

UNITED STATES PATENT OFFICE.

VALENTIN LAPP, OF LEIPZIG, GERMANY.

PROCESS OF TREATING STORAGE VESSELS.

SPECIFICATION forming part of Letters Patent No. 766,506, dated August 2, 1904.

Application filed April 2, 1904. Serial No. 201,340. (No specimens.)

To all whom it may concern:

Be it known that I, VALENTIN LAPP, a subject of the King of Saxony, residing at No. 2 Georgi-Ring, Leipzig, in the Kingdom of Saxony, in the German Empire, have invented certain new and useful Improvements in Processes of Treating Storage Vessels, of which the following is a specification.

The surfaces of metal vessels have been protected by subjecting them to the action of boiling linseed-oil or castor-oil, and it has been proposed to oxidize such surfaces before so treating them. According to the present invention the surfaces of iron vessels, such as those in which beer is prepared and stored, and in particular pasteurizing vessels, are first treated with tannic acid and are then subjected to the action of boiling linseed-oil or resin-oil, which has preferably been rectified. By this means a special coating with lacquer, which would be necessary on treating the surfaces with tannic acid alone, is rendered unnecessary. By the preliminary treatment of the metal surfaces with tannic acid clean dark surfaces are obtained, which by themselves resist the action of substances. If they are then subjected to boiling oil, the coating formed adheres much better than if the bright metallic surfaces are only coated with the boiling oil. In consequence thereof the improved process is rendered particularly applicable to pasteurizing vessels.

The treatment of the vessels with boiling oil after treatment with tannic acid may be effected in the known manner. When employing resin-oil, the resinous product is first heated to about 200° centigrade in order to remove the more volatile acids, turpentine, and certain resin essences. The resin is then further heated to from 450° to 500° centigrade, and the oils that distil over at this temperature are separately collected and then again subjected to fractional distillation in order to obtain only the most viscous resin-oils. Large quantities of these having been collected in a bath, the prepared vessels are introduced therein, so as to be filled with the oil. The bath is then maintained for about two hours at a temperature of from 350° to 400° centigrade, after which the vessels are removed, when

they will be found to have adhering to their surfaces a very minute layer of the oil, which is hardly perceptible to the naked eye. This layer becomes rapidly hard owing to the action of the atmospheric oxygen, and thus acts as an effective protective coating to the metal.

It may be assumed that the resin-oil obtained at 450° to 500° centigrade, as also the substances, such as colophonium, an appreciable quantity of phenols, and some acids still contained therein, act conjointly upon the iron, so that a very strongly adhering coating is obtained that is very elastic and affords quite sufficient protection notwithstanding that it is very thin.

If linseed-oil is employed for the process, it is advantageous after subjecting it to a refining and bleaching process to submit it to a low temperature of about 30° centigrade, so that the solid constituents then formed may separate from the liquid ones.

The described process can also be so modified that the surfaces treated with tannic acid have the oil applied thereto with a brush and are then subjected to the action of air under pressure heated to from 350° to 400° centigrade. By this means the pores and interstices of the surfaces, in particular at the riveting, lap-joints, flanges, &c., are made to open, and by the heat any water is removed therefrom, while by the pressure the oil is forced into the pores and crevices, whereby a very effective protection against rusting is obtained.

The heated air under pressure is allowed to act upon the oil-coated surfaces for about an hour, after which the pressure is gradually reduced, and then a current of hot air is passed through the vessels for carrying off the oil-vapors.

The process can also be varied by first subjecting the oil-coated surfaces to the action of hot air without pressure, then to hot air under pressure, and finally again to hot air without pressure, each for the space of about half an hour.

The described process may also be modified in such a manner that the oil is pressed between the lap-joints or other difficult accessible places of the vessels by means of brushes or that it is spurted against the said places by

strong spurtings. A cushion of hard rubber having an aperture can be pressed against the place to be treated, and through the said aperture the oil is then spurted under the cushion, forming, with the walls of the vessel, a close chamber, from which the oil is pressed into the interstices or the like.

It is also of advantage to heat the surfaces by means of hot air at 400° centigrade before they are coated with oil.

Upon the oil-coating produced as above described can also be applied a glazing of shellac or other resinous material.

Having thus described the nature of my said invention and the best means I know of carrying the same into practical effect, I claim—

1. The process for coating iron vessels such as those serving for the manufacture or storage of beer, and in particular pasteurizing vessels, consisting in first treating the vessels with tannic acid and then subjecting them to the action of boiling oil, such as linseed, castor, or resin oil, preferably previously rectified, substantially as described.

2. The process for coating iron vessels consisting in first treating them with tannic acid,

then coating them with oil, and then subjecting them to the action of hot air under pressure, substantially as described.

3. The process for coating iron vessels consisting in first treating them with tannic acid, then coating them with oil, then heating the vessels, and then subjecting them to the action of hot air under pressure, substantially as described.

4. The process for coating iron vessels consisting in first treating them with tannic acid, then heating them, then coating them with oil, then heating the vessels again, and then subjecting them to the action of hot air under pressure, substantially as described.

5. The process for coating iron vessels consisting in first treating them with tannic acid, then coating them with oil and then spurting oil against the difficult accessible places, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

VALENTIN LAPP.

Witnesses:

OTTO GUNTHER,
FR. BELLHORN.