Jan. 29, 1924. 1,482,337

H. L. YEATON

SHOE SHAPING MACHINE

Filed July 5, 1919

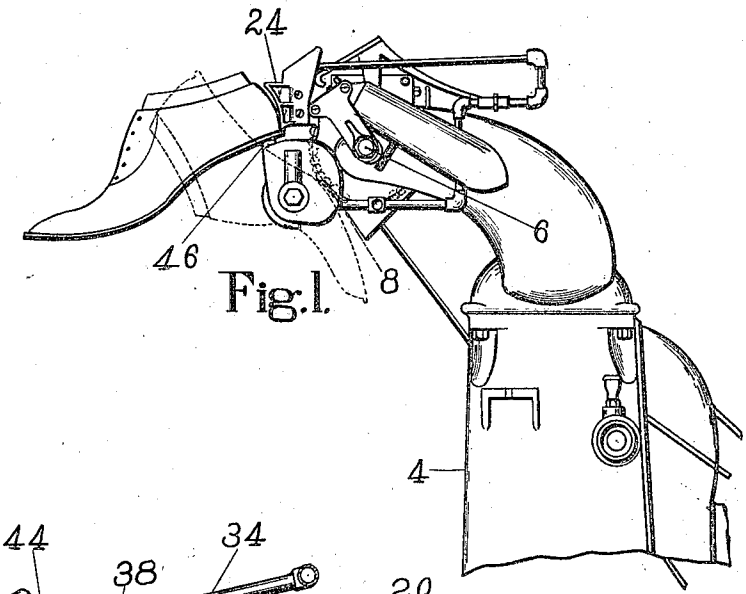


Fig. 1.

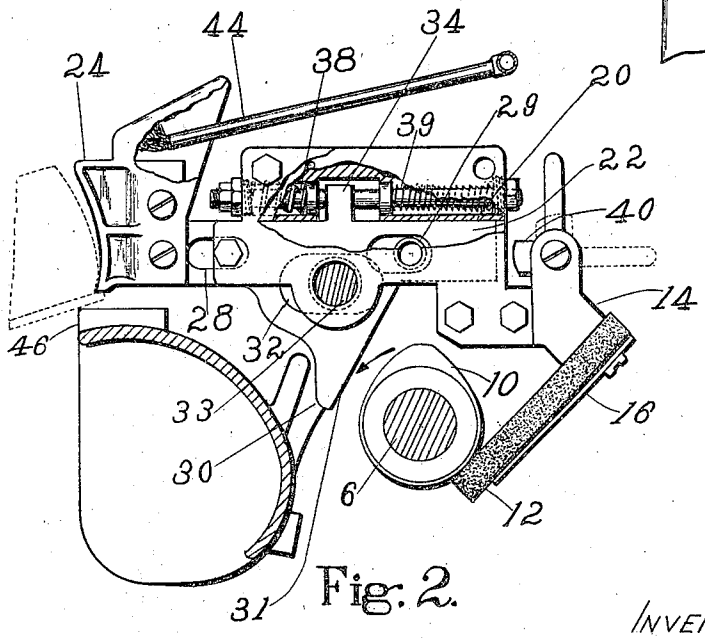


Fig. 2.

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UNITED STATES PATENT OFFICE.

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SHOE-SHAPING MACHINE.

Application filed July 5, 1919. Serial No. 308,703.

To all whom it may concern:

Be it known that I, HARRY L. YEATON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Shoe-Shaping Machines, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to the manufacture of shoes, and has particular reference to the shaping of turn shoes after the lasting, sewing, shoe turning and relasting operations have been performed. These operations leave the upper and the sole of a shoe in a more or less distorted and rough condition, and considerable smoothing and beating out are required in order to conform the shoe accurately to the shape of the last and to impart to the upper and the sole a smooth and finished appearance. A machine for the above purpose is shown in United States Letters Patent No. 1,175,215, granted March 14, 1916, on an application of O. Ashton, and comprises a rotary beater for leveling the sole of the shoe and an oscillating or pivoted beater for beating the upper adjacent the sole. In the use of that construction, however, it is necessary to hold the shoe bottom upward while beating the upper with the result that the operative can examine the progress of his work only after removing the shoe and turning it over. Moreover, the shoe engaging face of the pivoted beater is necessarily arranged at a considerably different elevation from that of the rotary beater, since the former is driven by a cam mounted on the same shaft as the latter. Hence, if the rotary beater is located at the most convenient and efficient height for the operative, that is about waist high, the pivoted beater will be altogether too high for comfortable and the most effective operation.

Accordingly, an object of the present invention is to so arrange the upper beater that the shoe can be conveniently held right side up, that is with its bottom down, while operated upon thereby. With this object in view the upper beating tool is, in the preferred form of the invention exemplified in the drawings, mounted for reciprocation in a horizontal path. Since there is no downward component to the movement of this beater, there is no necessity for holding the shoe bottom upward. Accordingly the shoe engaging surface of the beater is made of such a form as to properly shape the upper of a shoe held bottom down, the operative being thus enabled to observe the effect of the tool on the shoe while he is actually carrying out the shaping operation, instead of having to remove the shoe from the beater and turn it over to judge of the progress of the shaping.

Another object of the invention is to locate the rotary beater, which operates on the sole, and the reciprocating beater for the upper as nearly as possible at the same level. It has been found that with machines of this general type the operative can work most efficiently with the tool about waist high. With the construction of this invention the difference in elevation of the two tools is very substantially reduced, as compared with prior machines, with the result that the operative, while always holding the shoe at the most convenient and unfatiguing height, can rapidly move it from one tool to the other as the exigencies of the work require, and this with a minimum of effort and a correspondingly high efficiency.

These and other features of the invention, including certain details of construction and combinations of parts, will now be described more fully with reference to the accompanying drawings, and pointed out in the claims. In the drawings,

Fig. 1 is a side elevation of the machine;

Fig. 2 is a similar view partly in cross-section and on a larger scale.

As disclosed in the accompanying specification and drawings, the invention is illustrated as embodied in a machine of the general type shown in United States Letters Patent No. 1,076,940, granted October 28, 1913, on an application of O. Ashton.

The machine is provided with a main frame 4 having a drive shaft 6 on which are mounted side by side a rotary beater 8 for beating and leveling the sole of a shoe and a cam 10. For lubricating the cam 10 there is provided a pad 12 supported from the main frame at 14 and pressed against the cam by any suitable means such as a leaf spring 16. Above cam 10 is located a guideway 20 to receive the stem 22 of a horizontally reciprocable beating tool provided with

a head 24 for operating upon the upper of a shoe. The stem of the beater is provided with a pair of slots 28 supported by rollers 29 suitably mounted in the guideway. Formed integral with the stem 22 of the beater is a depending arm 30 provided with an inclined face 31 for operative engagement with the cam 10. Arm 30 is provided with a slot 32 engaged with a roller 33 mounted in the guideway and co-operating with slots 28 and rollers 29 to provide a roller bearing for the stem in its path of movement. Stem 22 is provided, between its ends, with an upstanding lug 34 which is engaged between the end portions of a pair of spring pressed plungers 38, 39, the compression of the springs being such that the beater is normally held with surface 31 out of the path of movement of cam 10. The spring of plunger 38 also yieldingly limits the forward movement of the beater head 24 and somewhat cushions its blow. An adjustable stop 40 is pivoted to the main frame and may be used, if desired, to limit the effective stroke of the beater. Beneath the head of the beater is placed a stationary support 46 to assist the operative in holding the shoe in position while being shaped.

The beater may be heated in accordance with the usual practice by any suitable means, such, for instance, as a gas torch 44.

In the operation of the machine the shoe may be easily moved by the operative from the upper beating position shown in full lines in Fig. 1 to the sole leveling position shown in dotted lines in the same figure and vice versa as the work progresses. It will be noticed that as each operation is being performed the shoe is held at substantially the same height, preferably waist high of the operative.

Spring pressed plunger 39 normally holds the beater 24 in inoperative position. When, however, the shoe is pressed by the operative against the beater, the latter is moved rearwardly until its surface 31 comes into the path of movement of the cam 10 which thereupon imparts a rapid series of blows to the beater. Upon the withdrawal of the shoe the beater again comes to rest.

In the drawings the head 24 of the beater is shown as of a form to effectively operate upon the portions of the upper of a shoe adjacent to the toe or the heel. It is obvious, however, that by providing the beater with a head of a different shape it could be adapted to operate upon other portions of the upper of a shoe, such, for example, as the shank.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A machine of the class described having a main frame, a rotary beater, and a reciprocating beater confined to movement in a horizontal plane, said beaters being mounted side by side on said frame.

2. A machine of the class described having, in combination, a rotary beater, and a reciprocating beater confined for rectilinear movement in a horizontal plane, said beaters being mounted side by side and at substantially the same elevation.

3. A machine of the class described having, in combination, a main drive shaft, a rotary beater and a cam mounted side by side thereon, and a shoe beating tool mounted for rectilinear movement in a horizontal direction in close proximity to the drive shaft for reciprocation by said cam, the rotary beater and the rectilinearly movable beating tool being constructed and arranged so that the operative may shift the shoe from one to the other without substantially changing its elevation.

4. A machine of the class described having, in combination, a main drive shaft, a rotary beater and a cam mounted side by side thereon, and a shoe beating tool confined for movement in a horizontal plane and mounted in close proximity to the drive shaft for reciprocation by said cam, the rotary beater and the horizontally movable beating tool being constructed and arranged so that the operative may shift the shoe from one to the other without substantially changing its elevation.

5. A machine of the class described having, in combination, a main drive shaft, a rotary beater and a cam mounted thereon, and a reciprocating shoe beating tool mounted for right line movement only in close proximity to the drive shaft for reciprocation by said cam, the rotary beater and the reciprocating tool being constructed and arranged so that the operative may present the shoe bottom downward to the reciprocating tool and may shift it to the rotary beater without substantially changing its elevation.

6. A machine of the class described having, in combination, a main drive shaft, a rotary beater and a cam mounted thereon, and a reciprocating shoe beating tool mounted in close proximity to the drive shaft for reciprocation by said cam only in a right line direction normal to the side of a shoe held by the operative, the rotary beater and the reciprocating tool being constructed and arranged so that the operative may present the shoe bottom downward to the reciprocating tool and may shift it to the rotary beater without substantially changing its elevation.

7. A machine of the class described having, in combination, a movable beating tool confined for right line movement only and formed and arranged so that a shoe may be presented thereto bottom downward, and a main drive shaft in close proximity to the beating tool and having mounted side by

side thereon a rotary beater and a cam for engaging and reciprocating said rectilinearly movable beating tool.

8. A machine of the class described having, in combination, a beating tool confined for movement in a horizontal plane, said tool being formed and arranged so that a shoe may be presented thereto bottom downward, and a main drive shaft in close proximity to the beating tool and having mounted side by side thereon a rotary beater and a cam for engaging and reciprocating said rectilinearly movable beating tool, said beating tool being disposed normally out of the path of movement of said cam and being movable into operative relation to the cam through pressure of the shoe against the beating tool.

9. A machine of the class described having, in combination, a beating tool confined for movement in a right line formed and arranged so that a shoe may be presented thereto bottom downward, means to support the shoe while being operated on by the beating tool, and a main drive shaft in close proximity to the beating tool and having mounted side by side thereon a rotary beater and a cam for engaging and reciprocating said movable beating tool in a right line.

10. A machine of the class described having, in combination, a beating tool confined for movement in a right line formed and arranged so that the heel end of a shoe may be presented thereto bottom downward, means to support the shoe while being operated on by the beating tool, and a main drive shaft in close proximity to the beating tool and having mounted side by side thereon a rotary beater for beating the shoe bottom and a cam for engaging and reciprocating said rectilinearly movable beating tool, said beating tool being disposed normally out of the path of movement of said cam and being movable into operative relation to the cam through pressure of the shoe against the beating tool.

11. A machine of the class described having, in combination, a movable beating tool, confined to movement in a horizontal plane, and a main drive shaft in close proximity to the beating tool and having mounted side by side thereon a rotary beater and a cam for engaging said horizontally movable beating tool and imparting shoe beating movement thereto, said beating tool being disposed normally out of the path of movement of said cam and being movable into operative relation to the cam through pressure of the shoe against the beating tool.

12. A machine of the class described having, in combination, a main drive shaft, a rotary beater and a cam mounted side by side thereon, a movable shoe beating tool confined to movement in a horizontal plane and mounted in close proximity to the drive shaft for reciprocation by said cam, said horizontally movable beating tool being disposed normally out of the path of movement of said cam and being movable into operative relation to the cam through pressure of the shoe against the beating tool, and means for adjustably limiting the movement of said beating tool toward the cam.

13. A shoe shaping machine having, in combination, a beating tool mounted for rectilinear reciprocation and having a rearwardly extending stem, a lug formed on said stem, a pair of yieldingly held plungers between the ends of which the lug is positioned to normally hold the beater in inoperative position, and a continuously rotating cam for reciprocating said beating tool, said beating tool being constructed and arranged to be moved into the path of movement of the cam through pressure of a shoe against the beating tool.

14. A shoe shaping machine having, in combination, a beating tool mounted for rectilinear reciprocation and having a rearwardly extending stem, a lug formed on said stem, a pair of yieldingly held plungers between the ends of which the lug is positioned to normally hold the beater in inoperative position, a continuously rotating cam for reciprocating said beating tool, said beating tool being constructed and arranged to be moved into the path of the cam through pressure of a shoe against the beating tool, and means for adjustably limiting the movement of said beating tool against the cam.

15. A shoe shaping machine having, in combination, a guideway, a beating tool having a stem slidably mounted therein, a yieldingly held plunger engaging a lug on the stem of the beating tool to limit the forward movement thereof, a continuously rotating cam into the path of movement of which the stem of the beating tool may be moved by pressure of a shoe against the beating tool to reciprocate the tool, and yielding means to normally hold the tool out of the path of movement of the cam.

16. A shoe shaping machine having, in combination, a guideway, a beating tool having a stem slidably mounted therein, a yieldingly held plunger engaging a lug on the stem of the beating tool to limit the forward movement thereof, a continuously rotating cam into the path of movement of which the stem of the beating tool may be moved by pressure of a shoe against the beating tool to reciprocate the tool and a second yieldingly held plunger engaging the said lug to normally hold the tool out of the path of movement of the cam.

In testimony whereof I have signed my name to this specification.

HARRY L. YEATON.