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**SHOE WITH A HINGED MECHANICALLY
ADJUSTABLE HEEL**

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4 Claims

ABSTRACT OF THE DISCLOSURE

A shoe is provided with a hinged mechanically adjustable heel. An upper shank and heel member is hinged to a toe portion of the shoe, there also being a rearwardly extending ground engaging member. A concealed lock holds the hinged shank and heel member at desired adjustable position relative to the ground engaging member while lock operator buttons can free the lock and allow adjustment of the heel about the hinge to change the height and angle of the shank and heel member.

Cross reference to related application

A claim of priority is made based on an application filed in Lebanon on Oct. 30, 1967 and now registered as a Lebanese patent.

Background of the invention

Field of invention.—This invention relates to improvements in shoes, and particularly to a hinged shoe heel lockable at adjustable positions varying the height and angle of the heel.

Prior art.—Adjustable height shoe heels are known in the art. These are generally of two different types. In one type additional components are added to provide extra heel height. The other type includes axially extensible spike heels, for example those having screw or telescopic adjustments. All of the prior art adjustable height shoe heels leave much to be desired and have not been broadly used. The heel height in the prior art shoes cannot be immediately adjustable while the shoe is on a wearer's foot. Additionally with some of the prior art shoes, one must carry extra components or special tools to accomplish a change in heel height.

Summary of the invention

This invention provides a shoe with a heel instantly convertible in height without requiring additional components or difficult adjustment. The height adjustment of the heel of the present invention can be immediately accomplished while the shoe is on a wearer's foot.

The shoe of this invention includes a front or toe member connected to an upper rear or heel member by a hinge or pivot. A rearwardly extending ground engaging portion of the front member has a locking arrangement with the upper rear member. The locking arrangement includes a hidden lock formed by spring biased lock pins engaging in spaced sets of holes in depending sides of the upper rear member. Lock operators in the form of attractive buttons on the depending sides contact the lock pins to disengage when the buttons are depressed and allow quick and easy adjustment of the lock in another set of vertically spaced holes, thus adjusting the height and angle of the rear or heel member.

Brief description of the drawings

The best mode that has been contemplated of carrying the invention into practice will be described below in

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connection with the accompanying drawings in which:
FIG. 1 is a side elevation of a shoe with an adjustable height heel of this invention.

FIG. 2 is a side elevation of the mechanical apparatus for accomplishing the adjustment with portions broken away for the sake of clarity.

FIG. 3 is a sectional view taken on line 3—3 of FIG. 2 showing the hinge or pivot.

FIG. 4 is a sectional view taken on line 4—4 of FIG. 3 showing the locking arrangement in transverse section.

FIG. 5 is a sectional view similar to FIG. 4 showing the lock in released condition.

FIG. 6 is a longitudinal sectional elevation view of the mechanical components and lock components shown in FIG. 2.

Description of preferred embodiment

A shoe 10 incorporating the adjustable height heel of this invention includes a front member or toe portion 12 and an upper rear member or shank and heel portion 14 which are hingedly connected by hinge connection 16. The upper rear member or shank and heel portion 14 may pivot about the axis of hinge 16 to assume adjustable heights as shown in the full and phantom lines of FIG. 1 and is locked in adjustable heights by a concealed locking arrangement 18. The locking arrangement locks the pivoted adjusted position of the upper rear member 14 relative to a rearwardly extending ground engaging portion 20 below the upper shank and heel member.

The hinge connection 16 includes a pivot pin 22 extending between spaced knuckles 24 and 26 of front portion 12 and center knuckle 28 of rear member 14, see FIG. 3.

The front member 12 includes a toe covering or upper 30 and a sole 32 of conventional shape which are attached to metal member 33.

The upper rear member or shank and heel portion 14 includes a top surface 34 and a metal supporting member 36 having depending sides 38 and 40, see FIGS. 2, 4 and 6.

A leaf spring 42 is secured to member 36 by a screw 44 and its free end bars on surface 45 of the rearwardly extending ground engaging portion 20.

The ground engaging portion 20 includes a short forward portion 12a and a heel cap 46 secured by a screw 48 and a mid-portion 50 which houses the concealed locking arrangement 18. A transverse hole 52 extends through portion 50, see FIGS. 4 and 5, and mounts therein a pair of locking pins 54 and 56 which cooperate with vertically spaced sets of holes 58 and 60, or 62 and 64, to lock the shank and heel member in vertically adjustable positions. A compression spring 66 is positioned between the locking pins 54 and 56 to bias them outwardly into either the lower set of holes 58 and 60 as shown in FIG. 4, or into the upper set of holes 62 and 64.

A pair of lock release buttons 68 and 70 of attractive configuration are utilized to release the hidden lock from the locking condition shown in FIG. 4 to the released condition shown in FIG. 5 for the purpose of adjustment. Since both lock release buttons are identical only one need be described in detail. Each lock release button has a cup-shaped base 72 which mounts a decorative contact surface 74 in the cup and has a pair of lock release posts 76 and 78 riveted to the bottom of the cup as shown in FIG. 4. A leaf spring strap 80 riveted by rivet 82 to the sides of metal member 36 normally holds the buttons outwardly as shown in FIG. 4. A U-shaped metal strap 84 may extend under the bottom of sides 38 and 40 around the posts 78 to prevent the lock from being completely disengaged.

It is believed the operation of the adjustable height heel is evident from the foregoing, but a brief summary will be given. The wearer of the shoe 10 can quickly adjust the rear member 14 relative to the ground engaging portion 20 for example from the phantom line position shown in FIG. 1 to the full line position shown in FIG. 1, by raising her foot and pressing in on buttons 68 and 70. This will release the lock pins 54 and 56 from holes 58 and 60 and allow the wearer to adjust the ground engaging member 20 relative to the rear portion 14 so that with the buttons 68 and 70 then released and back in their FIG. 4 position the outwardly biased locking pins 54 and 56 can find their home in the upper set of vertically spaced holes 62 and 64.

The metal components can be made of aluminum or other suitable materials and, of course, more than two different adjustable heights can be used for the same shoe.

Although the invention has been described in connection with an adjustable height heel for a lady's high fashion shoe, it could also be utilized for other shoes, such as orthopedic shoes for men, women or children. It is the intention not to limit the invention to the particular embodiment shown, and the scope of the invention is defined by the appended claims.

I claim:

1. A shoe having an adjustable height heel, the shoe comprising: a front shoe member for receiving the front or toe portion of a wearer's foot, an upper shank and heel member for supporting the rear or heel portion of a wearer's foot, a rigid ground engaging portion extending heelward from said front shoe member beneath said shank and heel member, hinge means connecting said upper shank and heel member to said front shoe member and said ground engaging portion whereby said shank and heel member may be raised or lowered relative to said ground engaging portion, and locking means between

said shank and heel member and said ground engaging portion for locking the relative position of said shank and heel member and said ground engaging portion and determining the height of the heel end of said shank and heel member.

2. A shoe as in claim 1 further comprising a spring between the bottom of the upper shank and heel member and the rigid rearwardly extending ground engaging portion.

3. A shoe as in claim 1 wherein the locking arrangement comprises lock pins biased outwardly from the rearwardly extending ground engaging portion into pairs of generally vertically positioned receiving holes in depending sides of the upper shank and heel member which straddle the ground engaging portion.

4. A shoe as in claim 3 further comprising spring supported lock release buttons on the depending sides of the upper shank and heel member, the buttons including lock pin depressing posts extending inwardly into the pairs of receiving holes to force the lock pins out of the holes when the buttons are depressed to release the lock and allow adjustment of the height of the heel supporting portion by moving the lock pins to another pair of vertically positioned receiving holes in the depending sides of the upper shank and heel member.

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