METHOD AND APPARATUS FOR DEEP INCISING POLES

Inventor: Lester W. Flory, Eugene, Oreg.
Assignee: L. D. McFarland Company, Sandpoint, Idaho
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References Cited
UNITED STATES PATENTS
3,092,158 6/1963 Ellerman et al. ................. 144/2 J
2,664,926 1/1954 Fuglie .................................. 143/47 A

Primary Examiner—Andrew R. Juhasz
Assistant Examiner—W. Donald Bray
Attorney—John O. Graybeal et al.

ABSTRACT
Apparatus for deep incising longitudinal portions of the periphery of wood poles prior to impregnation with a preservative. The apparatus includes an elongate frame including clamps adapted to hold a wood pole between a pair of incising wheels mounted on said frame and adapted to run longitudinally on laterally opposed surface sections of the pole. Indexing means is provided to partially rotate the pole after the incising wheels have completed a run along the pole in one direction and prior to an incising run in the opposite direction. In one embodiment, electronic timing and control means are provided to automatically complete the incising of the entire surface of the pole once it is properly clamped in the machine.

The method of deep incising the periphery of a longitudinal portion of a wood pole including clamping the pole; holding the pole between a pair of laterally opposed incising wheels; running said pair of opposed incising wheels along the pole in a first direction; partially rotating the pole; running the incising wheels along the pole in a direction opposite the direction of the first pass; and, repeatedly partially rotating the pole and incising laterally opposed longitudinal sections thereof until the entire periphery of said pole is deep incised.

15 Claims, 6 Drawing Figures
METHOD AND APPARATUS FOR DEEP INCISING POLES

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to wood product puncturing mechanisms, commonly known as incisors, and more particularly to deep incisor apparatus especially adapted to incise the periphery of a longitudinal portion of a wood pole.

2. Description of the Prior Art

It has long been known that treating wood poles with preservatives such as creosote, creosote solution, pentachlorophenol or other oil or water borne solutions extends their useful life. This treatment is particularly necessary when the poles are to be at least partially inserted into the ground or in water, such as when used as supports for telephone or power wires, as light standards, or as pilings or posts to support docks or the like. Various factors including the species of wood, water content, or "case hardening" of the pole, often make it extremely difficult to properly impregnate a pole with a preservative. This is particularly true where preservative penetration is desired or required by specification to a depth below the sapwood or soft outer layer of the wood, or where tree varieties such as Douglas Fir having relatively thick sapwood layers are used. To overcome this resistance to preservative impregnation, it has long been known to incise or puncture the periphery of the pole thus providing a greater surface area into which the preservative may penetrate, increasing the depth of penetration, and allowing the water to be exhausted from the wood much more effectively.

Modern impregnation processes generally involve either an open tank treatment or a retorting treatment, with the liquid preservative being urged into the wood by extended soaking, by the so-called "hot and cold method, or through the use of pressure to force the preservative into the wood.

While various machines and procedures have been employed heretofore for incising wood poles, the depth to which the incising could be accomplished has been quite restricted, and normally has been limited to a maximum incising depth of about one inch with three-quarters of an inch being generally common. Such relatively shallow incisors often do not penetrate the sapwood layers of the pole and have been found to be inadequate to insure the full penetration of preservative necessary to prevent the useful life of the poles from being shortened by insects, rotting or the like. Additionally, utility specifications often require preservative penetration to depths of up to 2½ inches, and most known incisor apparatus are incapable of providing sufficiently deep punctures in the pole to allow the preservative to reach the required depth without inordinate soaking or retorting times.

U.S. Pat. No. 3,515,184 discloses apparatus of a substantially different character than that disclosed herein which is capable of incising poles to depths of 2½ to 3 inches through the use of a plurality of reciprocating punch bars mounted on an incising head which surrounds the pole to be incised. The punch bars are adapted to repeatedly penetrate the pole as it is passed through the incising head. At column 6, line 25 et seq., this patent specifically distinguishes known rotating wheel type incisors which "can employ incising teeth of only comparatively short lengths."

Prior apparatus for shallow incising which involve intermittent or progressive rotation of the pole during the incising operation, coupled with either vertically reciprocating punch bars such as shown in Rawson U.S. Pat. No. 1,440,893, Lynch et al. U.S. Pat. No. 1,468,484, Valentine U.S. Pat. No. 1,621,963 and Monson et al., U.S. Pat. No. 1,894,049, or progressive rotation and advancement to give a spiral incision pattern with or without conjunctive peeling such as shown in Tinling, U.S. Pat. No. 2,563,758, Graham et al. U.S. Pat. No. 2,684,089 and Pence U.S. Pat. No. 2,781,802 are also known. Particularly pertinent to the instant invention are wheel type shallow incisors adapted to run longitudinally on the surface of a pole which is intermittently rotated such as those shown in Nelson U.S. Pat. Nos. 1,622,538, 1,675,042 and 1,639,856, Charland U.S. Pat. No. 2,351,401 and York U.S. Pat. No. 1,665,764. Ellermann et al. U.S. Pat. No. 3,092,158 discloses incising a pole having a varying diameter in a single pass through a plurality of incising wheels spaced about the periphery of the pole. In general, known wheel type incisors have been unable to apply pressures to the incising blades large enough to drive known blade designs into wood poles to depths in the range of two to three inches at speeds sufficient to make the incising apparatus commercially feasible, or without undue tearing of the wood upon removal of the blades.

BRIEF SUMMARY OF THE INVENTION

This invention relates to an incising apparatus for deep incising the periphery of a longitudinal portion of a pole and includes an elongate frame into which a pole to be incised is conveyed endwise. Pole holding means are associated with the elongate frame, and a pair of incising wheels are mounted on the elongate frame on laterally opposed sides of the pole to be incised for reciprocation along laterally opposed longitudinal sections of the pole. The incising wheels are mounted for both longitudinal and lateral movement with respect to the pole, and the deep incising knives radially disposed on the incising wheel are pressed against the pole at pressures up to 1000 psi by hydraulic means. Pole indexing means are provided to rotate the pole through a predetermined arc, and automatic control circuitry is provided to actuate the indexing means in response to the completion of a longitudinal pass along the pole by the incising wheels, such that once a pole is aligned and clamped in the elongate frame, the incising of the entire periphery of a longitudinal portion of the pole may be carried out automatically.

A method of incising longitudinal portions of wood poles comprising moving a pair of laterally opposed incising heads longitudinally along laterally opposed sections of the periphery of the pole in a first pass, partially rotating the pole about its longitudinal center line, moving the laterally opposed incising heads longitudinally along the pole in a direction opposite the first pass, and repeatedly partially rotating and incising laterally opposed sections of the periphery of the pole until the entire periphery of a longitudinal portion of the pole is incised.

It is a principal object of the present invention, therefore, to provide wood pole incising apparatus having
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wheel type incising heads capable of deep incising predetermined longitudinal portions of a wood pole.

Another object of the present invention is to provide incising apparatus capable of placing substantially uniformly spaced incisions having depths in the range of 2½ to 3 inches on the periphery of a wood pole.

Another object is to provide incising apparatus capable of moving wheel type incising heads along longitudinal sections of a wood pole while urging the heads against the pole at pressures up to 1000 psi.

Still another object is to provide incising apparatus adapted to support a pole to be incised while a pair of laterally opposed incising wheels are moved longitudinally along opposed arcuate sections of the periphery of the pole.

One more object of the present invention is to provide incising apparatus wherein the pole to be incised is automatically indexed through a predetermined arc when the incising wheels have completed a longitudinal pass along the surface of the pole.

Another object of the present invention is to provide incising apparatus wherein the incising teeth may be individually replaced.

An additional object is to provide incising apparatus wherein the incising wheels on which the incising teeth are radially mounted may be easily and quickly replaced.

Still another object is to provide incising apparatus having a relatively lightweight frame portion in comparison to the incising head pressures it is capable of applying.

One more object of the present invention is to provide a method of incising longitudinal portions of the periphery of wood poles by sequentially incising adjacent pairs of laterally opposed longitudinal sections of the wood pole until the entire periphery of a longitudinal section of a wood pole is incised.

Additional objects and advantages will be apparent from the following description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a typical incising apparatus made according to the present invention, including a portion of the pole infeed conveyor and a schematic layout of the apparatus control panel.

FIG. 2 is a partial end perspective view of a typical incising apparatus made according to the instant invention.

FIG. 3 is a right sectional view taken along lines 3—3 in FIG. 1, including a wood pole to be incised shown in dotted line and one scissors clamp shown in both the clamped and unclamped positions.

FIG. 4 is a partial rear elevation view of an incising wheel and mount, including a pair of longitudinally adjustable limit switches mounted on the elongate frame of the apparatus.

FIG. 5 is a perspective view of a typical, removable deep incising blade adapted to be mounted on the incising wheels of the present invention.

FIG. 6 is a partial side sectional view of the typical pole incising apparatus of FIG. 1.

DETAILED DESCRIPTION OF THE INVENTION

Referring initially to FIG. 1, a typical apparatus 10 made according to the present invention and adapted to deep incise wood poles is disclosed. Apparatus 10 includes a support frame generally indicated as 12 having a pair of parallel l-beams 14 and 16 mounted longitudinally thereon. Like incising carriages 18 are movable linearly on the top surfaces of beams 14 and 16, and include incising wheels 20 mounted in supports 22 for movement laterally with respect to beams 14 and 16 and the pole to be incised by hydraulic cylinders 24.

Elongate support frame 12 additionally includes a pair of scissors type clamps 26 and 28 disposed near its longitudinal end which are adapted to clamp and hold a pole to be incised. Referring additionally to FIG. 2 it will be seen that scissors clamps 26 and 28 are movable between the pole clamping and non-clamping positions by hydraulic cylinders 30, and that the incising clamps additionally include indexing chains 32 and 34. As will be described more completely hereafter, the indexing chains are intermittently driven by motor 36 to partially rotate the pole after carriages 18 have completed a longitudinal incising pass.

Elongate framework 12 additionally includes a pole stop member 38 adjacent scissors clamp 28 and a pole infeed roller system 40 adjacent the infeed end of the framework. Pole infeed system 40 includes a plurality of spaced pole drive rollers 42 rotated by drive chain 44 which runs around sprocket 46 mounted on one end of roller 42, free rotating rollers 48 mounted between the parallel supports 50 and hydraulic lift type rollers 52. While only a portion of pole infeed system 40 is disclosed, it will be understood that this system is long enough to handle utility poles in the larger transmission sizes, i.e., 65 feet or longer. In one embodiment of the invention, two hydraulic lift type rollers 52 are spaced on the pole infeed system, and, in conjunction with the hydraulically operated lift roller 54 mounted on the support frame 12, are adapted to raise a pole to be incised to center it with respect to laterally spaced incising wheels 20.

Fixed roller 54 is mounted on a transverse support beam of frame 12 additionally support the pole to be incised as it is conveyed between parallel beams 14 and 16. Roller 54 is mounted by means of conventional bearings 56 mounted on its ends.

Referring additionally to FIG. 3, carriages 18 are seen to include four rollers 58 mounted therebeneath and adapted to run on the top surfaces of l-beams 14 and 16 to provide vertical support for the carriages. Carriages 18 additionally include laterally disposed channeled rollers 60 adapted to grip the lateral edges of the top flanges of the l-beams to prevent the carriages 18 from moving laterally with respect to the l-beams during their longitudinal travel therealong. Rollers 58 and 60 include conventional bearing mounts and will not be discussed in detail.

Carriages 18 include downwardly depending brackets 62 which, as is best seen in FIG. 4, are connected to drive chains 64 mounted on the opposed sides of the vertical webs of l-beams 14 and 16. Each of the four chains 64 is adapted to run around a free rotating sprocket 66 mounted on conventional bearinged axles 68 and be driven by sprockets 70 mounted at the pole stop end of support frame 12 on axle 72 which is
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rotatably powered by conventional electric motor 74 or the like.

From all of the above, it will be understood that carriages 18 are pulled along the top surfaces of parallel I-beams 14 and 16 on rollers 58 and 60, by motor 74 through its associated sprockets and chains. The placement of drive chains 64 on each side of the webs of I-beams 14 and 16 balances the pull exerted thereon and thus reduces the generation of turning forces on the carriages 18 during incising.

As has been mentioned above, carriages 18 include an incising wheel support 22 which is slidingly and rotationally mounted between the generally rectangular structures 18 and 22. Runners 76 are closely fitted between support 22 and carriage 18 and thus allow forces to be transmitted through the wheel support member between the carriage and the incising wheel. Incising wheel supports 22 are powered in their lateral movement by conventional hydraulic cylinders and pistons 24 which include partially illustrated hydraulic fluid carrying hoses 25 which, it will be understood, interconnect with hydraulic fluid reservoir 134 (FIG. 1). As is best seen in FIG. 1, the rear portion 78 of incising wheel support 22 extends inwardly and thus cooperates with the outwardly extending rear portion 80 of carriage 18 to provide mounting room for hydraulic cylinders and pistons 24.

Incising wheels 20 are mounted for free rotation on the laterally movable supports 22 by means of removable pins 82. Pins 82 extend through holes in the top portion of supports 22, through a centrally located axial channel in the incising wheels 20 and into a cooperating fitting on the bottom portion of supports 22. The pin receiving holes in supports 22 are positioned such that portions of incising wheels 20 extend laterally outwardly from supports 22 toward the wood pole to be incised.

Referring additionally to FIG. 5, a typical incisor tooth 84 is disclosed. Tooth 84 includes a blade portion 86 having a chisel tip portion 88, thin cutting edges 90, and a relatively thick central rib 92. When tooth 84 is pressed into a wood pole, chisel tip 88 is designed to cut one or more wood fibers while the cutting edges 90 and ribs 92 open and spread the incision. The cutting of a small number of wood fibers prevents the incision from closing upon removal of the blade, a particularly acute problem when green poles are incised. It will be understood that the length of blade 86 may be varied depending upon the desired depth of the incision to be made in the pole, but in use with this invention for deep incising, this blade will generally be 2½ to 3 inches in length. A threaded shank 94 is provided on tooth 84 whereby the teeth may be mounted in cooperatingly threaded holes on the surfaces of incising wheels 20, and this threaded shank allows broken or dull teeth to be easily changed without dismantling the incising wheel assembly. In one form of the invention, teeth 84 are constructed of cast steel, but it will be understood that other conventional materials and forming processes may also be used.

It has been found that inward force in the neighborhood of 800 psi. should be applied to the incising wheels 20 by cylinders and pistons 24 to cause the incising teeth to fully penetrate a dry wood pole 96 of the coast Douglas Fir variety while forces in the 700 psi. range give satisfactory results when green poles of the same type are incised. It will be understood that the incising head pressure may be varied depending on the variety or water content of the pole, for example, lighter pressures are satisfactory for incising cedar or Lodgepole Pine than are needed for Douglas Fir. The opposed incising wheels which travel together along the pole counterebalance the inwardly directed forces exerted on the pole by the incising heads thus preventing their transmission to the pole support structure and allowing the support frame to be constructed of relatively light components capable primarily of bearing the weight of the pole itself rather than the combination of the pole and the incising wheel force as is necessary with most known incisors. The opposed incising heads provide the additional advantages of speeding the incising by acting on two surfaces of the pole simultaneously, and thus requiring the pole to be rotated only 180 degrees about its longitudinal center line, as well as improved incisor wheel following of curved poles than provided by known single wheel downward pressing incising apparatus.

Referring now to FIGS. 1 and 6, the construction and operation of the vertically adjustable support for roller 54 is disclosed. The surface of roller 54 is contoured to center a pole 96 to be incised and prevent its rolling thereof. Roller 54 is mounted by means of conventional bearings 98 on movable support 100 which is adapted to be raised or lowered in channel supports 102 disposed adjacent the ends of roller 54 by means of conventional hydraulic cylinder and piston 104.

As has been described briefly above, scissors clamps 26 and 28 are positioned respectively adjacent the infeed and pole stop ends of longitudinal support frame 12. It will be understood that the clamping of pole 96 by scissors clamp 28 prevents the incising wheels from running over approximately the bottom eighteen inches of the pole, but it has been found that increased penetration of perseverative through the cut end of the pole substantially eliminates the need to incise the periphery of the butt end. If necessary, however, the butt end of the pole may be incised by conveying the pole onto support frame 12 to a position short of pole stop 38 such that the pole is clamped for indexing only by scissors clamp 26. The opposed pressures exerted by the incising heads tend to maintain the pole centered on contoured support roller 54. Scissors clamps 26 and 28 include pairs of pole clamping chains 32 and 34 respectively. Chain 34 includes teeth 117 which may be approximately one-half inch in length, welded to the links thereof to positive grip the butt end of the pole. These chains are trained on cooperating sprockets 106 mounted for free rotation on axles 108 near the top ends of the arms of scissors clamps 26 and 28 and drive sprockets 110 mounted on axle 112 which is adapted to be rotatably driven by conventional motor 36. As will be described more completely hereafter with reference to the operation of the instant apparatus, axle 112 includes a toothed sprocket 114 which intermittently actuates motor turn off switch 116 to control the extent of partial rotation of the pole 96 during incising.

In one preferred embodiment of the instant invention, parallel beams 14 and 16 are of a length such that incising wheel carriages 18 may be pulled longitudinally between scissors clamps 26 and 28 a distance of
approximately 15 feet, and thus it will be understood that laterally opposed longitudinal sections of the periphery of a pole 96 having lengths of 15 feet may be incised by a single pass of incising wheels 20. Pairs of longitudinally adjustable limit switches 118 and 120 are mounted on a track 122 adjacent the vertical web of one of the longitudinal support beams 14 or 16 to control the extent of the longitudinal movement of the incising wheels, as will be described more completely hereafter.

To operate the disclosed apparatus, a wood pole, such as a Douglas Fir having a length of 65 feet or more, is conveyed by infeed conveyor system 40 onto support frame 12 between longitudinal beams 14 and 16. As discussed briefly above, drive rollers 42 move the pole along conveyor system 40 until the thick end of the log abuts against pole stop 38 on the support frame, as is best seen in FIG. 6. To incise a portion of the periphery of the pole near its butt end, pairs of limit switches 118 and 120 are moved apart on track 122 to set the longitudinal distance to be incised therebetween. When incising utility poles, for example, it has been found desirable to incise approximately a fifteen foot longitudinal portion of the pole adjacent the non-incised butt end portion of the pole. To incise a lesser longitudinal distance on the periphery of the pole, the limit switches 118 and 120 may be set closer together, while to incise distances greater than fifteen feet the illustrated apparatus may be modified by the removal of pole stop 38 and the addition of a conveyor system adjacent the outfeed end of support frame 12 to allow wood poles to be moved longitudinally therewith according to longitudinal sections incised heretofore.

After the butt end of pole 96 has contacted pole stop 38, lever 128 is actuated to cause hydraulic cylinder and piston 104 to raise the pole on roller 54 to center it with respect to incisor wheels 20. In the same manner, lever 130 is actuated to raise hydraulically operated channeled roller 52 adjacent the infeed end of support frame 12, and lever 132 is actuated to raise a third hydraulically operated channeled roller space upstream on infeed conveyor 40. By manipulation of levers 128, 130 and 132, pole 96 is raised and leveled such that the incisor heads are laterally adjacent the longitudinal center line of the pole. Once centered, levers 124 and 126 are adjusted by the operator to actuate hydraulic cylinders and pistons 30 to cause scissors clamps 28 and 26 respectively to clamp the wood pole as illustrated in solid line in FIG. 3.

The hydraulic system of the instant apparatus is of the conventional type, and thus the interconnections of the levers 124–132 with the hydraulic cylinders and pistons they control, as well as the interconnections of the hydraulic cylinders and pistons 24 on the incising head supports 18 with hydraulic fluid reservoir 134 and pump 136 have not been illustrated. Any conventional interconnection system capable of performing similarly is considered to be within the scope of the present disclosure.

Once the pole 96 is clamped by indexing clamps 26 and 28, hydraulic cylinders 24 are actuated by the manipulation of a switch on control panel 138 to cause the incising wheels 20 to move against pole 96. Some of the incising teeth 84 are thus pressed through the outer sapwood and into the heartwood of the pole. As is best seen in FIG. 6, the incising teeth contact the wood pole in a predetermined pattern which minimizes the possibility of "checking" of the pole. In one form which has been used satisfactorily, incising wheels 20 have an outside diameter of 15.3 inches and include three rows of eight teeth each spaced approximately six inches apart around the circumference of the wheel, with the vertically adjacent rows spaced approximately one inch apart and the teeth in adjacent rows staggered approximately 1/8 inches on the circumference with respect to each other. It is contemplated that other tooth patterns may also be employed to reduce checking or other weakening of the pole.

Referring again to control panel 138, control means are provided thereon for both the automatic and manual mode of operation of this apparatus. Thus, switches on the control panel may be manipulated to cause the apparatus to selectively perform the individual incising functions to be described hereafter, or alternatively the apparatus may be directed to automatically incise the entire periphery of the selected longitudinal portion of the raised and centered pole. The automatic mode of operation, including the operation of the controlling limit switches, will be described hereafter.

After incising heads 20 have been pressed against pole 96, motor 74 turns on to pull the incising wheel support carriages 18 along parallel beams 14 and 16 such that the incising wheels 20 incise laterally opposed longitudinal sections of the pole 96. It has been found that moving the incising wheels along the wood pole at a speed of approximately 13 feet per minute provides satisfactory incising, although it will be understood that higher or lower speeds of travel are possible depending on the condition of the pole to be incised and the depth of incision.

As the incising wheel support carriages approach the opposite end of support frame 12, one of the contact members 140 mounted on the bottom of carriage 18 on beam 16 first contacts limit switch 118 which actuates hydraulic cylinders and pistons 24 to start the withdrawal of the incisor heads from the wood pole, and then contacts limit switch 120 which turns off motor 74 to stop the longitudinal movement of the carriages 18. Limit switch 120 also activates a time delay relay which, after the wood pole has been indexed and the incising heads again pressed thereagainst, turns on motor 74 to cause the incising head support carriages to begin travel along the pole in the direction opposite the first incising pass.

Referring particularly to FIG. 4, limit switches 142 and 144 are shown mounted on carriages 18 such that they are switched by the movement of incising head support 22 laterally away from the pole. Limit switch 142 triggers indexing motor 36 to rotate pole 96, while limit switch 144 is an interlock which prevents indexing motor 36 from turning on when the incisor heads are in contact with pole 96.

As has been described briefly above, the indexing of pole 96 is accomplished by the driving of sets of chains 32 and 34 mounted on scissors clamps 26 and 28 by motor 36 through sprockets 110 on drive axle 112. A toothed sprocket 114 is mounted on axle 112 such that the teeth thereon contact limit switch 116 (FIG. 6) to
turn motor 36 off. The spacing of the teeth on sprocket 114 thus controls the arc through which wood pole 96 is rotated before switch 116 is contacted to turn off the indexing motor. Upon completion of the indexing of pole 96, the time delay relay actuated by limit switch 120 activates hydraulic cylinders 24 to again press the incising heads against the now partially rotated pole while substantially simultaneously turning on motor 74 to move the incising heads longitudinally along the pole.

The process of incising laterally opposed longitudinal sections of a wood pole by running incising wheels therealong in a first direction, indexing the pole, and incising laterally opposed longitudinal sections of the pole adjacent the first incised sections by running the incising wheels therealong in the opposite direction may be repeated until the entire periphery of the selected longitudinal portion of the pole is incised. Upon completion of the incising, the operator moves levers 124 and 126 to release the grip of scissors clamps 26 and 28 and manipulates levers 128, 130 and 132 to lower the hydraulically actuated rollers until the wood pole rests on rollers 42 which are actuated to move the pole from the support frame 12 and convey it to the preservative application station or to an intermediate drying station if needed.

The invention may be embodied in other specific forms without departing from the spirit or central characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore to be embraced therein.

What is claimed is:

1. Apparatus for incising wood poles comprising:
an elongate framework including a pair of parallel beams;
incising means mounted on each of said parallel beams;
means on said framework for supporting a pole to be incised between said parallel beams;
said incising means adapted to travel on said parallel beams to incise laterally opposed longitudinal sections of said pole; and
indexing means on said framework adapted to partially rotate said pole about its longitudinal axis after said incising means have incised longitudinal sections of said pole.

2. The apparatus of claim 1 wherein said incising means mounted on each of said parallel beams includes:
an incising wheel rotatably mounted on a support means for lateral movement with respect to said wood pole;
said support means including roller means mounted thereon adapted to support and guide said support means during its longitudinal travel on said parallel beam.

3. The apparatus of claim 1 wherein said incising means mounted on each of said parallel beams include a wheel having a plurality of incising blades spacedly mounted on its periphery; said wheel mounted for rotation on a support, said support adapted to carry said wheel for both longitudinal and lateral movement with respect to said wood pole.

4. Apparatus for incising wood poles comprising:
a frame including a pair of laterally spaced parallel beams extending longitudinally thereon;
pole centering and support means disposed between said parallel beams;
pole incising means oppositely mounted on each of said parallel beams and adapted to travel longitudinally thereon;
pressure means forcing said pole incising means against said pole to incise diametrically opposed longitudinal sections of said pole; and
pole indexing means associated with said pole support means and adapted to rotate said pole through a predetermined arc after said incising means have incised opposed longitudinal portions of said pole.

5. Apparatus for incising wood poles comprising:
a frame including a pair of laterally spaced parallel beams extending longitudinally thereon;
incising means mounted on each of said parallel beams and adapted to be urged against said pole with like pressure;
support means mounted on said frame and adapted to hold said pole during incising;
centering means mounted on said frame between said laterally spaced parallel beams and adapted to center said pole with respect to said incising means;
said pole incising means adapted to travel simultaneously along said laterally spaced parallel beams to incise laterally opposed longitudinal sections of said pole held by said support means; and
pole indexing means adapted to automatically partially rotate said pole after said incising means have incised laterally opposed longitudinal portions of said pole.

6. The apparatus of claim 5 wherein said pole centering means includes height adjustable roller means.

7. The apparatus of claim 5 wherein said pole support means includes scissors clamps spacedly mounted on said elongate framework, said scissors clamps including chain means extending between sprockets mounted on the distal ends of the arms of said clamps, said chains adapted to hold said pole during incising.

8. Apparatus for incising the periphery of a longitudinal portion of a wood pole comprising:
an elongate framework having an infeed end and a pole stop end;
means conveying a pole to be incised into said elongate framework;
means elevating said pole to center it with respect to pole incising means;
means spacedly mounted on said elongate framework supporting said pole during incising;
incising means oppositely mounted on said framework for reciprocal travel longitudinally thereon to simultaneously incise laterally opposed segments of a pole supported therein; and
pole indexing means associated with said pole support means, partially rotating said pole to allow said incising means to sequentially incise adjacent pairs of laterally opposed longitudinal sections of said pole.
9. Apparatus for incising the periphery of a longitudinal portion of a pole comprising:
an elongate frame including a pair of laterally spaced parallel beams extending longitudinally thereon, said frame having a pole infeed end and a pole stop end;
conveyor means adapted to move a pole to be incised between said pair of parallel beams and against said pole stop end;
scissors clamp means spacedly mounted on said frame and adapted to clamp said pole such that the longitudinal portion of the pole to be incised is disposed therebetween;
a pair of incising wheels oppositely mounted on said parallel beams for both lateral and longitudinal movement with respect to said pole;
pole indexing means adapted to partially rotate said pole; and
electronic control means adapted to sequentially control the movement and operation of said incising wheels and said pole indexing means to automatically incise the periphery of a longitudinal portion of said pole.

10. The apparatus of claim 9 wherein said electronic control means includes first and second switch means disposed on said parallel beams and adapted to be actuated by the movement of said incising wheels therewith; third switch means associated with said incising wheels and adapted to be actuated by the lateral retraction of said incising wheels from said pole; and, forth switch means associated with said pole indexing means and adapted to be actuated in response to a partial rotation of said pole.

11. The apparatus of claim 9 wherein said electronic control means includes first and second switch means spacedly mounted on said parallel beams to control the longitudinal movement of said incising wheels; third switch means associated with said incising wheels to control the lateral movement thereof; and, fourth switch means associated with said pole indexing means to control the rotation of said pole.

12. Apparatus for deep incising a longitudinal portion of a pole comprising:
an elongate framework having a pole infeed end and a pole stop end;
means for supporting the longitudinal portion of the pole to be incised;
a pair of incising wheel supports mounted on said framework on laterally opposed sides of said portion of said pole to be incised;
an incising wheel having a plurality of radially extending incising blades disposed thereon in a predetermined pattern; and
means for reciprocally moving said incising wheel supports longitudinally on said framework along said portion of the pole to be incised such that said incising wheels bear on opposed sides of said pole and said blades are forced into said pole; and
means for automatically indexing said pole about its centerline through a predetermined arc after each longitudinal pass of said incising wheel.

13. The method of incising a longitudinal portion of the periphery of a pole comprising the steps of:
holding said pole between a laterally opposed pair of incising wheel means;
urging said pair of incising wheel means against laterally opposed sections of said pole;
moving said pair of incising wheel means along a longitudinal portion of said pole to complete a first incising pass;
laterally retracting said pair of incising wheel means from said pole;
partially rotating said pole;
urging said pair of incising wheel means against laterally opposed sections of said pole adjacent said last incised laterally opposed sections;
moving said incising wheel means along a longitudinal portion of said pole in a direction opposite said first incising pass to complete a second incising pass; and
repeatedly partially rotating said pole and incising opposed sections thereof until the entire periphery of said longitudinal portion of said pole is incised; and
removing said incised pole from between said opposed pair of incising wheel means.

14. The method of claim 13 wherein the steps of urging said pair of incising wheel means against laterally opposed sections of said pole includes urging said pair of incising wheel means against said laterally opposed sections with equal pressure.

15. The method of claim 13 wherein the step of holding said pole between said laterally opposed pair of incising wheel means includes the steps of:
conveying said pole between a pair of parallel beams on which said laterally opposed pair of incising wheel means are mounted;
centering said pole with respect to said laterally opposed pair of incising wheel means; and
clamping said pole with longitudinally spaced clamps such that the longitudinal portion of the pole to be incised is disposed therebetween.

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