

No. 773,522.

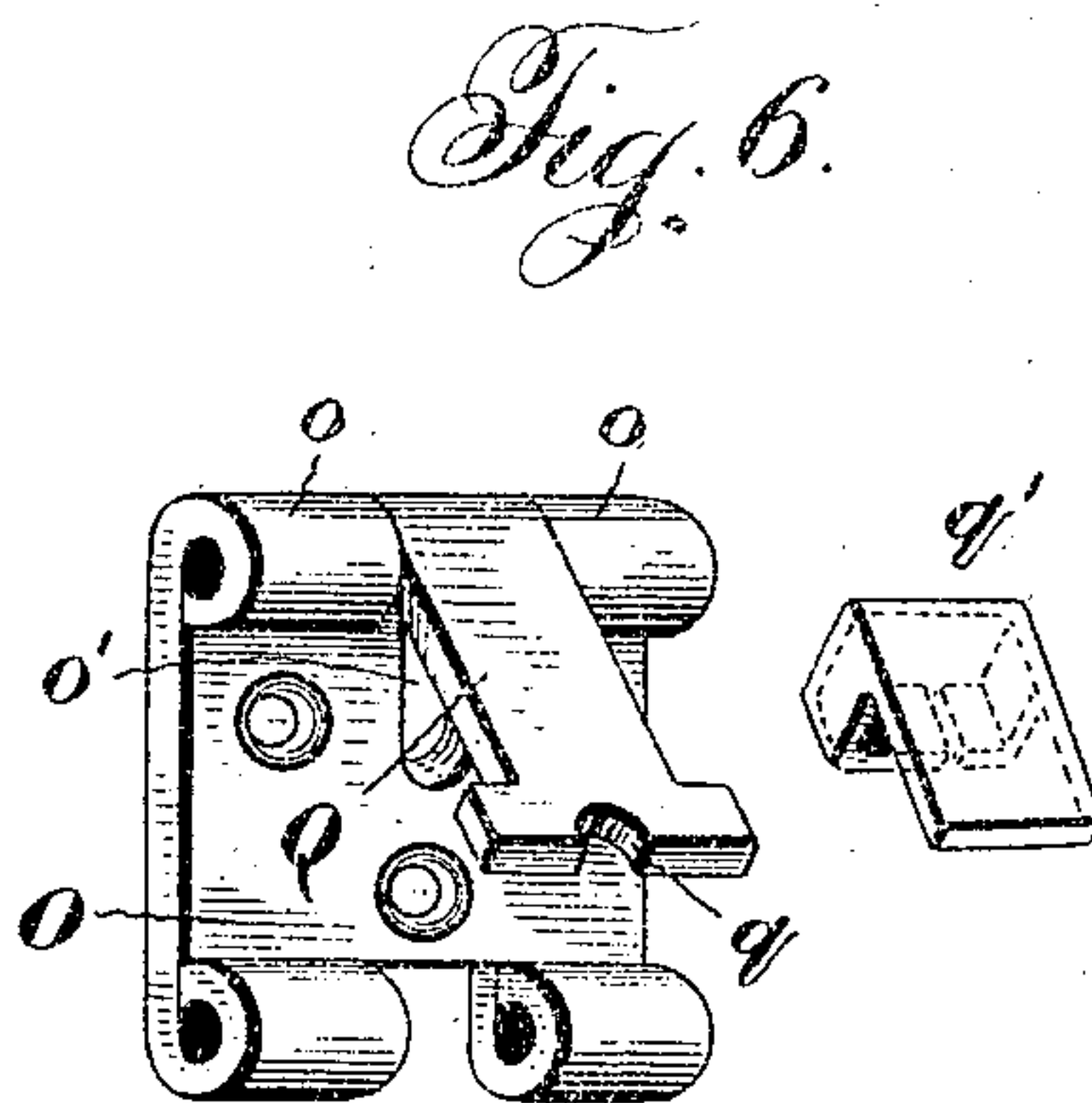
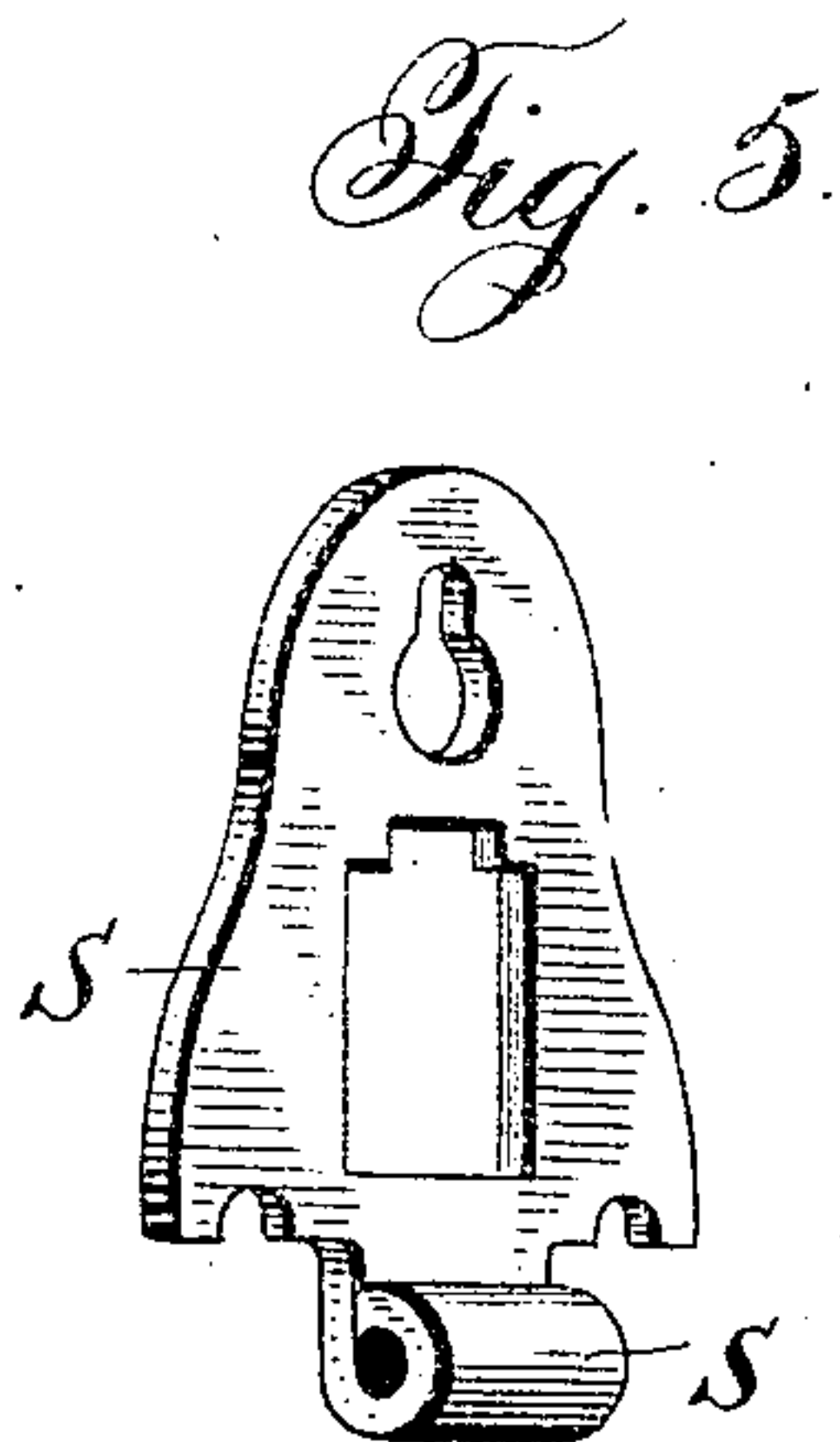
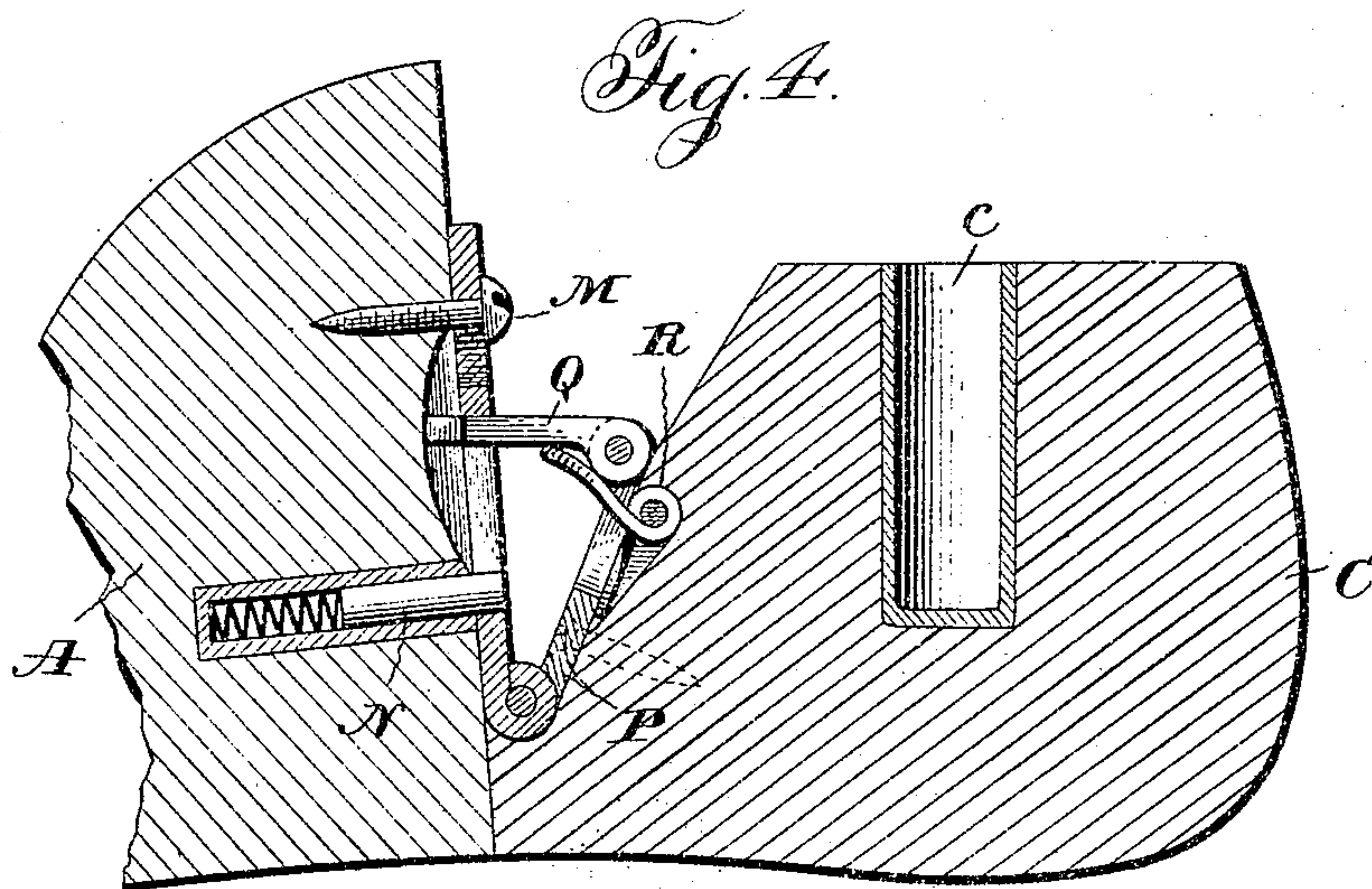
PATENTED OCT. 25, 1904.

E. J. PRINDLE.
METHOD OF MAKING SHOES.

APPLICATION FILED MAR. 30, 1904.

NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

EDWIN J. PRINDLE, OF WASHINGTON, DISTRICT OF COLUMBIA.

METHOD OF MAKING SHOES.

SPECIFICATION forming part of Letters Patent No. 773,522, dated October 25, 1904.

Original application filed April 27, 1903, Serial No. 154,591. Divided and this application filed March 30, 1904. Serial No. 200,785.
(No model.)

To all whom it may concern:

Be it known that I, EDWIN J. PRINDLE, of Washington, in the District of Columbia, have invented a certain new and useful Improvement in the Method of Making Shoes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of a last adapted for use in practicing my invention, showing the anvil-heel attached to the fore part, the last being collapsed. Fig. 2 is an end view of the fore part having the fore-part hinge-plate of the anvil-heel attached thereto. Fig. 3 is a horizontal sectional view of the construction illustrated in Fig. 1, the last being extended. Fig. 3^a is a perspective view of an alternative construction of locking-piece for use with the anvil-heel part. Fig. 4 is a vertical longitudinal sectional view of a last adapted for use in practicing my invention and having the filler-heel attached to the fore part, the last being extended. Fig. 5 is a perspective view of the filler-heel fore-part hinge-plate, and Fig. 6 is a perspective view of the hinge-plate of the filler-heel hinge.

The object of my invention has been to provide a method of making shoes whereby shoes can be very perfectly made and at a lower cost than when made in accordance with previous methods; and to such ends my invention consists in the method of making shoes hereinafter specified.

In carrying my invention into practice I provide a last which is the subject of an application for Letters Patent, Serial No. 154,591, filed April 27, 1903. Such last consists of a fore part A, an anvil-heel part B, a filler-heel part C, and suitable means of any desired construction for attaching either heel part to the fore part. The anvil-heel part as chosen for illustration consists of a heel-section b , in which is seated a jack-pin socket b' , such socket consisting of a cylindrical portion b^2 , that is preferably enlarged at its lower end where it

rests upon the anvil-heel seat D. Parallel flanges b^3 project forward from the socket b , such flanges forming between them a pocket in which are received two adjacent plates E and F, projecting forward. The flanges b^3 unite above the plates E and F and merge into a rib b^4 , which extends upward along the forward edge of the cylindrical section b' . A very strong support for the anvil-heel seat is thus formed and all strain is taken off of the wood in the heeling operation. The plates E and F are fastened between the flanges, as by rivets b^5 , and a rivet or pin G passes through the heel part and through the flanges b^3 and plates E and F, thus securing such parts together. The said parts are preferably put into the heel part by being passed upward through a slot in its bottom, and the portion of such slot not covered by the anvil-heel plate D is filled, preferably, with a block of wood H. The fore-part hinge-plate I preferably extends transversely to the last and is provided at its lower edge with ears i , that receive between them the plates E and F and that are pivoted to such plates by a pintle passing through said ears and plates. The plate I is preferably locked when in its forward position, as by a locking-piece K, which is provided with an ear at its rear end, that is pivoted to the plate E and is received in a recess in the plate F. Such locking-piece preferably has a T-shaped head, and the plate I is provided with a slot i' , whose lower portion is as wide as the T-shaped head of the locking-piece and whose upper portion is of less width, preferably only the width of the shank of the locking-piece, so that the locking-piece can be swung upward through the slot i' until its head has passed beyond the narrow part of the slot, when the plate I will be locked from movement away from the plates E and F beyond the limit permitted by the head of the locking-piece. If desired, movement of the plate I toward the plates E and F can be prevented by providing the locking-piece with shoulders back of the head,

which shoulders shall engage the face of the plate I adjacent the heel part. In order to cause the locking-piece K to normally stand in locking position, I provide a spring L, 5 which is preferably a coil-spring, whose coil is received in a recess in the plate F and is held therein by the adjacent wall in the heel part. Such spring has one end bearing against the plate F and its opposite end bearing against 10 the locking-piece. In order to attach the plate I to the fore part, screws M are screwed into the rear face of the fore part, such face being preferably plain, and said screws are left projecting from said face sufficiently to 15 receive beneath their heads the plate I. To enable engagement of the plate with the upper screw, a keyhole-slot i^2 is provided, and said plate can be engaged with said screw by passing the larger portion of said slot over 20 the head of the screw and drawing the smaller portion of the slot under the screw-head and about the screw-shank. In the lower portion of the plate two semicircular notches i^3 are provided for the reception of the shanks of 25 the screws, and downwardly-flaring entrances to such notches are provided, so that the plate may easily find its way over the screws and carry the screws home to the notches. I preferably make the under surface of the heads 30 of the screws conical in order that there may be a wedging action as the plate goes home under the screw-heads, such action forcing the plate against the rear face of the fore part.

In order to lock the plate upon the screws, 35 a spring-bolt N, preferably mounted in a socket, is held in a seat in the fore part, so that such bolt is in line with the lower wall of the slot i^1 or with a semicircular notch formed in such wall, and the bolt by entering 40 such notch or projecting over such wall prevents the withdrawal of the plate from the screws.

In using the last the severest strains are in a direction from the top of the last toward 45 the screws, and no strains of importance are therefore put upon the bolt and great strength of the bolt is not necessary. The bolt N can, in fact, be omitted, if desired, and the friction between such plate and the fore part and 50 between such plate and the screws be depended upon to keep the plate in engagement with the screws. The wall of the slot i^1 , which is engaged by the bolt, is preferably beveled in a rearward direction, so that the 55 bolt may ride up upon it and more easily find its seat.

In order to permit the head of the locking-piece to pass behind the plate I, a recess a is formed in the rear face of the fore part, and 60 I prefer to prevent the collapse of the last by permitting the head of the locking-piece to bear upon the bottom of said recess when the last is locked. The filler-heel C is preferably

provided either with a mere hole in the wood for the reception of the jack-pin or with a 65 simple thimble c for such purpose. As it is desired to make such heel part as light and cheap as possible, no heel-plate need be provided. The hinge for such filler part consists of a plate O, having two eyes o formed on 70 its lower edge and two similar eyes formed on its upper edge, such plate being attached to the forward face of the filler part, as by screws P. Between the upper eyes o a locking-piece 75 Q is pivoted by an ordinary pintle, such locking-piece having substantially the same form as the locking-piece K of the anvil-heel part. Either or both the locking-pieces K and Q can be provided with a notch q , Fig. 6, opposite the spring-bolt N when the locking-piece 80 is in unlocked position, and a clip q' can be secured upon the locking-piece, so that it can be slid over the notch q when it is desired that the locking-piece shall push back the bolt N upon the collapse of the last or can be slid 85 back from over said notch when it is desired to collapse the last without operating the bolt N, and thus without detaching the heel part from the fore part. The clip q' consists simply of a plate of sheet metal having ears formed 90 thereon, such ears embracing the locking-piece and preferably holding onto such locking-piece with some friction, so that the plate will stay in the desired position. The said locking-piece is moved by a coil-spring R, 95 which is seated in a recess in the heel part, said spring being confined in its recess by the plate O. The said plate is provided with a slot o' beneath the locking-piece, through which one end of the spring may project to 100 reach the locking-piece. The fore-part hinge-plate S for the filler part C is substantially the same as the hinge-plate I, except that it has an eye s at its lower end, which is adapted to receive a pintle held in the lower eye o of the 105 plate O. If desired, cooperating shoulders may be formed upon the respective hinge-plates of the two heel parts to prevent the plates from swinging apart beyond their normal limits without depending solely upon the 110 locking-pieces for this purpose.

In the practice of my method the anvil-heel part is attached to the fore part, and the shoe is constructed upon the last thus formed until the heeling operation has been completed. 115 The last having the shoe upon it is then placed upon a jack or post having a pin to enter the jack-pin socket, and preferably by means of a treadle a finger is thrust into the shoe to strike the locking-piece K and fold it down 120 against the plates E and F. While said locking-piece is in such position, the last is then collapsed and the finger withdrawn by freeing the treadle. The locking-piece is of such length and its center of motion so located that when it 125 has swung against the plates E and F its head

is as near to the center of motion of the hinge of the last as is some portion of the area of the end of the spring-bolt N, so that when the last is collapsed the said head of the locking-piece will, as shown in Fig. 1, strike against the end of the spring-bolt and force such bolt out of engagement with the plate I, the said head for this purpose passing into the slot *i'* in the plate I. As the spring-bolt is now disengaged, it is obvious that the shoe, together with the fore part, can be raised away from the heel part, since such motion merely carries the screws M out of their notches in the plate I. This operation removes the heel part from the shoe and leaves the fore part entirely undisturbed in its position in the shoe. The filler-heel part, having its locking-piece thrown down against the plate O and having its hinge collapsed, is then placed upon the jack-pin, and the shoe, having in it the fore part, is placed over the filler-heel part, and the screws M on the fore part are caused to engage the notches in the plate S. The last is then extended by merely raising the fore part while the heel part is held by the jack-pin, when the locking-piece Q is raised by its spring, and the spring-bolt N is thus freed. Such bolt is then forced forward by its spring and engages the wall of the slot in the plate S and locks such plate upon the fore part. I preferably make the hinges of the anvil-heel and filler-heel parts stiffer than the strength of the springs moving the locking-pieces, so that such springs cannot open the hinges, this construction facilitating the attachment of the heel parts to the last. I preferably provide shoulders on the locking-pieces, against which the fore-part hinge-plates may bear to prevent said locking-pieces from passing farther through their slots in the fore-part hinge-plates than the planes of the forward surfaces of said plates when the last is collapsed. Such shoulders may take the form of the shoulder *k* on the locking-piece K or such other form as may be found convenient.

My method as above practiced has among others the following advantages: The shoe can be constructed upon the last to and through the heeling operation. The anvil-heel part can then be removed from the shoe by such a motion that all strain upon the shoe is obviated, and such removal can be effected without the manipulation by the hands of any part or tool except the shoe itself. The filler-heel can then be placed in the shoe and attached to the fore part and the last extended and locked with the same ease. The manufacturer thus has the advantage of the strong but comparatively expensive and necessarily heavy anvil-heel part through the operations of lasting, leveling, and heeling where strength is required and is then enabled to replace such heel part by the cheap and light filler-heel part, which heel part has ample strength

for all the remaining operations in the manufacture of the shoe. While securing these advantages, the fore part, upon which the shoe has been built, has not been disturbed in any manner. There is great advantage in such use of the fore part, as it is impossible to remove a fore part from a shoe which has been built upon the same and replace either that fore part or any other fore part with the same perfection of fit in the shoe as is secured by building the shoe upon the original fore part. The use of the costly and heavy heel parts is thus restricted to a small fraction of the entire amount of time consumed in the manufacture of the shoe, and the greater part of such manufacture is performed upon the light cheap filler-heel parts. The result is that the greater part of the manufacture of the shoe, and especially that part when the shoe is largely held in the hand of the operator, as distinguished from being held by the machine, is performed upon the light filler-heel part, and the operative is thus enabled to do a larger amount of work in a given time than would be possible if the anvil-heel part were kept in the shoe throughout the entire manufacture of the latter. As perfect a shoe is obtained as if the entire manufacture were conducted upon the original last, and yet the great advantage of lightness throughout the operations when the shoe is held in the hand is obtained.

Having thus described my invention, what I claim is—

1. The method of making shoes, consisting in building the shoe upon a last consisting of a fore part and a heel part, said heel part having sufficient strength for the heavy operations, performing such operations upon said shoe, substituting a filler-heel part for said first-mentioned heel part, and continuing the operations upon the shoe.

2. The method of making shoes, consisting in building the shoe upon a last comprising a fore part and a heel part, said heel part having sufficient strength for the heavy operations, performing such operations upon said shoe, removing said first-mentioned heel part, securing a filler-heel part to said fore part, and continuing the operations upon the shoe.

3. The method of making shoes, consisting in performing heavy operations upon a last comprising a fore part and a heel part having sufficient strength for such operations, substituting a filler-heel part for the first-mentioned heel part, and continuing the operations upon the shoe.

4. The method of making shoes, consisting in performing operations to, and including, the driving on of the heel upon a fore part and a heel part having sufficient strength for such operations, substituting a filler-heel part for the first-mentioned heel part, and continuing the operations upon the shoe.

5. The method of making shoes, consisting
in performing all the operations of building
the shoe, up to and including the driving on
of the heel, upon a fore part and a heel part
5 having sufficient strength for such operations,
substituting a filler-heel part for the first-
mentioned heel part, and continuing the op-
erations upon the shoe upon the original fore
part and the filler-heel part, the fore part be-

ing retained undisturbed in the shoe from the 10
first to the last of said operations.

In testimony that I claim the foregoing I
have hereunto set my hand.

EDWIN J. PRINDLE.

Witnesses:

JOSEPHINE L. LAWLOR,
KATHERINE E. LAWLOR.