A. H. M. GRUNE.

BOOT TREE FOR USE IN TREEING MACHINES.

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1,010,751. Patented Dec. 5, 1911.

Fig. 1.

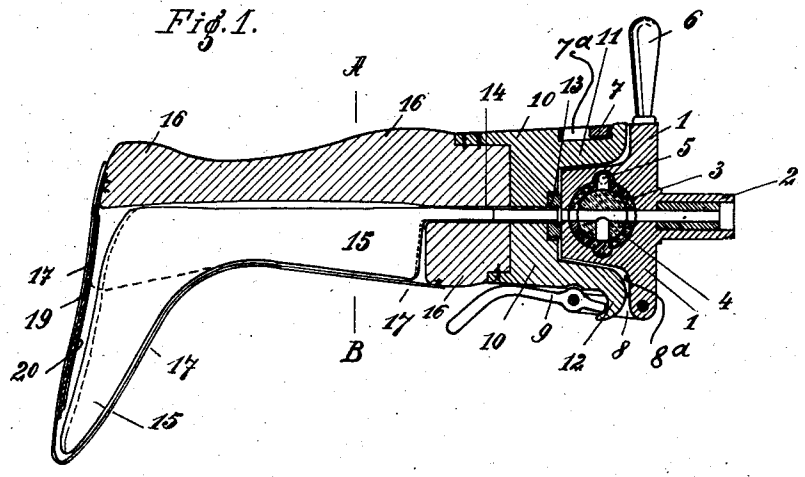
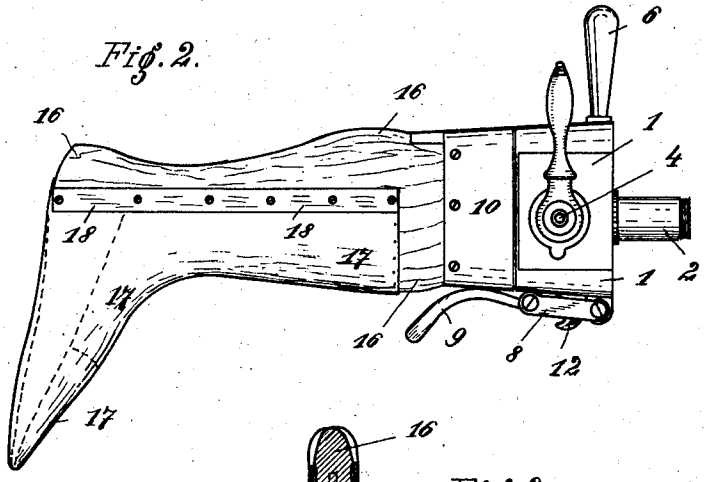


Fig. 2.



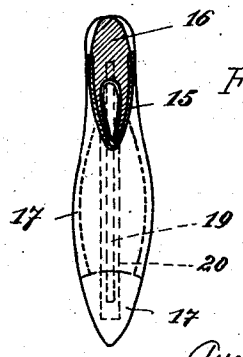


Fig. 3.

(A-B)

Witnesses.

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BOOT-TREE FOR USE IN TREEING-MACHINES.

1,010,751. Specification of Letters Patent. Patented Dec. 5, 1911.

Application filed February 6, 1911. Serial No. 606,671.

To all whom it may concern:

Be it known that I, AUGUST HERMANN MAX GRUNE, a subject of the German Emperor, residing at Pirmasens, Bavaria, in Germany, have invented certain new and useful Improvements in Boot-Trees for Use in Treeing-Machines, of which the following is a specification.

This invention relates to boot trees for use in treeing machines, and its object is to provide a pneumatic last which can be easily attached to the machine, and therefore be easily exchanged, and the construction of which enables the shoe to be easily drawn on and efficiently treated in the machine.

The invention is illustrated in the accompanying drawing in which:—

Figure 1 is a longitudinal section, showing the boot tree in combination with the valve of the treeing machine; Fig. 2 is an elevation of said boot tree and valve, and Fig. 3 a cross section on the line A—B of Fig. 1.

In the drawing, 1 represents the valve-piece, with tubular neck 2 for junction with the rotatable valve-head and the compressed air supply conduit of the pneumatic treeing machine. The valve piece 1 contains a non-rotatable shell 3, with a two-way plug 4 therein, having channels for alternative transmission of air to the interior of the boot tree and to a port 5 leading to the atmosphere. The valve-piece has a handle 6, for rotation of the valve-head, and also has two deep recesses 7^a and 8^a. The recess 7^a contains an abutment 7, in the form of a bridge extending across it, and two parallel links 8 are pivoted to a lug of the valve-piece 1 in front of the recess 8^a. A double armed lever 9 is pivoted to these links, between the free ends thereof.

The body of the last comprises a metal top 10 having two hook-shaped horns 11 and 12, adapted to enter the recesses 7^a and 8^a respectively, the horn 11 being shaped so that it can be inserted under the bridge-piece 7, and then made to engage behind said bridge-piece, as shown in Fig. 1. When the horns have been inserted into the recesses the links 8 are swung up, so that the shorter arm of the lever 9 lies in the curve of the hook, and the longer arm of the lever 9 is then pressed upward, so that the shorter arm, working in said curve, thrusts the last toward the valve-head and thereby compresses an elastic washer 13 surrounding the mouth of the air-inlet conduit 14. The lever 9 snaps into the position in which it is shown in Figs. 1 and 2 and locks the boot tree to the valve-head.

The conduit 14 is joined to an air-bag 15 of india-rubber or equivalent material, conforming in shape when inflated, to the front, instep and toe of the boot tree, the back and heel of the latter being formed by portions of a rigid block 16, preferably of wood, fixed to the part 10. The inflatable bag is placed between said block 16 and a flexible cover 17, preferably of leather, attached to said block by means of nails and screwed metal plates 18. The cover 17 also incloses a plate spring 19 which is screwed to the heel of the boot tree and forms a stiff but elastic sole. To prevent injury of the bag 15 by the spring, the latter is slipped into a pocket 20 provided inside the cover 17.

The boot is drawn on to the last when the bag 15 is in a deflated condition. When the bag is inflated it fills the space between the rigid part 16 and the cover 17, and suitably stretches the boot, the pressure being also transmitted to the back and heel. When the treatment on the boot tree is finished the valve plug is turned to discharge the air through the port 5, whereupon the boot can be easily withdrawn.

What I claim as my invention and desire to secure by Letters Patent in the United States is:—

1. A pneumatic boot tree comprising a rigid back and heel part, an inflatable front, instep, and toe part, having an air inlet conduit, and devices at opposite sides of said boot tree at one end, adapted to interlock with devices on an air supply valve, substantially as described.

2. A pneumatic boot tree comprising a rigid back and heel part, an inflatable front, instep and toe part, having an air-inlet conduit, an elastic sole-plate, an elastic washer surrounding the mouth of said conduit, an air supply valve, hook shaped horns on said boot tree adapted to be positioned outside of the valve, and means on the valve adapted to engage said horns and lock the tree on the valve, substantially as described.

3. A pneumatic boot tree comprising a rigid back and heel part, an inflatable front, instep, and toe part, having an air inlet conduit. and devices at opposite sides of said boot tree at one end, adapted to interlock with devices on an air supply valve, a valve

having recesses to receive said devices, and means for locking the devices in said recesses, substantially as described.

4. A pneumatic boot tree comprising a rigid back and heel part, an inflatable bag conforming in shape when inflated to the front, instep and toe, a flexible cover placed over said bag and attached to said rigid part, said cover having a pocket, an elastic sole plate attached to said rigid part and slipped into said pocket, an air valve having recesses in its sides, devices on said tree adapted to be located in said recesses, and means on the valve for locking said devices in the recesses, substantially as described.

5. A pneumatic boot tree comprising a rigid back and heel part, an inflatable front, instep and toe part having an air inlet conduit, an elastic sole-plate, and a hook-shaped horn, in combination with an air-valve having means for connection to the air delivery conduit of a pneumatic treeing machine, and having a recess to receive said horn, and a locking device comprising a double-armed lever connected to said valve and adapted to engage said horn so that by rotating said lever the boot tree is pressed against the valve.

6. A pneumatic boot tree comprising a rigid back and heel part, an inflatable front, instep and toe part having an air-inlet conduit, an elastic sole-plate, and two hook-shaped horns at opposite sides of the tree, in combination with an air-valve having means for connection to the air-delivery conduit of a pneumatic treeing machine, an abutment on said valve adapted to be engaged with one of said hook-shaped horns, a double-armed lever and a link connecting said lever to said valve so that said lever can be engaged with the other hook-shaped horn for the purpose of pressing the boot tree against the valve.

7. In combination, a pneumatically expansible boot tree, and a valve head, of hook shaped horns at opposite sides of the boot tree at one end, said valve head having recesses to receive said horns, a bridge piece across one of said recesses with which one of said horns engages, double links pivotally connected to said head and adapted to straddle the hook shaped end of the other horn, when said horn is in the recess, and a lever pivotally supported at the free ends of said links and adapted to engage the horn, substantially as described.

8. In combination, a pneumatically expansible boot tree, and a valve head, of hook shaped horns at opposite sides of the boot tree at one end, said valve head having recesses to receive said horns, a bridge piece across one of said recesses with which one of said horns engages, double links pivotally connected to said head and adapted to straddle the hook shaped end of the other horn, when said horn is in the recess, a washer interposed between said tree and said head, a lever pivoted near its shorter end to the free ends of said links, said shorter end adapted to engage the hook shaped end of the horn, and the longer end of said lever forming a hand hold, whereby the pressure of said hand hold inwardly, presses the boot tree and the head toward each other, substantially as described.

In witness whereof I have signed this specification in the presence of two witnesses.

AUGUST HERMANN MAX GRUNE.

Witnesses:

LUITPOLD QUELL,

PHILIPP MÜLLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."