UNITED STATES PATENT OFFICE.

GILBERT C. FOWLER, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN BOILER-COVERING COMPOUNDS.

Specification forming part of Letters Patent No. **203,906**, dated May 21, 1878; application filed October 9, 1877.

To all whom it may concern:

Be it known that I, GILBERT C. FOWLER, of the city and county of San Francisco, and State of California, have invented an Improvement in Boiler-Covering Compounds; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to certain improvements in the manufacture of such plastic material as is used for surrounding steam-boilers, steam-pipes, and other heat-radiating surfaces with a non-conducting coating or covering, in order to arrest the waste of heat, which is otherwise lost by radiation.

In the manufacture of my improved non-conducting covering for boilers and other heat-radiating surfaces, I use many of the ordinary ingredients now commonly in use, such as wood, plaster-of-paris, fire-clay, common clay, lime, cement, hair, jute, paper-pulp, sawdust, rice-hulls, charcoal, plumbago; but, in addition to these ingredients or any portion of them, I use marble-dust and silicate of soda, and the pulp of cactus or of tule. The exact proportions of each of these two last ingredients to be used will be regulated by the nature of the combination of substances with which they are mixed, and will readily be understood by any person who is familiar with the manufacture of plastic material for covering boilers.

I am aware that many of the above-described ingredients have been employed in combination to form boiler-coverings, including vegetable fibers of some sort; but there is a serious objection to all these compounds, because they are incapable of enduring the alternate expansion and contraction caused by the heating and cooling of the boiler, cracks are thus soon formed, and the protective effect of the covering, whether with or without an interior air-space, is much diminished.

By the use of the cactus I am enabled to prevent this cracking, as the peculiar crossing and interlacing of the fibers forms a tough and elastic net-work, which will not become brittle by heat, or be separated so as to allow cracks by reason of the shortness of the fibers, as is the case when jute, flax, paper-pulp, or ordinary woody fiber is employed.

In addition to these advantages, the pulp is a good non-conductor of heat, and mixes well with the other substances, so as to form a perfect homogeneous mass, which will form, when dry, a hard, durable, non-conducting shell or case.

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

A boiler-covering consisting of the fiber or pulp of the cactus family of plants, combined with suitable non-conducting ingredients, substantially as described.

In witness whereof I have hereunto set my hand and seal.

GILBERT C. FOWLER. [L. S.]

Witnesses:

FRANK A. BROOKS,

WILL L. TAYLOR.