

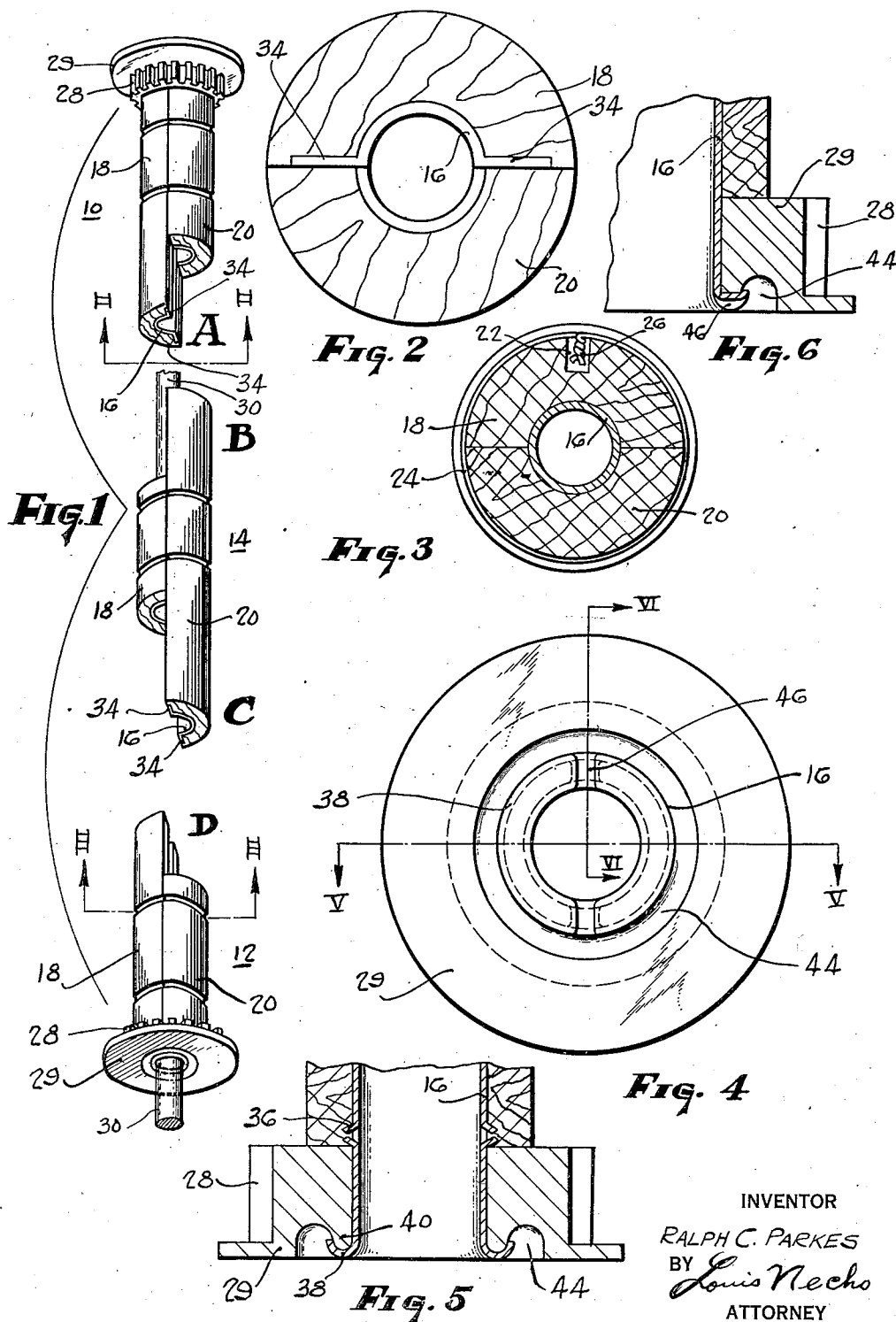
April 9, 1946.

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2,398,190

EXPANSIBLE POLE CONSTRUCTION FOR DRYING MACHINES

Filed Jan. 20, 1944



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2,398,190

EXPANSIBLE POLE CONSTRUCTION FOR
DRYING MACHINES

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Application January 20, 1944, Serial No. 518,963

8 Claims. (Cl. 34-240)

My invention relates to an expansible sectional pole construction for drying machines.

A pole of this character includes an inner supporting member such as a rod or shaft, sections of pipe freely rotatable on said shaft, and heat insulating sheathing covering said pipe sections in order to prevent scorching of the material being dried. In order to insure uniform drying of all portions of the material, means is also provided for effecting continuous or intermittent rotation of the pole as a whole, so that a different section of the material being dried contacts the pole as it progresses through the drying chamber. Furthermore, in order to maintain the material smooth, means is provided for longitudinally expanding the pole as it progresses from the feed towards the delivery end of the machine and for collapsing the pole after the material has left the pole and before the pole again reaches the feed end of the machine to begin a new cycle. In order to accomplish this, the juxtaposed ends of the sheathing of overlapping adjacent sections of the pole are reduced so that they will present a cross section identical with the cross section of the unreduced portions of the pole. This produces relatively weak end portions which constitute the sole means for transmitting rotary movement from one of the pole sections to the other. Due to the heat to which a pole of this character is subjected, the sheathing, which is of wood or the like, is gradually weakened with the result that as the pole is rotated during its progress through the machine, the reduced overlapping end portions of the pole sections frequently break under the weight of the material and the rotational torque to which they are constantly subjected.

It is, therefore, one object of my invention to produce an improved structure in a sectional expansible pole of the character set forth.

A further object of my invention is to produce a practical and reinforced construction in which the weight of the material and the torque caused by rotation is resisted not by the reduced and relatively frail sheathing but by portions of the metal pipe covered by said sheathing.

A still further object of my invention is to provide an improved assembly of a pole of this character.

These and other objects are effected by my invention as will be apparent from the following description and claims taken in connection with the accompanying drawing, forming a part of this application, in which:

Fig. 1 represents a composite perspective view of a sectional pole embodying my invention, the

sections being shown separated one from the other;

Fig. 2 is an enlarged sectional view on line II—II of Fig. 1;

Fig. 3 is an enlarged sectional view on line III—III of Fig. 1;

Fig. 4 is an enlarged end elevation of the pole shown in Fig. 1;

Fig. 5 is a fragmentary section on line V—V of Fig. 4; and

Fig. 6 is a fragmentary section on line VI—VI of Fig. 4.

Referring to the drawing and more particularly to Fig. 1, the expansible pole embodying my invention is shown as being composed of the end members 10 and 12 and an intermediate member 14, but it is noted that the intermediate member 14 may be omitted, or more than one intermediate member 14 may intervene between the members 10 and 12, depending on the length of the pole. Each of the members 10, 12 and 14 consists of an inner metal pipe 16 and two or more curvilinear covering portions 18 and 20, which are clamped together to provide a sheath for the pipe 16. As shown, the covering portions 18 and 20 are made of wood and have semi-cylindrical cross sections, but it is noted that the sheath may be formed of more than two sections, and that such sections may be made of any suitable material which has sufficient rigidity and which has a low heat conductivity. Also, while the pole is shown round, it may be of any desired cross-sectional shape. A preferred form of fastening the sheath sections 18 and 20 consists in providing recesses 22 in one of the sections, passing lengths of wire 24 in grooves formed around both sections and communicating with said recesses, twisting the ends of each length of wire together, as at 26, and inserting the twisted ends of the wire in the recesses 22. In this way, the wires and the twisted ends thereof are confined in the grooves and recesses and cannot in any way damage the material carried by and passing over the pole. Alternatively, split spring rings may be snapped into position, instead of the wires 24. The end members 10 and 12 are provided with gear elements 28 formed or carried by heads 29. The gears 28 are adapted to engage racks (not shown) so as to cause the pole to rotate either continuously or intermittently, as desired. The sheathed pipe 16 is freely rotatable over a rod or shaft 30 which extends beyond the ends of the pipe and is connected at its opposite ends to an endless sprocket chain which propels the pole through the drying machine. Since the construction of sprocket chains

and racks is well known in the art, it is not deemed necessary to show or describe the same in detail. It will be understood that the intermediate member 14 is so keyed to the shaft 30 as to be freely rotatable thereon but not slidable, longitudinally speaking, with respect to said shaft. Since this can be done in any number of well known means, it is not necessary to show or describe the same in detail.

At the inner ends of the end members 10 and 12 of the pole, the sheath sections 18 extend beyond the ends of the opposite sheath sections 20, to form extensions designated A and D, and at either end of the intermediate member 14, the section 20 extends beyond the opposite ends of the sheath section 18 to form extensions B and C. When the pole is assembled, the flat faces of the extensions B and C abut against the flat faces of the extensions A and D, respectively, so that the rotation of the end members 10 and 12 is transmitted to the intermediate portion 14.

Due to the weight of the fabric looped on the poles, a relatively great torque results and this torque has to be resisted by the reduced portions A, B, C and D. The weakening of the sheathing by the heat to which it is subjected caused one or more of the reduced portions A, B, C or D to break sooner or later.

In order to remedy this defect, I have devised a novel structure which causes all the torque of rotation to be resisted by rigid metal instead of by the relatively thin and weakened reduced portions of the sheathing. This is accomplished by cutting the pipe 16 to provide flanges 34. The flanges 34 abut against the flat faces of the reduced sheathing portions A, B, C and D and reinforce the same, as clearly shown in Figs. 1 and 2. By this construction, the torque of rotation is sustained or resisted by the rigid metal of the pipe 16. The flanges 34 of the pipe also serve to key the sheathing sections to the supporting pipe sections to insure joint rotation of the sheathing and pipe sections and to prevent relative sliding of the pipe and sheathing sections.

In order to integrate the end sections 10 and 12 with the heads 29, the pipe sections are punched at one or more places outwardly into the wooden sections 18 and 20, as at 36, and the outer ends of the pipe sections are provided with flanges 38. The flanges 38 engage annular shoulders 40 and annular recesses 44 formed in the outer faces of the heads 29. By this construction, the heads 29 are effectively secured to the end members 10 and 12. In order further to fasten the heads 29 to the end members 10 and 12, the shoulders 40 are notched at one or more places, as at 46, and the flanges 38 at the opposite outer ends of the pipe are peened or staked into the notches 46.

While the pipe 16 and shaft 30 are preferably made of metal, it is possible to use other material having sufficient rigidity without departing from the scope of this invention.

The use of the wires or the spring split rings 14 dispenses with the necessity of soldering the ends of the wires or otherwise securing them together and provides a safe and convenient method of clamping the sheathing sections on the pole. The flanging of the pipe sections, as at 34, provides a rigid construction in which the torque of rotation is exerted against the ends of the pipe sections instead of against the reduced portions of the sheathing alone. The notches 36 and 44 prevent rotary or longitudinal movement be-

tween the end members 10 and 12 and the heads 29.

While the invention has been shown in but one form, it will be obvious to those skilled in the art that it is not so limited but is susceptible of various modifications and changes without departing from the spirit thereof, and it is desired, therefore, that the invention be considered as defined in the appended claims.

What I claim is:

1. A pole for a drying machine comprising a pipe, a sheathing therefor and means for imparting rotary motion to said pole, including an apertured head carried by each end of said pole and a gear carried by each of said heads, the ends of said pipe extending through said heads and being flanged against and at least at one point staked into the outer faces of said heads to prevent rotary movement of said head with reference to said pole, said pipe being also staked to said sheathing at the junction of the inner faces of said heads with the respective outer ends of said sheathing to prevent longitudinal and rotary movement of said heads, said pipe and said sheathing with reference to one another.

2. An expansible sectional pole for a drying machine comprising two elongated end members and at least one elongated intermediate member, each of said members consisting of an inner pipe section and an outer heat insulating sheathing, the sheathing and pipe at the opposite ends of said intermediate member and at the inner ends of said end members being cut away longitudinally to form portions reduced in cross section and having oppositely-facing flat surfaces, said portions being so disposed that the flat surfaces of the reduced portions of said intermediate member abut against the flat surfaces of the reduced portions of said end members, the edges of the pipe of each of the reduced portions being flanged outwardly against and engaging the adjacent flat surfaces of the sheathing of said portions, and a rigid supporting member extending loosely through said end and intermediate members.

3. An expansible sectional pole for a drying machine comprising two elongated members, each of said members consisting of an inner pipe section and an outer heat insulating sheathing therefor, the sheathing and pipe at the opposite inner ends of said members being cut away longitudinally to form portions reduced in cross section and having oppositely-facing flat surfaces, said portions being so disposed that the flat surfaces thereof abut against each other, the edges of the pipe of each of said portions being flanged outwardly against and engaging the adjacent horizontal edges of the sheathing of said portions, and a rigid support extending loosely through said members.

4. A sectional pole for a drying machine including two elongated members, each of said members including at least an inner pipe and an outer heat insulating sheathing therefor, the sheathing and pipe at the juxtaposed inner ends of said members being cut away longitudinally to form portions reduced in cross section and having juxtaposed flat surfaces, said portions being so disposed that the flat surfaces thereof abut against each other, the edges of the pipe of each of said portions being flanged outwardly against and engaging the adjacent edges of the sheathing of said portions.

5. An expansible pole for a drying machine, said pole including a plurality of hollow,

elongated sections adapted to be mounted, in end to end relation, on an elongated support passing therethrough, the juxtaposed end portions of said sections being cut away longitudinally to form end members of complementary, reduced cross sections having axially-extending, overlapping flat surfaces, and reinforcing means carried by said sections and engaging said flat surfaces.

6. An expansible pole for a drying machine, said pole including a plurality of elongated, hollow sections formed of heat insulating and relatively weak material and adapted to be mounted, in end to end relation, on an elongated support passing therethrough, the juxtaposed end portions of said sections being cut away longitudinally to form end members of reduced, complementary arcuate cross sections having axially-extending and overlapping flat surfaces, and reinforcing means having arcuate portions engaging said end members and having flat portions engaging said flat surfaces.

7. An expansible pole for a drying machine, said pole including at least one intermediate, elongated hollow section adapted to be rotatably but non-slidably mounted on an elongated support passing therethrough, and two end, elongated, hollow sections adapted to be slidably

mounted on said support on either side of, and in end to end relation to, said intermediate section, the opposite end portions of said intermediate section and the adjacent end portions of said end sections being cut away longitudinally to form end members of reduced, complementary cross sections having flat, axially-extending abutting surfaces, and reinforcing elements for said intermediate and said end sections, each of said reinforcing elements including a portion extending through the corresponding pole section and flat portions engaging the flat surfaces of the end member of said section.

8. The structure recited in claim 5 in which each of said sections is formed of at least two pieces arcuate in cross section and assembled together to form a cylindrical pole section, at least one end portion of one of said arcuate pieces of each pole section projecting beyond the corresponding end of the other of said pieces to which it is assembled, to provide an axially-extending flat surface adapted to abut a similar surface on the end portion of an adjacent pole section.

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