Nov. 8, 1938. G. D. GRABAN 2,135,974

APPARATUS FOR PRESERVING POLES AND THE LIKE

Filed May 17, 1937 2 Sheets-Sheet 1

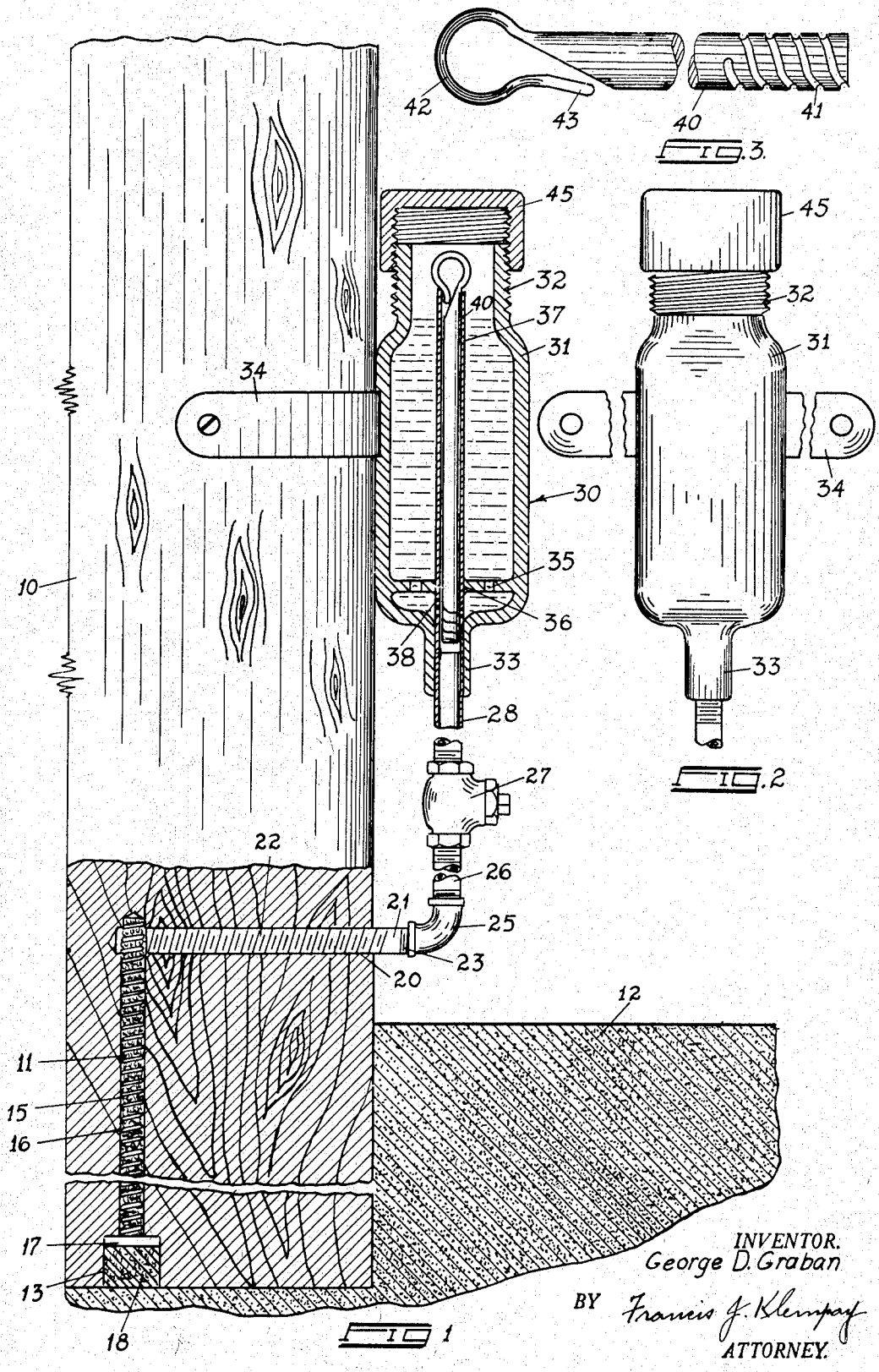


FIG. 3.

FIG. 2.

FIG. 1

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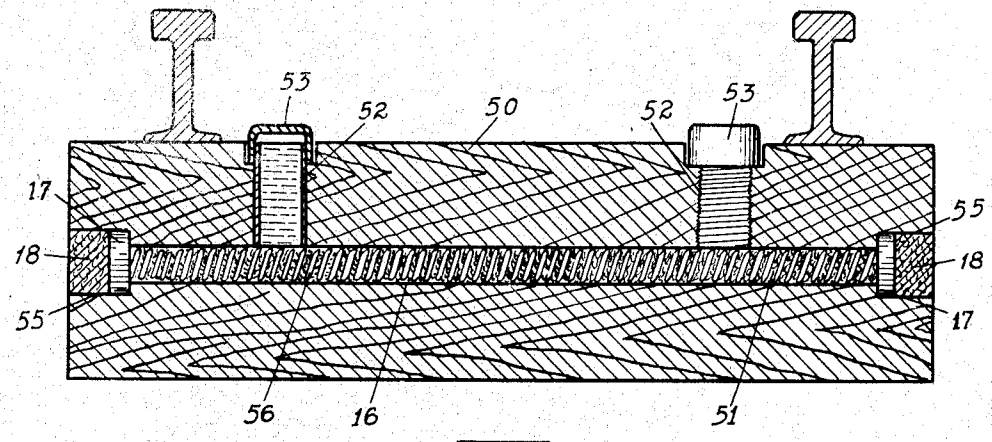


FIG. 4

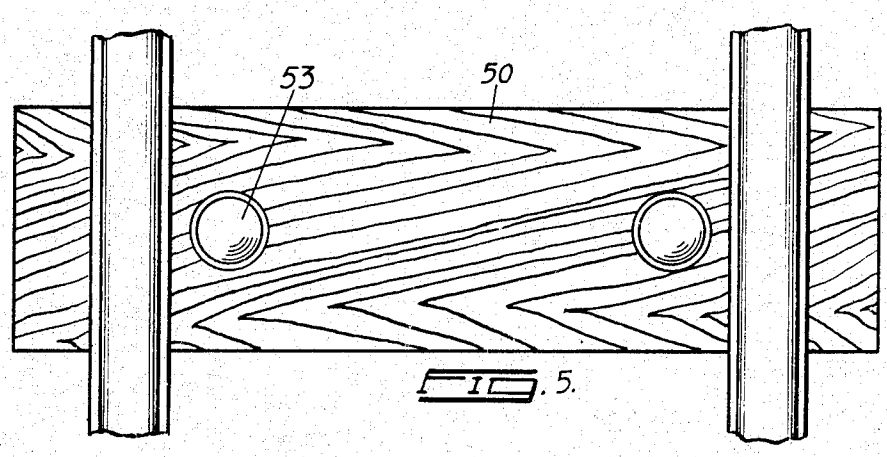


FIG. 5.

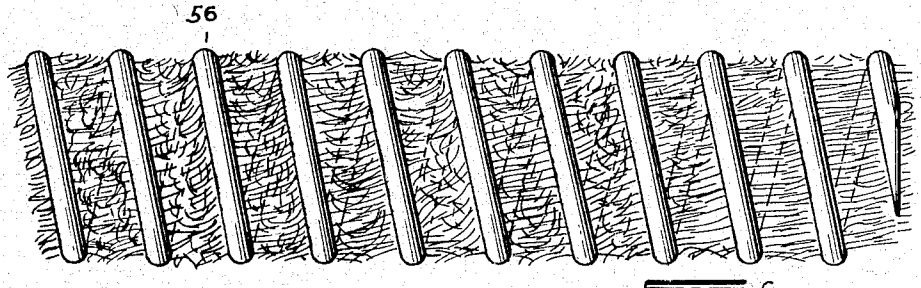


FIG. 6

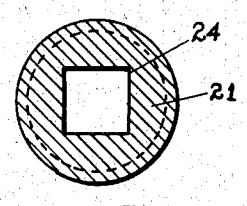


FIG. 7.

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APPARATUS FOR PRESERVING POLES AND THE LIKE

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Application May 17, 1937, Serial No. 143,041

8 Claims. (Cl. 21—63)

This invention relates to apparatus for preserving wooden poles and the like and more particularly to improved means whereby a controlled supply of preservative is constantly applied to the central part of the wooden object from where it diffuses outwardly through the cells of the wood.

Heretofore various means have been employed to treat portions of poles and other objects made of wood with preservative oils, principally creosote oil to lengthen the useful life of the object, thus enhancing their economy. The treatment usually given consists of first heating and drying the portions and then applying heated oil with or without the aid of pressure. Under ordinary conditions a penetration of but .3 in. for chestnut wood up to 3.1 in. for western yellow pine wood is secured and when the pole or other object is placed in the ground, the alternate low and high temperatures and the presence of the "fill" act to draw from the wood near the ground line a considerable portion of the preservative, allowing moisture to enter and deterioration to set in. Consequently poles and other wooden objects placed in the ground deteriorate most rapidly at the ground line even though that portion of the pole or object adjacent the ground line has been previously treated.

Inasmuch as the treating methods usually employed permit a penetration of the preservative of but approximately 2 in., the preservative soon dissipates and moisture capillating up through the pole soon reaches the atmosphere at the ground line, causing decay to set in.

To overcome the objections enumerated above, I propose to provide a constant supply of preservative to a centrally disposed bore in the object and to carry out this purpose I have devised improved instrumentalities to be hereinafter specifically described.

Accordingly, the principal object of my invention is to provide an improved means for the preservative treatment of imbedded wooden objects.

Another object is to provide improved means to supply and maintain a quantity of preserving oil in a centrally disposed bore of such objects.

A further object of the invention is to provide an improved means for metering the flow of oil to such bore.

A still further object of the invention is to provide a novel apparatus for distributing the preservative oil within the bore.

These and other objects and advantages of the invention will become apparent from a consideration of the drawings and the following detailed specification.

In the drawings:

Figure 1 is a cross-sectional view of an apparatus for storing, metering and distributing the preservative oil, constructed in accordance with my invention. The invention is shown as applied to a pole;

Figure 2 is an elevation of the oil reservoir;

Figure 3 is a view of the metering pin;

Figure 4 is a cross-sectional view of the invention as applied to a railroad cross tie;

Figure 5 is a plan view of the cross tie of Figure 4;

Figure 6 is an enlarged view of the oil distributing means; and

Figure 7 is a cross-sectional view of the wood penetrating conduit.

Referring more particularly to Figures 1, 2 and 3, the post 10 is provided at its lower end with a centrally disposed bore 11 extending upwardly a considerable distance above the ground line 12. A counterbore 13 of substantially larger diameter is made at the lower end of the pole. Positioned within the bore 11 is the helical spring 15 stuffed with hair or other fibrous material 16 which is entwined about the convolutions of the spring and is in intimate contact with the side wall of the bore at a multiplicity of points. The purpose of the helical spring 15 is to hold the fibrous material in initial position to prevent its settling to the bottom of the bore. A disk 17, preferably of wood, closes the bore 11 and is held firmly and permanently in place by a seal 18 of tar or pitch.

Securely held in a lateral bore 20 which communicates with the bore 11 is the tube 21 having wood screw threads 22 to engage the walls of the bore and pipe threads 23 at its outer end to be engaged by the elbow fitting 25. As shown more clearly in Figure 7, the opening 24 through the tube 21 is square or substantially square in cross-section in order that rotation of a squared tool inserted in the tube may result in rotation and inward travel of the tube. This feature is of particular advantage when it is desired to keep the fitting 25 and the supply pipe 26 close to the outer surface of the pole.

The pipe 26 connects at its lower end with the elbow 25 and at its upper end with a valve 27. A pipe 28 connects the valve 27 with the oil reservoir and metering assembly, generally indicated at 30 which will now be described in detail.

The reservoir and metering assembly 30 con-

sists of a hollow bulbous member 31 having an exteriorly threaded neck 32 at its upper end and an interiorly threaded boss 33 at its lower end. The member 31 is secured to a strap 34 in any suitable manner and the strap in turn is secured to the pole 10. A perforated strut 35 extends across the lower portion of the member 31 and is provided with a centrally disposed aperture 36 in alignment with the threaded bore through the boss 33. A standpipe 37 passing through the aperture 36 is screw threaded into the bore of the boss 33, and as shown in Figure 1 terminates short of the upper end of the member. The side wall of the pipe 37 is provided with a small aperture 38 at a point below the strut 35 but above the boss 33.

Closely fitting within pipe 37 is the rod 40, the lower cylindrical surface of which is provided with a spiral groove 41 running to the end of the rod to provide a passage for the oil coming into the pipe 37 through the aperture 38. With the aperture 38 adjacent a portion of the groove 41, the rate of flow of the oil from the reservoir is determined by the length of the groove extending from the aperture to the end of the rod 40. This is so because the viscous character of the oil causes an increased resistance to flow with an increased length of travel. I have found this construction to be particularly satisfactory for the purpose intended. The rate of flow of the oil may be regulated with nicety and the metering passages do not become gummed or clogged. This is important considering that a relatively small charge of oil must supply the oil for a period of months or even for a year. The upper end of the rod is provided with an integral looped spring portion 42, the free end 43 of which is adapted to press against the inner surface of the pipe 37 to hold the rod in adjusted position. A cap 45 is tightly screw threaded onto the neck 32 to seal the member 31 against the entrance of foreign matter.

The apparatus of Figures 1, 2 and 3 may be used with poles or other objects whether or not they have previously been treated by impregnation with preservative oil. The constant supply of preservative oil keeps the fibrous material 16 saturated with the oil which conducts it to the wood at a multiplicity of points where it is absorbed into the wood body of the object to prevent the entrance of moisture and air into the cells thus preventing the deterioration of the wood. The fibrous material 16 spreads the oil over a large area assuring uniform absorption and protection throughout the entire body of the object.

Figures 4 and 5 illustrate the invention as applied to a railroad cross tie 50. The reservoir and metering assembly described above in connection with Figures 1, 2 and 3 is dispensed with and oil is supplied to the fibrous material 16 in the longitudinally extending bore 51 through the tubes 52 which are positioned in bores extending between the bore 51 and the upper surface of the tie. The tubes 52 are provided with caps 53 which screw onto the tubes.

A counterbore 55 is provided at each end of the tie to receive the disks 17 and sealing compound 18 in the manner described above in connection with the sealing of the bore in the pole. As in Figure 1, a helical spring 56 is provided to hold the fibrous material in intimate contact with the inner surface of the bore 51.

Preservative oil poured into the tubes 52 saturates the material 16, being in contact with the surfaces of the bore 51, transmits the oil to the surface of the bore from where it moves through the wood towards the outer surfaces of the object. The filling of the bore at periodic intervals results in a constant supply of preservative in the wood with a consequent increase in the useful life of the object.

The above specifically described embodiments of my invention should be considered as illustrative only since many changes may be made in them without departing from the spirit or scope of my invention.

What I claim is:

1. Apparatus for the preservative treatment of wooden objects having a centrally disposed bore therein comprising fibrous material disposed within said bore, a helical spring in said bore to maintain said fibrous material in initial position, a reservoir for a quantity of preservative oil, means securing said reservoir to an outer surface of said object, a tube extending upwardly from the bottom of said reservoir, an aperture in the side wall of said tube, a rod closely fitting within said tube, said rod having a spiral groove on its cylindrical surface extending to the lower end of said rod, said aperture registering with said groove, and conduit means connecting the lower end of said tube with said bore.

2. Apparatus for the preservative treatment of wooden objects having a centrally disposed bore therein comprising fibrous material disposed within said bore, a helical spring in said bore to maintain said fibrous material in initial position, a reservoir for a quantity of preservative oil secured to an outer surface of said object, means to control the flow of oil from said reservoir, and conduit means connecting said reservoir with said bore.

3. A wooden pole having a central longitudinally extending bore extending upwardly from the lower end thereof, fibrous material in said bore, a helical spring in said bore to maintain said fibrous material in initial position, means sealing the lower end of said bore, and means to introduce preservative oil to the upper end of said bore.

4. A wooden pole having a centrally disposed longitudinally extending bore in the lower end thereof, fibrous material in said bore, means to hold said material in selected position, a laterally extending bore in said pole connecting with said first mentioned bore adjacent the upper end thereof, a tube positioned in the lateral bore, said tube having threads on its outer surface and being provided with a bore substantially square in cross-section.

5. In a wood preservative system, an apparatus for the storing and dispensing of preservative oil comprising a bulbous container having a downwardly extending bored boss at its lower end, a cap for its upper end, a strut extending across the inner walls of the container adjacent to but spaced from the lower end of the container, a tube having its lower end passing through said strut and secured in the bore of the boss, an aperture in the side wall of said tube between said strut and said bore, a rod within said tube, a spiral groove in the cylindrical surface of said rod extending to the lower end of said rod, said aperture registering with said groove, means to frictionally hold said rod in adjusted position, and means to connect a conduit to the lower end of said boss.

6. In a wood preservative system, a metering valve comprising a tube having an aperture in its side wall adjacent the lower end thereof, means to supply preservative oil to said aperture,

a rod within said tube having a spiral groove in the cylindrical surface thereof extending to the lower end of the rod, said aperture registering with said groove, and means to conduct oil from the lower open end of said tube.

7. A railroad cross tie comprising a block of wood having a centrally disposed longitudinal bore extending therethrough, fibrous material completely filling said bore, means in said bore to maintain said material in initial position, means to seal the open ends of the bore, and means to conduct preservative oil to said material comprising a tube extending between said bore and the upper surface of said tie.

8. In combination with a wooden object having a bore therein, means for the preservative treatment of the wood of said object comprising a mass of fibrous material in said bore in intimate contact with the wood fibres of the object at a multiplicity of spaced points along the surfaces of the bore, means to seal said fibrous material in said bore, means in said bore to maintain said material in initial position, and means to continuously supply a measured quantity of preservative oil to said fibrous material.

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