

UNITED STATES PATENT OFFICE

RICHARD SELIGMAN, OF WANDSWORTH, LONDON, ENGLAND

REMOVING INCRUSTATION FORMED ON METALLIC SURFACES

No Drawing. Application filed August 1, 1927, Serial No. 210,017, and in Great Britain November 4, 1926.

The present invention aims to facilitate the removal of the incrustations which form on metallic surfaces which are in contact with hot milk.

5 It has been found that the incrustation or surface coating which forms on metal surfaces used for heating milk and is regarded or known as calcium caseinogenate is readily disintegrated by subjecting it to a solution
10 of an acid, but some provision must be made to prevent the acids attacking the metal surface actively.

According to the present invention the incrustation is removed by treating the sur-
15 faces with an acid which also contains casein or gelatine as a protective agent to prevent or lessen the action of the acid on the metallic surfaces or objects.

By way of example only, good results have
20 been obtained by the use of a weak solution of medicinal (British Pharmacopœia) ortho-phosphoric acid, the strength of the solution being 2%, the temperature of the solution being between 85° to 100° C., and the time of
25 the treatment being about 30 minutes.

Where such metallic surfaces are coated with casein, the previous addition of protective material is not however found essential when dealing with milk incrustations as the
30 protective material is derivable from the casein.

For the purpose described the descaling solution may be circulated rapidly over the metal surfaces by means of a pump the temperature being maintained by steam or some
35 similar device. Alternatively the articles to be freed from scale may be immersed in a bath of the solution which is preferably kept in active circulation and appropriately main-
40 tained at the desired temperature.

The following is an example of the proportions of the materials used in forming a bath:

97 parts by weight of water.
45 2 parts by weight of ortho-phosphoric acid.
1 part by weight of casein.

What I claim is:—

1. The process for removing the incrustation which forms on a metallic surface in
50 contact with hot milk which consists in treat-

ing the surface with a solution containing ortho-phosphoric acid, casein, and water.

2. The process for removing the incrustation which forms on a metallic surface in contact with hot milk which consists in treating
55 the surface with a solution of ortho-phosphoric acid solution in the presence of casein derived from the incrustation itself, said casein being a protective agent which prevents or minimizes the action of the acid
60 upon the metallic surface.

3. The process for removing the incrustation which forms on a metallic surface in contact with hot milk which consists in treating
65 the surface with pure ortho-phosphoric acid said pure ortho-phosphoric acid containing a colloid soluble in said acid to prevent or minimize the action of the pure ortho-phosphoric acid upon the metallic surface itself.

4. The process for removing the incrustation which forms on a metallic surface in contact with hot milk which consists in treating
70 the surface with a solution of pure ortho-phosphoric acid in the presence of a colloid soluble in said acid to prevent or minimize
75 the action of the acid upon the metallic surface itself.

5. The process for removing the incrustation which forms on a metallic surface in contact with hot milk which consists in treating
80 the surface with pure ortho-phosphoric in the presence of casein derived from the incrustation itself, said casein being a protective agent which prevents or minimizes the action of the pure ortho-phosphoric acid upon
85 the metallic surface.

In testimony whereof, I affix my signature.
RICHARD SELIGMAN.

99

95

100