

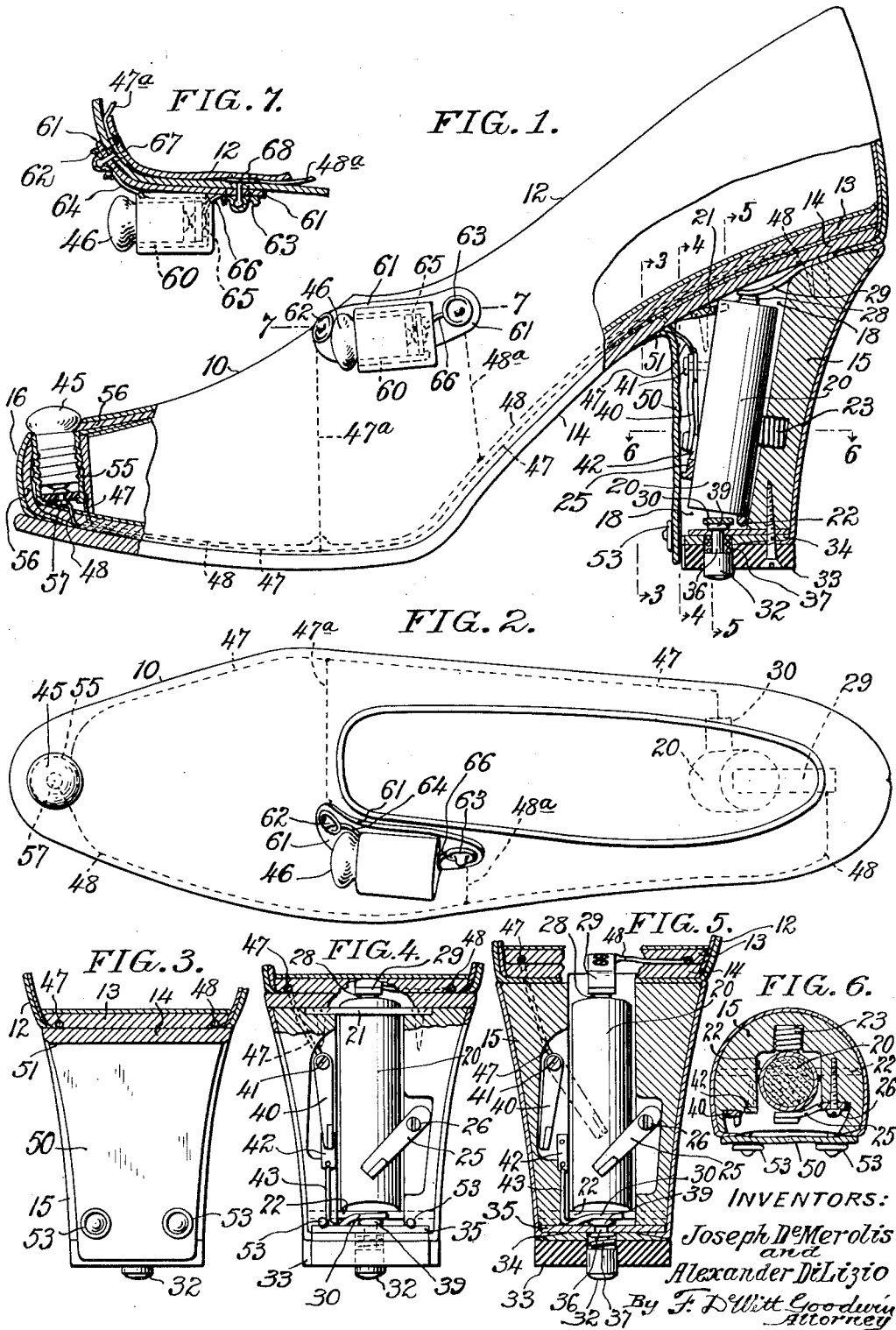
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ILLUMINATED SHOE

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ILLUMINATED SHOE

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11 Claims. (Cl. 36—2.5)

Our invention relates to improvements in electrically illuminated shoes and particularly to dancing shoes.

The object of our invention is to provide a shoe with novel means for detachably securing a dry cell within the heel.

A further object is to provide a shoe with a channel formed in the front of the heel, and provide a flexible wall, or curtain, for closing the channel and for concealing the cell within the heel.

A further object is to provide a push button upon the heel, with a portion of the button projecting beyond the heel whereby it will be operated when the heel is resting upon the floor, for intermittently illuminating the shoe by closing an electric circuit including the cell and one or more lamps.

A further object is to provide a manually operated switch upon the heel for controlling the circuit in various ways as desired.

A further object is to locate a lamp socket within the toe of the shoe, so that the socket will be entirely concealed within the shoe.

A further object is to provide a lamp socket upon a base, which base is detachably mounted upon the shoe, and the fastening means are utilized as electrical conductors.

These together with various novel features of construction and arrangement of the parts which will be more fully hereinafter described and claimed constitute our invention.

Referring to the accompanying drawing;—Figure 1 is a side elevation, partly in section, of a shoe embodying our invention.

Figure 2 is a plan view of Fig. 1.

Figures 3, 4 and 5, are transverse vertical sections on lines 3—3, 4—4 and 5—5 of Fig. 1.

Figure 6 is a horizontal sectional view on line 6—6 Fig. 1.

Figure 7 is a horizontal sectional view on line 7—7 Fig. 1.

The drawing illustrates a shoe 10 comprising the upper 12, the inner and outer soles 13 and 14, heel 15 and toe 16. The heel 15 is formed of wood, and is provided with a longitudinal channel, or cavity 18, extending vertically through the heel and open toward the front of the heel.

An electric dry cell 20 is mounted in the cavity 18 of the heel. The upper portion of the cell 20 is held in the cavity by a bridge plate 21, secured to the heel. The bottom of the cell 20 is supported upon a cross rod 22, secured in the heel and extending transversely through the cavity 18.

The cell is detachably held in the cavity 18 by

a bar 25, pivoted upon a pin 26 secured in the heel. The bar 25 may be turned into engagement with the cell 20, as shown in Figs. 4 to 6.

A coiled spring 23 is secured in a recess formed in the heel, and said spring is compressed by the cell when the latter is secured in the heel by the bar 25. The spring 23 is provided for pushing the cell 20 out of the cavity when the bar 25 is rotated into a position to release the cell, thus greatly facilitating in removing the cell from the heel.

The terminal 28 of the cell is in electrical contact with a spring contact plate 29 secured to the heel.

A spring contact plate 30 is secured to the lower portion of the heel and is normally out of contact with the metal casing of the cell 20. A push button 32 is slidably mounted in an aperture extending vertically through the tread layer 33 of the heel, and also through the inner layer 34 and through an aperture formed in a metal plate 35.

The push button 32, has a reduced portion 36, embraced by a coiled spring 37, which is located between said plate 35 and the body portion 38 of the button 32, thus tending to move the button outwardly from the bottom layer of the heel. The reduced portion 36 of the button has a head 39, formed upon its inner end, said head engages the plate 35, which limits the outward movement of the button by the action of the spring 37. When the button 32 is pressed inwardly the contact plate 30 will be held in electrical contact with the casing of the cell 20 for completing an electric circuit. When the heel is lifted from the floor, by the wearer of the shoe, the circuit will be opened by the outward movement of the button 32.

A hand operated switch is provided for controlling the circuit supplied by the cell 20. Said switch comprises a switch lever 40 pivoted upon a pin 41 secured in the heel.

A switch contact plate 42 is secured upon the heel. Said plate 42 is connected by an electric conductor 43, with the lower spring contact plate 30. The lever 40 may be moved into contact with the plate 42, as shown in Fig. 4, for completing the electric circuit with the lamps 45 and 46 through a conductor 47 connected with the pivot pin 41 of the lever 40, and a conductor 48, connected with the spring contact plate 29 engaged by the upper end of the cell 20.

When the switch lever 40 is in the position shown in Fig. 4, the circuit will be completed for intermittently lighting the lamps when the push button 32 is operated for moving the contact plate 30 into and out of contact with the cell 20.

The switch lever 40 may be moved into contact with the metal casing of the cell 20, as shown in dot and dash lines Fig. 5, for completing a continuous circuit including the cell 20, switch lever 40, spring contact plate 29, conductors 47 and 48 leading to the lamp or lamps, for continuously lighting the same.

The switch lever 40 may be turned into the off position shown in full lines in Fig. 5 for opening all of the circuits.

The switch lever 40 and the cell 20, are accessible through the open front wall of the heel.

Novel means are provided for closing the channel formed in the front of the heel, comprising a flexible wall, or curtain 50, formed of leather or fabric. The curtain 50 is secured at 51 where the sole and heel are joined together. The lower edge of the curtain 50 is secured to the lower portion of the heel by means of snap fasteners 53. The socket portions of the snap fasteners are secured to the curtain 50 and the head portions are secured to the heel, in a manner well known in the art.

The lamp 45 is detachably mounted in a screw shell, or socket 55, which latter is secured in the toe cap 56 of the shoe. The cap 56 is provided with an opening at the top thereof for the lamp. The lamp socket 55 is located at the extreme point of the toe cap and the socket is entirely concealed within the toe of the shoe.

The conductors 47 and 48 are connected with the socket 55 and the contact button 57, in the usual manner for completing the circuit with the lamp 45.

The lamp 46 is detachably mounted in a lamp socket 60, which is secured upon a base 61, preferably formed of leather and having snap fastener sockets 62 and 63 thereon. The lamp socket 60 is connected with the snap fastener socket 62 by an electric conductor 64, and the contact button 65 is connected with the snap fastener socket 63 by a conductor 66. The snap fastener heads 67 and 68 are secured to the upper of the shoe, and are electrically connected with the conductors 47a and 48a.

The conductors 47 and 48 are concealed between the soles of the shoe, and the conductors 47a and 48a are covered by the lining of the upper. Said conductors complete the electric circuits between the cell 20 and the lamps 45 and 46.

Either one or both of the lamps may be used. The lamp 45 may be unscrewed from the socket and the opening covered with any suitable form of ornament. The lamp 46 may be readily removed by disconnecting the snap fastener sockets, and an ornamental buckle substituted, when it is desired to only use the toe lamp 45. For stage dancing the toe lamp 45 is desirable and for other forms of dancing the upper lamp 46 is desirable as it is less likely to be broken.

Various changes in the construction and arrangement of the parts may be made without departing from our invention.

We claim:—

1. A shoe including a sole and a heel, said heel having a vertical channel formed in the front face thereof, an electric cell in said channel, an electric device upon the shoe, an electric circuit including said device and said cell, a curtain having one edge portion secured to the shoe adjacent to the junction of the sole with the heel, said curtain located upon the heel to close said channel, and co-operating snap fastener parts upon

the opposite edge portion of the curtain and upon the heel.

2. A shoe including a heel, said heel having a channel formed in the front face thereof, an electric cell in said channel, a clamp bar pivoted upon the heel and engageable with the cell for detachably securing the latter in said channel, an electric device upon the shoe, an electric circuit including said device and said cell, and means upon the front face of the heel for making the cell accessible.

3. A shoe including a heel, said heel having a channel formed in the front face thereof, an electric cell in said channel, a bridge plate secured in the heel adjacent to the upper portion of the channel and arranged to engage the upper end of the cell, a cross bar secured in the heel upon which the lower end of the cell is supported, a clamp bar upon the heel engageable with the cell for holding the cell upon said cross bar, a spring upon the heel engageable with the cell and tending to discharge the cell from said channel when the cell is released from the clamp bar, an electric device, an electric circuit including said device and said cell, and means upon the front face of the heel making the cell accessible.

4. A shoe including a heel, said heel having a channel formed in the front face thereof, an electric cell in said channel, a push button slidably mounted in the tread layer of the heel and having a portion projecting beyond the heel, an electric lamp, an electric circuit including said cell, lamp, and push button, and said circuit arranged to be opened and closed by the sliding movement of the push button relatively to the heel.

5. A shoe including a heel, said heel having a channel formed in the front face thereof, an electric cell in said channel, a push button located upon the heel and having a portion projecting beyond the heel and arranged to be moved into the heel when the heel is resting upon the floor, a spring upon the heel, said spring operatively associated with the push button tending to move the latter outwardly, an electric circuit including said push button arranged to be opened and closed by the movements of the latter, an electric device upon the shoe, and said circuit including said device and said cell.

6. A shoe including a heel, said heel having a channel formed in the front face thereof, an electric cell in said channel, a spring contact plate secured upon the heel and located in spaced relation with the lower end of the cell, a push button, said heel having an aperture formed through the bottom layer thereof, said push button slidably mounted in said aperture and projecting beyond the heel, a bearing plate secured within the heel, said button having a reduced central portion slidably mounted in said bearing plate, a spring upon the reduced portion of said button tending to move said button outwardly relatively to the heel, a head upon the inner end of said button engageable with said contact plate for moving the latter into electrical contact with the cell when the button is moved against the action of the spring, an electric circuit including said contact plate and said cell, and an electric device upon the shoe included in said circuit.

7. A shoe including a heel, said heel having a channel formed in the front face thereof, an electric cell in said channel, a push button, said heel having an aperture formed through the bottom thereof and occupied by said button, an

electric circuit including said cell and said button, said button arranged to close the circuit when pushed inwardly relatively to the heel, a spring tending to move the button outwardly relatively to the heel and open said circuit, a hand operated switch included in said circuit for controlling the latter, and a lamp located upon the shoe and included in said circuit.

8. A shoe including a heel, said heel having a channel formed in the front face thereof, an electric cell in said channel, a lamp upon the shoe, an electric circuit including said lamp, a contact plate in said circuit, said contact plate located within the heel and in electrical contact with the cell, a switch lever included in said circuit and manually movable into and out of contact with the cell to control said circuit, a contact plate engageable by said switch lever, a push button mounted upon the heel, a spring contact plate movable by said button into circuit closing position with the cell, and a conductor connected between said last mentioned contact plate and said contact plate which is engaged by the switch lever.

9. A shoe including a heel, said heel having a channel formed in the front face thereof, an electric cell in said channel, a lamp upon the shoe, an electric circuit including said lamp, a manually operated switch upon the heel arranged for opening and closing the circuit with

said cell, and an automatically controlled push button upon the heel arranged for controlling said circuit when the push button is moved relatively to the heel.

10. A shoe including a heel, said heel having a channel formed in the front face thereof, a curtain for closing said channel, means for detachably securing the curtain upon the heel, a cell detachably secured within the heel, a lamp socket, a base on which the lamp socket is secured, fastening devices upon the shoe and upon said base arranged for detachably securing the base to the shoe, an electric circuit including said lamp socket, said fastening devices and the cell, and a push button mounted upon the heel and included in said circuit.

11. A shoe including a heel, said heel having a cavity formed therein, a cell located within said cavity, a push button, said heel having an aperture formed through the bottom layer thereof through which aperture said button projects beyond the heel, a spring tending to move the button outwardly, an electric circuit including said cell and said button and controlled by said button, a manually operated switch lever upon the heel included in said circuit, and lamp sockets located upon the shoe and included in said circuit.

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