

A. H. M. GRUNE.
 BOOT TREEING APPARATUS.
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1,009,965.

Patented Nov. 28, 1911.

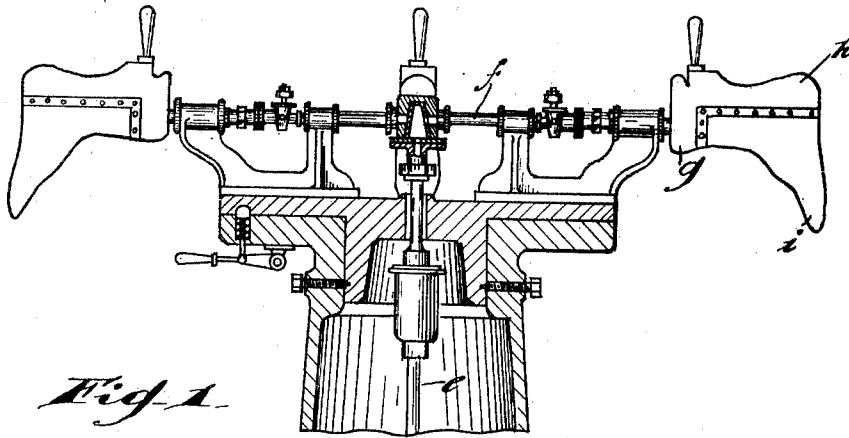


Fig. 1

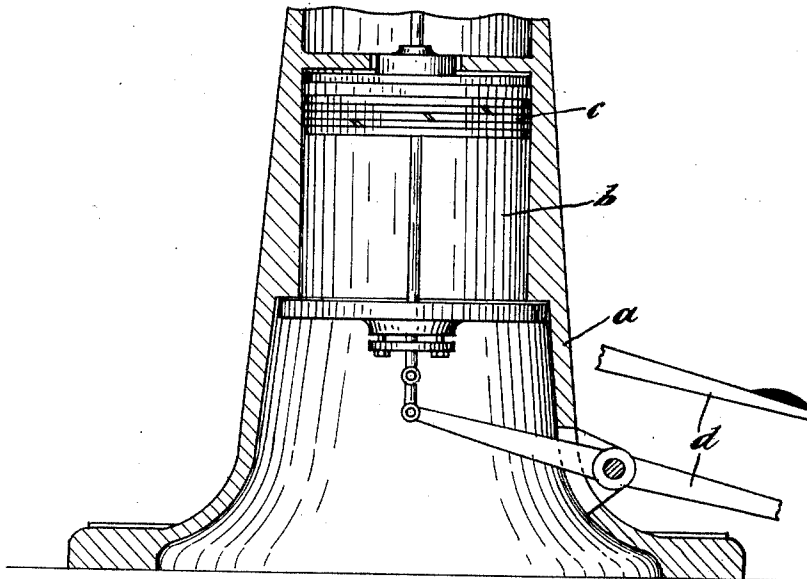


Fig. 2



Fig. 3

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BOOT-TREEING APPARATUS.

1,009,965.

Specification of Letters Patent. Patented Nov. 28, 1911.

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To all whom it may concern:

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

An ordinary wooden boot-tree is not adaptable to boots of different shapes, and its adjustability only enables it to be used for a small number of different sizes of boot of the particular shape for which it is made. This renders a large number of changes and adjustments necessary in the manufacture of boots, and frequently leads to boots being placed on ill-fitting boot trees.

The object of the present invention is to provide a boot treeing apparatus wherein these disadvantages are obviated by the provision of a pneumatic boot-tree.

The invention is illustrated in the annexed drawing in which—

Figure 1 is a sectional elevation of the apparatus, Fig. 2 a side-view of the boot tree, partly in section, and Fig. 3 a section on the line A—B of Fig. 2.

The frame *a* contains an air-pump *b*, the piston *c* of which is actuable by means of a foot-lever *d*. The delivery-conduit *e f* leads to a boot tree *g* comprising a rigid heel part *h* and an inflatable leathern foot-part *i*. Within the part *i* a sheath is formed for an india-rubber tube *k* lying along the front of the last. This sheath may be formed by a flap of the leather, sewn along its edges. Between the sheath and the rigid heel-part *h* there is another tube *l* of rubber or other suitable material. The tubes *k* and *l* can be placed in communication with the conduit *f* by means of a three-way cock *m*.

Instead of leather, any other flexible, non-elastic or only slightly elastic material may be used for the inflatable part of the boot tree, for example a composition of asbestos or the like. Instead of the tube *l* an internal spring or springs or equivalent support may be used.

The apparatus may be constructed with two or more boot trees, and in that case the boot tree holder may be made rotatable and each boot tree may be connected by a pipe *f* to a valve at the top of the pipe, so that inflation can only take place when the boot

tree is in a particular position, say over the foot-lever *d*.

It is not essential to have the air-pump in the frame of the apparatus. A separate source of compressed air may be used.

The manner of using the apparatus is as follows:—The attendant stands in front of the machine in proximity to the pedal *d* and rotates the head of the apparatus to bring one of the boot trees in front of him, the head being held in the proper position by the impositive action of a friction stop *n* engaging in one of a series of holes *o* suitably placed on the underside of the head. In this position communication is established between the air cylinder *b* and that boot tree which is in front of the attendant. The handle of cock *m* is placed in such position that communication is open between the pipe *f* and the tube *k*. Pressure on the foot lever *d* then forces air into the tube *k* until the latter is sufficiently inflated at the pleasure of the attendant who now slips a shoe onto the boot tree and then turns the cock *m* to close tube *k*, which thus remains inflated, and to open communication of *f* with *l*. By further downward pressure on foot lever *d*, *l* is inflated as desired, whereupon the head of the apparatus may be turned to bring another boot tree to position. By this movement the air is retained in *l* by the severing of communication between *f* and *e*. When this boot tree again in turn comes to position opposite the attendant, communication is reestablished between *e* and *f* and the compressed air in *l* can escape into *b* (the piston being then at its lowest point). If the attendant moves the cock *m* again to its first position *k* will be deflated, but it may be convenient to leave this tube inflated in which case it will not be necessary (except in case of leakage) to manipulate again the cock *m* when replacing the shoe by another.

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

1. A boot tree of the character described, comprising a rigid heel-portion and an inflatable foot-portion, means for conveying compressed air to said inflatable portion, said inflatable portion comprising two separately inflatable and deflatable tubes inclosed in a flexible casing, and a single valve controlling the passage through said con-

veying means to each of said tubes, substantially as described.

2. A boot tree of the character described, comprising a rigid heel-portion, a flexible casing secured to the heel-portion, two inflatable and deflatable tubes in the flexible casing, a single air supply pipe, branch pipes connecting said air supply pipes with the respective tubes, and a three-way valve at the juncture of said pipe and tubes, substantially as described.

3. A boot treeing apparatus, comprising a rotary tree holder, a circular series of boot trees on said rotary tree holder, each boot tree comprising a rigid heel portion, a flexible casing secured to the heel portion, inflatable and deflatable tubes in the flexible

casing, supply pipes connected to said tubes, three-way valves at the junctures of said pipes and tubes, an air pressure producing device, a conduit from said air pressure producing device to all of said supply pipes, and means permitting communication between said conduit and said supply pipe only when said supply pipes reach a predetermined position.

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

AUGUST HERMANN MAX GRUNE.

Witnesses:

FRIEDR. RODACH,
FRIEDRICH HENKEL.

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