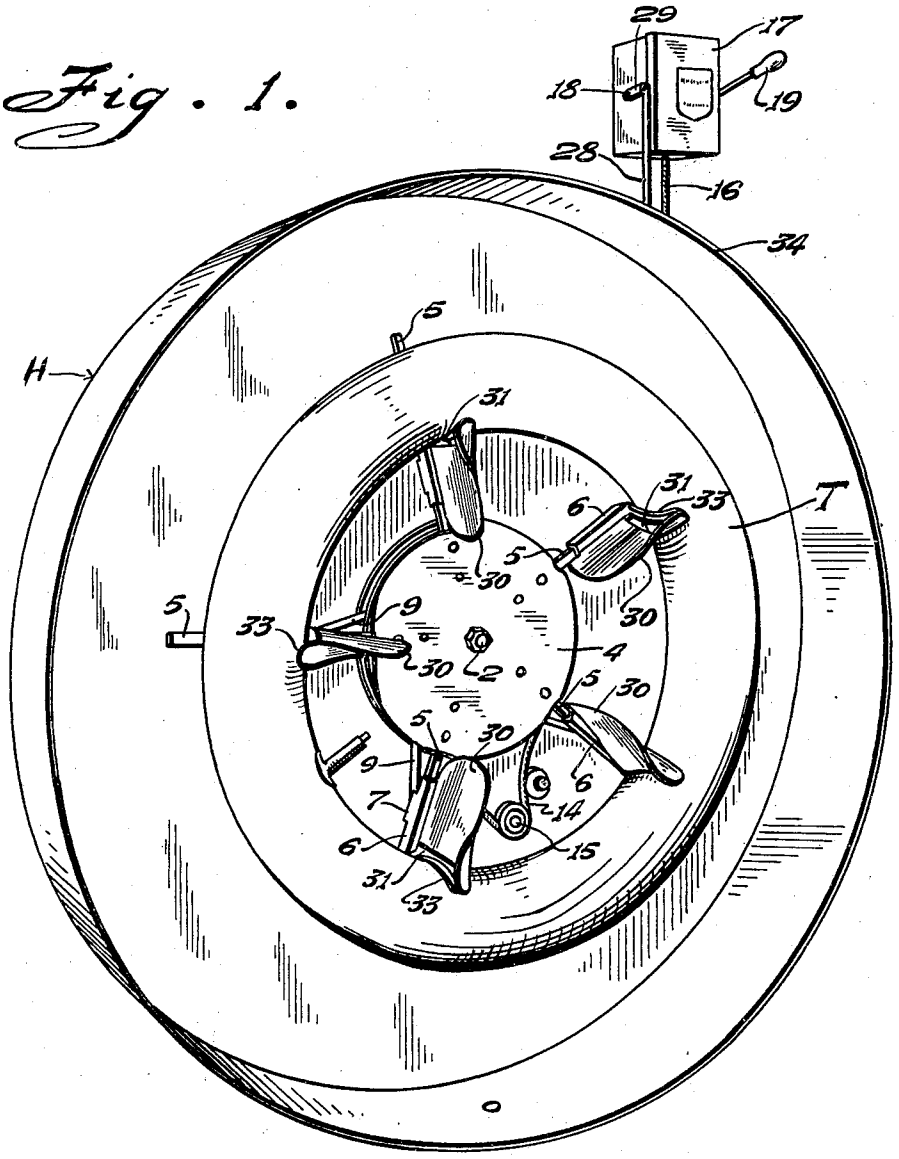
March 18, 1930. R. J. AUNE 1,751,023

DRYING APPARATUS

Filed March 19, 1929 2 Sheets-Sheet 1

Fig. 1.



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Fig. 2.

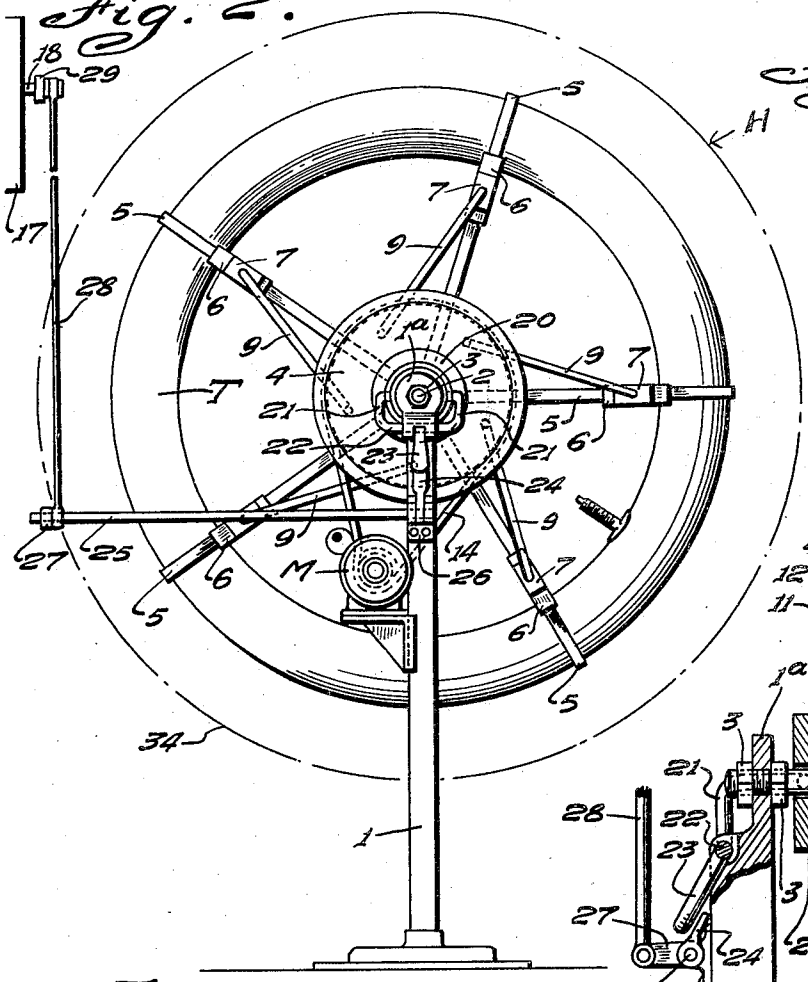


Fig. 3.

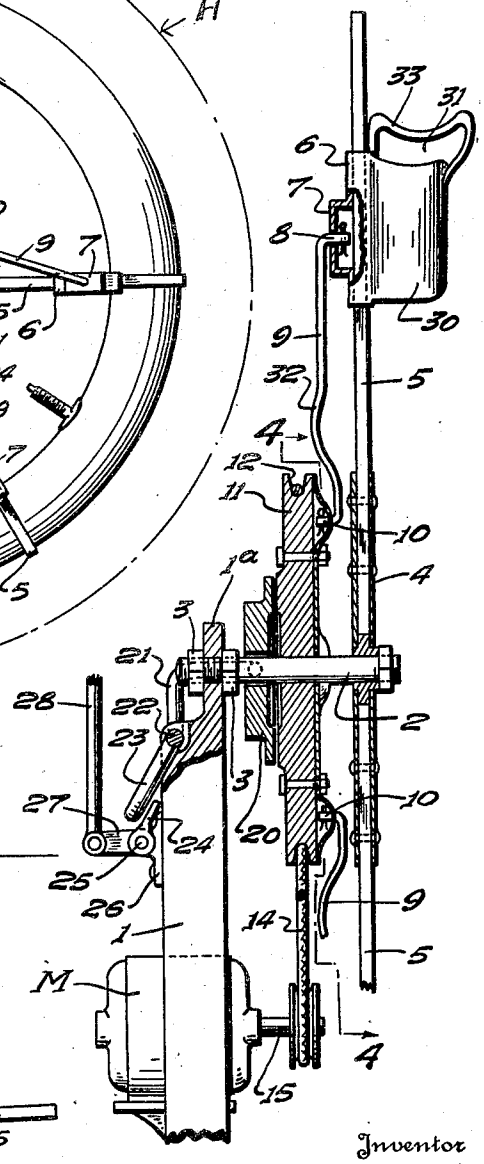
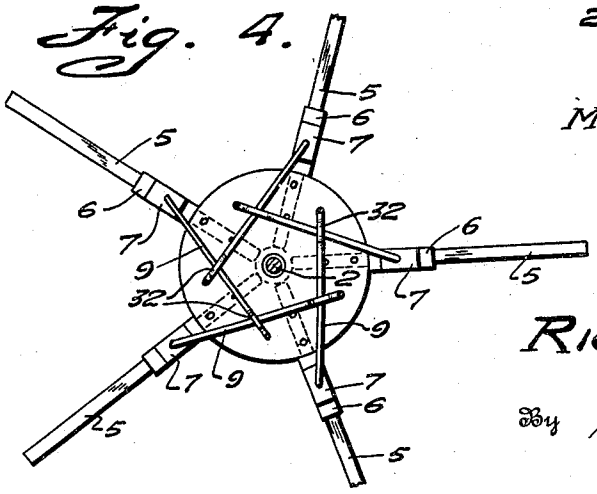


Fig. 4.



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UNITED STATES PATENT OFFICE

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DRYING APPARATUS

Application filed March 19, 1929. Serial No. 348,242.

This invention relates to a drying apparatus and has relation more particularly to a device of this kind especially designed and adapted for use in the drying of inner tubes for vehicle tires, and it is an object of the invention to provide an apparatus of this character wherein the tube, during a drying operation, is automatically held in desired position.

It is also an object of the invention to provide a device of this kind embodying a rotating member with which the tube to be dried is adapted to be applied, with means for driving said rotatable member, together with a braking means for holding said member against rotation when the driving means is inoperative.

In the repair of inner tubes it is a common practice to submerge the same in water to facilitate location of a leak and to afterwards dry the tube by wiping. This does not prove satisfactory as by such means the tube is not entirely dried so that when it is returned within a tire casing there is oftentimes a sufficient amount of water retained which results in injury both to the tube and to the inner fabric of the casing. A further object of the invention is to provide an apparatus which will thoroughly dry the tube and thus eliminate the foregoing disadvantages, the apparatus being of a character to effect the drying within a very short period of time.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved drying apparatus whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:—

Figure 1 is a view in perspective illustrating a drying apparatus constructed in accordance with an embodiment of my invention, the supporting means therefor being omitted;

Figure 2 is a view in side elevation of the apparatus as herein disclosed with the housing removed but diagrammatically indicated by broken lines;

Figure 3 is an enlarged fragmentary view partly in section and partly in elevation illustrating in detail certain features of the invention as herein embodied;

Figure 4 is a detailed fragmentary sectional view taken substantially on the line 4—4 of Figure 3 but on a reduced scale and with certain of the parts in a second position.

As disclosed in the accompanying drawings, 1 denotes a suitably supported standard provided at its upper or outer free end portion with a fixed shaft 2 held to the standard 1 by the nuts 3 threaded upon an end portion of said shaft 2 and having close contact with the opposite faces of the standard 1, or more particularly the reduced extension 1^a. Loosely mounted upon the outer portion of the shaft 2 is a disc-like wheel 4 from which extends a plurality of radially disposed elongated arms 5. These arms 5 may be of any number desired but, as illustrated in the accompanying drawings, they are five in number.

Slidably mounted upon each of the arms 5 is a sleeve 6, the rear portion of which being outwardly offset, as at 7. To this offset portion 7 is pivotally connected, as at 8, the outer end portion of a rod 9, the opposite end portion of which being pivotally connected, as at 10, to the second disc-like wheel or pulley 11. In the present embodiment of my invention the periphery of the wheel or pulley 11 has disposed circumferentially thereabout a groove 12 in which is engaged a driving belt 14 operatively engaged with the drive shaft 15 of a motor M herein disclosed as electric. Interposed in the operating circuit 16 for the motor M is a switch 17 of a conventional type including an extended rock shaft 18 operating in unison upon manipulation of the throw lever 19 comprised in the switch structure.

Freely surrounding the shaft 2 rearwardly of the wheel or pulley 11 is a brake disc 20

with which are operatively engaged the side arms 21 of a U-shaped member 22. The base portion of this member 22 is supported for rocking movement by the upper portion of the standard 1.

The central part of the base portion of the member 22 is provided with a depending rock arm 23 which extends within the path of travel of an upstanding rock arm 24 carried by a shaft 25 rotatably supported by the bearings 26 secured to the rear face of the standard 1 at a desired distance below the member 22. The shaft 25 extends a desired distance to one side of the standard 1 and is provided at its outer end portion with a second rock arm 27 with which is pivotally connected the lower end portion of a rod 28, the opposite end portion of which being pivotally connected to a rock arm 29 carried by the extended portion of the rock shaft 18 comprised in the switch mechanism 17. When the lever 19 is thrown in a direction to close the circuit for the motor M the rod 28, through the shaft 25, will throw the rock arm 24 toward the standard 1, thus permitting the disc 20 to declutch from the wheel or pulley 11. However, when the lever 19 is thrown in a direction to open the circuit 17, the contact of the rock arm 24 with the rock arm 23 will result in the disc 20 being moved into clutching engagement with the wheel or pulley 11 and thus effectively brake the same against rotation.

Each of the sleeves 6 has extending therefrom in a direction beyond the outer face of the adjacent arm 5 a fan blade 30, the upper or outer portion of which being provided with a relatively large opening 31. When the apparatus is inactive, the sleeves 6 will assume a position inwardly of the arms 5 closely adjacent to the periphery of the wheel 4 as illustrated in Figure 4 of the drawings, and under which condition the adjacent rods 9 will be in crossed relation. This relative position of the rods 9 is facilitated by having each of said rods provided with an offset portion 32.

When it is desired to dry a tube the same is positioned to surround the blades 30, the portions 33 of which outwardly of the openings 31 being formed to provide saddles to engage the inner wall of the tube. This engagement of the saddles 33 with the tube is effected in an automatic manner as a result of the independent rotation of the wheel or pulley 11 with respect to the wheel 4. The initial desired outward movement of the sleeves 6, however, is effected by the initial rotation of the wheel or pulley 11. While the wheels 11 and 4 with the applied tube are in rotation, the blades 30 will create air blasts which will pass upwardly and outwardly by centrifuge through the openings 31 and against the applied tube and which action, together with the rotation of the tube, will result in a quick and thorough drying of the tube.

To facilitate this drying action, the shaft 2 rearwardly of the brake disc 20 has mounted thereon a housing H, the outer or peripheral portion of which being defined by a forwardly directed flange 34 which extends beyond the blades 30 and the applied tube T as particularly illustrated in Figure 1. The primary purpose of this housing H is to keep the air in circulation within a restricted area so as to dry the tube within the shortest possible time. The applied housing H also serves as a safety device in compliance with the laws of the several States requiring safeguards in connection with machines of this kind.

As particularly illustrated in Figure 1, each of the blades 30 in cross section is substantially concavo convex although such form may be changed if desired.

From the foregoing description it is thought to be obvious that a drying apparatus constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:—

1. A drying apparatus of the class described comprising a suitably supported shaft, two wheels mounted thereon for rotation one independently of the other and independently of the shaft, driving means coacting with one of the wheels, arms extending outwardly from the second wheel, fan blades slidably mounted upon said arms, connecting means secured to each of the fan blades and the first wheel whereby the blade is forced outwardly of the arm upon rotation of said first wheel and to cause both of the wheels to rotate in unison, and an engaging means carried by each of the blades.

2. A drying apparatus of the class described comprising a suitably supported shaft, two wheels mounted thereon for rotation one independently of the other and independently of the shaft, driving means coacting with one of the wheels, arms extending outwardly from the second wheel, fan blades slidably mounted upon said arms, connecting means secured to each of the fan blades and the first wheel whereby the blade is forced outwardly of the arm upon rotation of said first wheel and to cause both of the wheels to rotate in unison, and engaging means carried by each of the blades, and a

braking means coacting with one of the wheels.

3. A drying apparatus of the class described comprising a suitably supported shaft, two wheels mounted thereon for rotation one independently of the other and independently of the shaft, driving means coacting with one of the wheels, arms extending outwardly from the second wheel, fan blades slidably mounted upon said arms, an operative connection between each of the fan blades and the first wheel whereby the blade is forced outwardly of the arm upon rotation of said first wheel and to cause both of the wheels to rotate in unison, an engaging means carried by each of the blades, a braking means coacting with one of the wheels, a controller for the driving means, and means operatively connecting said controller and the braking means for releasing the braking means when the driving means is active and for setting the braking means when the driving means is inactive.

4. An apparatus for drying tubes comprising two rotatable members rotating about a common axis, shiftable members carried by one of said rotatable members for engagement with the inner surfaces of a tube, rods operatively connecting said shiftable members and the second member, driving means engageable with the second member, said rods upon rotation of the second member in one direction forcing the shiftable members outwardly with respect to the first member, each of said shiftable members having a portion constituting a fan blade.

5. An apparatus for drying tubes comprising a rotatable member, means for rotating said member, and means carried by said member engageable with the inner surfaces of the tube to hold the tube for rotation with said member, portions of said tube engaging means constituting fan blades.

6. An apparatus for drying tubes comprising a rotatable member, means for rotating said member, and means carried by said member engageable with the inner surfaces of the tube to hold the tube for rotation with said member, portions of said tube engaging means constituting fan blades, and housing substantially inclosing said rotatable member and tube engaging means.

7. An apparatus for drying tubes comprising a rotatable member, fan blades carried by said member, and means for supporting a tube at a point outwardly of the blades.

In testimony whereof I hereunto affix my signature.

RICHARD J. AUNE.