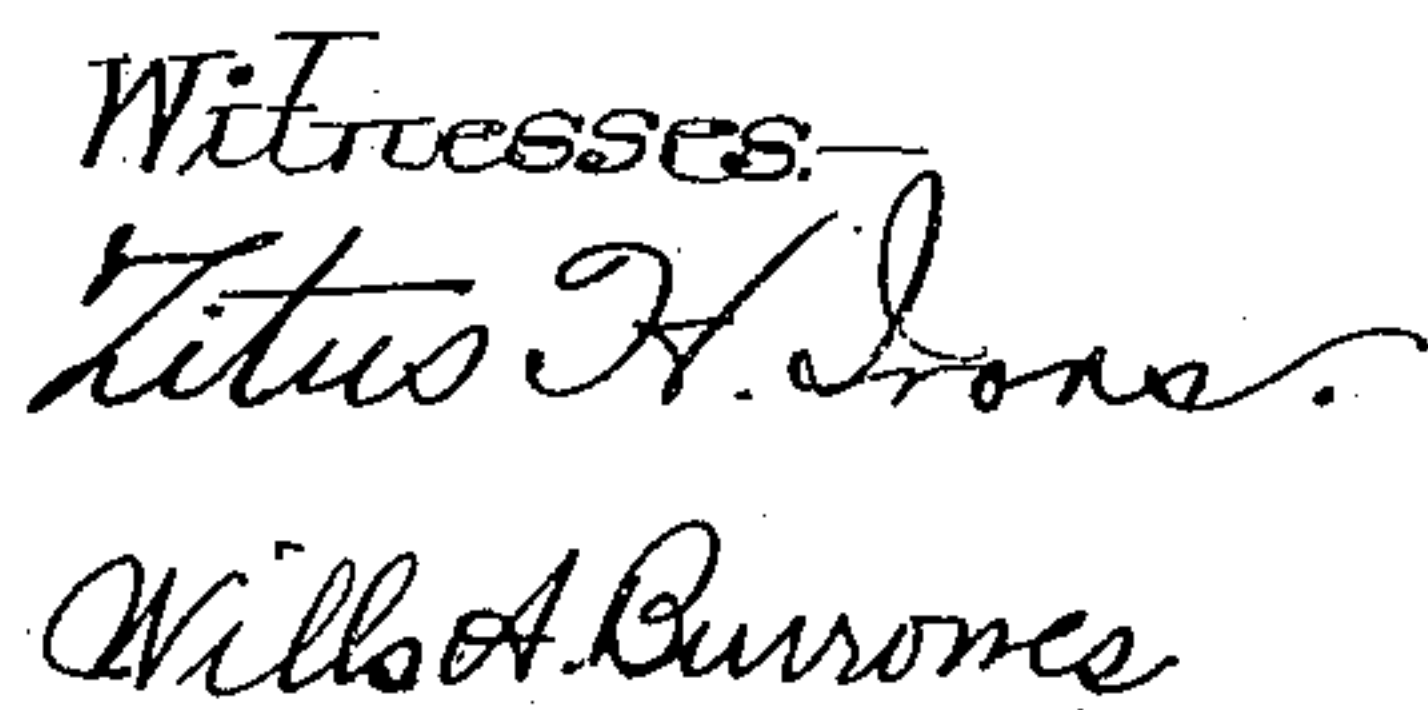


982,140.

Patented Jan. 17, 1911.



Inverton  
William B. Keightley  
by his Attorneys:  
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## UNITED STATES PATENT OFFICE

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## LASTING APPARATUS.

982,140.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed December 2, 1909. Serial No. 530,929.

*To all whom it may concern:*

Be it known that I, WILLIAM B. KEIGHLEY, a citizen of the United States, residing in Vineland, New Jersey, have invented certain Improvements in Lasting Apparatus, of which the following is a specification.

One object of my invention is to provide a combination of parts whereby a workman is enabled to rapidly draw the upper of a shoe into position and firmly attach it to an insole by means of a suitable adhesive in place of the tacks or other devices previously employed.

I further desire to provide a relatively simple and conveniently operated apparatus for applying suitable quantities of an adhesive to the insole of a shoe so as to provide means whereby the properly stretched upper may be held to said insole prior to the operation whereby it is stitched thereto.

It is also desired to provide an apparatus whereby an adhesive may be deposited at the desired point on a shoe during the process of its manufacture, for holding together certain of its parts, and so avoiding the necessity of tacking said parts with the consequent loss of time, danger of breakage of needles, knives, and machine parts, in subsequent operations, and the possibility of leaving in the finished shoe a tack or portion thereof.

Another object of the invention is to provide an apparatus for simplifying the methods of lasting.

A further object of my invention is to provide a combined upper-stretching and adhesive-applying device, whereby, when the upper has been brought to proper form and tension, a suitable quantity of adhesive may be delivered at the particular spot desired, and the upper thereafter caused to be firmly attached to the insole; it being also desired to provide novel means for heating and supplying suitable amounts of adhesive to said device.

These objects and other advantageous ends I secure as hereinafter reference being had to

2 and 3, are vertical sections of the controlling mechanism for the apparatus of Fig. 1 showing the valve thereof in its two positions.

In the above drawings, 1 represents a pair of laster's pliers having handles 2 and 2<sup>a</sup>, jaws 3 and 3<sup>a</sup>, and a hammer head or fulcrum piece 4. A valve casing 5 is rigidly attached to this instrument by means of screws or bolts 6, and the whole device movably supported by or hung from a reservoir 7 by means of a link 8. Said reservoir is preferably suspended from an overhead supporting structure 9 by a spring 10 so that it may be moved freely, and it is provided with an airtight cover 11 so that there is no danger of leakage from its interior. A pipe 12 connected to a source of heated air under a suitable pressure, such as 10 pounds to the square inch, is also connected to the interior of the reservoir 7, and if found necessary, as in cold weather, said reservoir may be further heated by gas delivered from a pipe 13. A pipe 14 is connected to the upper portion of the reservoir 7 so as to deliver heated air under pressure to the valve casing 5 to which it is also connected, and in order that such casing with the pliers 1 may be free to move, this pipe is provided with a universal coupling 15. A second pipe 16 leads from the bottom of the reservoir 7 to the casing 5 and it also is provided with a universal coupling 17; there being suitable valves 18 and 19, with the necessary fittings, clean out plugs, etc., included in the pipes 14 and 16 whereby the quantities of material passing through them may be properly adjusted.

As shown in Figs. 2 and 3, the valve casing 5 has a cylindrical bore in which is mounted a plunger or other suitable valve 20, the stem 20<sup>a</sup> of which projects substantially parallel with the general handles 2 and 2<sup>a</sup> and a thumb piece 21. The



the valve casing is closed by a screw 24 and has a passage to which 16 is connected. It is also intersected by a second passage 25, into the upper portion of which the pipe 14 enters, while its forward end is connected to a nozzle or outlet 26, so placed as to be capable of discharging material adjacent to the jaws of the pliers. The valve 20 when in its extreme rearward position, shown in Figs. 1 and 2, has its forward end terminating at the rear side of the passage 25 and also has a passage or port 27, which under such normal conditions, is in line with the passage 25<sup>a</sup> to which is connected the pipe 16. The proportions of the valve 20 are such that when it is moved forwardly to the maximum extent, its port 27 is brought into line with the passage 25, and in order that the valve 20 normally occupy its rear position, I provide an auxiliary passage 28 leading from the upper portion of the passage 25 to the space 29 of the cylindrical bore immediately to the rear of the screw 24; so that although it is possible to push forwardly the valve stem 20<sup>a</sup> against the air pressure existing in the forward end of said bore, the removal of the force acting to hold it forward permits it to be immediately returned to its normal condition by the action of the air delivered through this auxiliary passage 28 and acting upon its forward end.

Under operating conditions, the reservoir is partially filled with pitch, though other suitable adhesives may be employed; so that they fulfil the condition of quickly hardening after application to a shoe and are capable of properly holding the parts together or in the positions in which they are placed. Heated air under pressure is then admitted to the upper part of the reservoir through the pipe 12 and if desired further heat may be provided by a gas flame supplied from the pipe 13. Owing to the heat, the pitch is maintained in a liquid condition, and under the action of the air pressure is forced through the pipe 16 into the cavity 27 of the valve 20. The shoe to be lasted being properly supported, the operator, by means of the pliers 1, grasps a portion of the upper and draws or stretches it toward and over the edge of the insole in the well known manner;—the scale being in such position that heated air is discharged from the nozzle 26 upon the surface of the insole adjacent to the pitch which is to be applied.

these pipes, forces the pitch out of the valve 65 into and out of the nozzle 26. It will be noted from the drawings, that this nozzle pipe 26 is so placed as to discharge said pitch immediately to the rear of the jaws 3 and 3<sup>a</sup> so that under operating conditions, 70 it is delivered upon the insole of the shoe at the desired point. Immediately thereafter the operator presses the particular spot of the upper which is held under tension down upon the globule or body of pitch 75 thereon, whereby said part is firmly and immovably held in place. In the meantime the removal of the pressure upon the thumb piece 21 of the valve stem 20<sup>a</sup> permits the valve to be returned to its normal position 80 against the stop 22, under the action of the air pressure acting upon its forward end through the auxiliary air passage 28, and immediately upon its reaching such position, its cavity is again filled with melted 85 pitch from the pipe 16. The flow of air through the pipe 14 may be regulated by adjusting the valve 19 and similarly the flow of melted pitch through the pipe 16 may be regulated by the valve 18. If found 90 necessary, the main cylindrical cavity of the valve casing 5 may be opened for cleaning by the removal of the screw 24; there being also clean out plugs in the pipe 16. After one of the parts of the upper has been fastened to the insole as above described, another part immediately adjacent thereto is similarly treated, and so on around the edge of the insole until the lasting operation is completed. 100

Under working conditions, I have found that the use of pitch as above described, satisfactorily holds the upper to the insole, prior to and during the welting or equivalent operation whereby the two parts are 105 permanently sewed together; it being noted that such means of connecting said parts is greatly superior to the tacking ordinarily employed, especially since there is no danger of breakage of the needles nor necessity for anything similar to the well known tack removing operation. Moreover, there is no possibility of injury to the foot of a wearer of the shoe, as has been frequently found to occur when broken tacks were accidentally 115 permitted to remain in the finished shoe.

I claim:—

1. The combination of a portable lasting tool; a relatively stationary reservoir for an adhesive; with an adhesive delivering 120 device mounted on the tool so as to be capable of discharging immediately adjacent the shoe to be lasted; and means for



to discharge immediately adjacent the jaws of said tool; with an adhesive container connected to the valve; and an operating stem for the valve having a head extending between the handles.

3. The combination of a lasting tool; an adhesive delivering device connected thereto and placed to discharge immediately adjacent the jaws of said tool; a reservoir connected to said device; and means for forcing adhesive out of the delivering device; with a controlling valve for said device having a stem adjacent the handles of the tool in position to be operated by the hand which grasps said handles.

4. The combination of a lasting tool; a valve casing mounted thereon; an outlet nozzle for said casing; a valve in the casing; and a reservoir for adhesive also connected to the casing.

5. The combination of a lasting tool; a valve casing mounted thereon; an outlet nozzle for said casing placed to discharge adjacent the tool; a valve in the casing; with a reservoir for adhesive and an air supply pipe both connected to the casing.

6. The combination of a lasting tool; a valve casing mounted thereon; a hand operated valve for said casing; a reservoir for adhesive; a pipe connecting the reservoir with the casing; and an outlet nozzle for the casing.

7. The combination of a lasting tool; a reservoir for adhesive connected to a source of air supply; with a device for delivering adhesive under pressure at a point immediately adjacent the jaws of the tool; the same being mounted upon the lasting tool and connected to be supplied from the reservoir.

8. The combination of a lasting tool; a reservoir for adhesive movably connected thereto; a delivery nozzle and controlling valve mounted on the tool; and means for movably connecting said valve with the reservoir.

9. The combination of a pair of pliers; a valve casing mounted thereon; a valve in said casing; a nozzle connected to the casing and placed to deliver material to the rear of the jaws of the pliers; with a source of supply of adhesive connected to the casing.

10. The combination of a pair of lasting pliers; a valve casing mounted thereon; a valve having an operating stem extending adjacent to the handles of the pliers and also provided with a nozzle placed to discharge adjacent to the jaws of the pliers; with means for delivering an adhesive to the valve casing.

11. The combination of a lasting tool; a reservoir for adhesive; two pipes respectively leading from the top and bottom of

said reservoir; a valve casing mounted on the lasting tool and entered by said pipes; a delivery pipe for the casing; and a valve for controlling the supply of material from one of said pipes to the delivery nozzle.

12. The combination of a lasting tool with a valve casing mounted thereon and provided with a valve chamber; a delivery nozzle connected to said chamber; supply pipes for air and adhesive also communicating with the chamber; a valve having a cavity normally in communication with the adhesive supply pipe but capable of being moved into position to discharge into the delivery pipe; and a reservoir for supplying adhesive to one of the pipes.

13. The combination of a lasting tool having a casing provided with a valve chamber; a delivery pipe; air and adhesive supply pipes connected to said chamber; there being an auxiliary passage leading from the air supply pipe to the chamber; a longitudinally movable valve having a cavity normally in communication with the adhesive supply pipe and movable against air pressure to bring it into communication with the delivery pipe; with means for supplying said pipes with air under pressure and with an adhesive respectively.

14. The combination of a pair of lasting pliers with a valve casing mounted thereon and provided with a valve chamber; pipes connected to said casing for respectively supplying air and an adhesive thereto; a delivery nozzle; a valve in the casing capable of receiving a predetermined amount of adhesive from the adhesive pipe and movable to deliver its charge of adhesive to the delivery pipe; a device for normally maintaining the valve in a predetermined position; and means for limiting the movement of the valve.

15. The combination of a pair of lasting pliers; a reservoir for adhesive movably connected to said pliers; a valve casing having a valve; a discharge nozzle connected to the casing and placed to deliver adhesive adjacent to the jaws of the pliers; with a conduit flexibly connecting the valve casing with the reservoir.

16. The combination of a lasting tool; a casing mounted thereon and having a valve chamber; air supply and delivery pipes entering said casing in line with each other; an adhesive supply pipe also entering the casing; a valve within the valve chamber provided with a cavity normally in communication with the adhesive supply pipe; said valve being movable to bring its cavity into line with the air pipes; and a source of supply of adhesive connected to the adhesive supply pipe.

17. The combination of a lasting tool; a reservoir for adhesive movably connected

thereto; means for flexibly supporting said reservoir; with a device connected to be supplied from the reservoir, and mounted upon the tool, for delivering a predetermined amount of adhesive adjacent the jaws of said tool.

18. The combination of a lasting tool; a nozzle mounted thereon; sources of supply for heated air and an adhesive connected to said nozzle; with means for controlling the delivery of air or adhesive from the nozzle.

19. The combination of a lasting tool; a

nozzle mounted thereon; a source of heated air under pressure normally connected to said nozzle; a source of supply of an adhesive; and means for delivering a predetermined charge of adhesive to the nozzle.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

WILLIAM B. KEIGHLEY.

Witnesses:

LEE TAPPEY,  
GRACE C. GOTT.