June 3, 1952 B. F. HAMILTON 2,598,788

STOOL

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Fig. 1.

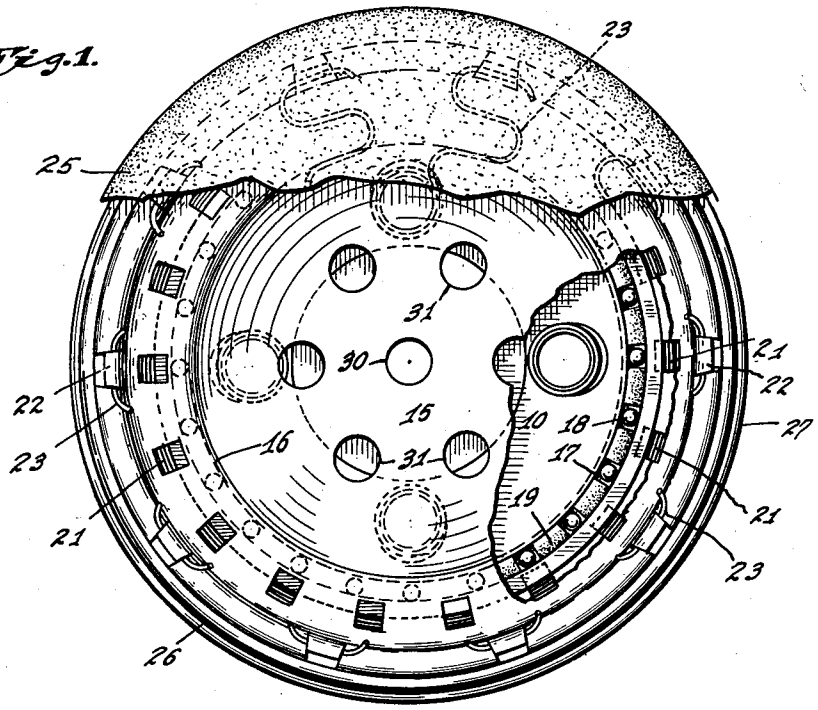
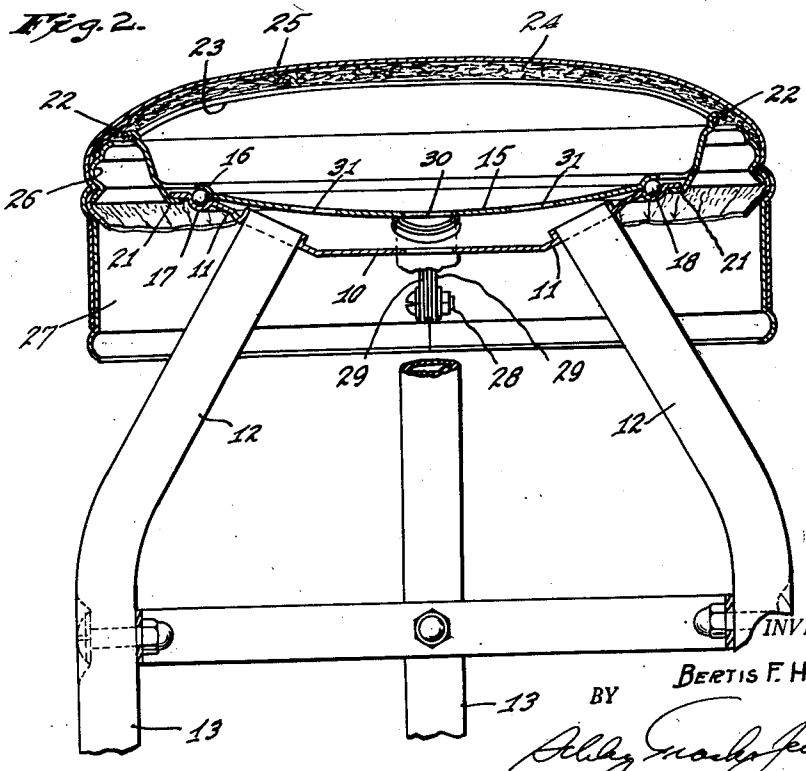


Fig. 2.



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STOOL

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6 Claims. (Cl. 155—95)

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This invention relates to stools, and more particularly to a so-called bar stool, which is a relatively high stool provided with a rotatable, upholstered seat. It is an object of the invention to provide in such a stool an improved seat-mounting which will permit free rotation of the seat without binding. Another object of the invention is to provide a stool, including a mounting for a rotatable seat, which can be simply and economically manufactured largely of metal parts.

In carrying out the invention in its preferred form, I construct the stool with a base and a seat rotatably mounted on such base. The base includes a circular plate and legs secured to and extending downwardly therefrom. The seat includes a sheet-metal bottom, desirably circular in form; and the plate and bottom are provided with opposed annular offsets forming a ball race containing an annular series of bearing balls. The sheet-metal seat bottom is provided with an annular series of ears bent downwardly and inwardly to engage loosely beneath the periphery of the plate and thus hold the base and seat together. Near its own periphery, the seat-bottom is provided with an annular series of ears which engage and locate the ends of resilient spring elements extending diametrically across the seat and supporting an appropriate upholstery pad.

In the accompanying drawings, which illustrate the invention, Fig. 1 is a plan view of the stool with portions thereof broken away to illustrate the construction more clearly and Fig. 2 is a vertical axial section through the upper portion of the stool.

As previously indicated, a stool embodying my invention comprises a base and a seat rotatably mounted on such base. As shown in the drawing, the base comprises a circular plate 10 downwardly dished to provide a frusto-conical wall 11 having a series of circumferentially spaced holes each of which receives the upper portion 12 of a leg. The upper leg-portions 12 are secured in the holes in the frusto-conical wall 11, conveniently by welding, and extend generally normally to such wall. In addition to the upper leg-portion 12, each leg includes a generally vertical lower portion 13 which extends downwardly to the bottom of the stool-base.

The seat of the stool includes a circular sheet-metal bottom 15 which is downwardly dished as is clear from Fig. 2. The bottom of the dished portion of the seat-bottom 15 and the peripheral portion of the plate 10 are provided with opposed annular offsets, 16 and 17 respectively, defining

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a ball race for the reception of bearing balls 18 desirably spaced by appropriate spacers 19. Adjacent the periphery of the plate 10, the seat-bottom 15 is provided with an annular series of integral downwardly-struck ears 21 which are bent inwardly to engage loosely beneath the periphery of the plate 10, thus holding the seat-bottom and the stool-base in assembled condition while permitting free rotation of the seat-bottom on the plate 10.

Outwardly beyond its central, downwardly dished portion, the seat-bottom 15 is provided with an annular series of ears 22 which engage and locate the ends of arched resilient elements 23 conveniently formed of spring wire and extending diametrically across the seat-bottom. The crossed resilient elements 23 support an upholstery pad 24 covered with a cover 25 of appropriate sheet material such as leather or a synthetic leather-substitute. Outwardly beyond the ears 22, the seat-bottom 15 is provided with a downturned annular flange 26 which is overlapped by the periphery of the cover 25, such cover being in turn overlapped by the upper edge of a split metal ring 27 adapted to be contracted by clamp bolts 28 extending between inwardly directed flanges 29 at its ends.

In assembling the stool above described, the upper ends of the legs 12—13 are inserted in the holes in the frusto-conical wall 11 of the plate 10 and are secured therein as by welding. The bearing balls 18 and spacers 19 are then put in position in the ball-race 17; and the seat-bottom 15, with the ears 21 disposed to clear the periphery of the plate 10, is put in place. After the seat-bottom is positioned and supported by the bearing balls 18, the ears 21 are bent inwardly and upwardly to engage loosely beneath the periphery of the plate 10. To complete the seat, the crossed resilient elements 23 are put in place and anchored by bending the ears 22 over their ends. The pad 24 is placed on the springs 23 and covered with the cover 25, and the ring 27 is then clamped in position to secure the periphery of the cover. It will be understood that the exact order in which the steps of assembly are performed will be determined largely by manufacturing convenience.

It is desirable to provide means for permitting the escape of air from the space beneath the arched springs 23 when those springs move downwardly under load. For this purpose, the seat-bottom 15 and plate 10 may be provided with air-passing openings 30. The annular series of openings 31 with which the seat bottom 15 is

shown as provided are employed merely for locating purposes in certain manufacturing operations and have no function in the finished stool.

It will be noted that the ball race 16—17 has a large diameter in relation to the diameter of the seat. In consequence, the resultant of most loads applied to the seat will lie within the race 16—17 and will not tend to tip the seat and cause the retaining ears 21 to bear frictionally against the lower surface of the plate 10. As a result, all substantial forces transmitted between the seat and base will usually be transmitted through the bearing balls 18, and the seat will remain freely rotatable upon the base without binding. The attachment of the upper ends of the legs to the plate 10 at points lying within the ball race 16—17 makes possible an increase in the diameter of the ball race; while the provision of the frusto-conical wall 11 facilitates attachment of the inwardly and upwardly sloping leg-portions 12 to the plate 10.

I claim as my invention:

1. A stool, comprising a base and a seat, said base including a circular sheet-metal plate and an annular series of legs, the upper ends of said legs being rigidly secured to and interconnected by said plate, said seat comprising a sheet-metal bottom and a cover therefor, said plate and bottom being provided with opposed annular offset portions defining a ball-race, and an annular series of bearing balls in said race, said bottom being provided with an annular series of integral ears bent to engage loosely beneath the periphery of said plate to retain the seat and base in assembled relation.

2. A stool, comprising a base and a seat, said base including a circular sheet-metal plate and an annular series of legs, the upper ends of said legs being rigidly secured to and interconnected by said plate, said seat comprising a sheet-metal bottom and a cover therefor, said plate and bottom being provided with opposed annular offset portions defining a ball-race, and an annular

series of bearing balls in said race, said bottom being provided with an annular series of retaining elements engaged loosely beneath the periphery of said plate to retain the seat and base in assembled relation.

3. The invention set forth in claim 2 with the addition that said legs are secured to said plate within the said annular offset portion thereof.

4. The invention set forth in claim 2 with the addition that said bottom is provided adjacent its periphery with an annular series of upwardly offset ears, arched resilient elements extending diametrically across said plate with their ends engaging and held in place by said ears, said cover including an upholstery pad supported on said resilient elements.

5. The invention set forth in claim 2 with the addition that said plate is dished downwardly within said annular offset portion to provide a frusto-conical wall, said wall being provided with circumferentially spaced openings, said legs having upper portions which are received and secured in said openings and extend outwardly generally normal to said wall, and generally vertical lower portions.

6. The invention set forth in claim 1 with the addition that said seat-bottom is of larger diameter than said plate, said ears joining said bottom at their outer ends.

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