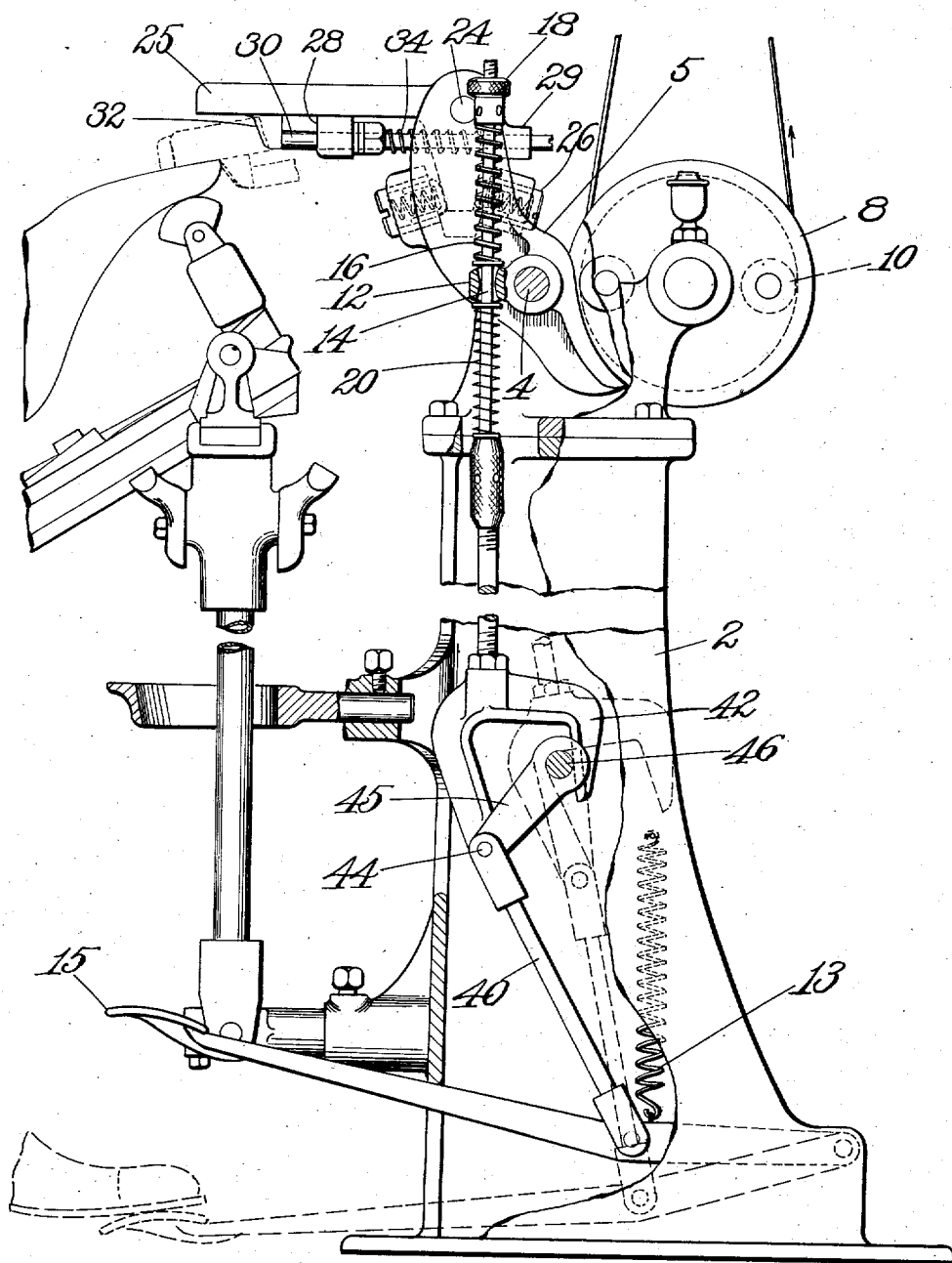


O. ASHTON.
SHOE SHAPING MACHINE.
APPLICATION FILED APR. 21, 1909.

1,017,726.

Patented Feb. 20, 1912.



WITNESSES.

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SHOE-SHAPING MACHINE.

1,017,726.

Specification of Letters Patent.

Patented Feb. 20, 1912.

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To all whom it may concern:

Be it known that I, ORRELL ASHTON, a citizen of the United States, residing at Lawrence, in the county of Essex 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 machines for use in the manufacture of boots and shoes and particularly to shoe beating machines.

An object of the invention is to provide a machine of simple construction comprising one or more tools adapted to be rapidly vibrated or reciprocated for beating the bottom and preferably also the side of a shoe, which may have been previously lasted, to shape the shoe on its side and bottom faces adjacent to its edge, together with an inexpensive means for actuating the tools.

A novel characteristic of this machine is found in the provision of power driven means for lifting or retracting the beating means and thereby putting under tension or increasing the tension of a yielding element through which the beating means is reversely actuated for doing its work.

A further characteristic of the invention is found in novel means for avoiding the transmission of vibration from the beating tools and their actuating mechanism to the treadle by which the movement of said tools is controlled.

These and other features of the invention, including combinations of parts and certain more important details of construction, will appear in connection with the following description of a preferred embodiment of the machine and will then be definitely pointed out in the claims at the end of the description.

The figure is a side elevation of the machine in which portions are broken away for disclosing details of construction.

The frame 2 of the machine has a pivot shaft 4 on which is mounted a lever 5, the lower arm or tail of which is formed eccentric to a rotary driver 8, shown as provided with two oppositely disposed rollers 10 adapted as the driver turns to contact with the tail of the lever near the fulcrum shaft 4

and as they sweep down along the eccentric face of the lever to rock the upper arm of the lever upwardly and backwardly. The lever 5 also has a laterally projecting arm 12 through an enlarged bearing in which extends a rod 14 connected to a treadle 15 normally held up by a spring 13. Above the arm 12 the rod 14 is encircled by a stiff spring 16 which, by depressing the treadle, may be compressed between the arm 12 and an adjustable collar 18 on the upper end of the rod. The spring 16 when compressed by the treadle holds the tail of the lever 5 against the rotary driver. When the spring is not so compressed the lever is held with its tail away from the driver by a light spring 20 so that the lever remains at rest at all times except when the treadle is held down while the driver runs continuously.

The lever 5 pivotally supports at 24 an angle lever 25, the depending arm of which is yieldingly held between spring-pressed plungers 26 in the lever 5. The lower face of the front portion of the horizontal arm of lever 25 is suitably shaped to pound the bottom of a shoe and this lever constitutes the bottom beating tool of the machine. The lever is provided with bearings 28, 29 for a sliding rod 30 having on its front end a tool 32 shaped and arranged to beat the side of the shoe for blocking or shaping the shoe in cooperation with the bottom beating tool. The blocking tool and its supporting rod 30 slide lengthwise by reason of their inertia when the lever 25 is vibrated to beat the bottom of the shoe. In this sliding movement the blocking tool retreats as the pounding tool rises and then suddenly changes its direction as the driver slides off the tail of lever 5. The blocking tool then advances as the pounding tool comes down and as the movement of the latter is abruptly checked by engagement with the work. A spring 34 is held under tension about the rod 30 to increase the striking force of the blocking tool. It will now be understood that the beating tools and their carriers remain at rest until the treadle is depressed, whereupon the tail of lever 5 is moved into the path of the rotary driver and is depressed for raising the beating tools each time a roller 10 comes in contact with the lever. The raising of the tools is gradually effected by reason of the en-

gagement of the roller 10 with the tail near the fulcrum of the lever. As a roller 10 passes the tail of the lever the spring 16, which has been put under compression by the action of the driver, is permitted to expand and actuates the beating tools downwardly to do their work. The force with which the beating tools will thus be actuated depends upon the extent to which the treadle is depressed and the spring 16 thereby compressed so that the operator can, by depressing the treadle more or less, control the action of the beating tools upon the work. The shoe is supported on the jack, which may be of known construction, and is arranged to permit the shoe to be turned for presenting different portions thereof to the action of the beating tools.

The treadle is connected to the rod 14 by a link 40 and a U-shaped casting 42. The treadle link is pivoted to the casting at 44 and to the same pivot pin 44 is connected a swinging arm 45 connected to the machine frame by a pivot rod 46 against which the rear arm of the U-shaped casting also has bearing. The arrangement is such that the arm 45 holds the casting 42 against the rod 46 when the treadle is released. When the treadle is fully depressed the parts are swung into the dotted line position wherein the arm 45 and the rod 40 occupy substantially the relation of toggle members which are straightened or on dead center and the casting 42 rests upon the rod 46. This rod 46 thus steadies the treadle and the parts connected with it and largely relieves them of the vibration which could otherwise be set up in them by the vibratory movement of the lever 5 and the tools.

Having explained the nature of this invention and described a preferred construction embodying the same, I claim as new and desire to secure by Letters Patent of the United States:

1. A shoe beating machine having, in combination, a driver; a beating tool; means for operatively connecting the tool and driver to lift the tool to a uniform height for each stroke; and means for reversely moving the tool; said machine having provision for varying, at the will of the operator and while the machine is running, the force with which the beating tool is impelled downwardly upon the work.

2. A shoe beating machine having, in combination, a beating tool; a driver; a lever connected with the tool to lift it and arranged to be held in the path of the driver by a manually operated device; and a spring through which said device acts and which impels the tool downwardly and is controlled as to tension by the manually operated device.

3. A shoe beating machine having, in combination, a beating tool, a driver to lift

the tool, a spring to impart the beating blow to the tool, and a treadle connected with the spring to control the force of the blow.

4. A shoe beating machine having in combination, a beating tool, a driver to lift the tool, a spring to impart the beating blow to the tool, a treadle connected with the spring to control the force of the blow, and a vibration absorbing abutment between the treadle and the spring to steady the treadle.

5. A shoe beating machine having, in combination, a bell crank lever, one arm of which constitutes the shoe bottom beating member, a side beater slidingly mounted on the lower side of said lever arm, and a driver operatively connected with the other arm of the lever.

6. A shoe beating machine having, in combination, a bell crank lever, one arm of which constitutes the shoe bottom beating member, a side beater slidingly mounted on the lower side of said lever arm, a driver adapted for connection with the other arm of the lever to move the lever in one direction, and a spring for reversely moving the lever.

7. A machine of the class described, having, in combination, a continuously running driver 8, the beating tool 25, the lever 5 carrying the tool, and means under control of the operator and acting through said lever for establishing and interrupting a relation between the lever and the driver in which the tool will be actuated.

8. A machine of the class described having, in combination, a continuously running driver, a normally stationary beating tool, a lever constituting a connection between the driver and the beating tool arranged to be moved into and out of position to be actuated by the driver, and manual means for controlling the position of said lever.

9. A machine of the class described having, in combination, a beating tool, a continuously running driver adapted to actuate the beating tool in one direction, a spring for actuating said tool in the opposite direction, and means under control of the operator for varying the tension of the spring while the machine is in operation.

10. A machine of the class described having, in combination, a beating tool, power driven means for intermittently lifting the tool, a spring for reversely moving the beating tool to do its work, and means under control of the operator to be actuated for establishing operative relation between the driver and the tool and then for varying the force with which the spring actuates the tool.

11. A machine of the class described having, in combination, an actuator, a lever arranged to be vibrated by the actuator, a bell crank pivoted to the lever for bodily move-

ment therewith as well as for vibration angularly by the lever and provided with a beating tool, and means for yieldingly determining the angular relation of the bell crank to the lever.

12. A machine of the class described having, in combination, the rotary driver 8, the lever 5 arranged to be actuated by the driver, the bell crank 25 pivoted to the lever for bodily movement therewith as well as for vibration angularly by the lever and provided with a beating tool, and yielding means 26 arranged to permit relative movement between the lever and the bell crank whereby the beating tool is yieldingly actuated.

13. A machine of the class described having, in combination, the beating tool 25, the driver 8, the lever 5 for transmitting movement from the driver to the tool and having the arm 12, and manually controlled means acting through the arm 12 for determining the relation of the lever to the driver.

14. A machine of the class described having, in combination, a tool formed and arranged for beating a lasted shoe to shape the shoe, a lever for actuating the tool, and a driver for operating the lever comprising a rotary carrier and a plurality of rolls mounted thereon for intermittently engaging the lever, said lever presenting to the rolls an extended concave face of different curvature from the path of the rolls and arranged to provide a long gradual movement of the lever as distinguished from an impact thereon.

15. A machine of the class described having, in combination, a vibratory beating tool, a driver therefor, and treadle connections controlled by the treadle for transmitting movement from the driver to the tool, said connections comprising means for arresting the transmission of the vibrations through said connecting means to the treadle.

16. A machine of the class described having, in combination, a vibratory beating tool, a driver therefor, and treadle connections controlled by the treadle for transmitting movement from the driver to the

tool, said connections comprising the yoke 42, the abutment 46, and the swinging arm 45 arranged to maintain the yoke in contact with the abutment in the different positions of the treadle.

17. A machine of the class described having, in combination, beating tools, a yielding element for actuating the tools toward the work, a power driven means for moving the tools away from the work and thereby putting the yielding element under tension to actuate the tools toward the work, and means adapted to be operated while the machine is running for varying tension of said yielding means.

18. A machine of the class described having, in combination, beating tools, a yielding element for actuating the tools toward the work, a power driven means for moving the tools away from the work and thereby putting the yielding element under tension to actuate the tools toward the work, and means under control of the operator for establishing an initial tension of said yielding element and simultaneously starting the machine.

19. A shoe beating machine having, in combination, a beating tool, a continuously running driver for actuating the tool in one direction, means for reversely actuating the tool, and a manually-controllable device for varying the force of said means.

20. A shoe beating machine having, in combination, a beating tool, a continuously running driver normally disconnected from the tool for actuating the tool in one direction, yielding means for reversely actuating the tool, and a manually-controllable device for effecting connection between the tool and driver and for varying the force with which the yielding means actuates the tool.

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

ORRELL ASHTON.

Witnesses:

CHESTER EUGENE ROGERS,
LEONARD M. JOHNSON.