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C. H. HEITMAN
HINGE FOR SHOE LASTS

2,391,968

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Fig. 1.

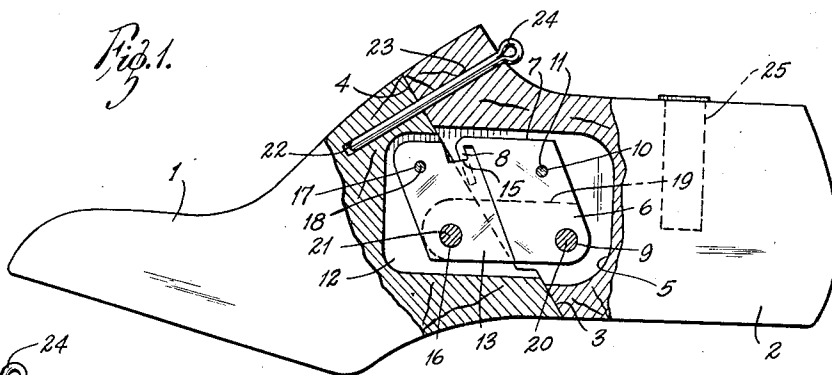


Fig. 2.

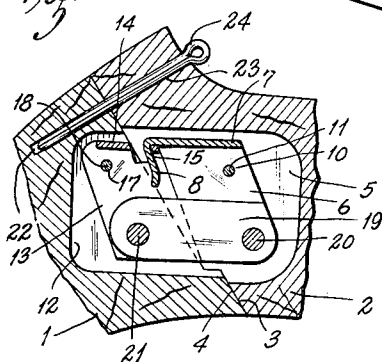


Fig. 3.

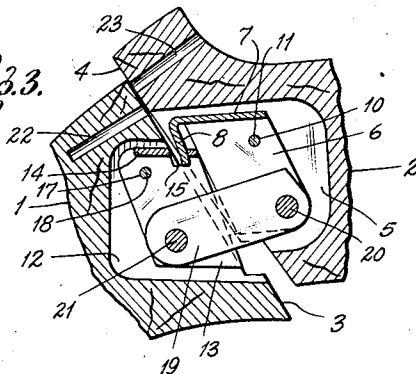


Fig. 4.

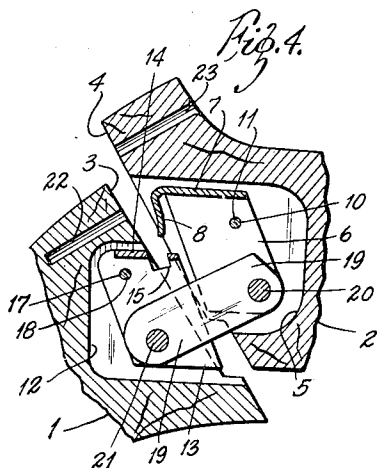


Fig. 7.

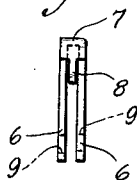


Fig. 6.

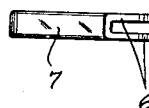
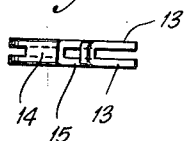


Fig. 5.



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HINGE FOR SHOE LASTS

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6 Claims. (Cl. 12-136)

This invention relates to an improvement in hinges for shoe lasts and consists in a novel construction hereinafter disclosed.

Generally, the object of the invention is to provide a strong hinge construction, suitable as a joint between the fore and heel sections of a shoe last of the type that is opened and closed by relative movement of the last parts; and which construction provides an efficient hinge of this type, which may be economically manufactured and assembled with the last parts.

A more specific object of the invention is to provide a hinge construction for embodiment in a shoe last, which will permit the last to be opened and closed by a relative vertical and pivoted movement in order that the heel part of the last may clear the back line of the shoe upper when removed; and which construction may be locked in closed adjustment of the last, thereby imparting strength to the last at the parting line between the fore and heel sections thereof, thereby preventing damage to the last when the shoe upper is mounted thereon and the last is in expanded position, and used in shoe lasting operations.

Additional advantages attained by the invention will be apparent, without specific mention, from the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a side elevation of a last with a portion thereof broken away to illustrate the hinge construction in side elevation;

Fig. 2 is a detailed view of the hinge construction, a part of which is shown in vertical section;

Fig. 3 is a similar view to Fig. 2 with the parts partially moved to open adjustment;

Fig. 4 is a similar view to Fig. 3 showing the parts further advanced to open adjustment;

Fig. 5 is a top plan view of one of the hinge elements mounted in the forepart of the last;

Fig. 6 is a top plan view of one of the hinge elements mounted in the heel section of the last; and

Fig. 7 is an end view of the part illustrated in Fig. 6.

In the embodiment of the invention illustrated in the drawing, 1 indicates the forepart of the last structure, and 2 indicates the heel section thereof. The forepart of the last has a rear wall 3, the face of which inclines downwardly and backwardly with an offset shoulder near the bottom thereof. The forward wall of the heel section is formed with a face 4 complementary to the face 3 of the forepart of the last.

This formation of the parting line between the fore and heel sections of the last permits the last, on opening, to contract and pivot or tilt forward-

ly, providing for a shortening from heel to toe so that it may be readily removed from the shoe upper when collapsed. This formation of the matching faces of the two parts of the last also permits a wedging action when the last is in closed position in the shoe upper.

I am aware that collapsible and expandable two-part lasts, as such, are not new in the art, but I am also aware that difficulty has been experienced in employing lasts of this type in shoe making, because of the lack of strength in the hinge construction by which the two parts are joined, and I have found that the hinge construction of the present invention overcomes the disadvantages in this respect.

In the embodiment of the invention illustrated in the drawing, the front face of the heel section of the last has a kerf or recess 5 in its forward face which extends well into the body of the last toward the heel. A hinge plate, specifically illustrated in unassembled relation in Figs. 6 and 7, is mounted in this recess. This hinge plate is in the form of a clevis formed from a metal plate bent to provide a U-shaped member having side walls 6 and a narrow wall 7 at the top thereof. The edges of the leaves 6 are parallel and, as illustrated in the drawing, incline upwardly and forwardly, as viewed in Fig. 7. The top wall 7 of this member is extended forwardly and downturned to form a hook 8. Near the bottom of the walls 6 are aligned openings 9, and near the top thereof are aligned openings 10. This hinge plate member is set into the recess 5 and is removably secured in place by a pin 11 that passes through aligned openings in the body of the heel section, in order that the parts may be readily assembled and removed. This pin, since it passes through the upper opening 10 in the walls 6 near the upper rear corner thereof, provides a rigid removable support at that point for the hinge plate member.

The rear face of the forepart of the last is also provided with a kerf or recess 12 in which a complementary hinge plate is mounted. The forward hinge plate is illustrated in top plan view in Fig. 5 and is shown from different angles in other views. This plate is similar in form to the rear plate and comprises parallel walls 13 and a continuous top wall 14. This plate has its front and rear edges inclined upwardly and forwardly so that when the last is in closed adjustment the forward edge of the rear hinge plate will lie in a parallel plane and match and abut against the rear edge of the forward hinge plate.

The forward hinge plate is provided with a cut-out or notched portion 15 in its top wall 13, positioned so as to be engaged by the hook 8

on the rear hinge plate when the last is in expanded position. The forward hinge plate is provided with aligned pairs of openings 16 through the walls 13 near the bottom thereof and a second pair of aligned openings 17 near the top thereof.

The forward hinge plate is set into the recess 12 in the rear face of the forepart of the last, and is pinned in position by a pin 18 similar to the mounting for the rear hinge plate.

A link 19, which extends horizontally when the last is in expanded position, as shown in Fig. 2, is inserted in the space between the walls 6 and extends forwardly into the space between the walls 13 and is removably maintained in this position by pins 20 and 21, respectively, extending through the openings 9 and 16 in the rear and forward hinge plates. It will be understood that the pins 20 and 21 are mounted and removed through aligned openings formed in the body of the rear section and in the body of the fore section of the last, thereby providing hinge pins that are associated with the last structure in a relatively rigid position, and yet may be readily removed to disassemble the last.

This assembly of the hinge parts constitutes an extremely strong connection between the fore and heel section of the last, and, since the hinge pins upon which the link 19 is mounted are passed through the openings in the metal hinge plates, there will be relatively a small degree of wear in the structure, thereby holding the two parts of the last in alignment even after extended use.

Furthermore, since the hinge pins, the hinge plates, and the hinge link have a metal-to-metal contact, an accurate adjustment of the hinge structure may be obtained.

The hinge assembly also permits the relative movement of the last parts to collapse the last and to extend it, and, in moving to opening position, the hinge construction permits the heel section, in respect of the fore section of the last, to be raised upwardly and tilted downwardly so that the last may be easily removed from the shoe upper without binding against the back line thereof.

Moreover, it will be observed that when the last is in expanded position the structure is such that, as the relative movement of the parts occurs and the heel section is moved to expanded position, the hook 8 engages in the recess 15 in the top wall 14 of the forward hinge plate member interlocking the two hinge plates together, adding rigidity to the last in its expanded position. When moved to open position, the hook is disengaged as a result of the normal movement of the parts to open position.

In order to provide against opening of the last after it has been brought to expanded position, I provide means for securely locking the parts in place, which means comprise a recess 22 near the upper part of the rear face of the forepart of the last and an opening 23 aligned therewith through the upper part of the forward section of the heel part of the last, into which a cotter pin 24, or other suitable retaining device, may be inserted, thereby holding the parts of the last against displacement after they have been moved to expanded position.

The last is provided in the top face of the heel section with the usual spindle socket 25.

From the foregoing description, it will be understood that the invention accomplishes the purposes and objects heretofore mentioned. It

also will be understood that the structure may be modified in certain respects without departing from the essentials of the invention.

What I claim and desire to secure by Letters Patent is:

1. In a last having relatively movable fore and heel sections to open and expand the last, a hinge structure comprising a hinge plate set into a recess in each of the abutting faces of the fore and heel sections respectively, a link, a pivot pin extending through opposite ends of said link and supported respectively in said hinge plates, and a lock device, one member of which is carried by one of said hinge plates and the other of which is carried by the other of said hinge plates, adapted to lock the parts with each other when the last is in expanded adjustment.

2. In a last of the class described, a hinge structure comprising a clevis set into a recess in each of the abutting faces of the heel and fore sections respectively, a link, a pivot pin extended through each of said clevises and through said link, a hook device carried by one of said plates and a detent device carried by the other of said plates for locking the plates with each other when the last is in extended adjustment.

3. In a last structure of the class described, a hinge link extending across the parting line of the last sections, a U-shaped clevis plate set into the respective matching faces of the hinge sections and embracing the link between the two walls of said clevis, and a latch device between said clevises arranged to lock the clevises when the link is in a horizontal position and to release when the link is moved from said position, thereby locking the last sections together when in expanded position and unlocking the last sections when the last is opened.

4. In a last of the class described, a hinge structure comprising a clevis set into a recess in each of the abutting faces of the heel and fore sections respectively, said clevises having matching faces, a link, a pivot pin extended through each of said clevises and through said link, a hook device carried by one of said plates and a detent device carried by the other of said plates for locking the plates with their matching faces in abutting position.

5. In a last having relatively movable fore and heel sections to open and expand the last, a hinge structure comprising a bifurcated hinge plate set into a recess in each of the abutting faces of the fore and heel sections respectively, a link extending between the walls of said hinge plates, a pivot pin extending through opposite ends of said link and supported respectively in said hinge plates, and a lock device, one member of which is carried by one of said hinge plates and the other of which is carried by the other of said hinge plates, adapted to lock the parts with each other when the last is in expanded adjustment.

6. In a last structure of the class described, a hinge extending across the parting line of the last sections, a U-shaped clevis plate set into the respective matching faces of the hinge sections and embracing the link between the walls thereof, a latch device between said clevises arranged to lock the clevises when the link is in a horizontal position and to release when the link is moved from said position thereby locking the last sections together when in expanded position, and an additional locking means for holding said last sections in expanded adjustment.