consists in extracting the superfluous portion of the sulphur from gutta-percha, india-rubber, and other vulcanizable gums, during the heating portion of the vulcanizing process, by the use of hydrogen gas in the vessel or chamber in which said heating process is performed, by which the after-accumulation of sulphur upon said gums is prevented, and consequently the necessity of boiling them in alkali for the removal of superfluous sulphur is entirely obviated. After the aforesaid gums or gum goods have been prepared for the heating portion of the vulcanizing process in any suitable manner and been arranged in the apartment for being acted upon by heat the temperature in said apartment should be elevated to about 245° Fahrenheit, and then a stream of hydrogen gas should be forced into it under a pressure of somewhere about one pound to the square inch. The temperature in said apartment should then be carried up to the vulcanizing-point and retained at that until the said gums or gum goods are thoroughly vulcanized. The length of time and the degree of heat required for perfecting the heating portion of the vulcanizing process will necessarily depend upon the shape and thickness of the gums or gum goods placed in the heating-apartment. We find, however, that when hydrogen gas is admitted into the heating-apartment, as before stated, the gums can be thoroughly vulcanized at a temperature ten degrees less than is required when the hydrogen gas is not so used, and it is well known that the lower the degree of heat is at which gum goods can be thoroughly vulcanized the stronger they will be afterward.

Gum goods vulcanized by our process will not require to be boiled in caustic alkali; consequently many articles can be vulcanized by us which the boiling in caustic alkali would destroy—such as silk coats and delicate articles with bright-colored linings.

The great affinity of the hydrogen for sulphur is well known, and in this process it seems to draw out that portion of the sulphur that would afterward be drawn out by the atmosphere, to the injury and defacement of the gum goods.

What we claim as our invention, and desire to secure by Letters Patent, is—

Extracting the superfluous portion of the sulphur from gutta-percha, india-rubber, and other vulcanizable gums or gum goods, during the heating portion of the vulcanizing process, by the use of hydrogen gas in the apartment in which said heating process is performed, by which the after-accumulation of sulphur upon the surface of said gums is prevented, and consequently the necessity of boiling them in caustic alkali entirely avoided, substantially as herein set forth.

WM. E. RIDER.
JOHN MURPHY.

Witnesses:
WILLIAM RIDER,
STEPHEN DREW.