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RUSTPROOFING PROCESS AND COMPOUND.

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To all whom it may concern:

Be it known that I, CHARLES E. ABRAHAM, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Rust-proofing Processes and Compounds, of which the following is a specification.

This invention relates to a rust-proofing process and formula and refers more particularly to a process and formula which will effectively produce or cause to be produced on ferrous metals or their alloys a protective rust-resisting film or coating.

Among the objects of the invention are to provide an improved process and formula whereby the ferrous metals or their alloys can be efficiently and economically rust-proofed; to provide a compound and process which will be more effective for rust-proofing purposes than those now in use and which will permit the rust-proofing without buffing or otherwise treating the metal before applying the formula; and in general to provide a new and improved process and formula of the character above referred to.

While the invention in its broader aspects is not limited to the particular substances or proportions specified, except as ultimately set forth in the claims, I have found that a compound formed and applied as follows is particularly effective in rust-proofing iron, steel or the like; these ingredients being used in substantially the following proportions:

Barium nitrate	18 oz.
Zinc oxide	9 oz.
Antimony trioxide	7 oz.
Oxalic acid	4 oz.
Phosphoric acid	5 oz.
Water	40 gal.

The above solution is heated to the boiling point and maintained at this temperature while the article to be rust-proofed is subjected to the action of this bath from approximately 40 minutes to two and one-half hours; according to the hardness of the metal to be treated.

In general the process is one in which zinc oxide, antimony trioxide, barium nitrate, oxalic acid and phosphoric acid are mixed with water in substantially such quantity and proportions as shown in the above formula as will produce or cause to be produced a protective rust-resisting coating or film on ferrous metals and their alloys. I have found that antimony, oxide of antimony or other compound of antimony is the essential material necessary to produce successful results. Substitutions such as lead, nickel, tin, bismuth or aluminum oxides or compounds in place of zinc oxide; or manganese or strontium nitrates in place of barium nitrate; or phosphoric acid in place of oxalic acid in the presence of antimony, oxide of antimony or other compounds of antimony will produce a similar rust-protective coat to ferrous metals when treated as outlined. Also the proportions and quantities of the several materials may be varied within practical limits and in this way a coating of different shades of color and of density may be obtained, but with substantially the same rust-resisting properties. However, the formula substantially as given above I have found has produced very good results.

Therefore, I believe I am the first to employ for the rust-proofing of ferrous metals antimony, oxide of antimony or other compounds of antimony. I also believe that I am the first to employ oxalic acid or its compound for this purpose.

What I claim as my invention is:

1. A rust-proof composition containing antimony in solution.

2. A rust-proofing composition containing oxalic acid in the presence of antimony in solution.

3. A rust-proofing composition containing the following substances: Barium nitrate, zinc oxide, antimony trioxide, oxalic acid, phosphoric acid, water.

4. The process of rust-proofing articles

which comprises subjecting them to a bath of barium nitrate, zinc oxide, antimony trioxide, oxalic acid or phosphoric acid and water.

5. The process of rust-proofing articles which comprises subjecting them to an acidulated bath containing a compound of antimony and a normally rust proofing compound and the heating of said bath.

6. A rust-proofing composition containing antimony, a relatively weak acid and a normally rust proofing compound.

7. A rust-proofing composition containing antimony and a normally rust proofing compound.

In testimony whereof I affix my signature.

CHARLES E. ABRAHAM.