June 18, 1940. C. CARRARA 2,205,344

TAP DANCING HEEL AND TOE ATTACHMENT FOR SHOES

Filed Nov. 28, 1939 2 Sheets-Sheet 1

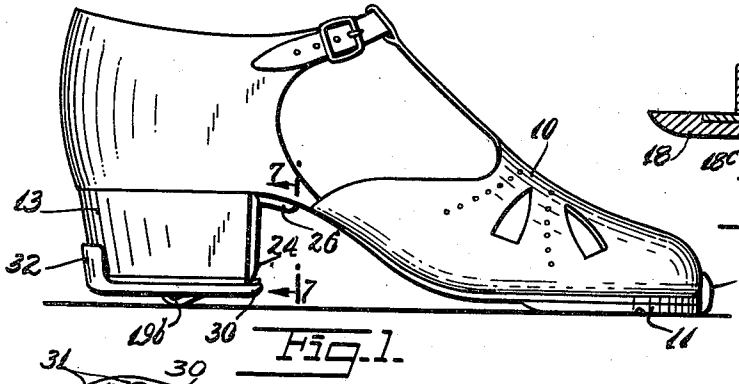


Fig. 1.

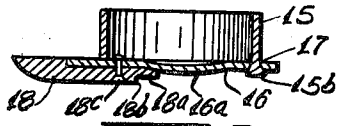


Fig. 6.

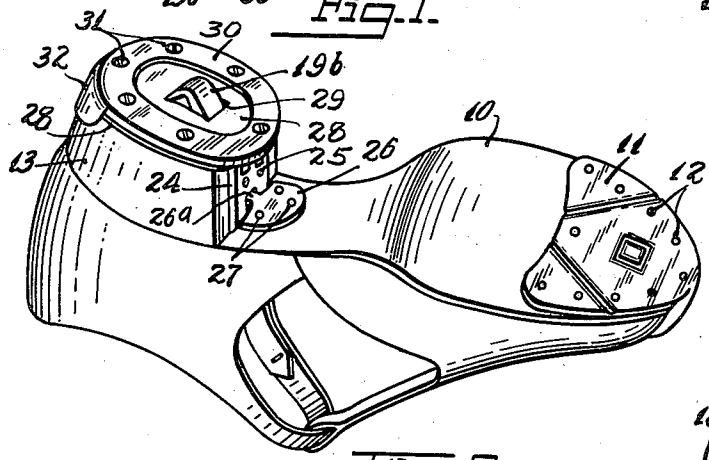


Fig. 2.

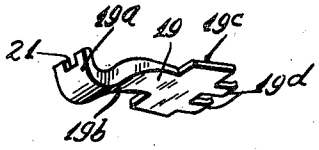


Fig. 4.

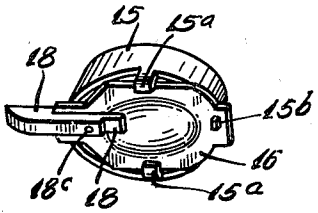


Fig. 5.

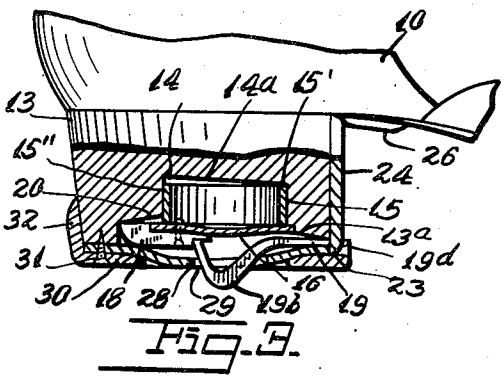


Fig. 3.

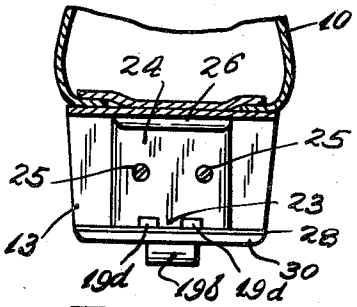


Fig. 7.

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TAP DANCING HEEL AND TOE ATTACHMENT FOR SHOES

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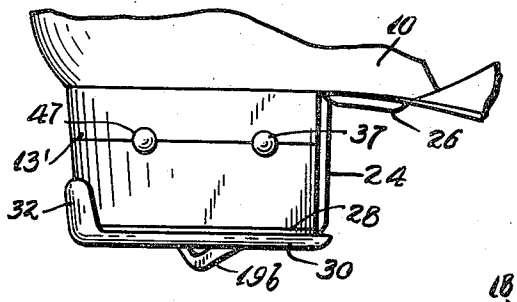


Fig. 8.

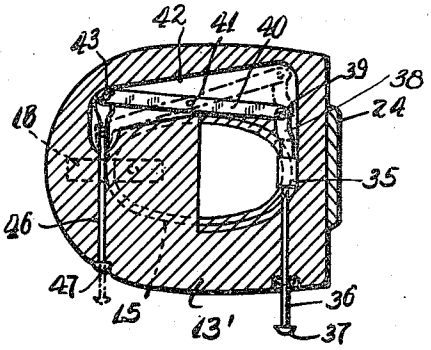


Fig. 10.

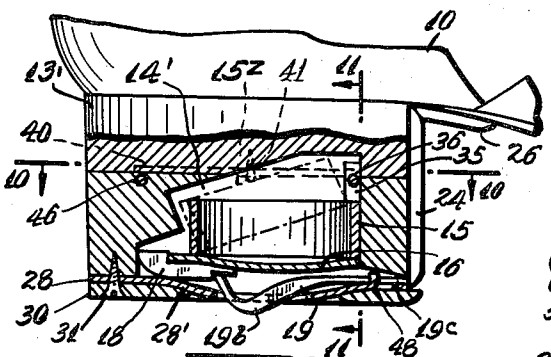


Fig. 9.

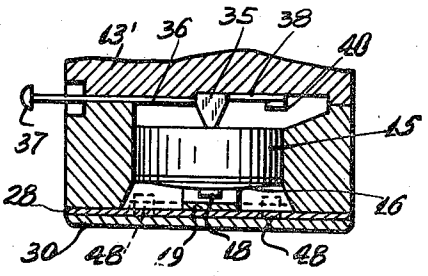


Fig. 11.

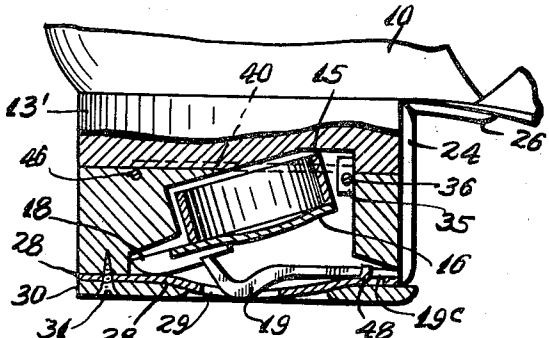


Fig. 12.

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UNITED STATES PATENT OFFICE

2,205,344

TAP DANCING HEEL AND TOE ATTACHMENT FOR SHOES

Charles Carrara, Brooklyn, N. Y.

Application November 28, 1939, Serial No. 306,463

9 Claims. (Cl. 36—8.3)

This invention relates to new and useful improvements in a tap dancing heel and toe attachment for shoes.

The invention has for an object the association of a sounding device in conjunction with the tap attachment, adapted to be operated when the shoe strikes the floor to augment the sound of the taps.

Still further the invention proposes to characterize the device by a movably mounted lever projecting from the bottom of the shoe and adapted to be forced inwards when the shoe strikes the floor and connected to operate the sounding mechanism.

Still further the invention contemplates the provision of a heavy frame and covering plate for the heel of the shoe to strike the floor to produce a loud sound in conjunction with the sounding mechanism previously mentioned.

Still further the invention proposes an arrangement whereby the sounding mechanism may be rendered inoperative, when desired.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a side elevational view of a dancing slipper with a tap dancing heel and toe mounted thereon and constructed in accordance with this invention.

Fig. 2 is a perspective view of the slipper shown in Fig. 1 turned bottom side up.

Fig. 3 is a fragmentary elevational view of the heel portion of Fig. 1, with portions broken away to disclose interior parts.

Fig. 4 is a perspective view of a lever used in the sounding device.

Fig. 5 is a perspective view of a certain tubular member and sounding member used in the sounding device.

Fig. 6 is a vertical longitudinal sectional view of the parts shown in Fig. 5.

Fig. 7 is a fragmentary vertical sectional view taken on the line 7—7 of Fig. 1.

Fig. 8 is a fragmentary side elevational view of a dancing slipper provided with a tap dancing heel constructed according to a modification of this invention.

Fig. 9 is a side elevational view similar to Fig. 8 but with certain portions broken away to disclose interior parts.

Fig. 10 is a horizontal sectional view taken on the line 10—10 of Fig. 9.

Fig. 11 is a fragmentary vertical sectional view taken on the line 11—11 of Fig. 9.

Fig. 12 is a view similar to Fig. 9 but illustrating the parts in a different position.

The tap dancing heel and toe attachment in accordance with this invention, is used in combination with a slipper 10 or shoe. A metal toe plate 11 is mounted on the toe portion of the sole of the slipper or shoe and has a front upwardly projecting flange 11a extending across the front of the shoe to protect the toe of the shoe. The toe plate 11 may be of aluminum or other metal. Fastening elements 12 serve to secure it to the sole of the shoe.

The heel construction, in accordance with this invention, includes the regular shoe heel 13 which is formed with a hollowed out area 14 extended inwards from its bottom face. A hollow tubular member 15 is set into this hollow 14. A sounding member 16 is mounted across the bottom of the tubular member 15. This tubular member 15 may comprise an annular sheet iron or similar material part. The sounding member 16 comprises a thin sheet of spring steel. It is held upon the bottom of the tubular member 15 by several prongs 15a formed on the bottom edges of the tubular member 15 and bent over the sides of the sounding member 16. A rivet portion 15b projects from the front bottom edge of the tubular member 15 and engages through an opening 17 formed in the front of the sounding member 16 and is riveted flat, to assist in holding the sounding member in position on the tubular member 15. The sounding member 16 is formed with a curved downwardly pressed central area 16a which is adapted to give out a snapping noise when pressed upwards.

An arm 18 is attached to the sounding member 16 by a rivet 18c. The inner end 18a of the arm 18 extends over a portion of the pressed-out area 16a of the sounding member. This inner end 18a is recessed so as to have a shoulder 18b against which the rear end of a lever 19 engages, as hereinafter more fully described. The outer end of the arm 18 is disposed adjacent the material of the heel 13 and more particularly, within a recess 20 having an upwardly inclined top wall.

The lever 19 has its rear end 19a formed with a cutout 21 which straddles the arm 18 and which rests against the shoulder 18b. The lever 19 has an intermediate area 19b which extends downwards. This downward extended area is curved and continues into an area 19c which is relatively

wide and terminates in a pair of forwardly extending spaced prongs 19d. These spaced prongs 19d straddle a prong 23 formed upon the bottom end of a side plate 24 which is attached to the front side of the heel 13 by several fastening elements 25. The prongs 19d thus hold the forward end of the lever 19 from shifting laterally. The side plate 24 is reinforced and held by a top plate 26 which is attached by fastening elements 27 to the arch of the slipper or the shoe 10. This top plate 26 has a forward projecting lug 26a engaging the top portion of the side plate 24 to assist in holding the side plate in position.

A cover plate 28 is mounted across the bottom of the heel 13 and is formed with a central opening 29 through which the intermediate area 19b of the lever 19 projects. A heavy material frame 30 is mounted beneath the cover plate 28. A plurality of fastening elements 31 engage through the frame 30 and through the plate 28 and connect with the heel 13 for firmly holding these parts in fixed positions. The heavy frame 30 is provided with upwardly projecting lug portions 32 at its rear, which engage the sides of the heel 13 to protect the rear of the heel from excessive wear during the tapping operation.

The top wall 14a of the recess 14 is slightly inclined so that the front end 15' of the tubular member 15 rests against the said top wall while the rear end 15'' is slightly spaced therefrom. This arrangement permits the tubular member 15 to be pressed upwards at its rear.

The operation of the device is as follows:

During the tapping operation the curved portion of the lever 19 strikes the floor and is pressed upwards. The lever 19 is pivotally mounted at its front end by the prongs 19d which straddle the finger 23 and which engage against the bottom edge portion of the side plate 24. The heel 13 has an inclined top surface 13a immediately adjacent the top face of the wide portion 19c of the lever 19 which permits the rear end of the lever to pivot upwards. When the lever 19 is pressed upwards it engages the rod 18 which is similarly pressed upwards. The rod 18 pivots about its rear end as a fulcrum because of the inclined top wall 20. Consequently, the sounding member 16 is pressed upwards and flexes and produces a clicking noise.

During the flexing of the sounding member 16 the rear end 15'' of the tubular member 15 is free to move upwards in the space immediately below the top wall 14a. When the heel of the slipper or shoe is lifted off the ground the inherent resiliency of the spring steel sounding member 16 flexes itself back to its original position which moves the arm 18 and the lever 19 downwards to their original positions. The parts are now in condition to be re-operated to produce another clicking sound. In this manner each striking of the heel against the floor produces the conventional tap sounds which are augmented by the clicking of the sounding device.

In Figs. 8 to 12 inclusive a modified form of the invention has been disclosed which distinguishes from the prior form in an arrangement whereby the clicking sound device may be rendered inoperative when desired. In this form of the invention the hollow tubular member 15 is normally held in a downward position by a cam 35. This cam is supported by a rod 36 which extends outwards through the side of the heel 13'. At its outer end the rod 36 is provided with a head 37. The cam 35 is also connected with a lever 38 which at its free end is pivotally connected by a pintle 39 with one end of a bell crank 40.

The bell crank 40 is pivotally mounted intermediate of its ends by a pintle 41. The bell crank 40 is disposed within a recess 42 formed in the heel 13'. The other end of the bell crank 40 is pivotally connected by a pintle 43 with a rod 47 which extends through another portion of the heel 13'. This rod 46 is provided with a head 47 at its outer end. The cover plate 28' has several lugs 48 stamped from the material thereof and extending upwards and engaging against the rear edges of the wide portion 19c of the lever 19 so as to prevent the lever 19 from being displaced during the inoperative condition of the sounding device.

The heel 13' is formed with an exceptionally large hollowed out portion 14' to permit the tubular member 15 to pivot upwards. The cam 35 merely holds the front edge portion of the tubular member 15. In other respects this form of the invention is similar to the previous form and similar parts may be identified by like reference numerals.

The operation of this form of the invention may be readily understood by examining Figs. 9 and 10, and comprehending that the cam 35 is engaging the top front edge of the tubular member 15 to hold the tubular member downwards. When the slipper or shoe is struck against the ground the projecting portion 19b of the lever 19 will be pressed upwards. The lever 19 will pivot about its front end, as previously described, the rear end of the lever 19 which engages the front end of the rod 18 will be moved upwards and the sounding member 16 will be flexed, producing the clicking sound. The device is now operating substantially identical to the preferred form.

However, the wearer may click the heels of the pair of slippers or shoes together, in a manner so as to press inwards the rod 36. This moves the cam 35 to an inoperative position, sidewise, off the top edge of the tubular member 15. Motion of the cam 35 is communicated to project the rod 46 which may subsequently be depressed by striking together the heels of the slippers or shoes, to again press the cam 35 into its original position.

During that period when the cam 35 is off the top edge of the tubular member 15 the clicking device will not operate. When the heel of the slipper or shoe is struck against the ground, the lever 19 will be moved upwards, similarly moving the front end of the arm 18. However, since the tubular member 15 is now free, the sounding member 16 will not be flexed. Instead, the tubular member 15 will move upwards to the position indicated by the dot and dash lines 15z in Fig. 9. This condition of the device is illustrated in full lines in Fig. 12. When the heel is lifted off the floor the tubular member 15 and the lever 19, by gravity, will fall downwards to their original positions. In the lifted position of the heel, the heels of the shoes or slippers may be kicked together to move the cam 35 back to its original position to hold the tubular member 15 lowered. Then the clicking device is in condition to function again.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications

coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the spring projects, and a heavy frame mounted beneath said cover plate.

2. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the spring projects, and a heavy frame mounted beneath said cover plate, the top wall of the hollow in the heel being inclined to support the front end of the tubular member so that the rear end may move upwards during the upward motion of said lever.

3. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the lever projects, and a heavy frame mounted beneath said cover plate, said arm being supported at its rear end only so that it may fulcrum upwards about the rear end as a pivot.

4. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the lever projects, and a heavy frame mounted beneath said cover plate, said lever being pivotally supported at its front end so that its rear end may move upwards about its front end as a pivot.

5. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the lever projects, and a heavy frame mounted beneath said cover plate, said lever being pivotally supported at its front end so that its rear end may move upwards about its front end as a pivot, the front end of said lever being formed with finger portions straddling a prong on a side plate fixedly mounted on the side of said heel.

6. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the lever projects, and a heavy frame mounted beneath said cover plate, said lever being pivotally supported at its front end so that its rear end may move upwards about its front end as a pivot, the front end of said lever being formed with finger portions straddling a prong on a side plate fixedly mounted on the side of said heel, and the top plate mounted on the arch of said shoe and engaging the top portion of the side plate to assist in holding the same fixedly in position.

7. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the lever projects, a heavy frame mounted beneath said cover plate, and means for releasably holding said sounding member in a normally lowered position and operable to free said sounding member to move upwards.

8. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the lever projects, a heavy frame mounted beneath said cover plate, and means for releasably holding said sounding member in a normally lowered

position and operable to free said sounding member to move upwards, including a cam normally engaging the front top edge of the tubular member, and means for moving the cam free from the tubular member.

9. In a tap dancing shoe, a heel having a hollow extended inwards from its bottom face, a hollow tubular member set into said hollow, a sounding member mounted across the bottom of said tubular member, an arm attached on said sounding member and projecting outwards and disposed against the material of said heel adjacent said hollow, a lever having one end engaging said arm and an intermediate area extended downwards and having its other end pivotally supported, a cover plate mounted across the bottom of said heel and having an opening through which said intermediate area of the lever projects, a heavy frame mounted beneath said cover plate, and means for releasably holding said sounding member in a normally lowered position and operable to free said sounding member to move upwards, including a cam normally engaging the front top edge of the tubular member, and means for moving the cam free from the tubular member, including a leverage system having a depressible rod at one end for moving the cam and another rod at its other end extended when the cam is moved and subsequently depressible to replace the cam to its original position.

CHARLES CARRARA.