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3,409,388

METHOD FOR PRESERVING WOOD POLES

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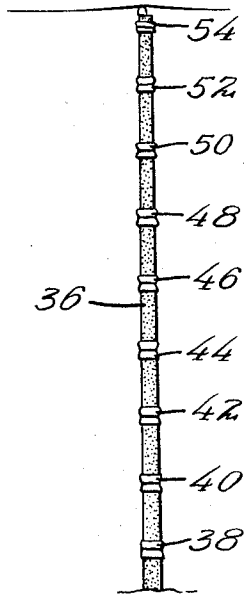


FIG. 1

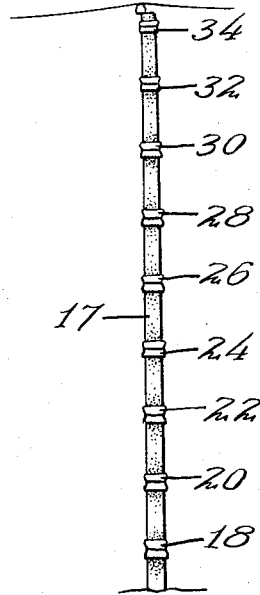


FIG. 2

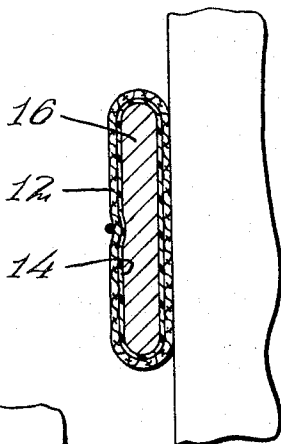


FIG. 3

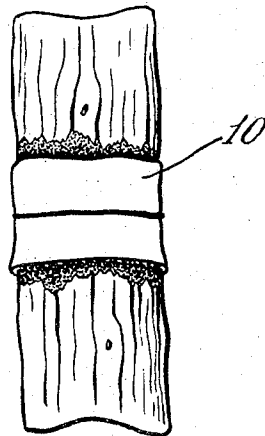


FIG. 4

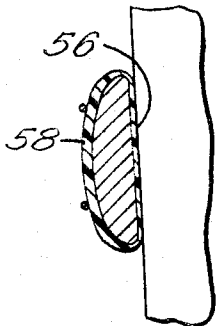


FIG. 5

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METHOD FOR PRESERVING WOOD POLES

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ABSTRACT OF THE DISCLOSURE

This application relates to a wood preservative bandage for the above-ground treatment of wooden poles and the method of treatment. The bandage comprises an elongated tube of preservative impermeable water soluble material which releases the preservative into contact with the pole as the bandage dissolves when contacted by rain or a water spray. The method comprises applying bandages to spaced areas of the pole and dissolving the protective film to permit direct contact between the preservative and the pole. The preservative is such as to spread longitudinally of the pole from the bandages to cover the entire pole surface.

This application relates to a means and method of preserving wood poles and in particular to a method of preserving wood poles above the ground by the use of a preservative contained within a bandage at least partially decomposable.

At the present time there is a considerable cost entailed in attempting to preserve wooden poles above the ground level particularly where the poles are located in locations which are difficult to reach with wheeled vehicles having power operated dispelling equipment. For example, at the present time telephone and telegraph companies have their poles placed along various rights of way, and in many instances these poles are located in places which are inaccessible to motorized equipment. Accordingly, it is necessary for the poles to be treated by manual applications of the preservative. This obviously results in an extremely time consuming operation, and in many instances is not only time consuming but extremely costly as well. On occasions where a pole is in a swampy or marshy area, or where the water level may rise and recede, it oftentimes becomes rather difficult to properly preserve the pole. I have found that through the use of my bandage type applicators, a predetermined amount of preservative may be applied to the poles so as to preserve all or any portion of the pole desired. I have further found that by use of my method and means it is possible for the poles to be preserved by application of the bandages at a time most convenient to the applier. I have further found that through the application of the preservative by my method, a tremendous saving is effected not only in time but in money as well. I have further found that my method is safe, effective, economical, and quick.

It is an object of the present invention to provide a safe, efficient, economical, and quick method of applying preservative to wooden poles above the ground level by means of application of decomposable bandages containing the desired amount and kind of preservative.

It is a further object of the present invention to provide a bandage application for the preservation of poles above ground whereby the bandages may be in prepared form requiring only the attachment by the applier to the poles in predetermined spaced relationship on the pole.

It will be generally understood that it is not economical to treat poles along their entire length at the time of installation and to depend upon the preservative treatment

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to properly protect them throughout their useful life. It is further, not particularly successful to have crews of operators attempt to spray the poles with preservative from either trucks or by means of hand-carried equipment since in many instances the poles are relatively inaccessible, or the weather is too inclement to permit the crews to operate.

It is an object of the present invention to provide a preservative bandage application to be applied to the wooden poles to be preserved above the ground level whereby the applications may be made without regard to the weather conditions at the time of application, and without regard to the particular location of the poles and their accessibility to power equipment.

I have found that preservative enclosed within a decomposable bandage may be applied to the above ground portions of a pole in a particular spaced relation so that disintegration of the bandage releases the preservative to spread along the outer surface of the pole and to penetrate into the pole so as to preserve it. It is an object of this invention to provide a decomposable bandage which may be readily secured to the outer surface of the wooden pole in spaced relation to other such bandages to completely preserve the pole from moisture, insects, and the like, the decomposable portion of the bandage decomposing in a manner so as to release the preservative in such a manner as to insure complete preservation of the pole.

In many instances it has been found that pole spraying is not feasible because of the danger to crops, and in some instances the high cost of spraying and providing efficient operators makes it extremely difficult to preserve the poles. Where the poles are not accessible to the length of hose available, it is necessary to use some form of hand-carried equipment at the present time. However, obviously there are marked disadvantages in attempting to carry large enough amounts of preservative to properly protect the pole. Furthermore when the weather is inclement, pole spraying cannot be feasibly conducted. In addition, where there are high winds, a large amount of the spray will be wasted unless the spraying is done from a very close proximity. For the operator to spray the entire pole, he must generally resort to climbing the pole and attempting to spray it as he moves from the top of the pole to the bottom. In general, as will be imagined, the pole spraying operation is generally quite messy. In some instances there may be danger to the sprayer operator through inhalation and/or skin contact.

It is an object of the present invention to provide a pole preservative in the form of a grease confined within a decomposable container which may be applied to a pole and in spaced relation to other applications to the same pole so that decomposition of the container envelope releases the grease preservative to spread throughout the length of the pole to permit the grease to penetrate the pole and properly preserve it. It is an object of the present invention to provide a way to enable poles which are inaccessible to power spray treatment to be treated and preserved at reasonable cost.

It is a further object of the present invention to enable the above ground treatment of poles at the convenience of the applicator. It is a further object of the present invention to provide a means and method of preserving poles whereby the poles may be treated by applying the bandage applicators to the poles regardless of whether the poles are in a wet or dry condition with the assurance that the preservation of the poles will take place and be properly accomplished at the time that the wood will accept penetration of the preservative.

It is a further object of the present invention to provide a means and method of pole treatment above ground whereby the operator need not be experienced in pole preservation, and whereby the requirement for protective clothing is eliminated.

It is a further object of the present invention to provide a means and method of pole preservation above ground whereby danger of crop damage is completely eliminated.

These and other objects and particular advantage will be more fully described in the following description taken in conjunction with the accompanying drawings in which:

FIGURE 1 is a view in elevation of a pole portion above ground level having spaced preservative bandages encircling the outer surface of the pole and showing the preservative spread between adjacent bandages so as to preserve the pole.

FIGURE 2 is a view in elevation of the preservative bandages applied to the pole at the point where the decomposable preservative grease containers have partially disintegrated enabling the grease preservative to commence spreading along the pole both upwardly and downwardly from the bandages.

FIGURE 3 is a cross section of a preservative bandage taken in connection with a segment of a pole showing the parts of the preservative bandage, designed to contain the pole preservative.

FIGURE 4 is an enlarged view in elevation of a bandage applied to a segment of a pole above ground showing the preservative movement away from the point of contact with the pole and the at least partially dissolved container.

It will be understood that the method of applying the wood preservative bandages to the pole above ground and the gradual preservation of the pole as the grease preservative spreads and diffuses along and through the wood surface of the pole between adjacent bandages is not shown at every single step, but sufficient views have been presented to provide an understanding of the means and method to enable adequate understanding for the teachings to be followed.

I have provided a wood preservative bandage shown in one preferred form of construction in FIGURE 4 and generally numbered 10. The bandage 10 may be provided with an outer covering 12 as may be clearly seen in FIGURE 3, and an inner decomposable liner 14 within which the wood preservative grease is contained.

It will be understood that inasmuch as the present invention is designed to be used above ground that particular requirements are dictated if the bandage is to be used successfully. For example, it is necessary that the bandage be capable of containing a wood preservative material which will not permeate through the container until desired. In addition, since the bandages are used above the ground level, it is necessary that from at least an aesthetic standpoint, that as little residue of the bandage as possible be left to avoid the necessity of clean-up crews.

In the past, some degree of success has been obtained by groundline treatment bandages such as my groundline treatment bandage disclosed in my U.S. Patent 2,955,331 for "Flexible Wood Preservative Bandages." However, the groundline bandages have proven unsuccessful for treating wooden poles above ground since they cannot be adapted for such usage. I have conducted experiments for a period of more than ten years culminating in the present invention. It was not until the present invention was successful that above-ground preservation by means of bandage application became feasible and practical. The bandage 10 is designed to decompose and dissolve to a controlled extent while remaining secured upon a pole above the ground level upon the application of a liquid.

Wood preservative greases are contained within a dissolvable tube having its ends sealed, at least a portion of which is designed to dissolve in response to a specific

liquid such as water. I have found that a tube of material such as polyvinyl-alcohol presents the desired characteristics for my bandage. The tube 14 shown in FIGURE 3, contains within it a wood preservative grease 16 designed to be contained within the grease-impermeable tube until usage. As will be evident, the tube 14 may be in any desired length to accommodate poles in various diameters. It will further be obvious that variations in the length of the tubular container 14 will enable the user of my bandage to employ various techniques in preserving the wooden pole.

In illustration of a preferred method of securing the bandages 10 on an upright wooden pole for the purposes of pole preservation, I have shown in FIGURES 1 and 2 a series of bandages in wrapped around relation to the pole. As is apparent from the illustration the bandages may be spaced apart in parallel relation, and for purposes of the illustration I have numbered the bandages on the pole 17 shown in FIGURE 2, as bandages 18, 20, 22, 24, 26, and 28, 30, 32, and 34. The upright wooden pole shown in FIGURE 1 has been generally numbered 36, and the bandages have been numbered 38, 40, 42, 44, 46, 48, 50, 52, and 54.

In desired use a bandage contains a specific amount of grease designed to radiate from the point of contact with the pole for a predetermined distance along the pole radially from the point of contact. It will thus be evident, that a series of bandages placed within a definite spaced relation based on the grease content of the bandages will provide sufficient grease preservative coverage to enable an entire pole to be adequately treated. In the preferred form of construction of the bandage, the portion of the bandage in contact with the pole may be considered to be the concealed portion generally numbered 56 as shown in FIGURE 5 with the outer portion of the bandage being considered to be the exposed portion 58. In the preferred material of which the bandage tube is made, application of a specific liquid such as water will cause the tube to dissolve in order that the wood preservative grease material may be released. It will be understood that variations in the rate of solubility of the tube may be procured by increasing the relative thicknesses of different parts of the tubing, for example by changes in its composition, and by differences in the density of different portions of the tubing. Since the object of the invention is to apply a given amount of wood preservative material in contact with the wooden pole surface, the important requirement is that the wood preservative material be retained in contact with the pole for a sufficient length of time for it to adhere to the pole. Where the inner or concealed portion of the tubing is designed to dissolve at a more rapid rate than the outer or exposed portion of the tube, it is, of course, apparent that the grease would be first released into contact with the pole before the outer portion of the tube has dissolved. Under these circumstances the grease material will remain in contact with the pole for a sufficient length of time to adhere and to begin its radial diffusion throughout the pole length.

Under normal methods of treating a pole, generally, a pole spraying device is used which requires the use of mechanized equipment if it is to be done economically. As will be obvious from the foregoing description of my bandage, it is apparent that a lineman may carry several bandages with him in order to secure them to a pole for above ground treatment. The obvious advantages from an economic standpoint will be readily apparent. The lineman in preparing a pole for wood preservative treatment climbs to a point near the top of the pole and fastens the bandages to the pole in a particular spaced arrangement. While I have shown the bandages on the FIGURES 1 and 2 to be wrapped around the pole in a generally parallel spaced relation, it will, of course, be obvious that if a greater advantage could be secured in any particular case, the bandages could, of course, be secured in a generally parallel up and down relation with

the pole, or an elongated bandage might be used to wrap a pole in a general spiral relation from top to bottom. The importance of the spacing is that the amount of grease contained within a tube is designed to spread from its point of contact with the wooden pole to a point where it will overlap with grease coming from another bandage or another portion of a bandage. Within this limitation, there does not seem to be any necessity as to why particular arrangement of bandages would necessarily be required over any other particular arrangement. I have shown the illustrations of FIGURES 1 and 2 simply because that is in general the easiest way for a lineman to secure the bandages in a desired spaced relation enabling the wood preservative material to spread and diffuse into an overlapping relation to insure adequate preservation of the pole.

Any convenient means of fastening may be used to hold the bandages in position on the poles. In certain instances it may be desirable that a cover material may be provided as illustrated in FIGURE 3. The cover material may be simply of a greater thickness as was illustrated in FIGURE 5, but in particular instances it is advantageous to provide an outer material 12 primarily for protecting the tubular container 14 and to enable the bandage to be more readily secured to a pole. In particular instances where it is desired that moisture be applied to the tubular container 14 by means of natural elements such as snow and rain, the outer covering 12 serves to retain the container 14 in a desired position until such elements result in dissolution of the container. I have found that where the bandages are attached to a pole that the water coursing down the pole comes in contact to the greatest extent with the inner portion of the tubular container which necessarily results in that portion of the container dissolving most quickly. This, of course, releases the grease into contact with the pole thereby resulting in the outer portion of the tube, together with the outer cover 12, if provided, serving to keep the grease material in contact with the pole until adherence is secured.

It will be understood, of course, that variations may be obtained simply by having only the inner portion of the tubular container 14 water soluble rather than the entire bandage. In such instances it will be necessary where the entire bandage does not dissolve to remove the undissolved portions of the bandages from the pole if they would constitute an eyesore. On the other hand, where a completely dissolvable bandage is used, there is no such problem resulting. It is important to review the bandage usage in that the tubular container is provided in an elongated form which is sufficiently flexible while containing the wood preservative material to adapt it self to the outer surface of the wooden pole or other wooden object to which it is secured. The tubular construction is employed since it will readily adapt itself to the variations in attachment required by different conditions, and will adapt itself to being cut to desired lengths by a crew in actual operation and to having its ends resealed in a desired length of tube. The tube in the preferred construction as has been previously indicated is wood preservative impermeable until such time as the tube is dissolved by application of the specific liquid such as water in the case of polyvinyl alcohol tubing. Further, at least a portion of the water-soluble tube is designed to be more readily water soluble than the other portions so that the grease is released most readily from that portion of the tubing which is held in face to face contact with the wooden surface. As has been previously indicated variations in the rate of water solubility of the tubing may be readily obtained if desired. The cover member 12 serves the purpose of combining the released grease material to a defined area of contact until such time as diffusion in spreading of the grease takes place. Reviewing briefly the method of preservation of the above ground

portion of an upright wooden pole, the method consists of securing dissolvable tube containing the wood preservative in spaced relation on a wooden pole, at least a portion of the tube in contact with the pole being dissolvable and dissolving to release the wood preservative into contact with the pole. The wood preservative material moves radially and axially from the point of contact to preserve the wood with which it comes in contact. The tubes may be secured to the pole in wrap-around relation such as the bandages shown in FIGURE 2 or in any of several obvious alternative ways. It is apparent that moisture applied to the soluble portion of the tubing whether by the lineman who has attached the tube or by the elements will cause the tube to dissolve to release the wood preservative grease into contact with the pole.

As will be apparent from reviewing the illustrations of FIGURES 1 and 2, as the preservative spreads from the original point of contact radially and axially along the pole it tends to overlap preservative spreading from other space bandages and as the penetration and preservation of the pole increases, the pole generally acquires a darkened appearance due to the spread of the wood preservative. As illustrative of the wood with which the dissolving of the tube will occur, I have found that sufficient dissolving will occur within thirty seconds to release the preservative into contact with the pole. Increased length of time required for the dissolving of the tube may, of course, be obtained by increasing the mil thickness varying the density of portions of the tube, and by changes in tube composition, for example. By such variations any desired length of time for the dissolving to take place can readily be obtained.

The wood preservative may be of any desired type of which there are several commercial varieties obtainable on the market at the present time which will serve my particular purpose. The major component of the wood preservative is pentachlorophenol contained within a grease medium sufficient to produce desired diffusion and spreading. The vehicle for carrying the penta may be any one of the light wood preservative oils since due to the imperviousness of the tubular container, the fluidity of the wood preservative does not constitute a problem particularly since the preservative is released directly into contact with the wood and is retained sufficiently long to penetrate the wooden surface.

As penetration of the preservative into the pole occurs, the grease from which the oils have departed presents generally a rather dry and crumbly appearance. This indicates to the lineman or observer that the oils containing the preservative has penetrated into the pole. Borings into the wood of poles using the preservative have indicated that retention of the wood preservative would indicate that on the average retention of approximately one-half pound per cubic foot for the outer one-half inch of the pole surface occurs.

It will be obvious from the foregoing description that I have provided a means of preserving upright wooden poles in a highly efficient and economical manner by a method which is advantageous to those individuals and companies whether they have one or many poles to preserve.

While I have set forth the best embodiment of my invention and the preferred method of preservation, together with the preferred construction, I desire to have it understood that obvious changes may be made within the scope of the accompanying claims without departing from the spirit of my invention.

I claim:

1. The method of preserving the above ground portion of an upright wooden pole through the use of a diffusible wood preservative contained in a series of sealed flexible tubes, said tubes being dissolvable in response to the application of water, the method comprising the steps of securing the dissolvable tubes containing the wood pre-

servative in vertically spaced relation upon the said wooden pole, containing in each tube a sufficient quantity of preservative, compared to the spacing between said tubes, to spread axially along the pole into overlapping relation to the preservative spreading from the space adjacent tubes. 5

2. The method of claim 1 and in which the axial length of the pole between said tubes is greater than the axial length of said tube.

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