July 18, 1961 R. G. RING 2,992,627

APPLICATOR

Filed Oct. 13, 1958

Fig. 1

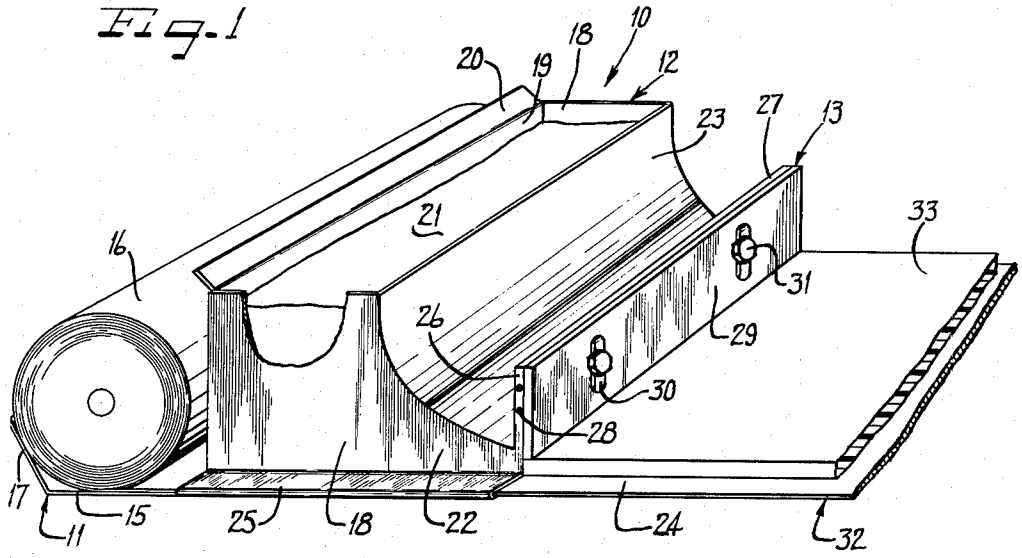
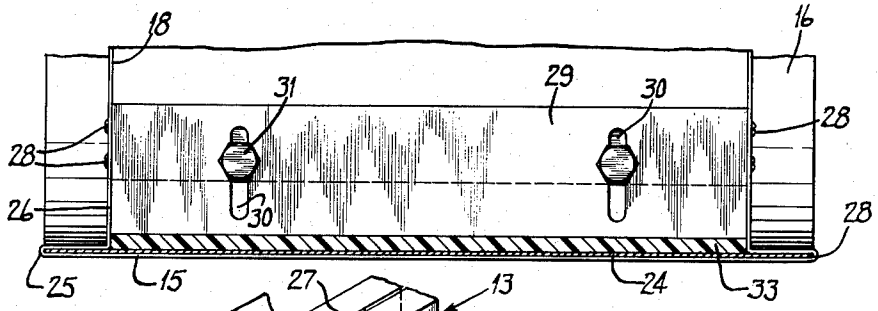


Fig. 2



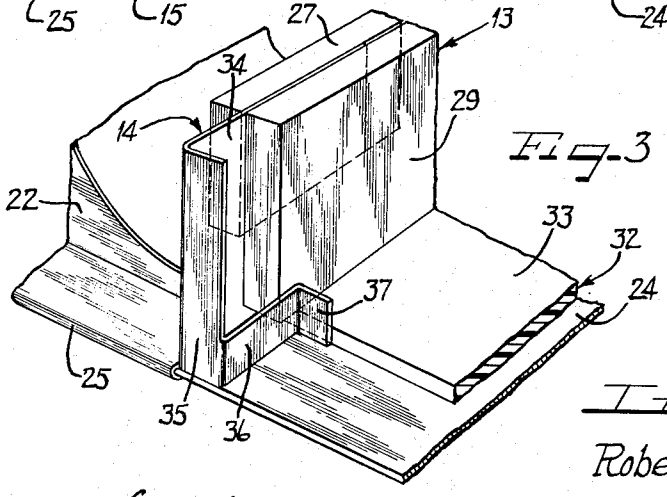


Fig. 3

Inventor

Robert G. Ring

by Kiel, Stevens, Mann & Grossman Attys

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APPLICATOR

Robert G. Ring, Whitehaven, Tenn., assignor to Chapman Chemical Company, Memphis, Tenn., a corporation of Illinois

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1 Claim. (Cl. 118—413)

The present invention relates broadly to applicator means, and is more particularly concerned with a portable unit of new and improved construction especially well adapted to the field application of a viscous material upon a supporting sheet.

Although the instant invention may have many and varied uses, it is uniquely adapted to the application of wood preservatives of grease-like consistencies upon a barrier of paper or the like prior to contacting a potentially decayable wooden object set in or in contact with the soil. In this connection, it is well known that pentachlorophenol is one of the most effective wood preservatives and is used almost universally to reduce wood decay and deterioration caused by organisms present in the top layers of soil.

Pentachlorophenol is of grease-like consistency and has in the past been applied to timbers by immersing the same in a suitable solution of this compound or by application to the timbers after being set in the ground by brush means or the like. The immersion technique cannot of course be utilized after the wooden object is already mounted in the ground, and application of the preservative directly to the wooden object is not particularly effective because the composition is taken up by the soil and/or leached from the wooden object to such an extent that only a negligible amount of preserving effect is obtained.

To overcome these advantages, applicant earlier conceived a novel package employing a tube or sleeve of oil permeable material such as a synthetic plastic enclosing the grease-like carrier for the pentachlorophenol, the package further including a barrier interposed between the synthetic resin film and one side of the layer of grease-like material. In this way it is possible to remove the portion of the synthetic resin sleeve when it is desired to open the package for use on a post or other wooden object. In addition, the barrier, being a porous fibrous sheet in direct contact with the wooden object, permits relatively slow penetration of the pentachlorophenol carrier into the wood to be protected. The present invention is particularly well adapted for use in the fabrication in the field of a package of the character described.

In particular situations, however, the described package may not be available, and it is necessary then to apply the pentacholorphenol carrier directly to the wooden object by means of a backing sheet of essentially oil impervious paper or the like. Application of the carrier to the backing sheet must necessarily be accomplished adjacent the wooden objects to be treated, and in the past has involved the messy technique of coating the backing sheet directly by hand or by use of a trowel. This is quite time-consuming and also quite awkward because the carrier material tends to stick to almost anything it contacts, including the trowel and the clothes of the worker applying the material.

It is accordingly an important aim of the present invention to provide an applicator unit especially suitable for field use for the purposes indicated, and which is constructed of a minimum number of relatively light weight parts to render it easily transportable and readily utilized by only a single person.

Another object of this invention is to provide an applicator device which includes means associated therewith for controlling the thickness of a grease-like composition

applied thereby, the means functioning in addition to terminate the flow of composition therebeneath.

A further object of this invention lies in the provision of a new and improved structure for applying relatively viscous substances to a supporting surface, the structure being well adapted to include template means for controlling the width of the grease-like composition independently of the width of the supporting surface receiving the composition.

A further object of the present invention is to provide an applicator unit comprising a container for a grease-like substance, and means for controlling the thickness of the substance during application, the container being provided with an arcuate frontal wall to properly shear the substance prior to application upon a suitable carrying surface.

A still further object of this invention is to provide applicator means constructed to permit a uniform thickness flow of viscous material upon a fibrous layer by merely exerting a pulling force upon the layer to move the same in flow receiving contact beneath a supply of the viscous substance.

Other and further objects, features and advantages of the present invention will become apparent to those skilled in the art from the following detailed disclosure thereof and the drawings attached hereto and made a part hereof.

As shown in the drawings:

FIGURE 1 is a side elevational view of applicator means constructed in accordance with the principles of this invention, and showing in association therewith a roll of fibrous or like material which functions as the carrying medium for a grease-like substance;

FIGURE 2 is a front view with parts broken away, to show in more detail the thickness control means forming a part of the present invention; and

FIGURE 3 is a fragmentary side elevational view of template means which may be employed to control the width of the grease-like substance independent of the width of the receiving surface.

Referring now to the drawings, there is shown in FIGURE 1 an applicator constructed in accordance with the principles of this invention and designated generally therein by the numeral 10. The applicator is essentially of relatively light weight all-metal construction and features as parts thereof a supply roll support portion 11, a container or tank portion 12 and a thickness control means 13. For particular applications it is often desirable to employ in addition width control means and such means is identified generally in FIGURE 3 by the numeral 14.

The roll support and tank portions 11 and 12 may be formed as a unitary structure, and accordingly base or bottom wall 15 mounting a roll 16 provides the bottom wall of the tank portion 12. In addition, the bottom wall 15 is upwardly turned at 17 to provide further support for the roll.

The tank or container 12 when formed in the preferred manner includes a pair of upright end walls 18—18 connecting with an upright end wall 19 which may be turned upwardly and rearwardly at 20 to provide a splash guard. One end wall has been broken away to better show a quantity of grease-like material 21 contained within the tank portion 12, and it is to be noted that the forward portion of each end wall 18 is of smoothly curved reducing height as designated by the numeral 22. Connecting with the curved portion 22 of each end wall is an arcuate front wall 23 which is curved in the manner shown in order to exert a shear upon the grease-like substance 21 during flow forwardly beneath the arcuate wall 23 and upon sheet material 24.

It is to be seen upon reference to FIGURE 2 that the

end walls 18 are spaced inwardly upon the bottom wall 15 of the tank portion 12 to provide a marginal guide portion 25 to properly direct the sheet material 24 from the roll 16 and beneath the grease-like substance 21 upon said sheet material 24 being drawn forwardly by hand or in any other suitable manner. While variations may of course be practiced, in the form of the invention shown in FIGURE 1 the curved forward portion 22 of each end wall 18 is shaped to include an upright strip portion 26, and between each of said strip portions at opposite ends of the applicator 10 there is mounted the thickness control means 13.

The thickness control means comprises a fixed rearward portion 27 secured between the strip portions 26 of the end walls 18 by screw means or the like 28, and attached to the fixed rearward portion 27 for vertical movement relative thereto is a forward portion 29 of the thickness control means 13. It is to be seen that the members 27 and 29 are in the form of generally rectangular plates positioned in contacting relation, and vertical adjustment of the forward plate member 29 relative to the rearward plate member 27 is accomplished by provision of a pair of slots 30 in the forward member 29 receiving bolt means or the like 31 threaded into the rearward plate member 27. If desired, the rear plate member 27 may be formed integral with the arcuate front wall 23, or may be welded thereto, or attached in a vertically fixed position in any convenient manner. The plate members 27 and 29 may be formed of metal or wood or any other material not adversely affected by the grease-like substance 21.

The applicator 10 of this invention is of particular utility, in the preparation in the field near wooden objects to be treated, of an assembly 32 comprising a supporting sheet 24 and layer 33 of a grease-like substance. The layer 33 of the wood preservative assembly 32 is composed of a material having a grease-like consistency and containing at least about 2 percent of pentachlorophenol. The preferred grease-like composition is described in detail in British Patent No. 699,207, and is an aromatic petroleum oil gel. In general, it comprises a combination of an aromatic oil and a polyvalent metal salt of a C_{12}–C_{18} fatty acid combined in proportions to obtain a grease-like consistency and containing from about 2% to about 15% pentachlorophenol. (As used herein, the terms "parts" and "percent" mean parts and percent by weight, unless otherwise designated.) The aromatic oil is a solvent for the pentachlorophenol and the principal carrier therefor which permeates the sheet 24 and ultimately the surface of the wooden object to be preserved. The fatty acid salt functions as a thickener in the formation of the gel.

The polyvalent metal salts of fatty acids which may be used include aluminum, magnesium, calcium, barium, zinc, etc. Salts of aluric, palmitic, myristic, stearic, oleic, etc. acids, but the preferred thickener is aluminum stearate.

The oil used is generally described as an aromatic petroleum oil or sometimes called an aromatic gas oil or a heavy recycle oil. A preferred oil is a heavy recycle oil having a boiling point of about 600–760° F. Other oils which may also be used include cracking stocks, slurry oils, heavy aromatic gas oils and medium aromatic gas oils, examples being Root heavy thermal sidecut No. 195, Root No. 102E oil, Tidewater No. 200 diesel oil, Tidewater CGB oil Denver No. 3 oil, Root No. 101E oil, and Magnolia lube oil extract No. 465E. In general, the grease-like composition is formed using 5 to 15% of the fatty acid salt thickener, 2 to 15% pentachlorophenol and the remainder the aromatic oil. Such compositions are characterized by an A.S.T.M. worked penetration of from 200 to 350 millimeters at 77° F. The aromatic oil itself should have a viscosity not greater than 200 Saybolt Universal seconds at 100° F.

As earlier noted, the wood preservative assembly 32 may be applied in the form shown in FIGURE 1 directly to the wooden object, or may be encased in a plastic sleeve of a synthetic resinous material, which includes films of polyethylene, polyvinyl compounds and others, any of which may be specially treated or coated to improve water and oil impermeability. If the assembly 32 is to be thus encased, the sheet 24 is an integral, flexible self-sustaining member that is oil and water permeable. The sheet is preferably formed of a porous fibrous material such as paper or fabric. Muslin is preferred, but fabrics or felted mats made from various other types of fibers may be employed. Preferably the fibers are vegetable fibers, but not necessarily so since glass fibers or the like may be used. On the other hand, if the wood preservative assembly 32 is to be applied directly to the wooden objects in the form of FIGURE 1, the sheet 24 is preferably a relatively heavy grade paper which has been treated on at least one surface to render the same essentially oil and water impervious. Accordingly, when the assembly 32 is placed in contacting relation with the wooden object, the sheet 24 being in contact on one surface with the ground or soil prevents the preservative 33 from permeating into the soil and thereby diminishing its preservative properties.

The applicator 10 is located in the field upon a supporting stand or directly on the ground, and after the grease-like substance 21 is placed in the tank portion 12 and the roll 16 mounted on the roll support portion 11, the vertically movable plate member 29 is adjusted to provide the desired thickness layer 33, whereupon the supporting sheet 24 is drawn forwardly by hand or in any other desired manner. The arcuate front wall 23 by reason of its particular curvature exerts a shear upon the grease-like substance 21 housed beneath the arcuate wall 23 to cause the proper forward flow of the grease-like substance upon the supporting sheet 24. After a wood preservative assembly 32 of the desired length has been formed, the front plate member 29 of the thickness control means 13 is moved rapidly downwardly to stop the flow of grease-like substance 21, and this may of course require loosening the bolt means 31. The assembly 32 may then be applied to the wooden objects in either of the ways earlier indicated.

The sheet member 24 is generally of a thickness of about 24 inches and is a standard stock material. While the assembly 32 of FIGURE 1 meets the majority of applications, there are circumstances when it is desired to flow upon the supporting sheet 24 a layer 33 of lesser width than that shown in FIGURE 1. For this purpose there is herein provided template means 14 of the character shown in FIGURE 3 to control the width of the layer 33 independently of the overall width of the supporting sheet 24. Various forms of template means may of course be employed, and the arrangement of FIGURE 3 is accordingly illustrative only. The width control means 14 is adapted to be moved transversely between the front and rear plate members 29 and 27 of the thickness control means 13, and for this purpose is shaped to include an upstanding rear wall 34 receivable between the members 27 and 29 and a side wall 35 arranged in right angular relationship to the wall 34. The width control means 14 may be provided with a bottom wall (not shown) of essentially the same width as the end wall 35, and connecting with the end wall 35 along the lower portion thereof is a reduced height front wall 36 extending generally parallel to the rear wall 34 and provided at its inner end with a right angular flange 37 defining the width of the layer 33. The flange portion 37 may of course be of greater length than is shown to extend a greater distance along the path of travel of the wood preservative assembly 32. As appears in FIGURE 3, the width control means 14 may be moved a greater or lesser distance transversely of the supporting sheet 24 to provide thereon a layer 33 of greater or lesser width relative to the width of the sheet or supporting surface 24. It is of course understood that the

template or width control means **14** may be located in the same form as shown at the opposite end of the thickness control means **13**.

It will now be seen that applicant has provided a new and improved applicator structure which fulfills a long existing need in the wood preservative art. It is no longer required that the time-consuming and messy procedures of applying the grease-like substance by a ladle or the like be employed, these procedures having the further disadvantage of failing to assure that the desired thickness of wood preservative grease will be applied at all locations around the circumference of the wooden object. The device of this invention is relatively inexpensive to construct, and being of light weight, may be readily transported by one person to various locations. The arcuate frontal wall **23** assures that a proper shear will be exerted upon the grease-like substance, and by utilization of thickness control means and width control means many variations may be effected in the wood preservative assembly produced.

It will further be appreciated that modifications may be effected in the applicator structure herein disclosed without departing from the novel concepts of the invention.

As for example, it is not at all times required that the bolts **31** be threaded into the member **27** and be released to permit adjustment of the template **29**. Thus, a spring may be located about the bolt shank and the bolt end received in an opening in the plate **27**, so that merely upon drawing the bolt out slightly the template **29** is released for vertical adjustment. Also, with regard to the width control means **14**, this device may take forms different from that shown in FIGURE 3. As for example, a metal blank having substantially the dimensions of the thickness control means **13** may be utilized and notched out along the bottom edge to the width that is desired. The template or width control means is held by the plate members **27** and **29**, and the width of the grease-like substance **33** is thereby dependent upon the width of the notches provided in the metal blank. It is thus to be seen that by notching each side to a definite width and by removing the metal blank template, a choice of at least three widths is obtained.

I claim as my invention:

A portable applicator adapted for field application of a wood preservative grease to a sheet of paper and the like, comprising a flat uninterrupted sheet metal bottom wall having an integral angularly disposed wall portion at one end thereof for backing a roll of sheet material freely supported along said end of the bottom wall and permitting said roll to freely rotate on said end of the bottom wall during withdrawal of paper therefrom, a vertically disposed rear wall erected from said bottom wall and spaced from said angularly disposed wall portion to provide with said wall portion a roll-receiving recess, a pair of opposed, generally parallel and vertically arranged end walls connected to said rear wall and erected from said bottom wall and integral therewith, a pair of flat marginal end portions integral with said bottom wall and with said end walls and spaced from said bottom wall at least the thickness of the sheet to provide with opposite sides of said bottom wall marginal guides for said sheet, said end walls along the front thereof having convexly curved marginal portions and a relatively narrow strip portion extending upwardly therefrom, a convex front wall attached to said curved marginal portions of said end walls and effective to compact the grease during application to the sheet being coated, a vertically disposed stationary plate member secured to the strip portions, and a vertically adjustable plate member lying flush against said stationary plate member and controlling the thickness of the grease being applied to the sheet.

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