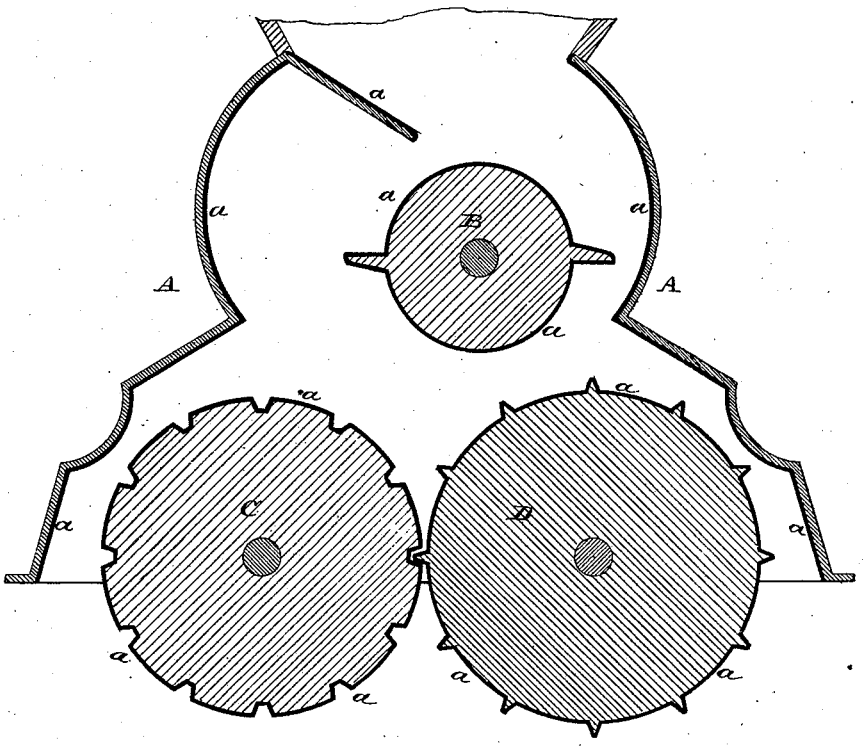
C. E. WHITMAN.

MILLS FOR CRUSHING AND GRINDING FRUIT.

No. 184,941. Patented Nov. 28, 1876.



ATTEST:

Sam'l Knight

Robert Burns

INVENTOR:

Chas. E. Whitman

UNITED STATES PATENT OFFICE.

CHARLES E. WHITMAN, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN MILLS FOR CRUSHING AND GRINDING FRUIT.

Specification forming part of Letters Patent No. **184,941**, dated November 28, 1876; application filed October 13, 1876.

To all whom it may concern:

Be it known that I, CHARLES E. WHITMAN, of the city and county of St. Louis, and State of Missouri, have invented a certain new and useful Improvement in Mills for Grinding and Crushing Fruit, Sugar-Cane, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification.

My improvement consists in covering the metallic surfaces with which the juice comes in contact with a coat of enamel or glazing that will resist the chemical action of the juice.

The drawing is a transverse section of a cider-mill with my invention applied thereto, and I will particularly describe my invention as applied to this machine.

A is the case. This may be of any suitable form to inclose the rollers B C D. The case is ordinarily made of cast-iron. In carrying out my improvement the inner surface of the case is coated with a glazing or enamel, *a*, caused to adhere to the metal by heat in the usual way practiced in the application of such coating to metallic surfaces, such as cooking-utensils, &c. This coating may cover the whole of the interior surface of the case, or may cover only a part of such surface. C and D are the grinding-rollers, and B the crushing-roller or crusher. These rollers, like the interior surface of the case, have a coating, *a*, of similar material, and for the same purpose, namely, to prevent the contact of the juice with the metal. This coating may be applied to only one or to any number of the rollers or crushers, and the rollers or crushers may be completely covered with it, or partly so covered. Any enamel, glazing, or similar coating may be used which will resist the chemical action of the juice.

In carrying out my invention the surface of the metal is cleaned, and is then covered with the vitreous composition and baked in a muffle in the ordinary manner, so as to melt the composition upon the metal and cause it to adhere thereto.

I do not confine myself to any particular composition for this enamel or coating *a*, as many are known to the trade, and the manner of applying them is so well understood as to make particular description of the process unnecessary. I will merely say that the glazing formed of common glass and oxide of lead would be objectionable, because the lead would form a poisonous compound with the acid of the fruit, &c.

I have shown my invention as applied to a cider-mill, and shown the enamel as covering the whole interior surface of the case and the surface of the rollers; but I do not confine myself to the application of my invention to cider-mills alone, as it is equally applicable to all fruit-mills of this class, and to sugar-cane mills, and generally to the coating of the interior metallic surfaces of mills where such surfaces would otherwise be exposed to the chemical action of liquids, and would color or otherwise deteriorate the product.

I am aware that cider-mill rollers have before this time been galvanized with zinc or some metallic alloy less easily affected by the acid of the juice than iron; but such coating-metal has a deleterious effect upon the product of the mill.

I claim as my invention—

In cider, wine, sugar-cane, or similar mills for expressing the juice from fruit, the crushing-rollers and the interior of the casing, or either, covered with enamel, substantially as and for the purpose set forth.

CHAS. E. WHITMAN.

Witnesses:

SAML. KNIGHT,

ROBERT BURNS.