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Fortnam

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[54] **STEP ATTACHMENT FOR A DENTAL STOOL**

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[52] **U.S. Cl.** **297/432,** 297/240, 297/437

[51] **Int. Cl.** **A47c 7/50**

[58] **Field of Search** 297/240–242, 297/432, 437, 438

[56] **References Cited**

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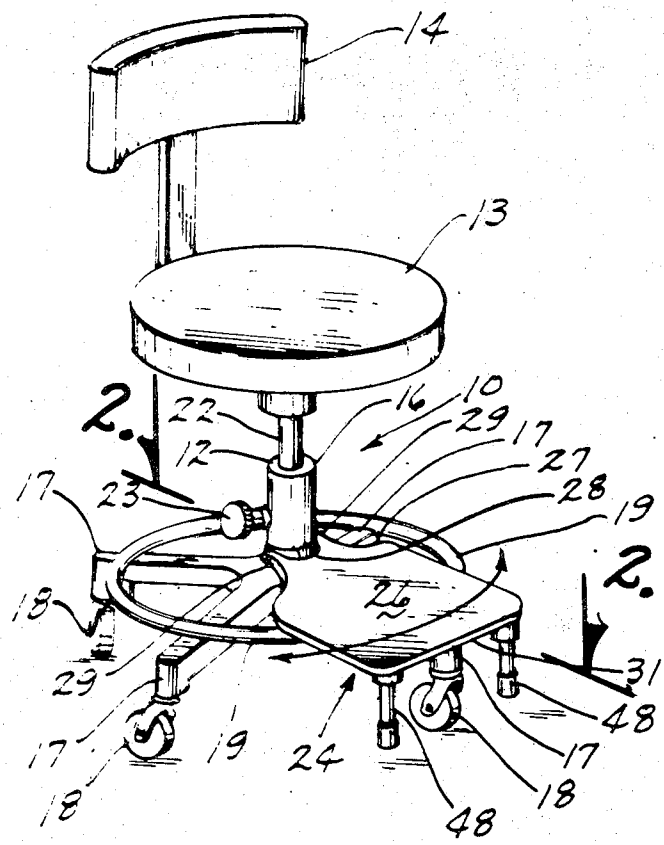
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[57] **ABSTRACT**

The step attachment comprises a plate member adapted to extend radially from the center post of a dental stool in an overlying relation with the stool base, which carries floor engaging caster wheels. The plate member is movably supported at the lower end of the post for rotational movement about the post and for pivotal up and down movement of its outer end. A leg member at the outer end of the plate member is normally yieldably held out of engagement with the floor whereby the stool is freely movable along the floor and the plate member fully rotatable about the post. When the plate member is stepped on the leg member is moved into bearing engagement with the floor to hold the stool against floor movement.

4 Claims, 6 Drawing Figures



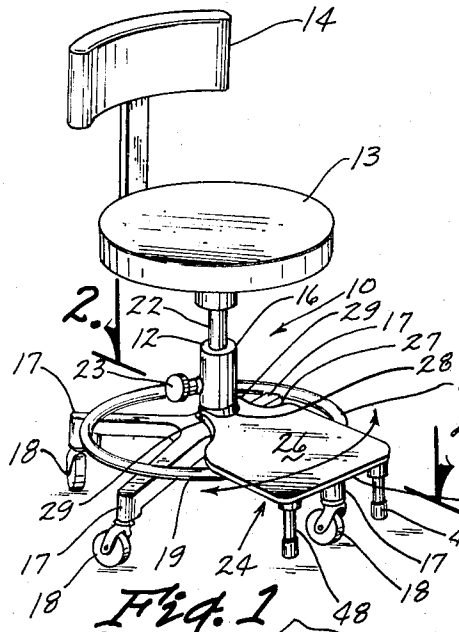


Fig. 1

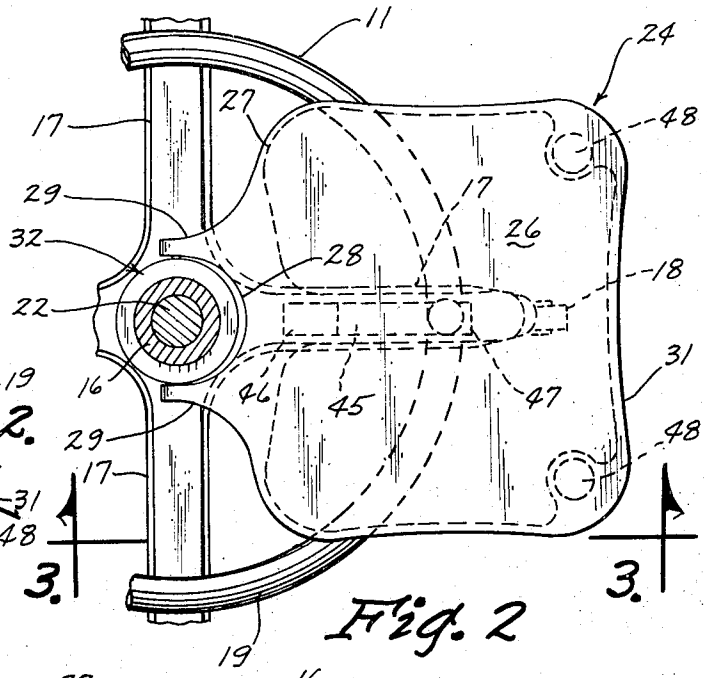


Fig. 2

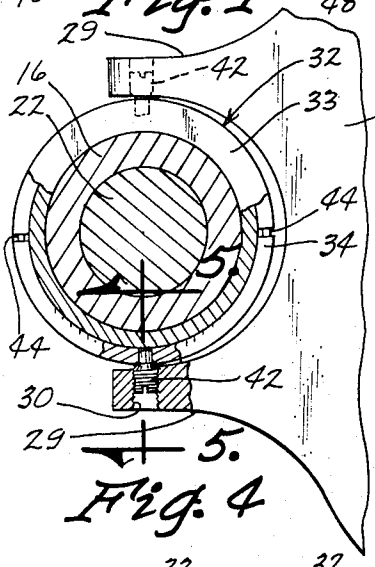


Fig. 4

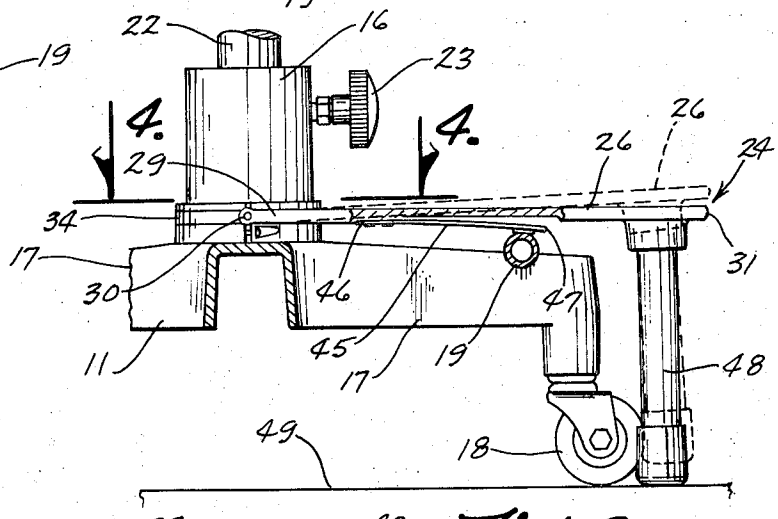


Fig. 3

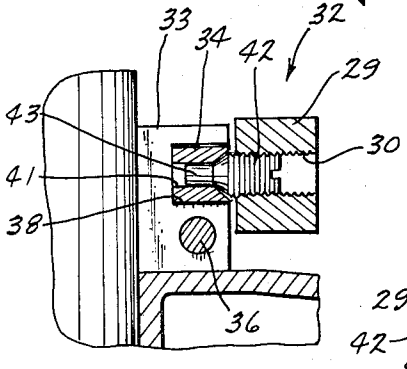


Fig. 5

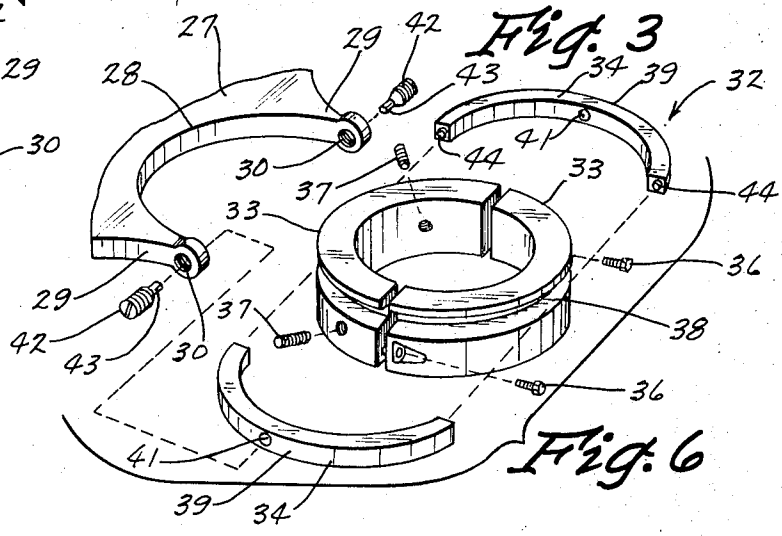


Fig. 6

STEP ATTACHMENT FOR A DENTAL STOOL

SUMMARY OF THE INVENTION

The step attachment is of a simple construction and efficient in operation to provide a convenient stool step down for a dental assistant concurrently with a locking or braking of the stool against floor movement. Slipping of the stool outwardly from under the dental assistant when demounting from, or mounting, the stool and resultant possible injury is thus positively prevented. Additionally, when the stool is in use the assistant need only rest the feet on the step to lock the chair on the floor against free wheeling. The attachment is readily adaptable to many type dental stools now in use.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a dental stool showing the step attachment in assembly relation therewith;

FIG. **2** is an enlarged partial sectional view taken on line **2**—**2** in FIG. **1**;

FIG. **3** is a sectional view on line **3**—**3** in FIG. **2**;

FIG. **4** is an enlarged sectional detail view as seen on line **4**—**4** in FIG. **3**;

FIG. **5** is an enlarged sectional detail view on line **5**—**5** in FIG. **4**; and

FIG. **6** is an exploded perspective view of a ring assembly which movably supports the step attachment for horizontal rotational movement and for pivotal up and down movement relative to the center post of the stool.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawing, there is shown in FIG. **1** a usual type stool **10** for a dental assistant. The stool includes a base **11** for an upright center post or standard **12** which carries at its upper end a seat unit **13** equipped wth a back rest **14.** The base (FIGS. **1** and **2**) includes a central hub section **16** from which radially extends a series of feet members **17,** illustrated as four in number, arranged in diametrically opposed pairs. Supported from the free or outer end of each foot member **17** is a floor engageable caster wheel **18.** A foot rest **19** for the dental assistant or stool user is of a ring shape positioned concentrically relative to the hub section **16** and secured to the upper surface of the feet members **17** adjacent the free ends thereof.

The central hub section **16** is of cylindrical tubular shape and constitutes a lower end section for the center post **12.** The post has an upper end section **22** of a rod form that is telescopically received within the post lower section **16.** An adjusted moved position of the upper post section **22** is maintained by a usual friction or clamping screw **23** which is threadable within the lower post section **16** and into engagement with the upper post section **22.**

The step attachment of this invention, generally indicated at **24,** (FIGS. **2** and **3**) includes a flat step or plate member **26** which extends radially outwardly from the center post **12** in a substantially horizontal position overlying the base **11.** The plate member **26** is of a generally rectangular shape and is formed with an inner end section **27** which terminates in a central longitudinal extension having a semicircular notch **28** to form a pair of transversely spaced arm members **29** (FIGS. **2** and **4**) positioned in a straddling relation with the lower end section **16** of the center post **12.** The free ends of the arms have horizontally extended axially aligned

tapped holes **30.** The outer end section **31** of the plate member **26** projects outwardly from the base **11** for a purpose to appear later.

The plate member **26** is movably supported for rotational movement relative to the vertical axis of the center post **12** and for up and down pivotal movement of its outer end **31** about a horizontal axis extended through the holes **30** of the spaced arm member **29.** These movements of the plate member **26** are accomplished by the provision of a ring assembly, indicated generally as **32,** (FIGS. **4** and **6**) which includes a mounting ring **33** and a rotatable ring **34.** The mounting ring **33** is of a split type having the half sections thereof connected together by connecting screws **36.** The assembled mounting ring **33** is rigidly secured about the lower post section **16** by clamping screws **37** threadable radially of the ring **33** and into engagement with the outer peripheral surface of the center post section **16.**

The outer peripheral surface of the mounting ring **33** is formed with a circumferential groove **38** of a size to rotatably receive therein the rotatable ring **34.** Similarly to the mounting ring **33,** the rotatable ring **34** is of a split type so as to provide half sections **39,** each of which is formed with a radially extended hole **41** located centrally between the ends thereof. With the ring half sections **39** positioned within the groove **38** the spaced arms **29,** at the inner end **27** of the plate member **26,** are arranged at opposite sides of the central post **12** to a position wherein the holes **30** at the free ends thereof are in axial alignment with the holes **41** in the rotatable ring **34.** Pivot pins **42,** commonly known as "half dog point set screws" are threadable within the arm holes **30** (FIGS. **3** and **5**) for extension of their shank sections **43** within the holes **41** of the rotatable ring **34.** By virtue of this assembly, the half sections **39** of the rotatable ring **34** are maintained against separation concurrently with pivotally supporting the plate member **26** on the pivot pins **42.** It will be noted also that the semicircular notch **28** provides a working clearance of the step member with the post section **16** during up and down pivotal movement thereof. Plastic spacers **44** (FIG. **4**) secured to the end faces of a half section **39** of the rotatable ring **34** compensates for the material cut away in the forming of such sections.

The plate member **26** is yieldably urged to an upper pivotally moved position, indicated in dotted lines in FIG. **3,** by means of a flat spring **45** having one end **46** secured to the underside of the inner end **27** of the plate member and its other end **47** resting in slidable contact engagement on the top surface of the ring shape foot rest **19.** In this upper pivotally moved position of the plate member a pair of leg members **48** projected downwardly from its outer end **31** at a position outwardly from the base **11** are elevated so as to be in a clearance relation with a floor surface indicated at **49.** In the upper pivotally moved position, therefore, the plate member **26** is freely rotatable about the vertical axis of the central post **12** in a supported position on the foot rest **19.** However, when pressure is applied downwardly on the plate member, as occurs when it is stepped on by a person to be seated on or leaving the stool, the lower ends of the legs **48** are moved downwardly against the pressure of the spring **45** into bearing engagement with the floor **49,** as shown in full lines in FIG. **3.** The stool **10** is thus locked against free wheeling movement on the caster wheels **18.** In this re-

spect it is to be noted that a similar locking action is obtained when the stool user is seated with the feet supported on the plate member **26.**

It is seen, therefore, that the stool **10** is locked against free floor movement when in use, and during the seating and unseating of a person such as a dental assistant. As a result, any injury or damage that may result by the tendency of the stool being pushed away by a person in mounting on or demounting from the stool is completely eliminated. Likewise, any accidental floor movement of the stool when in use is also eliminated.

Although the invention has been described with respect to a preferred embodiment thereof, it is to be understood that it is not to be so limited since changes and modifications can be made therein which are within the full intended scope of this invention as defined by the appended claims.

I claim:

1. A step attachment for a dental stool having a vertical standard mounted on a base provided with floor engaging caster wheels; said attachment comprising:

a. a substantially horizontal plate overlying said base having an inner end portion adjacent said vertical standard, and an outer end portion projected outwardly from said base,

b. a floor engaging leg means secured to and projected downwardly from said outer plate portion,

c. means movably supporting the inner end of said plate member on said vertical standard for rotational movement of the plate about the vertical axis of said standard, and for up and down pivotal movement of said outer portion about a horizontal axis extended transversely of said vertical axis, and

d. coacting means on said base and on said plate for yieldably urging said plate to an upper pivotally moved position wherein said leg means are in a clearance relation with the floor,

e. said leg means, when said plate is stepped upon, being movable into bearing engagement with the floor surface to rigidly support the plate against downward pivotal movement and to lock said stool against floor movement.

2. The step down attachment for a dental stool according to claim **1** wherein:

a. said base includes a plurality of feet members extended radially from said vertical standard, and

b. said coacting means includes a ring member concentric with said vertical axis supported on and secured to the upper surfaces of said feet members, and

c. a spring member secured to the under side of said plate in slidable contact engagement with the upper surface of said ring member.

3. The step down attachment for a dental stool according to claim **1** wherein:

a. said supporting means includes a rotatable ring member positioned about the lower end of said standard and rotatable about said vertical axis,

b. a pair of transversely spaced arm members projected longitudinally outwardly from the inner end portion of said plate to opposite sides of said rotatable ring, and

c. pivot means pivotally connecting said arm members on said rotatable ring at positions equidistant from said vertical axis to provide for the pivotal movement of said plate about said horizontal axis.

4. The step down attachment for a dental stool according to claim **2** wherein:

a. said leg means includes a pair of leg members spaced transversely of said plate member.

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