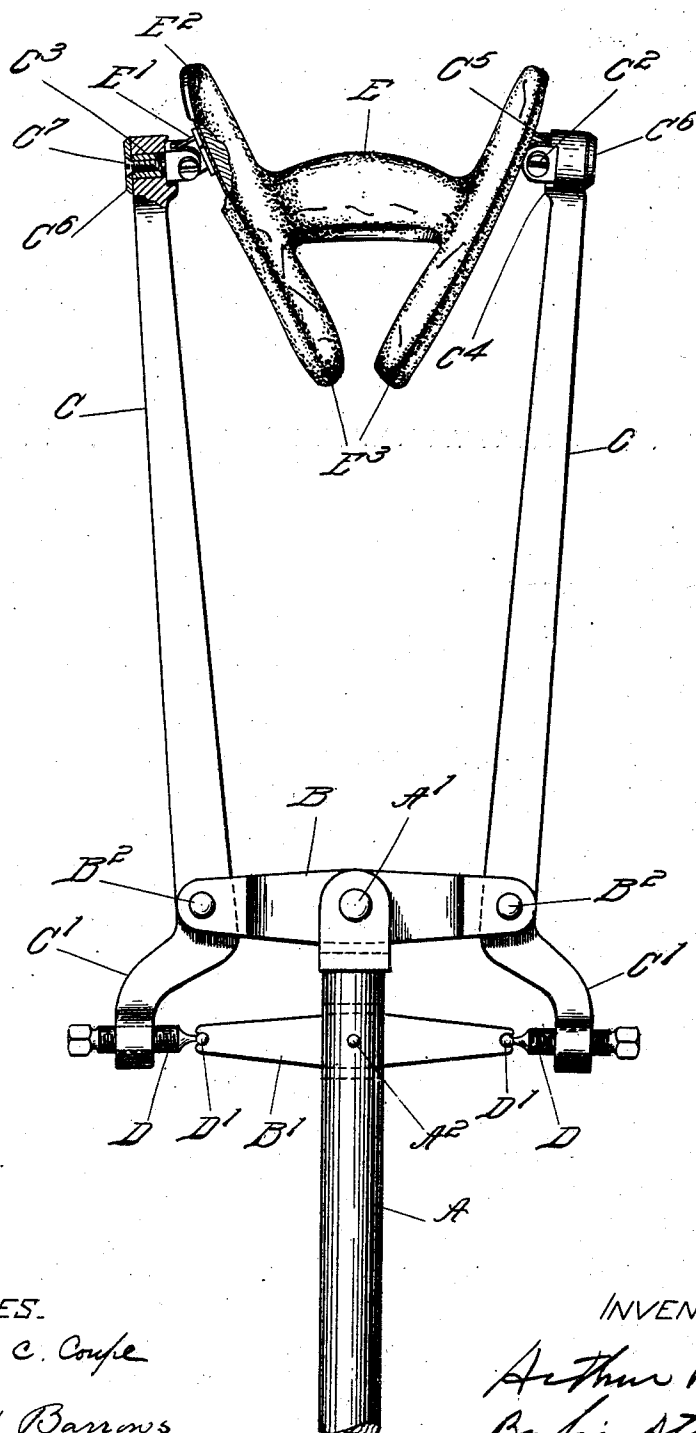


A. BATES.
JACK FOR SHOE MACHINES.
APPLICATION FILED AUG. 22, 1904.

933,738.

Patented Sept. 14, 1909.
2 SHEETS—SHEET 1.



WITNESSES.

Elijah C. Coupe

Bernard Barrows

INVENTOR.

Arthur Bates

By his Attorney

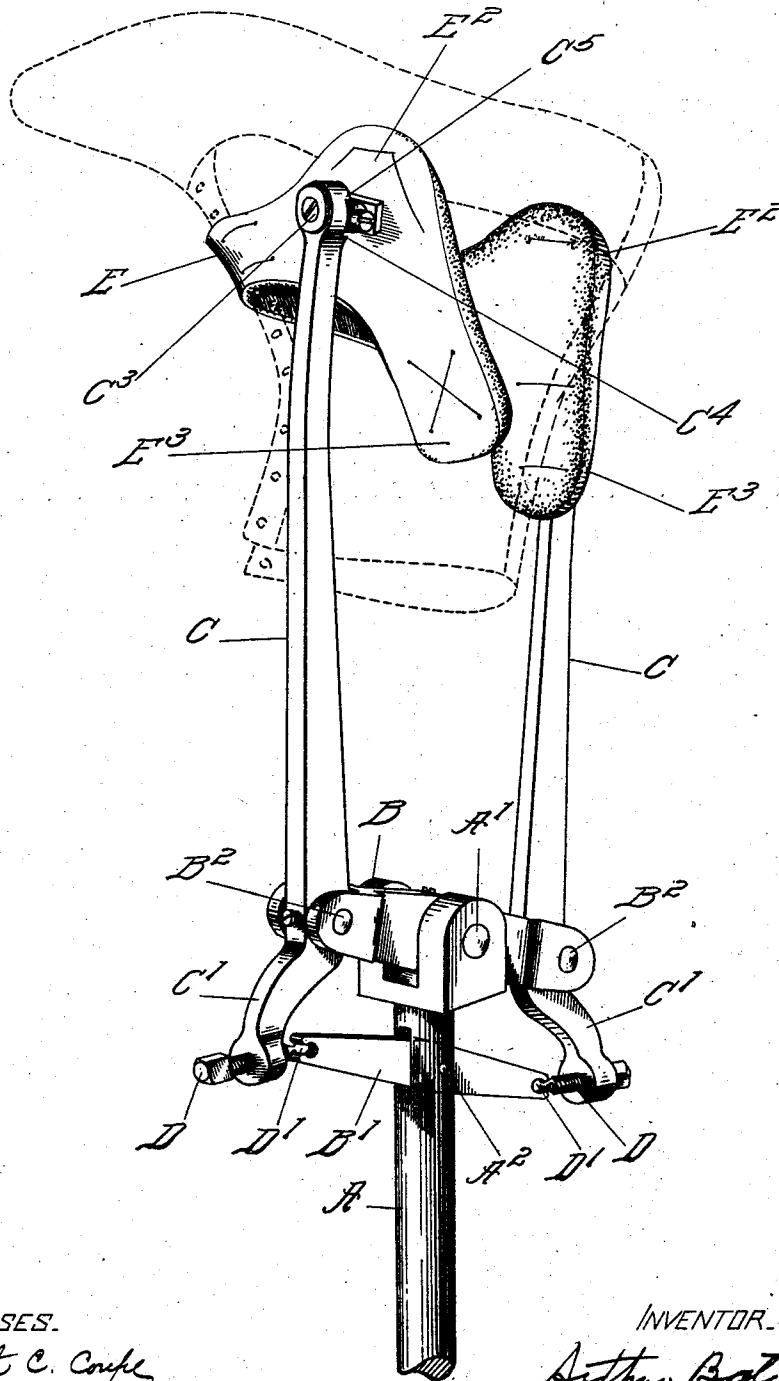
Nelson H. Howard

Fig. 1.

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WITNESSES.
Elizabeth C. Couper
Bernard Barrows.

FIG. 2.

INVENTOR.
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By his Attorney
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UNITED STATES PATENT OFFICE.

ARTHUR BATES, OF LEICESTER, ENGLAND, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

JACK FOR SHOE-MACHINES.

933,738.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed August 22, 1904. Serial No. 221,738.

To all whom it may concern:

Be it known that I, ARTHUR BATES, a subject of the King of England, residing at Leicester, in the county of Leicester, England, have invented certain new and useful Improvements in or Relating to Jacks for Shoe-Machines, of which the following is a specification.

This invention relates to jacks for shoe machines, such as pulling-over, lasting, nailing, and analogous machines, and more particularly machines in the operation of which a last with various portions of a shoe arranged thereon is presented to the machine and then held and shifted about by the workman, the upper being loosely sustained on the last.

The object of the invention is to provide a jack which, while supporting the weight of the last and thus relieving the workman from fatigue and strain, will permit him to present any portion of the last bottom at any desired angle to the operative members of the machine as readily as if the last were manually held, and in like manner.

In the present embodiment of my invention I provide a last carrier in or upon which the last may be readily inserted or placed and securely held. The carrier is supported in such a manner that it is free to be moved into any position which the usual manipulation of the last may render necessary, at the same time sustaining the weight of the last. The supporting means for the last carrier preferably comprises a plurality of sustaining arms connected to the carrier at different points. These arms are mounted so as to be free to have relative movement, and are arranged to permit by their relative movement the tilting of the last carrier. The relative position of said arms is controlled in the movement of the carrier so that said movement is about an axis which is approximately coincident with the longitudinal axis of a last in position on the carrier—that is, the axis about which a last would be turned if it were manually held. Preferably I make the connection between carrier and sustaining means such that a swinging movement of the carrier about an axis transverse to the longitudinal axis above referred to is permitted to raise and lower the toe or heel of the last.

The form of carrier which I prefer to use includes members which engage opposite

sides of the last and hold the last securely between them, a convenient form of carrier being U-shaped, the instep of the last engaging the concavity of the U. The carrier may also serve to hold the upper in position on the last, the upper lying between the carrier members and the last, and being retained in this manner in correct position. It is desirable to construct the last carrier so that it will receive lasts of different sizes and in the present embodiment of my invention I have done this by making the carrier adjustable in width. To cause the carrier to come into close contact with the last or the upper, the faces of the carrier which engage said last or upper may be made yielding in any desired manner.

In the drawings:—Figure 1 is a view in front elevation of one embodiment of the present invention; Fig. 2 is a view in perspective of the same showing a last in position.

In the jack shown on the drawings a last carrier E serves as the immediate support for the work. The carrier is sustained by a plurality of arms C, to the ends of which it may be connected. The arms C are supported in relatively movable position to permit movement of the carrier while the last is being shifted about in the operation of the shoe machine. It is desirable that the jack support the last so that it may be turned about its longitudinal axis, and I have accordingly arranged the arms C so that they will permit the oscillatory movement of the carrier required for such a movement of the last at the same time sustaining the carrier in correct position relative to the shoe machine. As shown, the arms C are mounted on a link B pivoted at a point midway between its ends on a pin A', carried in the forked upper end of a standard A. The link B is forked at each end and in each fork is pivoted, on a pin B², one of the arms C, said arms extending upwardly from the link B. In a slot in the standard A is pivoted on a pin A² a second link B' in the same plane and parallel with link B and also engaging at its ends the arms C. By making the links of the same effective length on each side of the standard A it is evident that arms C are sustained in relatively movable position, one arm being raised when the other is lowered. As shown, the links B and B' have the same effective lengths on

one side of the standard A as the other, so that the movement of arms C in opposite directions is equal. It will be apparent that this movement of said arms permits an oscillatory or tilting movement of the carrier E, and that by suitably locating upon the carrier the points of connection with the arms C, the carrier may be made to turn about an axis approximately coincident with the longitudinal axis of a last in position in the carrier.

To permit relative movement between carrier and the arms in the tilting movement above referred to the connection between these elements is preferably a pivotal one. As shown, on each side of the carrier is provided an ear E' pivoted at C² to a member C³ carried by an arm C. The members C³ may be formed as trunnions, as shown, to permit the carrier to swing about an axis located transversely of the last to raise and lower the toe and heel. Stops C⁴, C⁵ may be provided to limit the extent of the swinging motion, and a washer C⁶ and screw C⁷ may be employed to hold the trunnions C³ in their bearings.

The form of carrier E shown is adapted to engage opposite sides of the last, at the instep, and to hold the last or last and upper securely in its embrace. A convenient form is U-shaped, the instep of the last fitting into the concavity of the U, which may be padded, as shown. The carrier may be provided with portions E² extending up to the waist of the last, and with ears E³ to support the heel end of the last beyond the waist by bearing against the upper on each side of the comb below the heel of the last. The carrier may be formed, as illustrated, of thin sheet metal so as to constitute a spring tending to hold the supporting arms C apart, and so as to bring its inner face into close contact with the instep of a last thrust into its concavity.

I prefer to make the carrier adjustable in width so as to receive and hold lasts of different sizes. In the structure shown each end of the link B' is shaped to form a bearing for the ball-shaped end D' of a set screw D, carried by a curved extension C' of each arm C, the ends D' being the same distance from the pivot A² as the pivots B² are from the pivot A'. It will be apparent that this form of connection between link B' and arms C permits the upper ends of said arms to be moved toward or from each other so as to adjust in width the carrier E to embrace lasts of varying sizes. Adjustment of the set screws D does not interfere with the normal operation of the jack since the points of connection of link B' with the arms C are not changed thereby.

In the operation of the embodiment illustrated of my invention the carrier is adjusted to fit a selected size of last by manipulating

the set screws D. The upper and last are then placed in the carrier by which they are firmly held and supported in the manner indicated in Fig. 2. Whenever it becomes desirable the workman can now cant or tilt the last laterally in either direction without disturbing its position in the carrier, the supporting arms C changing position and the carrier being enabled to follow easily the movement of the arms by the pivotal connections C². The last is shown as tilted in one direction in Fig. 2. The trunnions C³ permit the carrier to have also a swinging movement to raise or lower the toe or heel of the last. Other requisite movements of the last may be provided for by the support on which the standard A is carried, said support being preferably yielding and capable of free movement in all directions. The support may be, for example, of the construction disclosed in English Patent No. 16,331 of 1896.

It will be seen that in the operation of the jack herein described when the side of the work is brought against the acting part of the machine and said side of the work is depressed with relation to the opposite side in order to present the part to be acted upon in a convenient relation to the machine the parts of the carrier E that are in contact with the work move relatively in order to remain in contact with the work in its new position. The respective movements with relation to the axis of the last of the parts of the carrier in contact with opposite sides of the work are the same in extent and in opposite directions so that any lateral tilting of the last is about an axis located within its own boundaries.

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

1. A jack, having in combination, a last carrier for removably sustaining a last in working position, sustaining arms connected to said carrier at opposite sides of the last arranged for free relative movement and constructed to permit, by said movement, the carrier to be tilted about an axis extending longitudinally of the last.

2. The combination with a last carrier of freely movable sustaining arms connected to said carrier at opposite sides of the last and arranged to permit tilting of said carrier, and means to control the relative position of said arms in the movement of the carrier to cause said movement to be about an axis approximately coincident with the longitudinal axis of a last supported by the carrier.

3. A jack comprising a last carrier, arms arranged on opposite sides of said carrier and pivotally connected thereto, a standard, a plurality of links pivoted on said standard intermediate their ends, pivotally connected

at their ends to said arms and arranged to support said arms movably.

4. The combination with a last carrier comprising members arranged to engage opposite sides of a last and support it removably between them, of means for sustaining said carrier arranged to permit its oscillation about an axis extending longitudinally of the last.

5. The combination with a last carrier comprising members arranged to yieldingly engage opposite sides of a last and support it removably between them, of a plurality of supporting members for said carrier and joints connecting said carrier and the supporting members, constructed to permit relative movement of said carrier and supporting member about axes at right angles to each other.

6. A jack, having in combination, a substantially U-shaped last carrier arranged to receive and embrace a last and upper about the instep, and means to support said carrier for swinging movement about an axis located within the boundaries of the last.

7. The combination with a last carrier comprising members arranged to engage opposite sides of a last and sustain it removably between them, of means to support said carrier constructed to permit said members to be relatively adjusted to receive lasts of different sizes and arranged to permit said carrier to be oscillated about an axis extending longitudinally of the last.

8. In a device of the class described, the combination with members arranged to engage a last and upper upon opposite sides and to sustain said last and upper removably between them, of means for supporting movably said members, constructed to permit the side of the work operated upon to be depressed relatively to the opposite side of the work and arranged to cause movement of members upon opposite sides of the

last to be the same in extent and in opposite directions, whereby the movement of the last is about an axis located within its own boundaries.

9. A jack, having in combination, a last carrier comprising members arranged to grip a last yieldingly upon opposite sides and support it between them, and means for sustaining said carrier arranged to permit its oscillation about an axis extending transversely of the last.

10. A jack, having in combination, a last carrier comprising members arranged to engage opposite sides of a last and support it between them, and means for sustaining said carrier arranged to permit its oscillation about an axis extending longitudinally of the last and also about an axis extending transversely of the last.

11. A jack, having in combination, a last carrier comprising members arranged to engage opposite sides of the last and sustain it between them, and means for supporting said carrier constructed to permit the relative position of said members to be adjusted to receive lasts of different sizes and arranged to permit said carrier to be oscillated about an axis extending transversely of the last.

12. A jack, having in combination, a last carrier formed to sustain removably a last by engagement with opposite sides of the last and constructed to receive lasts of different sizes and means to support said carrier for swinging movement about an axis located within the boundaries of the last.

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

ARTHUR BATES.

Witnesses:

JOHN WILLIAM GODDARD,
ARTHUR ERNEST JERRAM.