

PATENT SPECIFICATION

NO DRAWINGS

Inventor: OLIVER DERWENT WOOD

824301



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COMPLETE SPECIFICATION

Protection of Wooden Structures

5 We, E. M. CROMWELL & COMPANY LIMITED, of Galloway Road, Bishop's Stortford, Hertfordshire, a British Company, 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:—

10 This invention consists in a method of protecting wooden surfaces, especially boat hulls, against the effects of water and abrasion which comprises coating the surface with a solution of a resorcinol-formaldehyde resin cement containing a hardening agent, laying textile sheets of a nylon filament yarn adjacently upon the coated surface whilst the cement is still wet, smoothing the sheets down, permitting the cement to cure until a substantial peel strength has been attained, and then impregnating and coating the sheets with a film-forming thermoplastic vinyl polymer resin contained in a volatile organic solvent.

20 The cement employed is preferably in aqueous alcoholic solution, and the hardening agent is preferably paraformaldehyde. After the nylon fabric has been applied, and sufficient time has elapsed for evaporation of the bulk at least of the alcohol, the structure the surface of which is being treated may be housed in a tent and warmed when the ambient temperature is otherwise unduly low (say below 60° F.) to accelerate curing of the cement.

30 The development of a substantial peel strength may be judged by means of a control strip similarly applied to a wooden surface supported near the surface being treated.

35 Two or more coats of vinyl polymer resin solution may be applied. The first coat of vinyl polymer resin may be of a resin incorporating hydroxyl radicals, and a subsequent coat of a resin without such radicals. A vinyl chloride-vinyl acetate copolymer resin is suitable; where the resin is to incorporate hydroxyl radicals a partially hydrolysed vinyl chloride-vinyl ac-

45 tate copolymer may be used. Polyvinyl chloride-polyvinyl acetate mixtures may be employed instead of the copolymer.

50 The solvent used will depend on the vinyl resin chosen; ketonic and ester solvents such as methyl ethyl ketone and ethyl or propyl acetate may be used for vinyl chloride-vinyl acetate copolymers.

55 Strips of nylon cloth may be secured over the abutting edges of the adjacent textile sheets by cementing them with the vinyl resin in solution to protect the edges from damage.

60 Substances may be incorporated in at least the final coating which act as repellents for marine wood-damaging organisms, u.v. filters and/or a suitable anti-fouling substance, in the case of boat hulls. Proprietary materials of these kinds are readily available.

65 The surface to be treated should be clean and smooth. Depressions should accordingly be filled with stopping, suitably with a wood flour resorcinol-formaldehyde resin aqueous alcoholic cement containing paraformaldehyde hardener.

70 The invention will be described further by means of the following example:—

EXAMPLE.

75 A 45ft. cabin cruiser of carvel construction without transom—life boat style—was to be sheathed. The hull was in good condition and needed no cleaning but the keel was in bad condition and was covered on each side with wooden planks.

80 It was decided to skin the hull in strips transversely round the hull taking the port and starboard sides separately. A drawing was prepared of the hull divided into sections and a scheme of cloth cutting was worked out on graph paper. The nylon fabric was cut by means of a hot wire so that the edges were flat and could be butted together exactly.

85 Resorcinol-formaldehyde resin was prepared for use by mixing it batchwise with curing

catalyst and the mixture was applied in strips to the boat conforming in size with the nylon strips. The nylon was applied to the resin surface whilst it was still tacky and wiped down onto the surface from the centre line of the keel to the gunwale. Where necessary it was tacked into position by drawing pins. The line of the keel was protected by a further strip of nylon fabric which overlapped onto the two sides of the keel and came up to and was smoothed down into close contact with the strips of nylon running up the hull. The nylon was squeegeed on to the resorcinol-formaldehyde resin using a rubber squeegee. The resin was allowed to cure until a substantial peel strength had developed. Strips of thin nylon tape were then applied over the joints between the nylon strips and were doped on with vinyl chloride-acetate copolymer resin solution which was of about 15% concentration by weight in a 1:1 mixture by weight of isobutyl ketone and toluene.

Next, five vinyl resin coatings were applied. The first coat was of the vinyl resin solution already referred to which was brushed well into the nylon. Next, two coats of similar solution, but incorporating pigment were applied and finally, two coats of a similar but stronger vinyl resin solution (pigment free) of about 20% concentration of resin by weight to give a high gloss.

WHAT WE CLAIM IS:—

1. A method of protecting wooden surfaces against the effects of water and abrasion which comprises coating the surface with a solution of a resorcinol-formaldehyde resin cement containing a hardening agent, laying textile sheets of a nylon filament yarn adjacently upon the

coated surface whilst the cement is still wet, smoothing the sheets down, permitting the cement to cure until a substantial peel strength has been attained and then impregnating and coating the sheets with a film-forming, thermoplastic vinyl polymer resin contained in a volatile organic solvent.

2. A method as set forth in Claim 1, in alcoholic solution.

3. A method as set forth in Claim 1 or 2, in which the cement employed is in aqueous solution and a plurality of coats of vinyl polymer resin are applied.

4. A method as set forth in Claim 3, in which the first vinyl polymer resin coat is of a resin incorporating hydroxyl radicals and a subsequent coat is of a resin without such radicals.

5. A method as set forth in any of the preceding claims in which a coat of vinyl chloride-vinyl acetate copolymer resin is applied.

6. A method as set forth in any of the preceding claims in which strips of nylon cloth (tape) are secured over the abutting edges of adjacent textile sheets these strips being cemented with vinyl resin solution.

7. A method as set forth in any of the preceding claims in which any substantial depressions are filled in with a stopping comprising wood flour and resorcinol-formaldehyde resin cement.

8. A method as set forth in any of the preceding claims, as applied to the protection of boat hulls.

9. A method for the protection of boat hulls substantially as described in the foregoing example.

MARKS & CLERK.



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for line 47 see
and for line 41

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PROVISIONAL SPECIFICATION

Protection of Wooden Structures

We, E. M. CROMWELL & COMPANY LIMITED, of Galloway Road, Bishop's Stortford, Hertfordshire, a British Company, do hereby declare this invention to be described in the following statement:—

This invention consists in a method of protecting wooden surfaces, especially boat hulls, against the effects of water and abrasion which comprises coating the surface with a solution of a resorcinol-formaldehyde cement containing a hardening agent, laying textile sheets of a polyamide (nylon) filament yarn adjacently upon the coated surface whilst the cement is still wet, smoothing the sheets down, permitting the cement to cure until a substantial peel strength has been attained, and then impregnating and coating the sheets with a vinyl polymer resin contained in a volatile organic solvent.

The cement employed is preferably in aqueous alcoholic solution, and the hardening agent is preferably paraformaldehyde. After

the nylon fabric has been applied, and sufficient time has elapsed for evaporation of the bulk at least of the alcohol, the structure the surface of which is being treated may be housed in a tent and warmed when the ambient temperature is otherwise unduly low (say below 60° F.) to accelerate curing of the cement.

The development of a substantial peel strength may be judged by means of a control strip similarly applied to a wooden surface supported near the surface being treated.

Two or more coats of the vinyl polymer resin solution may be applied. The first coat may be of a resin incorporating hydroxyl radicals, and the second of a resin without such radicals. A vinyl chloride-vinyl acetate copolymer resin is suitable.

Strips of nylon cloth may be secured over the abutting selvages of the adjacent textile sheets by cementing them with the vinyl resin in solution to protect the edges from damage.

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5 catalyst and the mixture was applied in strips
to the boat conforming in size with the nylon
strips. The nylon was applied to the resin sur-
face whilst it was still tacky and wiped down
10 onto the surface from the centre line of the
keel to the gunwale. Where necessary it was
tacked into position by drawing pins. The line
of the keel was protected by a further strip of
nylon fabric which overlapped onto the two
15 sides of the keel and came up to and was
smoothed down into close contact with the
strips of nylon running up the hull. The nylon
was squeegeed on to the resorcinol-formalde-
hyde resin using a rubber squeegee. The resin
20 was allowed to cure until a substantial peel
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tape were then applied over the joints between
the nylon strips and were doped on with vinyl
chloride-acetate copolymer resin solution
which was of about 15% concentration by
weight in a 1:1 mixture by weight of isobutyl
ketone and toluene.

Next, five vinyl resin coatings were applied.
The first coat was of the vinyl resin solution
25 already referred to which was brushed well
into the nylon. Next, two coats of similar solu-
tion, but incorporating pigment were applied
and finally, two coats of a similar but stronger
vinyl resin solution (pigment free) of about
30 20% concentration of resin by weight to give
a high gloss.

WHAT WE CLAIM IS:—

1. A method of protecting wooden surfaces
against the effects of water and abrasion which
35 comprises coating the surface with a solution
of a resorcinol-formaldehyde resin cement con-
taining a hardening agent, laying textile sheets
of a nylon filament yarn adjacently upon the

coated surface whilst the cement is still wet,
smoothing the sheets down, permitting the
cement to cure until a substantial peel strength
has been attained and then impregnating and
coating the sheets with a film-forming, thermo-
plastic vinyl polymer resin contained in a vola-
tile organic solvent.

2. A method as set forth in Claim 1, in
alcoholic solution.

3. A method as set forth in Claim 1 or 2,
in which a plurality of coats of vinyl polymer
resin are applied.

4. A method as set forth in Claim 3, in
which the first vinyl polymer resin coat is of
a resin incorporating hydroxyl radicals and a
subsequent coat is of a resin without such
radicals.

5. A method as set forth in any of the pre-
ceding claims in which a coat of vinyl chloride-
vinyl acetate copolymer resin is applied.

6. A method as set forth in any of the pre-
ceding claims in which strips of nylon cloth
(tape) are secured over the abutting edges of
adjacent textile sheets these strips being
cemented with vinyl resin solution.

7. A method as set forth in any of the pre-
ceding claims in which any substantial depres-
sions are filled in with a stopping comprising
wood flour and resorcinol-formaldehyde resin
cement.

8. A method as set forth in any of the pre-
ceding claims, as applied to the protection of
boat hulls.

9. A method for the protection of boat hulls
substantially as described in the foregoing
example.

MARKS & CLERK.

PROVISIONAL SPECIFICATION

Protection of Wooden Structures

We, E. M. CROMWELL & COMPANY
LIMITED, of Galloway Road, Bishop's
Stortford, Hertfordshire, a British Company,
do hereby declare this invention to be descri-
80 bed in the following statement:—

This invention consists in a method of pro-
tecting wooden surfaces, especially boat hulls,
against the effects of water and abrasion which
comprises coating the surface with a solution
85 of a resorcinol-formaldehyde cement contain-
ing a hardening agent, laying textile sheets of
a polyamide (nylon) filament yarn adjacently
upon the coated surface whilst the cement is
still wet, smoothing the sheets down, per-
90 mitting the cement to cure until a substantial
peel strength has been attained, and then
impregnating and coating the sheets with a
vinyl polymer resin contained in a volatile
organic solvent.

95 The cement employed is preferably in
aqueous alcoholic solution, and the hardening
agent is preferably paraformaldehyde. After

the nylon fabric has been applied, and suffi-
cient time has elapsed for evaporation of the
bulk at least of the alcohol, the structure the
surface of which is being treated may be
100 housed in a tent and warmed when the ambient
temperature is otherwise unduly low (say
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The development of a substantial peel
strength may be judged by means of a control
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ported near the surface being treated.

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mer resin is suitable.

Strips of nylon cloth may be secured over
the abutting selvages of the adjacent textile
sheets by cementing them with the vinyl resin
in solution to protect the edges from damage.



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and for line 48

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Substances may be incorporated in at least the final coating which act as repellents for marine wood-damaging organisms, and/or a suitable anti-fouling substance, in the case of 5 boat hulls.

and smooth. Depressions should accordingly be filled with stopping, suitably with a wood flour resorcinol + formaldehyde aqueous 10 alcoholic cement containing paraformaldehyde hardener.

The surface to be treated should be clean

MARKS & CLERK.

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ad line 48
8 read line 47

