

UNITED STATES PATENT OFFICE.

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JACK FOR SOLE-LEVELING MACHINES.

SPECIFICATION forming part of Letters Patent No. 580,746, dated April 13, 1897.

Application filed September 7, 1895. Serial No. 561,808. (No model.)

To all whom it may concern:

Be it known that I, ERASTUS E. WINKLEY, a citizen of the United States, residing at Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented a new and useful Improvement in Jacks for Sole-Leveling Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

The present invention relates generally to improvements in devices of the above class, and more particularly to such devices of the above class as are utilized in sole-leveling machines in which the operation of leveling is performed by a vibrating roll applied under pressure to the sole of a shoe.

In the class of sole-leveling machines above referred to the shoe is placed upon the machine upon its last, and it is of the greatest importance that such machines be provided with a jack which can be readily adjusted for shoes of any size or style and by means of which the shoe upon its last can be readily adjusted and firmly held in the required position. It is also of importance that the parts of the jack which are necessarily changed to adapt the jack to different sizes and styles of shoe should involve as little of the jack as practical and should be easily removed and adjusted and when adjusted should be held firmly in position.

The object of the present invention is to provide a jack which shall answer the requirements above stated; and to that end it consists of an improved form and arrangement of the parts of the jack, as hereinafter more specifically set forth and claimed.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a device embodying the same. Fig. 2 is a plan view. Fig. 3 is a detail view of the toe-supporting device, taken partially in section and partially in elevation. Fig. 4 is a partial section on lines $x x$, Fig. 2, showing parts in elevation. Fig. 5 is a detached view of the toe-cap.

Similar letters of reference refer to similar parts throughout the several views.

In the drawings, A represents a bed-plate or frame suitable to support the working parts of the jack. Upon the frame A is mounted

a standard a , which may conveniently form a part of the frame A and which I have termed herein the "toe-support." Upon the toe-support a is mounted the toe-rest b , which is provided with a stem b' , which is fitted to and free to reciprocate along a suitable longitudinal chamber a' in the toe-support a . The toe-rest b is further provided with the lateral downwardly-extending projections or flanges $b^2 b^2$ upon opposite sides of the toe-support a , which are provided with suitable bearings upon the toe-support a , along which they are movable vertically.

As shown in the drawings, the projections or flanges $b^2 b^2$ are fitted to the sides of the toe-support a and bear against the same as the toe-rest is raised or lowered.

I would say that in the operation of machines of the class hereinbefore designated it is essential, to secure the best results, that the shoe be held as firmly as practical from lateral movement (independently of its jack) under the roll, and it has been an objection to machines as heretofore constructed that the toe-rest, as heretofore provided, when slightly worn and unless fitted with the greatest accuracy allowed the objectionable lateral play above noted. The function of the lateral downwardly projections or flanges $b^2 b^2$ is to prevent any lateral play of the toe-rest b upon its mountings, and, accomplishing such result, they constitute a valuable feature of the mechanism of the jack, and as I am the first to adopt such construction I do not consider the present invention as limited to the specific form shown.

I have provided suitable mechanism for accomplishing the vertical adjustment of the toe-rest b , which in the form of my invention shown in the drawings consists of an inclined plane D, free to reciprocate through a lateral chamber d in the toe-support a , by means of which is it guided and held in position. The stem b' of the toe-rest b rests upon the inclined surface of the inclined plane D, and suitable means are provided whereby the inclined plane D is reciprocated to raise and lower the stem b' and the toe-rest b , mounted thereon. As shown in the drawings, the inclined plane D is actuated by means of a threaded bolt d' , supported in a suitable bear-

ing d^2 conveniently in a bracket a^3 on the toe-support a , and the threaded portion of which engages a corresponding threaded bearing in the inclined plane D. An operating-handle, 5 conveniently the hand-wheel d^4 , is provided, by means of which the bolt d' may be rotated.

E represents the roll-receiver, which, as shown, is fixedly secured to the toe-support a , the form or arrangement of which, how- 10 ever, constitutes no essential feature of the present invention.

As jacks of this class of machines have been heretofore constructed the top of the toe-rest has been shaped to conform to the general con- 15 tour of the toe of the last, what I have herein termed a "toe-cap" being formed thereon. With the above-suggested arrangement in order to adapt the jack to shoes having marked differences in the shape or size of the 20 toe it is necessary to provide a series of interchangeable toe-rests provided with suitably-shaped caps, which must be carefully finished in working parts to secure their successful operation, thereby adding a consid- 25 erable item to the expense of the machine. By the present invention I have provided the toe-rest b with a removable toe-cap B.

As shown, the toe-cap B consists of a suitable block or plate the upper surface of which 30 is shaped to conform generally to the contour of the top of the toe of the last (being in practice filled out by a suitable cushion or padding) and the under surface of which conforms to the top of the toe-rest b .

The toe-cap B may be conveniently held in position by means of the pin b^3 , which en- 35 gages a suitable socket (not shown) in the toe-rest b , and by the lateral downwardly-extending projections or flanges b^4 , which 40 project over the sides of the toe-rest b .

It will be noted that the cap B is not vertically movable except with the toe-rest, and a comparatively wide bearing therefor is provided upon the toe-rest, an arrangement which 45 insures the successful operation of the toe-cap B without any special accuracy in the fitting of parts.

A series of toe-caps B are provided which are interchangeably adjustable upon the toe- 50 rest b and by means of which the jack is adapted for shoes of different styles and sizes. It will be noted that the removable toe-cap B involves no working parts of the jack and practically only such parts as are immediately 55 adjacent to the toe of the last and the form of which must be necessarily varied. By the above arrangement the cost of the interchangeable parts of the jack is reduced to a minimum, while the rapidity with which they 60 can be removed or adjusted greatly increases the amount of work that can be accomplished, particularly in the case of an automatic twin machine.

H represents the heel-support, which is mov- 65 able toward and from the toe-support along the bed or frame A. Upon the bed-plate or

frame A is formed a raised guideway a^4 , preferably dovetailed and which engages a corre- 70 spondingly-shaped groove h in the foot of the heel-support H. Upon one side of the guide- way a^4 is a set-screw h' , projected through one of the walls of the slot h , in which a threaded bearing is provided. By means of the set- 75 screw h' the heel-support H may be clamped in any desired position along the guideway a^4 . In practice I provide a wearing-strip a^5 , interposed between the set-screw h' and the 80 guide a^4 , which prevents any lateral play of the heel-support H when clamped in any desired position. The set-screw h' is provided with an operating-handle, conveniently the 85 hand-wheel h^2 .

Pivotally mounted upon the heel-support H is a last-block L, which is provided with 90 the usual spindle l . The last-block L projects upon each side beyond its bearings, and the projected portions thereof rest upon the rods l' l^2 . The rod l' is fitted to a socket l^3 in the heel-support H, in which it is free to reciprocate vertically, being guided and held in po- 95 sition thereby. In the socket l^3 is placed a spring l^4 , upon which the rod l' rests and which acts to raise the rod l' when depressed into the socket l^3 , as hereinafter described. The 100 other rod l^2 is extended through a sleeve l^5 , and its lower end rests upon the cam l^6 , pivoted at l^7 on the heel-support H. To the cam l^6 is secured an operating-handle l^8 , by means of which it may be rotated and which carries 105 a spring-pressed pawl l^9 , which engages a toothed segment l^{10} , fixedly secured to the heel-support H. The pawl l^9 and toothed segment l^{10} act to lock the cam l^6 in any de- 110 sired position.

The arrangement above described is such 105 that a rotation of the cam l^6 in one direction raises the rod l^2 , throwing the last-block and spindle forward and depressing the rod l' into the socket l^3 against the resistance of the 110 spring l^4 . When the cam l^6 is rotated in a reverse direction, the spring l^4 acts to raise the rod l' and bring the last-block and spindle back to their original position.

To move the heel-support H along the guide- 115 way a^4 toward and away from the toe-support a , I have provided the following mechanism: Upon the bed-plate A, parallel with and adjacent to the guideway a^4 , is formed or se- 120 cured the rack a^7 , in which works a pinion h^4 , mounted upon a shaft or trunnion h^5 , supported in suitable bearings in the heel-sup- 125 port H. The trunnion h^5 is projected through its bearing and carries beyond the same an operating-handle, conveniently a hand-wheel h^6 , by means of which it can be rotated. The 130 above-described arrangement is such that a rotation of the pinion h^4 causes the heel-support H to travel along the guideway a^5 toward or away from the jack. It will be noted that the arrangement of the rack a^7 and pin- 135 ion h^4 , as above described, constitutes a very rapid and easily-operated device for adjust-

ing the jack, and that since the hand-wheel h^6 , which controls the pinion h^4 , and the hand-wheel h^2 , which controls the clamping mechanism, are placed substantially in line upon opposite sides of the jack the operator when he has brought the heel-support H into the desired position with one hand can readily clamp the same with the other, the arrangement being such that he controls the position of the heel-support during the clamping operation by means of the pinion h^4 , and thus prevents any liability of the jack slipping out of adjustment while being clamped, a feature of the greatest importance in machines of the class hereinbefore designated.

The operation of my invention has been sufficiently described in the foregoing specification to enable any one of average skill in the art to operate the same. It may, however, be desirable to state in this connection that the return movement given to the last-block L and its spindle by the spring l^4 when the lever l^8 is operated to unjack the shoe prevents to a great extent the liability of the spindle l to become wedged in the spindle-hole in the last and greatly facilitates the removal of the last from the jack, and, further, that it retains the spindle l in a convenient position to be adjusted in the spindle-hole of a last to be placed upon the jack and avoids any necessity of taking hold of the spindle to insert it in the spindle-hole.

Having thus described my invention, I desire to say that I do not consider the same as limited to the specific construction hereinbefore described; but

I claim as novel and desire to secure by Letters Patent of the United States—

1. In a jack for sole-leveling machines the combination with associated parts of the jack, of a last-block provided with a suitable spindle and capable of a longitudinally-rocking movement, reciprocating rods arranged to bear against the last-block upon opposite sides of the center of motion, and means for moving said rods in opposite directions, substantially as described.

2. In a jack for sole-leveling machines the combination with associated parts of the jack of a vertically-adjustable toe-rest, a removable toe-cap mounted thereon and means for holding the toe-cap in a fixed position when adjusted upon the toe-rest, substantially as described.

3. In a jack for sole-leveling machines the combination with associated parts of the jack of a vertically-adjustable toe-rest, a fixed toe-support upon which the toe-rest is mounted, downwardly-extending projections upon opposite sides of the toe-rest and bearings for said projections on the toe-support along which they are free to reciprocate and an adjusting-stem movable in said toe-support, substantially as described.

4. In a jack for sole-leveling machines the combination with associated parts of the jack

of a vertically-adjustable toe-rest, a toe-support upon which the toe-rest is mounted, a downwardly-extending stem on the toe-rest by means of which it is vertically supported, downwardly-extending projections upon opposite sides of the toe-rest arranged to hold the same from lateral movement and bearings for the stem and projections upon the toe-support along which they are movable, substantially as described.

5. In a jack for sole-leveling machines the combination with associated parts of the jack of a rocking last-block carrying a suitable spindle, a heel-support upon which the last-block is mounted, a reciprocating rod provided with suitable bearings in the heel-support for actuating the last-block, a cam pivotally mounted upon the heel-support for actuating the rod, a toothed segment carried by the heel-support, and a spring-pressed pawl carried by the cam and arranged to engage the teeth upon the segment, substantially as described.

6. In a jack for sole-leveling machines the combination with associated parts of the jack of a suitable bed-plate, a fixed toe-support mounted thereon, a heel-support mounted thereon and movable along the same toward and from the toe-support, a rack and pinion arranged to actuate and control the movement of the heel-support, clamping means for clamping the heel-support in any desired position along the bed-plate, an operating-lever for the pinion located at the side of the jack, an operating-lever for the clamping means located upon the opposite side of the jack, both levers being in a convenient position to be simultaneously controlled by the operator, substantially as described.

7. In a jack for sole-leveling machines the combination with associated parts of the jack of a longitudinally and laterally chambered toe-support, a toe-rest, guides on the toe-rest arranged to bear upon the opposite sides of the toe-support, an inclined plane fitted to and free to reciprocate in the lateral chamber, a supporting-stem upon the toe-rest, fitted to the longitudinal chamber and free to reciprocate along the same, arranged to rest upon the inclined surface of the inclined plane, and mechanism for actuating the inclined plane comprising a threaded bolt supported in suitable bearings upon the toe-support, substantially as described.

8. In a jack for sole-leveling machines the combination with associated parts of the jack of a heel-support, a last-block pivotally mounted upon the heel-support and provided with a suitable spindle, a reciprocating rod arranged to bear against the last-block, an oscillating cam for actuating the rod, and a locking device whereby the cam is locked in the desired position, substantially as described.

9. In a jack for sole-leveling machines, the combination with a toe-support and heel-sup-

port of a last-block pivoted to the heel-sup-
port and free to tip longitudinally thereon, a
cam and suitable connections for actuating
the last-block, and a spring-controlled lock-
5 ing device for locking the cam in the required
position, substantially as described.

Witness my hand, in the presence of two

attesting witnesses, this 23d day of August,
1895.

ERASTUS E. WINKLEY.

Witnesses:

FRED V. HART,
A. E. WHYTE.