

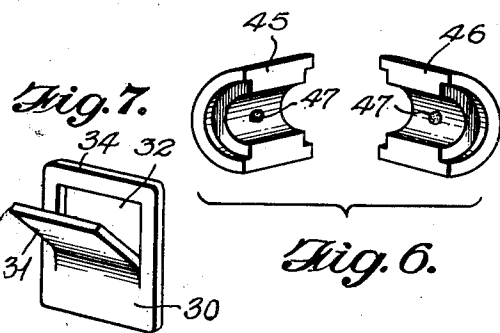
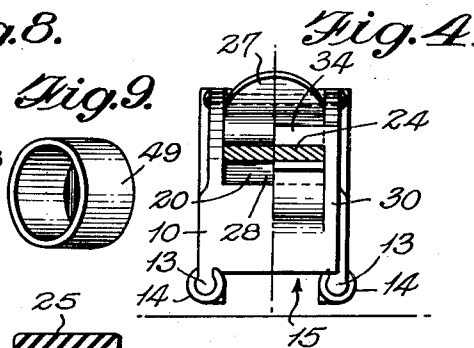
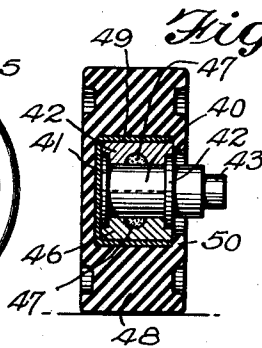
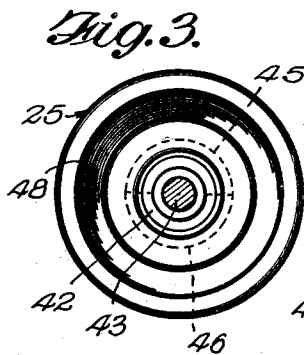
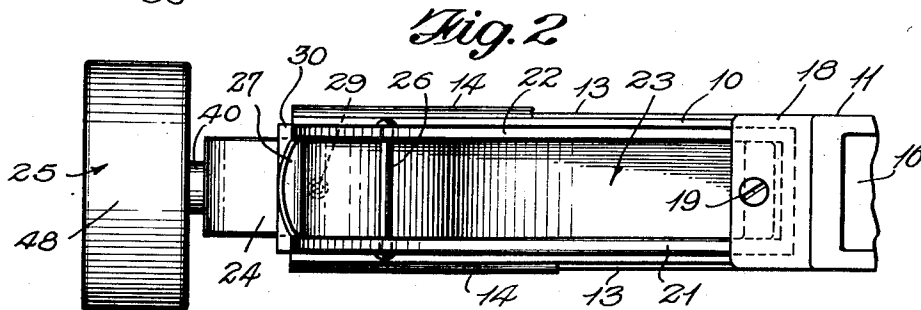
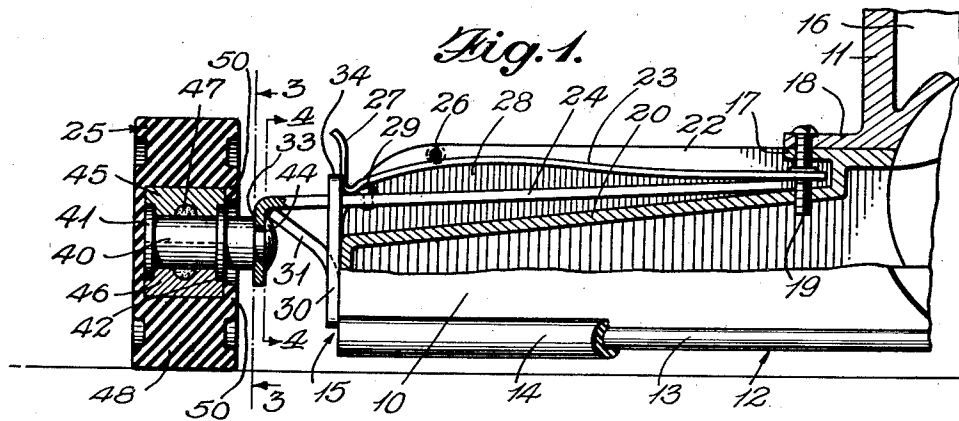
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2,175,646

FLOOR TOOL ROLLER

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FLOOR TOOL ROLLER

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5 Claims. (Cl. 15—155)

The invention relates to floor tool rollers and supports therefor and more particularly to improvements in attachment casters of the general type disclosed in my Patent No. 1,541,280 dated June 9, 1925. Certain features of the invention are of general application while others are more particularly related to the suction cleaner art.

One of the objects of the invention is to simplify and improve the mounting of the supporting rollers at the ends of a floor tool or the like.

Another object is to provide an improved end closure for a floor tool.

A further object of the invention is to improve the end roller itself, and the bearings thereof.

Other objects and advantages will appear hereinafter from the further detailed description of the invention.

The invention will be more readily understood by reference to the accompanying drawing in which are set forth a specific embodiment of the inventive thought for the purpose of illustration rather than by way of limitation.

In the drawing:

Fig. 1 is a longitudinal sectional view through a floor tool of a suction cleaner equipped with the improved supporting rollers, the floor tool being shown fragmentarily.

Fig. 2 is a top plan view of the same.

Fig. 3 is a view taken on line 3—3 of Fig. 1.

Fig. 4 is a section on line 4—4 of Fig. 1.

Fig. 5 is an axial section through the tire of the supporting end roller.

Fig. 6 is a perspective view showing the two-part bearing of the supporting roller, made of anti-friction material.

Fig. 7 is a perspective view of one of the end closure plates.

Fig. 8 is an axial sectional view showing the supporting roller provided with a thimble which holds the two parts of the roller bearing in assembled position.

Fig. 9 is a perspective view of the metal thimble.

For convenience the invention will be described by reference to a floor tool such as is disclosed in Replogle and Queen Patent No. 1,994,872 dated March 19, 1935, particularly Fig. 10 thereof, but it will be understood that the invention is by no means limited in its application for a floor tool of this character.

As shown the floor tool is in two parts, a lower portion 10 and an upper portion 11, each of which includes a suction nozzle. The portion 10 is provided with a large mouth 12 having front and rear lips 13 over which are fitted fiber stroker

members 14 forming between them end openings 15 through which air may be drawn into the interior of the tool. The other portion 11 is provided with a reduced mouth 16 through which air may be drawn into the interior when the tool is reversed as described in the aforesaid patent. It will be noted that only half of the tool is shown, the other half being similar to the portion which is shown and the tool being provided with a suction handle, not shown, such as is disclosed in the aforesaid Patent No. 1,994,872.

As shown the upper and lower members of the floor tool are provided with outwardly projecting shoulders 17 and 18 respectively which are held together by any suitable means as the assembling screw 19, it being understood that similar abutting members are provided on the other side and are similarly held together. The member 10 of the floor tool is shown as provided with a sloping wall 20 which serves as the top of the nozzle proper. From the front and rear edges of this wall rise side walls 21 and 22 which are open at the top. A flat spring 23 is adapted to be mounted between the two walls 21 and 22 and is preferably of a width to close the space between them and form with said walls and the top wall 20 of the nozzle an end pocket 28 for receiving the supporting shank 24 of an end roller to be further described but which may be generally designated by the reference numeral 25.

The rear end of the spring 23 may be held in place in any suitable manner but as shown is provided with an opening through which passes the assembling screw 19. The upward movement of the spring 23 under the influence of the roller shank 24 is limited by a spanning rivet 26 which connects the front and rear walls 21 and 22. The front end 27 of the spring is turned upwardly to form a finger grip by means of which the spring may be raised slightly to permit removal of the roller shank. The spring 23 is under constant tension serving to press the spring downwardly upon the roller shank 24 thereby tending to lift the floor tool nozzle from the floor, which tendency may be counteracted by the operator exerting sufficient downward pressure upon the floor tool through the medium of the operating handle to overcome the tension of the spring in whole or in part.

In the assembled position the inner end of the roller shank 24 preferably abuts against the screw 19 and is provided adjacent its other end but spaced a sufficient distance from the roller 25, with a stop or catch 29 which may be in the form of a small rivet head, against which the

end portion of the spring 23 fits thereby holding the shank in position except when the finger portion 27 is lifted to permit removal thereof.

Each end opening 15 of the nozzle is adapted to be partially or entirely closed by an end plate 30 carried by the roller shank 24 in a manner similar to what is described in my Patent No. 1,895,584 dated January 21, 1933. The end plate is preferably composed of hard fiber, raw hide, Bakelite or other suitable material. As shown in Fig. 7 a tab 31 is struck out from the face of the plate leaving an opening 32 to permit passage of the roller shank 24. When the parts are assembled the tab 31 abuts against a down-turned portion 33 of the roller shank thereby pressing the end plate against the end of the nozzle and regulating and controlling the flow of air into the end of the nozzle. The top portion 34 of the end plate will then engage the up-turned portion of the spring 23 on the side opposite to the catch 29, a sufficient portion of the spring extending above the plate to be accessible when the roller shank is to be removed from the pocket.

The roller 25 is shown as of general type disclosed in my Patent No. 1,541,280 but according to the present invention includes a spindle 40 having wheel retaining flanges 41 and 42 formed integral with the main body of the spindle and having a reduced portion 43 (Fig. 8) which is adapted to fit an opening 44 in the down-turned portion 33 of the roller shank 24. This reduced portion is subsequently upset to form a riveted connection with the shank as indicated in Fig. 1.

According to the present invention the hub or bearing for this spindle is formed in two halves 45 and 46, being divided axially as indicated in Fig. 6. Each half is provided with one or more internal pockets 47 adapted to contain soapy graphite or other anti-squeak material. The bearing may be bored to fit the spindle 40 and counter-bored to fit the flanges 41 and 42 before being split in two. The hub may be formed of wood impregnated with grease if desired as disclosed in my Patent No. 1,541,280 or may be formed of Babbitt metal, graphite or other anti-friction material. The spindle 40 for mounting the roller may be a machine product having both wheel retaining flanges 41 and 42 made integral with it so that the bearings with their counter-borings (to prevent induction of air and ravelings) can be placed and replaced only by separating the halves into which they are split.

A relatively thick rubber cap-shaped member 48 similar to what is described in my Patent No. 1,541,280 may be fitted over the hub and serves to hold the two halves of the hub together and in addition serves as the tire of the roller. Owing to the resilience of the material of which the tire is composed it may be expanded to fit over the hub and when assembled holds the parts

firmly together. The assembled roller will rotate freely about the spindle substantially without friction and without squeaking and requires no further attention as to lubrication.

If desired a metal cup 49 such as disclosed in my Patent No. 1,541,280 may be used in connection with the bearing as indicated in Figs. 8 and 9 but this cup may be omitted if desired as indicated in Fig. 1. The tire 48 preferably has a retaining lip 50 to hold it in place.

The invention has been described in detail for the purpose of illustration but it will be understood that modifications and variations may be resorted to as will be apparent to those skilled in the art, without departing from the inventive thought involved.

I claim:

1. In a suction cleaner, a floor tool having end pockets each including side walls and a downwardly tensioned leaf spring secured at its inner end to the cleaner body between said side walls, and serving as a cover for its respective pocket, means located above the spring intermediate its ends for limiting its upward movement, roller shanks extending into said pockets between said side walls and beneath the springs, and coacting means carried by said springs and shanks for releasably retaining the shanks in place.

2. In a suction cleaner, a floor tool having end pockets each including side walls, and each having a downwardly tensioned leaf spring mounted between said side walls, and secured at its inner end to the body of the cleaner, means located above the spring intermediate its ends for limiting its upward movement, roller shanks detachably connected in said pockets and extending laterally therefrom, end rollers carried by said shanks, and releasable coacting means carried by the outer end of each leaf spring and roller shank respectively for holding the shanks in the pocket.

3. A suction cleaner as set forth in claim 1, wherein each roller shank is provided with a retaining lug near the outer end of the pocket, said lug being engaged by the outer end of the spring to normally hold the shank in position.

4. In a device of the character described; a roller shank, a roller spindle carried thereby, a two part anti-friction hub fitting over the spindle, and a resilient rubber cap holding the two halves of the hub together and serving as a tire for the roller.

5. The combination of the spindle as set forth in claim 4 having integral wheel retaining flanges; with the two piece hub having a central recess adapted to fit over the main body of the spindle and between the flanges, and counter-borings adapted to fit over the wheel retaining flange.

DANIEL BENSON REPLOGLE.