O. PAULSRUD.

SHOE LAST.

APPLICATION FILED MAR. 22, 1911.

1,048,426. Patented Dec. 24, 1912.

Fig. 1.

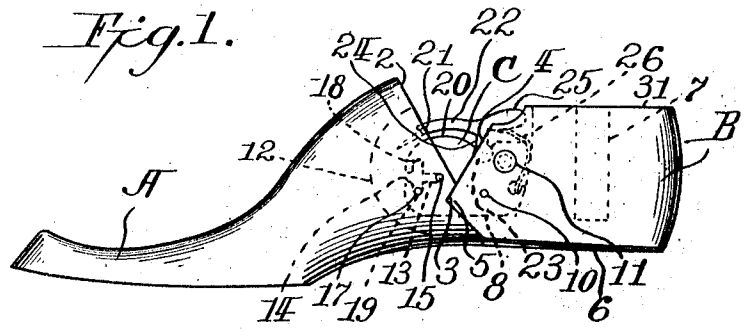


Fig. 2.

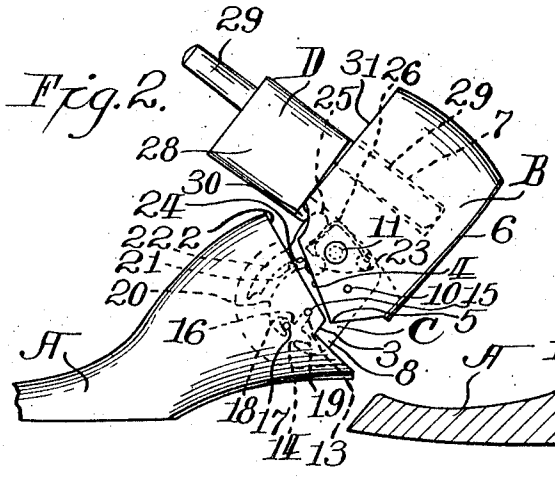


Fig. 3.

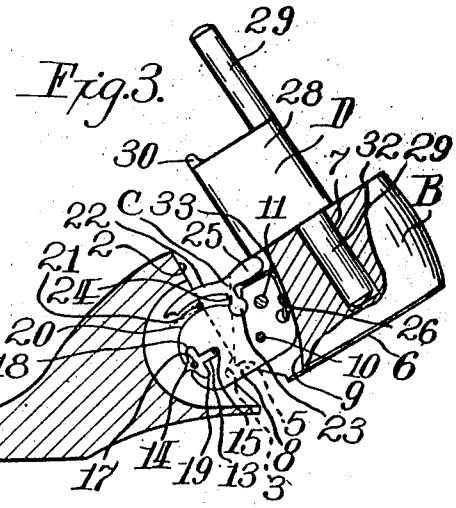
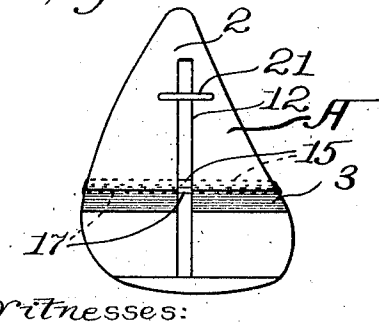


Fig. 4.

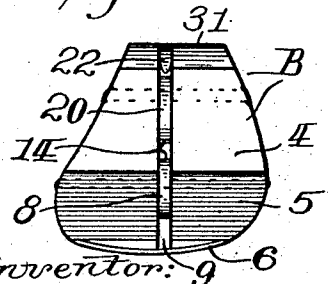


Witnesses:

Marie C. Adams.

Paul Smith

Fig. 5.



Inventor:

Ole Paulsrud,

by: F. G. Bradbury

Attorney.

UNITED STATES PATENT OFFICE.

OLE PAULSRUD, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-HALF TO WILLIAM M. O'DONNELL, OF ST. PAUL, MINNESOTA.

SHOE-LAST.

1,048,426. Specification of Letters Patent. Patented Dec. 24, 1912.

Application filed March 22, 1911. Serial No. 616,071.

To all whom it may concern:

Be it known that I, OLE PAULSRUD, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Shoe-Lasts, of which the following is a specification.

My invention relates to an improved shoe last and its object is to provide a last of the hinged type having parts which may be readily separated to provide for the use of various forms and styles of toe-parts in connection with the same heel-part and at the same time allow a free and perfectly pivoted action of the parts upon each other for inserting the last in a shoe and removing it. My invention also provides for an automatic locking of the last in its normal or extended position.

In the drawing with which I have illustrated my device and which forms part of this specification, Figure 1 is an elevation of my hinged last in its normal or locked position; Fig. 2 is a part elevation of my device with the last parts in flexed position; Fig. 3 is a view partly in section showing the last-parts in median position to be separated and also showing an alternative form of the latch; Fig. 4 is an elevation of the toe-part of the last, and Fig. 5 is an elevation of the heel-part of the last.

In the above drawing I have illustrated a hinged last formed in two separable parts, a toe-part A and a heel-part B connected by a hinged mechanism C. The two parts A and B when in normal position as shown in Fig. 1 form a last of the ordinary shape used in lasting shoes. It is evident that this structure may be used in connection with what is termed the first last and may be used as an ordinary boot-tree.

The toe-part of the last comprises the portion of a last ordinarily fitted in the toe of the shoe and is cut immediately back of the instep with a rearwardly beveled face 2 having a notch 3 near its bottom. The heel-part B is formed with a forwardly beveled side 4 terminating in an angular portion 5 fitted into and engaging the notch 3 of the toe-part when the parts A and B are in their normal position. The heel-part B supplements the toe-part A as described to form a complete lasting form. The heel-part B has a protecting metal plate 6 fixed on its sole for upsetting heel nails and a spindle socket 7 in its top.

The hinge mechanism C is formed with its fixed parts connected to the heel B and consists of a hinge plate 8 of roughly rectangular form inserted in a slot 9 extending vertically in the forward or toe side of the heel-part and on its middle line. The hinge plate 8 is fixed to the heel-part B by pins 10 and 11 passing through the heel and the plate, and projects in front of the heel part and into a slot 12 in the toe-part. In the front side of the hinge plate 8 is a horizontal pivot slot 13 opening to the edge of the plate at 14 and having an inward extremity fitted to act as a bearing for the hinge pin or pintle 15 which extends across the slot and through the sides of the toe-part. Immediately within the front side of the hinge plate 8 is a guide slot 16 communicating with the opposite sides of slot 12 outward from its inward extremity. This slot 16 is formed as an arc with the bearing extremity of the hinge slot as a center and is fitted to receive the guide pin 17 which extends across the slot 12 in the toe-part and permits a restricted pivotal movement of the hinge plate about the hinge pin 15. When the guide pin 17 is in either the upper or lower recesses or branches 18 and 19 of the guide slot 16 it is impossible for the hinge plate together with the heel-part to which it is connected to be removed from the guide and hinge pins 17 and 15 in the toe-part at the same time permitting their pivotal movement upon each other. When the hinge plate is brought into such a position relative to the toe-part, that the guide pin 17 is in line with the hinge slot 13 of the plate the hinge plate may be removed from the toe-part by a movement parallel with the guide and hinge pins 17 and 15. It is evident that the position of the two parts A and B in which they may be separated may be determined by the relative positioning of the guide and hinge pins 17 and 15 in the toe-part A of the last. The upper and lower recesses of the guide slot 16 are accommodated to the positions of the heel part B relative to the toe A in its normal and flexed positions. The slot 12 in the toe-part A is fitted in width to the hinge plate 8 pre-

venting lost motion laterally between the parts of the last.

The upper front portion of the hinge plate 8 is formed with a circular curve 20 from the hinge pin bearing as a center which bears against a stop pin 21 in the toe-part. The stop pin is so located with relation to the hinge and guide pins 15 and 17 that the hinge plate 8 is free to be withdrawn from the toe-part in its separable position. A latch 22 is pivoted on the hinge plate 8 within the slot 9 of the heel part and adapted to engage the stop pin 21 at its extremity when the last parts A and B are in their normal position as shown in Fig. 1. The latch 22 is pivoted to the hinge plate 8 by means of a pivot piece 23 formed integral with the latch 22 and ordinarily stamped from the same piece of metal with the latch 22. The pivot piece 23 has a constricted neck 24 and fits into the recess in the hinge plate so formed as to allow a restricted movement of the latch. A backwardly extending trigger portion 25 of the latch 22 is engaged by a spring 26 mounted on the hinge plate 8 and is normally held in position to engage the stop pin 21 of the toe-part. With the latch in engagement with the stop pin 21 as shown in Fig. 1, the heel-part cannot be rotated on the hinge pin 15 and the last parts A and B are locked with relation to each other. By depressing the trigger 25 of the latch 22 its engaging extremity is raised from the stop pin 21 permitting the movement of the hinge plate 8 and heel-part B about the hinge pin 15. The stop pin 21 during this movement traverses the curved edge 20 of the hinge plate between the hinge plate and the latch 22 and the last parts may assume the flexed position shown in Fig. 2 which is the position in which the last is introduced into a shoe. Further movement in this direction is prevented by the limits of the upper recess 18 of the guide slot 16 impinging on the guide pin 17. In reaching this position the last parts passed through the position shown in Fig. 3 in which the guide and hinge pins 17 and 15 lie in the hinge slot 13 of the hinge plate 8 and the parts A and B may be separated. In using the last however, no tension is ordinarily brought to bear upon the heel B at this time and the rotation of the parts is carried on to the position shown in Fig. 2 in which the guide pin 17 lies in the recess 19 and separation of the parts A and B is impossible.

In connection with the hinge mechanism C a key spindle D is used as illustrated in Fig. 2. The key D has a body portion 28 which may be of the form shown or any form suitable to be grasped by the hand and a spindle 29 fitted to the spindle socket 7 of the heel-part B. A lug 30 is formed on the body 28 and serves to impinge upon the trigger portion 25 of the latch 22 when the spindle is inserted in the spindle socket, and trip it thus freeing the latch from the stop pin 21 and permitting the flexing movement of the last-parts. When the last is about to be inserted in a shoe the last parts are in the position shown in Fig. 2. The toe-part is then inserted in the toe of the shoe, and by the aid of the key D the heel-part is forced down to the normal position shown in Fig. 1. In order to permit the locking of the last-parts in this position as soon as it is reached, the key may be so placed in the heel-part that the tripping lug 30 does not engage the trigger 25 but rests at one side of it thus allowing the spring 26 to force the latch 22 into engagement with the stop pin 21 as soon as the last-parts reach their normal position.

In my preferred construction shown in Fig. 2 the hinge parts C are so located in the heel-part B that the trigger 25 lies below the level of the top surface 31 of the heel and the tripping of the trigger 25 can be secured only by the formation of a tripping lug 30 on the key body 28.

Fig. 3 illustrates my alternative construction in which the trigger portion 25 of the latch 22 lies above the level of the upper surface 32 of the heel-part and the key D having a flat surface 33 sufficiently broad to engage the trigger 25 may be used instead of the tripping lug 30. It is evident that any convenient means of tripping the latch 22 will accomplish the end secured by the device shown.

By the peculiar structure of my device I secure a hinged last that is very easily manipulated and has the great advantage over such lasts in common use of automatically locking in its normal position. But the chief advantage of my device lies in the separableness of its heel and toe-parts by which a great variety of forms of shoe toes may be used in connection with a single heel-part thus economizing in cost and storage room and permitting the replacement of a broken heel or toe.

In accordance with the patent statutes I have described the principles of operation of my invention together with the apparatus which I now consider to represent the best embodiment thereof but I desire to have it understood that the construction shown is only illustrative and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:—

1. A hinge last, comprising, in combination, a heel part and a toe part supplementing each other to form a complete last, a

pintle and a guide pin fixed on one of said parts and a hinge plate fixed on the other of said parts, said plate having a recess to receive said pintle and guide pin in one position of said parts and to form a bearing for said pintle and a second recess transverse to and communicating between its ends with said first recess and adapted to engage said guide pin during the rotation of said last parts.

2. A hinge last, comprising, in combination, two coöperating separable elements, one a heel part and the other a toe part, a pintle on one of said parts, a hinge member on the other of said parts having a horizontal pivot slot opening to the edge of the hinge member and formed with branches communicating with its opposite sides outward from its inner extremity, said pintle being adapted to be seated in the inner extremity of said slot, and a guide pin carried upon the member supporting said pintle and adapted to be admitted freely into said slot when said hinge plate is in horizontal position upon said pintle, said guide pin being spaced from said pintle whereby it is adapted to enter the branches of said slot when said hinge plate is tilted and to prevent the detachment of said hinge plate from the member carrying said pintle and guide pin except when said hinge plate is in horizontal position.

3. A hinge last, comprising, in combination a heel-part, a toe-part adapted to supplement said heel-part to form a last, a hinge plate fixed to one of said parts and adapted to enter a recess in the other of said parts, having a hinge slot opening on its edge and a guide slot opening on its edge, and pins on said other part adapted to engage said plate in said slots, whereby said parts may be rotatably and separably connected with each other.

4. A hinge last, comprising heel and toe parts detachably connected to form a last, a hinge plate fixed to one of said parts and adapted to enter a recess in the other of said parts, having a hinge slot opening on its edge and a guide slot opening on its edge, pins on the other last part adapted to engage said plate in said slots to connect them during rotation, and automatic means for locking said last parts in extended position.

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

OLE PAULSRUD.

Witnesses:
H. L. Fischer,
Paul S. Smith.