ABSTRACT
A plurality of circularly arranged small springs are used in combination with the central main compression spring. The tube is an open frame construction. The small springs can be added or subtracted and when not in use are stored in the frame. Roller guides are provided to prevent the platform from tilting, and head load adjustment is made at the main compression spring.

6 Claims, 4 Drawing Figures
ADJUSTABLE SELF-LEVELING DISPENSER

This invention relates to a dispenser, and more particularly, to a spring loaded self-leveling article dispensing device which can have its head load and rate of travel readily adjusted.

A preferred form of the invention will be described in connection with the accompanying drawings in which:

FIG. 1 is broken away side elevation view of the device.

FIG. 2 is a top plan view.
FIG. 3 is a top plan view of a modification; and
FIG. 4 is a side elevation view of the modification.

Referring now particularly to the drawings for a detailed description of the illustrated form of the invention, the dispenser comprises a hollow open tubular frame having a top annular member 10, a bottom plate 11, and spaced side panels 12. Three side panels 12 are shown, however, there could be only two or more than three.

A central large compression spring 13 is positioned in the frame. This spring 13 biases a dispenser platform in an up direction. The dispenser platform comprises a wire cage structure having a top plate 14.

The wire cage comprises a generally annular rigid wire 15 having inner 15' and outer 15'' diameter portions. The inner diameter portions 15' are positioned radially inside the panels 12 whereas the outer diameter portions 15'' protrude into the spaces between adjacent spaced panels 12. The outer diameter portions 15'' are adapted to be engaged by stops 16 to limit the upward movement of the platform cage. The cage also has three right angle members 17. At one of their ends they are joined together at the center piece 18 of the cage. The right angle members 17 each actually comprise a pair of spaced wires having roller guides 19 removable mounted therein. The guides run along the inner surface of panels 12.

The means for adjusting the head load or loaded start position of the device comprises means for infinitely adjusting the spacing between the cage and the upper end of spring 13. A depending threaded stud 20 is connected to the center piece 18 of the cage. This stud 20 passes through a cross piece 21 for the upper turn of the spring 13. A thumb wheel 22 is on stud above the cross piece 21. The spacing between the upper end of spring 13 and the platform 14 is varied by turning the thumb wheel 22 in one direction or the other.

Positioned beneath the top annular frame member 10 is a rigid wire annular member 23. A plurality of small tension springs 24 are suspended off the member 23. When their lower ends are hooked on the outer diameter wire portions 15'' they are active to vary the drop rate of the platform 14. In their positions behind the panels 12 they are in inactive stored position.

Storage space is provided in the panels 12 by providing them with flanges 12'. The stops 16' are the extremities of wire segments 16 positioned below the wire 23.

When the springs 24 are not being used to vary the drop rate of the platform, their lower ends are hooked on to the wire segments 16 so that they are in an out-of-the-way stored position radially outward of panels 12 between their flanges 12'.

The springs 24 also bias the platform up. They are individually movable from their stored position along the outer surface of the panels 12 to the spaces between adjacent spaced panels for connection to the outer diameter wire portions 15'' of the platform cage. Whether in stored or active position, they have their upper ends hooked on the wire 23. That is to say, they are arranged in surrounding relationship with respect to the main compression spring 13 and serve to adjust the drop rate thereof by adding or subtracting the number of small springs 24 attached to the platform cage.

FIGS. 3 and 4 show a modification in the platform cage comprising a plurality of additional wires 25 added thereto. If a fairly stiff center spring 13 is used, the wires 25 aren't necessary. However, if the spring 13 is a fairly light one, it may have a tendency to buckle orsnake and become entangled with the cage. The wires 25 prevent this from happening by gathering or guiding the upper turns of spring 13 to inside the cage.

In the invention the frame is fabricated by connecting the parts 10-12 together by welding or the like, and the wire 23 and wire segments 16 are connected to the frame at the panel flanges 12'. Three sets of small tension springs 24 are shown as being attached to wire segments 16 for stored position, and three pairs of small tension springs 24 are shown as being attached to the outer diameter wire portions 15'' of the platform cage to vary the drop rate of the main compression spring 13.

1 claim.

1. A spring loaded self-leveling article dispensing device, comprising a hollow frame, a movable platform positioned in said frame, a large compression spring positioned in said frame beneath said platform for biasing said platform vertically upward, a plurality of small tension springs surrounding said compression spring for also biasing said platform vertically upward, means between the upper end of said compression spring and platform for adjusting the head load of said platform, and means for individually selectively connecting any number of said small springs to said platform for adjusting the self-leveling rate of said platform.

wherein said hollow frame comprises a cylindrical shape having an open annular top member, a circular bottom member, and spaced side panel members interconnecting the two, and means on said side panel members providing spaces thereon for storage of said small springs when not connected to said platform.

wherein said platform comprises a rigid wire cage structure having a top plate thereon, roller guide means on said cage structure adapted to guide said cage structure along the inside surface of said side panel members, and said storage space being located along the outer surface of said side panel members.

2. In a self-leveling dispensing device as in claim 1, a rigid annular wire member positioned on said frame beneath said open top member, and the upper ends of said small springs being connected to said rigid annular wire member whether in their inactive stored position on said side panel members or in their active platform connected rate adjusting position.

3. In a self-leveling dispensing device as in claim 2, said side panel members having out-turned flanges formed thereon to define said storage spaces, rigid wire segments positioned on said flanges beneath said rigid annular wire member, the lower ends of said small springs being adapted to be connected to said segments when in their inactive stored position, and said seg-
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3. In a self-leveling dispensing device as in claim 3, said rigid wire cage structure comprising a generally annular shaped member having inner and outer diameter portions which are positioned respectively along the inner surface of said side panel members and in the spaces between adjacent spaced side panel members, said outer diameter portions being adapted to engage said stop means to limit upward movement of said cage structure, and the lower ends of said small springs being connected to said outer diameter portions to adjust the self-leveling rate of said platform.

4. In a self-leveling dispensing device as in claim 4, said cage structure further comprising a plurality of right angle shaped members connected at one of their corresponding ends to said inner diameter portions and at their ends to each other at the center of said cage structure above said generally annular shaped member, said roller guide means being removably connected to said right angle shaped members for guided engagement of said cage structure with the inner surface of said side panel members, the upper end of said compression spring extending into said cage structure, and said head load adjusting means comprising means for infinitely adjusting the spacing between the upper end of said compression spring and said cage structure.

5. In a self-leveling dispensing device as in claim 5, said head load adjusting means comprising a threaded depending stud connected to the mutual point of connection between said right angle members at the center of said cage structure, a cross member connected to the upper turn of said compression spring. the lower end of said stud extending through said cross piece, and a thumb wheel threaded on said stud above said cross piece.

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