PATENT SPECIFICATION 820,981

NO DRAWINGS.

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International Classification :—B27k.

COMPLETE SPECIFICATION.

Improvements in or relating to Compositions for the Preservation and Fire-Proofing of Wood, Timber and other Combustible Materials.

We, CELCURE & CHEMICAL COMPANY LIMITED, a British Company, of 300 Bearsden Road, Glasgow, W.3, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in compositions for the preservation and fire-proofing of wood, timber and other combustible materials such as fibre board.

It has previously been proposed to provide a composition consisting of a bichromate, copper sulphate, zinc chloride and boric acid in aqueous solution. While such a composition preserves satisfactorily wood, timber and other materials from cryptogamic diseases, attack by insects, living pests and marine organisms, the fire-retardent effect of the composition is unsatisfactory.

A composition according to the invention is in a powdered form adapted to be dissolved in water prior to use and consists of a bichromate, boric acid, mono-ammonium phosphate, a sulphate or a chloride of copper, zinc or nickel, and a sequestering agent adapted, when the composition is in aqueous solution, to inhibit precipitation of any of the salts in the solution.

The sequestering agent may consist of a salt such as a sodium polyphosphate, e.g., sodium hexametaphosphate.

Examples of compositions according to the invention are as follows, all the proportions being by weight:—

[*Price* 3*s.* 6*d.*]

EXAMPLE 1.

Boric acid	14.5%
Sodium hexametaphosphate ...	14.5%
Mono-ammonium phosphate ...	14.5%
Ammonium sulphate	37.0%
Sodium or potassium bichromate	9.7%
Copper sulphate	8.8%
Chromium acetate	1.0%
	100.0%

EXAMPLE 2.

Boric acid	14.5%
Sodium hexametaphosphate ...	14.5%
Mono-ammonium phosphate ...	14.5%
Ammonium sulphate	37.0%
Zinc chloride	9.3%
Sodium bichromate	10.2%
	100.0%

EXAMPLE 3.

Boric acid	14.5%
Sodium hexametaphosphate ...	14.5%
Mono-ammonium phosphate ...	14.5%
Ammonium sulphate	37.0%
Nickel sulphate	9.3%
Sodium bichromate	10.2%
	100.0%

EXAMPLE 4.

Boric acid	14.0%
Sodium hexametaphosphate ...	30.0%
Mono-ammonium phosphate ...	37.0%
Sodium bichromate	9.5%
Copper sulphate	8.5%
Chromium acetate	1.0%
	100.0%

EXAMPLE 5.

Boric acid	14.5%
Sodium hexametaphosphate ...	14.5%
Mono-ammonium phosphate ...	51.5%
Nickel sulphate or Zinc chloride	9.3%
Sodium bichromate	10.2%
	100.0%

The preferred composition is that given in Example 1.

The afore-mentioned salts are so dissolved in water as to provide a solution containing approximately 16% by weight of the salts.

The wood, timber or other combustible material to be treated may then be introduced into a cylinder from which air is exhausted to set up a vacuum. In these conditions the solution is sucked into the cylinder until the cylinder is full. Pressure is then applied to the contents of the cylinder in such-wise that a minimum retention of 2½ lb. of dry composition per cubic foot of wood, timber or other combustible material treated is effected and the wood, timber or other combustible material is fire-proofed.

WHAT WE CLAIM IS:—

1. A composition for the preservation and fire-proofing of wood, timber and other combustible materials, in a powdered form adapted to be dissolved in water prior to use and consisting of a bichromate, boric acid, mono-ammonium phosphate, a sulphate or a chloride of copper, zinc or nickel, and a sequestering agent adapted, when the composition is in aqueous solution, to inhibit precipication of any of the salts in the solution.

2. A composition as claimed in Claim 1 in which the sequestering agent is a sodium polyphosphate.

3. A composition as claimed in Claim 1 including ammonium sulphate.

4. The treatment of wood, timber and other combustible materials with the composition claimed in any of the preceding claims, to effect preservation and fire-proofing.

5. Wood, timber or other combustible materials treated with the composition claimed in any of the preceding claims.

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PROVISIONAL SPECIFICATION.

Improvements in or relating to Compositions for the Preservation and Fire-Proofing of Wood, Timber and other Materials.

We, CELCURE & CHEMICAL COMPANY LIMITED, a British Company, of 300 Bearsden Road, Glasgow, W.3, do hereby declare this invention to be described in the following statement:—

This invention relates to improvements in compositions for the preservation and fire-proofing of wood, timber and other materials and may be regarded as a development of that forming the subject of the prior Patent No. 546,256.

While the composition as described in the prior Specification No. 546,256 preserves satisfactorily wood, timber and other materials from cryptogamic diseases, attack by insects and living pests, and the rotting action of salt or brackish water, the fire-retardent effect of the composition is unsatisfactory.

The composition according to the invention consists of an aqueous solution of copper sulphate, a metal acetate capable of being dissociated, a bichromate, boric acid, mono-ammoniumphosphate ammonium sulphate or/and phosphate and a sequestering agent adapted to prevent precipitation of any of the salts in the solution.

The sequestering agent may consist of a salt such as sodium hexametaphosphate.

As an example, one ton of composition contains:—

Sodium-hexametaphosphate ...	320 lb.
Mono-ammonium phosphate ...	320 lb.
Ammonium sulphate	800 lb.
Boric acid	320 lb.
Potassium bichromate	240 lb.
Copper sulphate	216 lb.
Chromium acetate	24 lb.
	2240 lb.

The afore-mentioned salts are then so dissolved in water as to provide a solution containing 14% by weight of the salts.

The wood, timber or other material to be treated may then be introduced into a cylinder from which air is exhausted to set up a vacuum. In these conditions the solution is sucked into the cylinder until the cylinder is full. Pressure is then applied to the contents of the cylinder in such wise that a minimum retention of 2½ lb. of anhydrous composition per cubic foot of wood, timber or other material treated is effected.

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* C L M S *

EXAMPLE 5.

Boric acid	14.5%
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Nickel sulphate or Zinc chloride	9.3%
Sodium bichromate	10.2%
	100.0%

The preferred composition is that given in Example 1.

The afore-mentioned salts are so dissolved in water as to provide a solution containing approximately 16% by weight of the salts.

The wood, timber or other combustible material to be treated may then be introduced into a cylinder from which air is exhausted to set up a vacuum. In these conditions the solution is sucked into the cylinder until the cylinder is full. Pressure is then applied to the contents of the cylinder in such-wise that a minimum retention of 2½ lb. of dry composition per cubic foot of wood, timber or other combustible material treated is effected and the wood, timber or other combustible material is fire-proofed.

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1. A composition for the preservation and fire-proofing of wood, timber and other combustible materials, in a powdered form adapted to be dissolved in water prior to use and consisting of a bichromate, boric acid, mono-ammonium phosphate, a sulphate or a chloride of copper, zinc or nickel, and a sequestering agent adapted, when the composition is in aqueous solution, to inhibit precipication of any of the salts in the solution.

2. A composition as claimed in Claim 1 in which the sequestering agent is a sodium polyphosphate.

3. A composition as claimed in Claim 1 including ammonium sulphate.

4. The treatment of wood, timber and other combustible materials with the composition claimed in any of the preceding claims, to effect preservation and fire-proofing.

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While the composition as described in the prior Specification No. 546,256 preserves satisfactorily wood, timber and other materials from cryptogamic diseases, attack by insects and living pests, and the rotting action of salt or brackish water, the fire-retardent effect of the composition is unsatisfactory.

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