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FASTENING

Theodore J. Martin and Arthur Van Kleeck, Madison, Wis., dedicated to the free use of the People of the United States of America

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2 Claims. (Cl. 148—6)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

This application is made under the act of March 3, 1883, as amended by the act of April 30, 1928, and the invention herein described and claimed, if patented, may be manufactured and used by or for the Government of the United States of America for governmental purposes, without the payment to us of any royalty thereon.

We hereby dedicate the invention herein described, if patented, to the free use of the people of the United States of America.

Our invention consists of a treatment of ferrous metal fastenings that greatly increases the resistance to withdrawal of the metal fastenings from wood. This improvement in resistance to withdrawal is obtained by the simultaneous etching and coating of the surface in such a way that a finely roughened surface is produced. This surface permits a better contact between the fastening and the wood than is possible with plain, cement coated, or grossly roughened surfaces.

An object of our invention is the production of a fastening by the use of a water solution of monoammonium phosphate.

We have found from tests recently made on nails treated with monoammonium phosphate solution that their resistance to withdrawal is considerably greater than that of bright nails.

The principal advantage of our product over those heretofore patented is its simplicity in manufacture. After withdrawal of the nails from the treating solution, a water rinse and air-drying is all that is necessary to produce our product, as compared with an hour's exposure to a humidity of 80 per cent at 100° C. in a well-known patented process.

The mechanism of the process that we prefer to employ in obtaining our product is:

(1) The fastening is subjected to the action of a water solution of ammonium phosphate;

(2) The fastening is withdrawn from the solution, rinsed in water and dried.

The method herein described possesses the advantage of being extremely simple, as no subsequent treatment is necessary after rinsing with water.

We have also found that by the use of monoammonium phosphate our ferrous metal fastenings are resistant to corrosion.

We have also found that the concentration and temperature of the monoammonium phosphate solution employed and the time of exposure of the fastening to the solution may be varied widely to produce fastenings having the desired surface characteristics.

The following is a preferred example of a treatment which has given excellent results for a ferrous metal fastening:

The fastening to be treated is immersed for substantially seven hours in a substantially ten percent aqueous solution of monoamminum phosphate at room temperature. It is then withdrawn, rinsed with water, and air-dried.

A number of tests made on wire nails, treated as above described gave decidedly higher values for resistance to withdrawal than were obtained where similar fastenings having plain, cement coated or grossly roughened surfaces obtained by sandblasting or treatment with phosphate preparations other than monoammonium phosphate.

Having thus described our invention, what we claim for Letters Patent is:

1. The method of producing increased withdrawal resistance to metal fastenings consisting in treating said fastenings with a chemical solution containing as its essential active ingredient monoammonium phosphate.

2. The process of treating metal fastenings for producing increased withdrawal resistance, which comprises subjecting said fastenings to the action of a bath containing monoammonium phosphate, thence washing and drying.

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