

May 10, 1960

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2,936,139

RESILIENT NON-SKID SUPPORTING SHOES WITH SUCTION CAP

Filed April 8, 1959

2 Sheets-Sheet 1

Fig. 1.

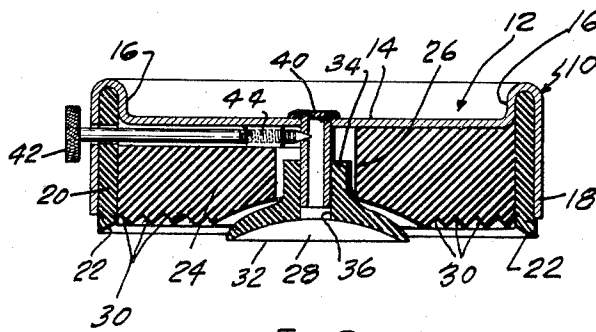
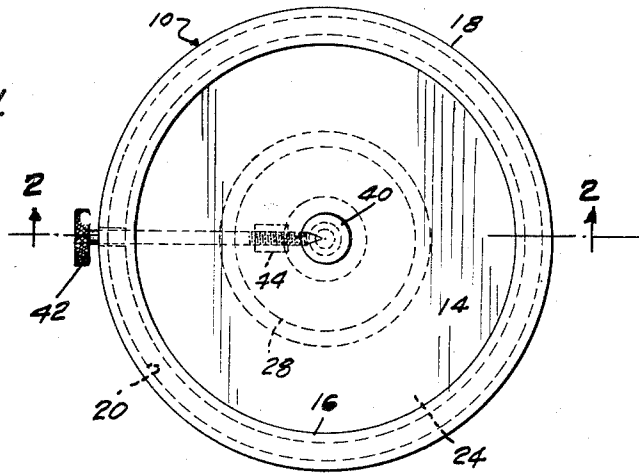


FIG. 2.

FIG. 3.

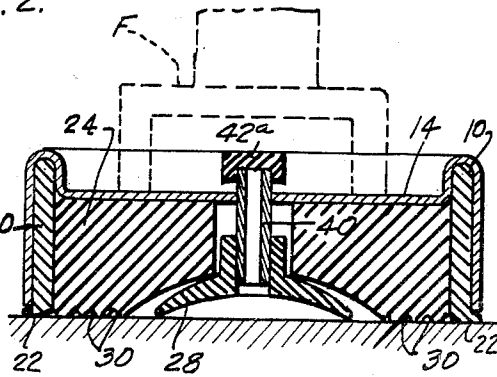
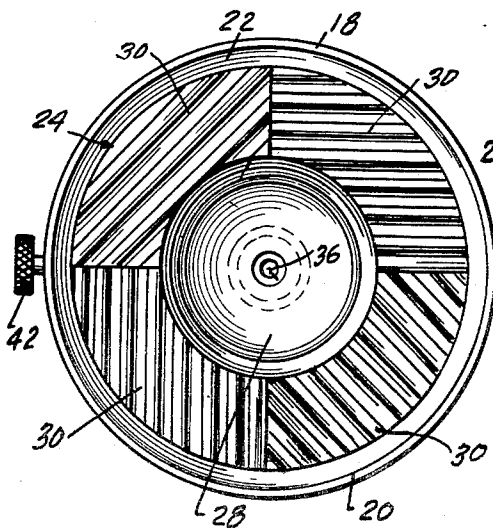


FIG. 4.

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2 Sheets-Sheet 2

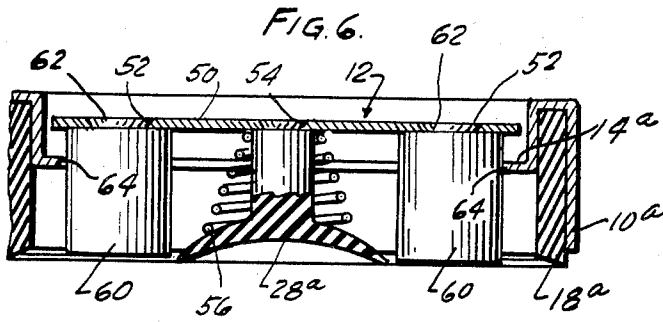


FIG. 8.

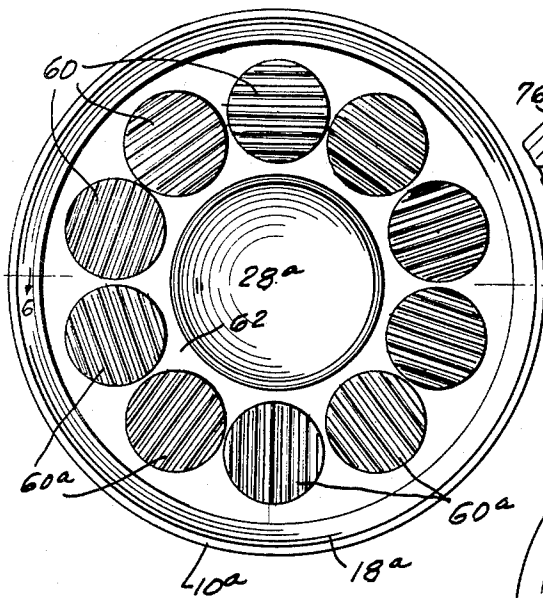


FIG. 5.

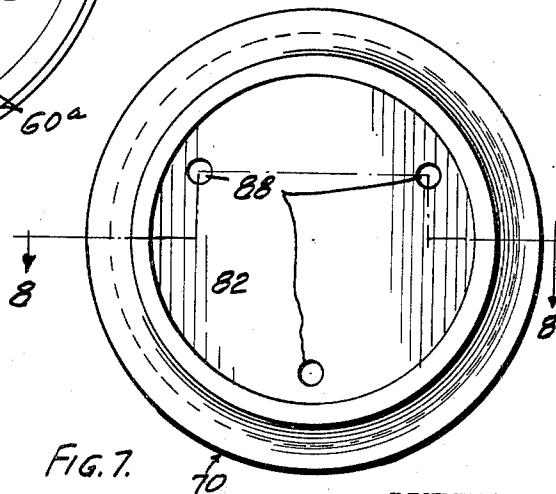
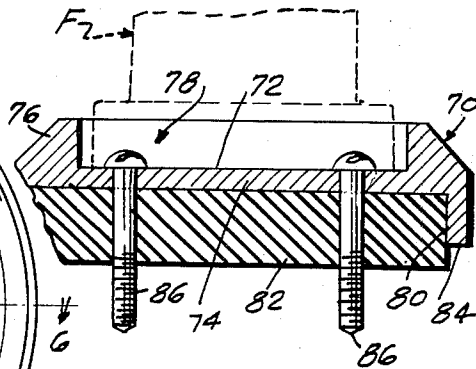


FIG. 7.

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1

2,936,139

RESILIENT NON-SKID SUPPORTING SHOES WITH SUCTION CUP

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8 Claims. (Cl. 248-24)

My invention relates to support shoes for typewriters, adding machines, check writers and similar devices.

My invention relates more particularly to a resilient supporting shoe of the type described that is capable of insulating the noise of the machine which sets upon the shoes caused by transmission through a desk or other supporting surface, and also of preventing the machine placed thereon from sliding or slipping during use.

The principal object of the present invention is to provide a non-skid supporting shoe for receiving the feet of business machines such as typewriters, adding machines and other similar equipment found in offices.

A further object of the invention is to provide supporting shoes of the type described which form a resilient support for the feet of the machine placed thereon and a support which is normally locked to the surface upon which it is placed, said support also having means thereon to prevent dust or other sediment from accumulating beneath any portion of the shoe while in use.

A further object of the invention is to provide a non-skid supporting shoe of the type described which has a bottom or supporting pad surface configuration for protecting the same against movement in any one of a plurality of directions.

A further object of the invention is to provide a device of the type described which has spring supported means for holding the feet of typewriters or other business machines resiliently upon a surface, and additional means associated therewith for locking the supporting shoe to the surface.

For a more comprehensive understanding of the invention and the many benefits thereof, reference is had to the accompanying drawings, upon which:

Fig. 1 is a plan view of one type of supporting shoe;

Fig. 2 is a cross-sectional view thereof taken generally on the line 2-2 of Fig. 1;

Fig. 3 is a bottom plan view thereof;

Fig. 4 is a cross-sectional view of a modified form of the invention showing how the same appears in a machine supporting position;

Fig. 5 is a bottom view of a modified form of the invention;

Fig. 6 is a cross-sectional view thereof taken on the line 6-6 of Fig. 5;

Fig. 7 is a plan view of a further modified form of supporting shoe; and

Fig. 8 is a cross-sectional view thereof taken generally on the line 8-8 of Fig. 7.

In the embodiment of the invention which I have chosen to illustrate and describe the same, I provide an inverted cup-shaped shell or housing 10 which may be formed of metal or plastic or any other suitable material. The housing 10 is preferably formed with a shallow well 12 having a flat bottom 14, the edges of the bottom wall 14 terminating in upwardly depending shoulders 16 that are then turned downwardly to form the concentric cylindrical enclosing wall 18 of the housing. I provide a hard rubber ring 20 mounted between the side wall 18 and the upwardly turned flange 16 at its upper end, the ring 20 having a knife edge 22 at the bottom thereof so that when the weight of a leg of a typewriter or other machine is placed on the shoe 10 it will deform to the condition shown in Fig. 4, thus effecting an edge seal about the outer periphery of the shoe.

The shoe may also enclose within the ring 20 a some-

2

what softer rubber disc 24 that has a medial opening 26 therein to permit the positioning of a suction cup 28 through said opening. The bottom edge of the disc 24 is preferably formed with serrations 30 so that when a weight is placed upon the same they will be deformed generally to the condition shown in Fig. 4. The serrations 30 which prevent sliding of the disc 24 and therefore the shoe 10, are preferably directed in a plurality of opposing directions, and as seen in Fig. 3, which is a bottom view of the shoe, the serrations are directed in four opposing directions, the base of the disc being divided into quadrants as shown. However, while quadrants are shown in the drawing, the base can of course be divided into more different sections if desired, the serrations in each section being at an angle to the other serrations.

The vacuum cup 28 may have a face 32 for suction attachment to a surface, the stem 34 of the same extending upwardly in the bore 26 and the stem in turn having a bore 36 therein within which a hollow tubular member 40 may be mounted. The member 40 has a needle valve 42 engaging a minute opening in the side thereof, the valve being screw-threadedly mounted in a boss 44 extending downwardly from the floor 14 of the shallow well 12.

From the above description it can be seen that when the foot F of a typewriter or other machine of a similar type is positioned in the well 12 of the shoe which I have provided, the weight will first create a suction grip on the surface of the support for the machine, and in addition the serrations 30 on the lower face of the disc 24 will grip the surface to prevent sliding or other movement of the machine during its operation. Also, the sealing ring 18 has been slightly disfigured to press the edge of the lip 22 into contact with the surface of the support about its entire periphery so that no dust or other sediment can come under the shoe 10.

When it is desired to loosen the shoe from attachment to the support, the needle 42 is operated to uncover the opening in the side of the tube 40 to permit air to enter and break the vacuum so that the cup can be released. As will be seen in Fig. 4, rather than provide the needle valve 42 for releasing the vacuum in the cup 28, I have provided a sealing cap 42a which may be made of rubber or other suitable material, and which may be pressed over the open upper end of the tubular member 40.

In the embodiment of the invention shown in Figs. 5 and 6, I have shown a shell 10a which encompasses a sealing ring 18a, the shell 10a having a shallow well 12 formed with a floor 14a. In this embodiment of the invention I prefer to provide a cushion support for receiving the weight of the machine that may include a disc 50 which has a peripheral row of openings 52 therein and a medial opening 54. The rubber vacuum suction cup 28a has a shouldered upper end received in the opening 54, the cup being normally held in expanded or open position by a coiled spring 56 positioned between the disc 50 and the outer edge or lip of the vacuum cup 28a. For supporting the weight of the machine and preventing shifting about on a supporting surface, I provide a plurality of rubber plugs 60 having reduced shoulders 62 to be held in the openings 52 in the flat metal disc 50, the plugs 60 extending downwardly through suitable openings 64 in the floor 14a of the well 12.

With this construction the operation of the shoe will be the same as that generally described in connection with Figs. 1 to 4 inclusive, the plugs 60 having the bottom face serrations 60a so arranged that they will prevent movement of the shoe in any direction.

In the embodiment of the invention shown in Figs. 7 and 8, I have provided a shoe 70 which may include a cast metal housing 72 that has a floor 74 and raised lips

3

76 enclosing a shallow well 78 for the reception of the foot F of a machine. The housing 70 has a circular opening 80 beneath the floor 74 which receives a rubber disc member 82 within the periphery of a side edge 84. Suitable nails or screw members 86 may extend downwardly through suitable openings 88 in the floor 74 and disc members 82 so that the shoe may be rigidly fastened to a supporting surface if desired, compressing the resilient disc 82 therebetween.

From the above and foregoing description it can be seen that I have provided a unique and novel non-skid shoe or support for typewriters and other business machines of a type which, without being fixedly yet resiliently supported, would be noisy in operation and would have a tendency to move about on the table or desk if not otherwise restricted. By the use of the improved non-skid supporting shoe which I have provided, the machine is fixedly yet yieldingly held in a stationary position, and any tremor or vibration which would result in the use of the machine is disseminated in the rubber supporting discs of the shoe. This creates a more satisfactory working condition in that the operation of the machines will be far more quiet, no re-positioning of the machine is necessary due to sliding, and due to the yielding support the machines will be susceptible to longer usage without becoming broken or worn out.

I contemplate that changes or modifications may be made in the exact details shown and I do not wish to be limited in any particular; rather what I desire to secure and protect by Letters Patent of the United States is:

1. A non-skid supporting shoe of the type described comprising a cylindrical downwardly facing cup-shaped member having a transverse wall, an upwardly extending peripheral shoulder terminating in a concentric downwardly depending flange, a hard rubber encircling ring mounted in the space between said shoulder and said flange, a softer rubber disc member supported within said ring, an axial opening through said disc member and a rubber suction cup mounted in the transverse wall of said housing and extending downwardly below said disc and hard rubber ring.

2. A non-skid supporting shoe of the type described comprising a cylindrical downwardly facing cup-shaped member having a transverse wall, an upwardly extending peripheral shoulder terminating in a concentric downwardly depending flange, a hard rubber encircling ring mounted in the space between said shoulder and said flange, a softer rubber disc member supported within said ring, an axial opening through said disc member and a rubber suction cup mounted in the transverse wall of said housing and extending downwardly below said disc and hard rubber ring, said rubber disc having serrations in its bottom wall.

3. A non-skid supporting shoe of the type described comprising a cylindrical downwardly facing cup-shaped member having a transverse wall, an upwardly extending peripheral shoulder terminating in a concentric downwardly depending flange, a hard rubber encircling ring mounted in the space between said shoulder and said flange, a softer rubber disc member supported within said ring, an axial opening through said disc member and a rubber suction cup mounted in the transverse wall of said housing and extending downwardly below said disc and hard rubber ring, said rubber disc having serrations in its bottom wall and said rubber ring having an inwardly sloped edge at its lower end.

4. A non-skid support shoe comprising a cylindrical downwardly opening cup-shaped member having a top wall, a circular side wall having a raised peripheral flange, a top shoulder on said flange and a concentric downwardly depending flange, a hard rubber sealing ring mounted between said flanges and extending downwardly therefrom, said top wall having a circular opening there-through, a flat disc having a diameter larger than said opening above said top wall, a peripheral row of soft rubber

4

ber plugs fastened to said disc and extending downwardly therefrom through said opening and a rubber suction cup fastened to said disc and extending downwardly below said plugs and said hard rubber ring.

5. A non-skid support shoe comprising a cylindrical downwardly opening cup-shaped member having a top wall, a circular side wall having a raised peripheral flange, a top shoulder on said flange and a concentric downwardly depending flange, a hard rubber sealing ring mounted between said flanges and extending downwardly therefrom, said top wall having a circular opening there-through, a flat disc having a diameter larger than said opening above said top wall, a peripheral row of soft rubber plugs fastened to said disc and extending downwardly therefrom through said opening and a rubber suction cup fastened to said disc and extending downwardly below said plugs and said hard rubber ring, said suction cup having a coiled spring around the same normally forcing its peripheral edge downwardly.

6. A non-skid support shoe comprising a cylindrical downwardly opening cup-shaped member having a top wall, a circular side wall having a raised peripheral flange, a top shoulder on said flange and a concentric downwardly depending flange, a hard rubber sealing ring mounted between said flanges and extending downwardly therefrom, said top wall having a circular opening there-through, a flat disc having a diameter larger than said opening above said top wall, a peripheral row of soft rubber plugs fastened to said disc and extending downwardly therefrom through said opening, a rubber suction cup fastened to said disc and extending downwardly below said plugs and said hard rubber ring, said suction cup having a coiled spring around the same normally forcing its peripheral edge downwardly and said plug members all having serrated ends all directed in different directions.

7. A non-skid supporting shoe of the type described comprising a cylindrical downwardly facing cup-shaped member having a transverse wall, an upwardly extending peripheral shoulder terminating in a concentric downwardly depending flange, a hard rubber encircling ring mounted in the space between said shoulder and said flange, the transverse wall of said cup-shaped member having an opening therethrough, a circular metal plate positioned above the transverse wall of said cup-shaped member, a plurality of downwardly depending plug members connected to said metal plate and extending downwardly through the opening in said wall, a rubber suction cup connected to the center of said plate and extending downwardly therefrom and a coiled spring between said plate and the peripheral edge of said suction cup.

8. A non-skid supporting shoe of the type described comprising a cylindrical downwardly facing cup-shaped member having a transverse wall, an upwardly extending peripheral shoulder terminating in a concentric downwardly depending flange, a hard rubber encircling ring mounted in the space between said shoulder and said flange and extending downwardly therefrom, the transverse wall of said cup-shaped member having an opening therethrough, a circular metal plate positioned above said transverse wall, a plurality of downwardly depending plug members connected to said metal plate and extending downwardly through said opening, a rubber suction cup connected to the center of said plate and extending downwardly therefrom and a coiled spring between the under side of said plate and the outer periphery of the lips of said suction cup.

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