

UNITED STATES PATENT OFFICE.

FRANK D. STONE, OF CLEVELAND, OHIO.

IMPROVEMENT IN DAIRY-VESSELS.

Specification forming part of Letters Patent No. 155,899, dated October 13, 1874; application filed September 30, 1874.

To all whom it may concern:

Be it known that I, FRANK D. STONE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Metallic Vessels for Storing and Transporting Butter, Milk, and other substances; and I do hereby declare that the following is a full and complete description thereof.

The nature of my invention relates principally to the preparation of the interior surface of a dairy-can for receiving and retaining a coating impervious to the action of the contained substance; and it consists in producing upon the interior of the vessel a roughened surface or granulations, whereby the surface so prepared causes the coating of paraffine to permanently adhere. The tin plate of commerce may be used in the can, but as the coating of tin may contain lead, oxidation takes place by the action of the contained liquid, which soon becomes injured thereby. To prevent oxidation of the interior, and consequent injury to the contents, is the object of a tin-lined can with a roughened interior surface coated with paraffine, in which no injury to the contents and coating takes place by bruising and bending in handling or transportation.

The mode of preparing the can is as follows: The tin is run through between rolls, the upper one of which is grooved to correspond with the number of grooves or creases required in the plate or tin, the lower roll being smooth. After the plate has passed once through between the rolls, the tin is then reversed or turned at such an angle as to form angular blocks or squares after the metal has again been passed between the rollers. These angular blocks or squares are formed by the intersecting lines of the grooves or creases. Other mechanical means may be used for producing the roughened surface, and it may be done by employing acids to act on the surface of the metal before or after the can is made. Upon the roughened surface is applied paraffine, and this is used in a melted state, the quantity being of sufficient thickness to completely cover over the roughened

or granulated interior surface of the can. Ordinary tin plate is used for this purpose, and considered preferable to other metals. In case an acid or acids are used to roughen the surface of the can, I pour into the can sufficient quantity of dilute sulphuric or other acid or combination of acids, of strength enough to corrode the surface of the metal. After the interior of the can and cover has been thoroughly wetted over with the dilute acid it is poured out and the vessel allowed to remain a short time—say, from five to ten minutes—when it will be found that a sufficient chemical action has been obtained. The acid action is then neutralized by a bath of weak alkali. The can is then thoroughly washed with water and dried. A quantity of melted paraffine is then poured in and the can turned around, causing a flow over the surface, and that which does not adhere is poured out, and the can is completed for use as soon as the coating becomes hardened.

It has been found that when paraffine has been applied upon the surface of the can, prepared as above, the adhesion is permanent, resisting all ordinary handling of the can for its removal, thus preserving from metallic contact the substance in the vessel.

It is known that paraffine has no affinity with acids, oils, alkalies, or water; hence the properties of the butter are prevented from acting on the metal of the can, and reaction of the metal on the contents, by the improvement before described. In this way the butter and other substances are retained in good condition for use and transportation, producing better results than can be attained by the ordinary means.

I do not claim broadly the use of paraffine for lining vessels, but what distinguishes my improvement is combining with a tinned dairy-can or carrier a granulated or roughened surface in the interior thereof, and paraffine, applied in the manner herein specified. Tinned sheet-iron has always been considered a finished article from which to form vessels of all kinds, and it will hence be perceived that my invention has for its object not the substitution of one lining substance for another,

but a process supplemental to what has preceded in the art, so that, retaining all the advantages of tinned sheet-metal, both in the exterior and interior of the vessel, I produce the most efficient vessel yet known as a container of material of acid or alkaline qualities.

What I claim as my improvement, and desire to secure by Letters Patent, is—

A vessel of tinned plate interiorly roughed by chemical or mechanical means, and coated with paraffine, substantially as and for the purpose set forth.

FRANK D. STONE.

Witnesses:

W. H. BURRIDGE,
T. BERLET.