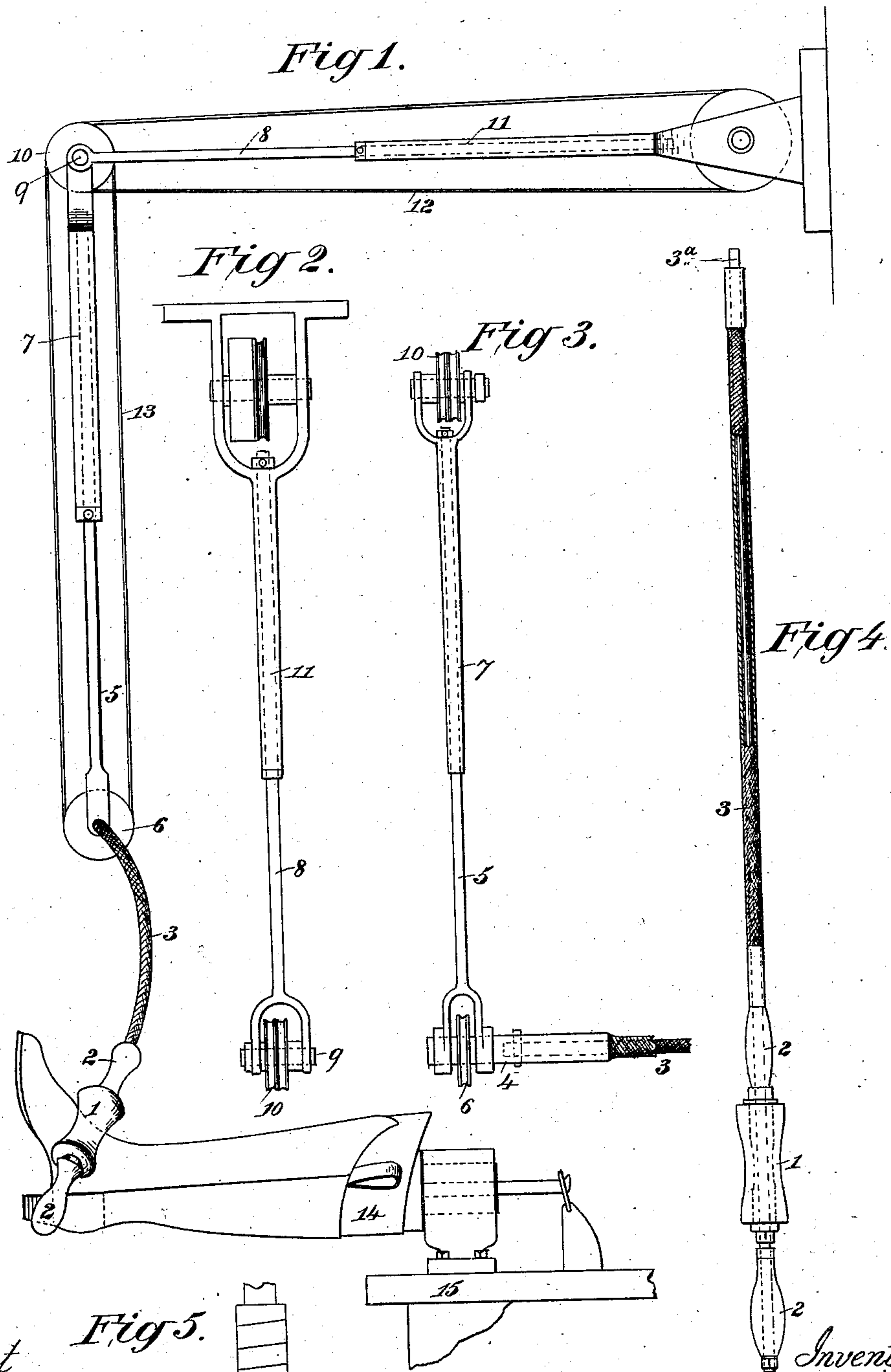


(No Model.)

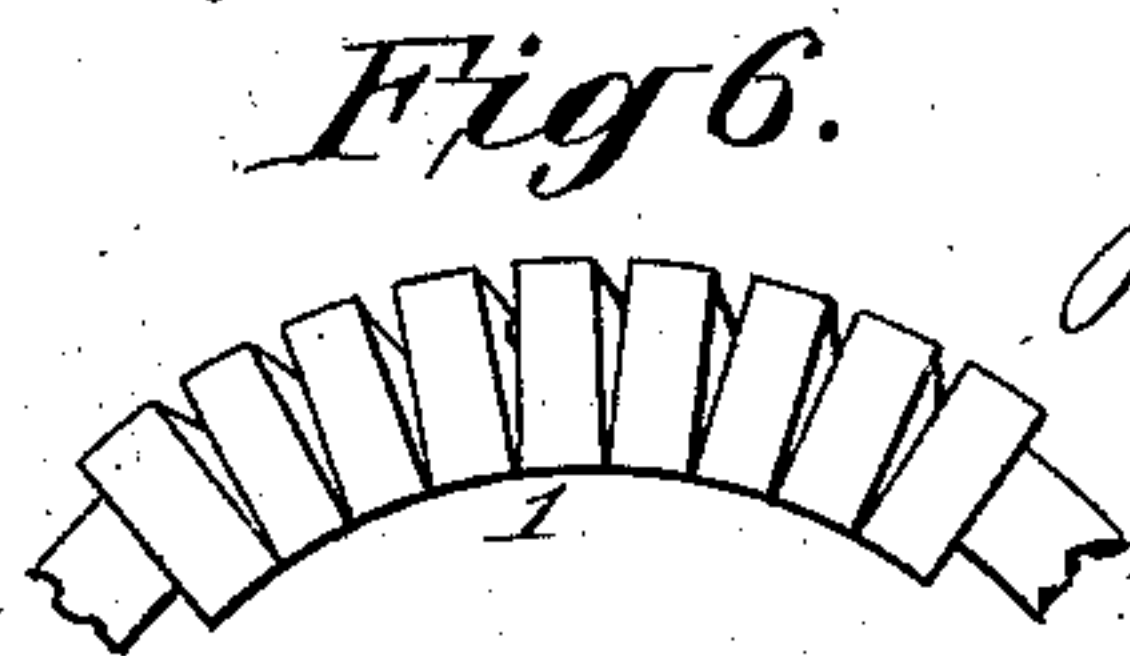
J. H. BURBANK.
APPARATUS FOR TREEING BOOTS.

No. 259,811.

Patented June 20, 1882.



Attest
Geo. T. Smallwood Jr.
L. Mc Hopkins.



Inventor:
Jotham H. Burbank
BY *Knight Bros.*
attys.

UNITED STATES PATENT OFFICE.

JOTHAM H. BURBANK, OF NORTH BROOKFIELD, MASSACHUSETTS.

APPARATUS FOR TREEING BOOTS.

SPECIFICATION forming part of Letters Patent No. 259,811, dated June 20, 1882.

Application filed October 29, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOTHAM HOWE BURBANK, a citizen of the United States, residing in North Brookfield, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Apparatus for Treeing Boots, of which the following is a specification.

My improvement relates to rub-sticks used in the process of "treeing" boots, and apparatus for actuating the same. Treeing boots in the ordinary manner by hand is an extremely laborious and tedious operation. The boot being placed on the "tree" and the "slush" applied, the workman grasps in both hands the rub-stick—a piece of wood about fifteen or sixteen inches long having a handle at each end—and gives the whole surface of the boot, except the sole, a hard or thorough rubbing to give the finish to the boot, necessitating a great expenditure of strength and time. I have invented a form of rub-stick which, though held in the hands of the workman, and thus capable of careful manipulation, is made to rub the boot by special machinery, thus relieving the workman of all work, except that of bearing down on and manipulating the rub-stick. For this purpose I use a revolving rub-stick held in the hands in the usual way, the handles being hollow to adapt them to form bearings for the central revolving part, and to afford means of connecting the revolving rub-stick with a flexible shaft for actuating the same, said flexible shaft receiving motion from another shaft or shafts, so arranged that the rub-stick can be freely moved in any direction desired, and held at any angle to operate on any portion of a boot. The boot-tree is adapted to be revolved at will, so as to present any portion of the boot desired to be operated on. In connection with the universally-flexible driving mechanism, I may use a flexible rub-stick of hard rubber or coiled wire, as hereinafter described.

In the accompanying drawings, Figure 1 is an elevation showing the rub-stick in position for operation on a boot, and horizontal and vertical shafts for communicating motion to the flexible shaft. Fig. 2 is a top view of said horizontal shaft. Fig. 3 is a front view of the vertical shaft, showing also the method of connecting the same to the flexible shaft. Fig. 4 is a detached view of the flexible shaft with

the rub-stick attached. Figs. 5 and 6 are views of my improved flexible rub-stick.

1 represents my improved rub-stick, which may be of wood, vulcanized rubber, metal, or other suitable material. It may be cylindrical in shape, or have the curved contour shown in Figs. 1 and 4.

2 2 are handles formed entirely separate from the rub-stick 1.

3 is a flexible metal shaft made in the usual manner and connected to the rub-stick 1 in either of two ways. The rub-stick may be provided with a spindle at each end, which have bearing one in each of the handles 2, and are held therein in any suitable manner. To one of these spindles is attached the end of the flexible shaft, and this spindle may for this purpose be extended beyond the handle; or the flexible shaft may extend completely through handles and rub-stick, being in this case fastened as shown in Fig. 4. The bearings in the handles are sufficiently large to allow of the free revolution of the shaft, and the rub-stick is clamped or otherwise securely fastened to the said shaft.

To allow of the more complete adaptation of the rub-stick as it revolves to the varying contour of the boot I prefer to make it flexible. This may either be done by making it of a cylinder of vulcanized rubber, or of flat rolled wire coiled in the form of a cylinder, as shown in Fig. 5. When thus made the rub-stick will, as illustrated in Fig. 6, always present a hard and even surface to the boot, no matter what its contour, and no matter how fast the rub-stick be revolved. The right is reserved to make such flexible rub-stick the subject of separate application for Letters Patent.

The flexible shaft 3 is provided at one end with a tongue, 3^a, which is keyed or otherwise secured within a socket in a spindle, 4, which has bearing in the lower end of vertical shaft or rod 5. The lower end of the said rod 5 is forked, as shown in Fig. 3, and between these forks a pulley, 6, is affixed to spindle 4. The rod 5 is hung so as to turn freely within a socket in a second rod, 7, which is forked at its upper end, and hung from a horizontal forked rod or arm, 8, a pin, 9, serving to pivot the two rods together. Upon this pin is also keyed a pulley, 10, having two grooves or faces. The rod or arm 8 is also freely pivoted in a socket in a

bracket, 11, which is firmly secured to the wall or other support. This bracket also supports a pulley having two faces, or a groove and face, one for receiving a cord or band from the counter-shaft, and one a cord or band, 12, for transmitting motion to the pulley 10, from which cord or belt 13 transmits motion to pulley 6, and so turns the shaft 3. This system of pivotal shafts will be readily seen to form a universal joint, enabling the power to be conveyed in any direction to the shaft 3, which by its own flexibility permits of the rub-stick being turned at any possible angle.

In Fig. 1 I have shown a boot applied to a tree, 14. The tree may be of common construction, and be supported on a bench, 15, in customary manner, and is so arranged that it may be turned to present any portion of the boot-upper to the action of the rub-stick at the will of the workman.

Operation. The boot being in position on the tree and the slush applied, the machinery is started. The handles 2 2 are grasped by the operator, and the rubber, having between one thousand and two thousand revolutions per minute, applied with the necessary pressure to the boot. The rub-stick is moved from place to place on the boot as one part or another is finished, and the tree rotated at will to bring an unfinished portion of the boot on top.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In an apparatus for treeing boots, the rub-stick having a central rotary portion or "rubber," and a handle at each end, whereon the

said rubber has bearing independently of other support, in combination with universally-flexible driving mechanism for rotating the said rubber, substantially as and for the purpose set forth.

2. A rub-stick for finishing the uppers of boots and shoes, having a central revolving portion or rubber, a handle at each end, whereon the said rubber has bearing, and a rotary flexible driving shaft passing through one of the said handles and rigidly attached to the said rubber, substantially as and for the purpose set forth.

3. In combination with a rub-stick longitudinally flexible between its handles, a universally-flexible driving mechanism for rotating the said rub-stick, substantially as and for the purpose set forth.

4. In combination with a rotary rub-stick and its flexible driving-shaft, the universal-jointed mechanism for transmitting motion from the counter-shaft, substantially as shown and described.

5. The mechanism for transmitting power from the counter-shaft to the tool being operated, consisting of a fixed bracket, 11, horizontal rod 8, swiveled therein, socket 7, hinged to rod 8, rod 5, swiveled in socket 7, spindle 4, flexible shaft 3, and suitable belts and pulleys, all arranged substantially as and for the purpose set forth.

JOTHAM HOWE BURBANK.

Witnesses:

LEONARD WARREN,
NATHAN WARREN.