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SELF-LEVELING, STORING AND DISPENSING DEVICE

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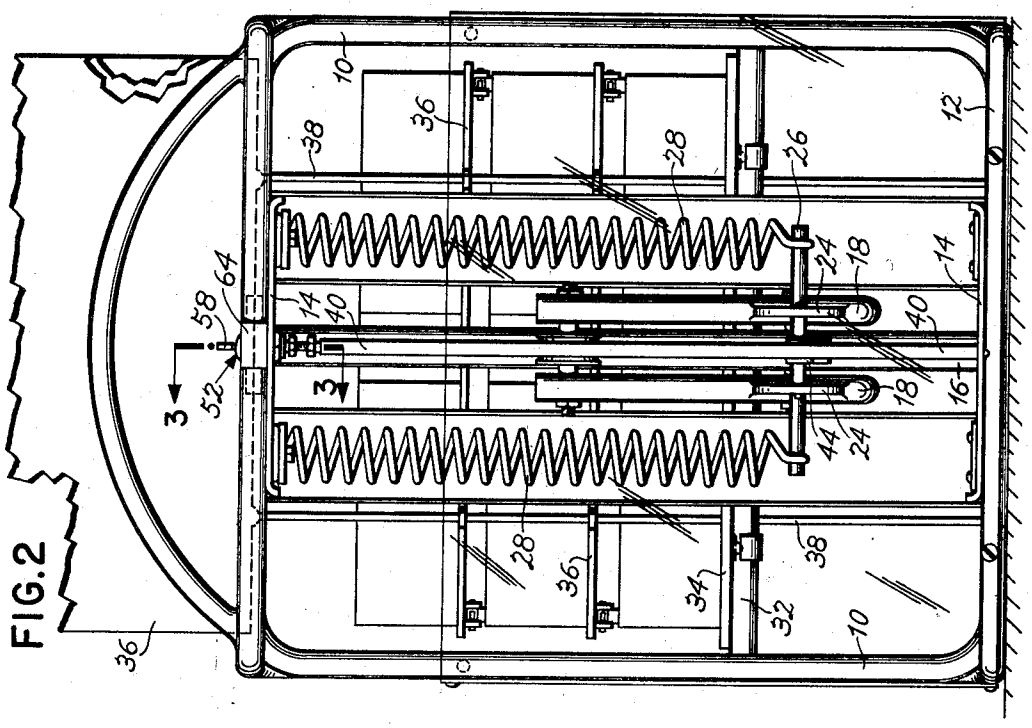


FIG. 2

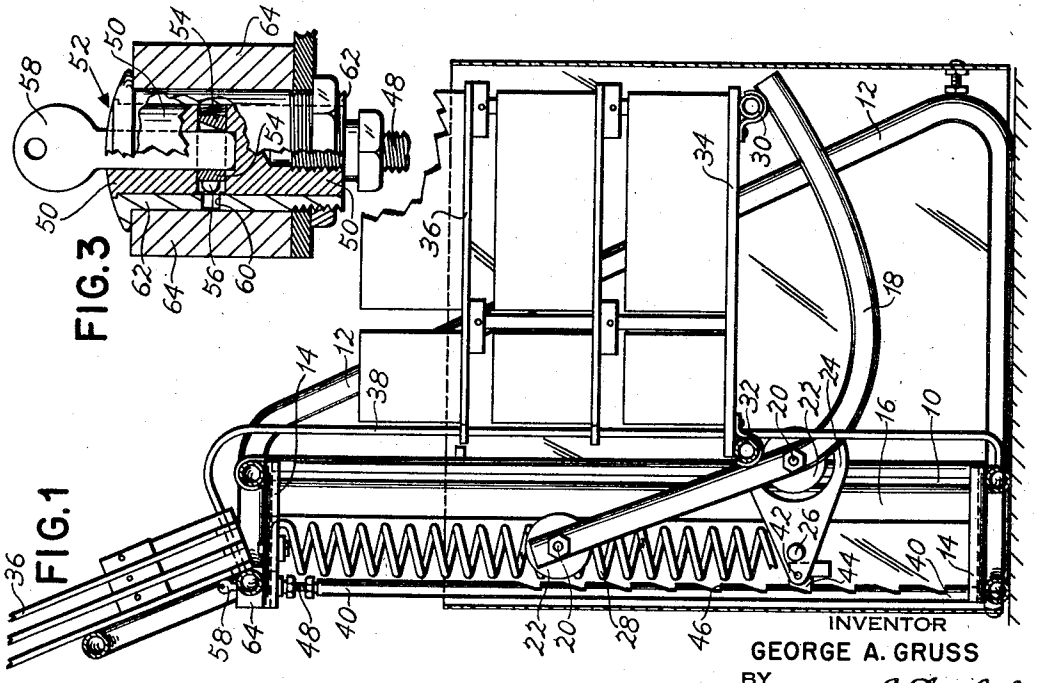


FIG. 3

FIG. 1

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SELF-LEVELING, STORING, AND DISPENSING DEVICE

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4 Claims. (Cl. 211—49)

This invention relates to self-leveling, storing and dispensing apparatus of the type wherein the top of the material stored is always maintained at a constant level regardless of whether material is added to or removed from the dispenser, and more particularly to improvements which prevent the carrier from oscillating during unloading.

Self-leveling, storing and dispensing apparatuses are employed in many fields and where the public comes in contact with units of this type there is sometimes a tendency for individuals to make a stack of material bounce by playing with the unit, little realizing that they can damage the merchandise, disarrange it, and even cause injury to themselves. In some cases where a self-leveling dispensing unit may be used in places such as railroad trains, there is a tendency for the entire stack of material to oscillate, because of the movement of the train. This is especially undesirable where glassware is stacked.

It is the purpose of this invention to provide a safeguard to prevent undesirable oscillation without detracting from the automatic, self-leveling feature of the dispenser.

Another object of this invention is to provide a simple device for preventing the carrier and material stacked thereon from oscillating.

Other objects and features of the invention will appear as the description of the particular physical embodiment selected to illustrate the invention progresses. In the accompanying drawings, which form a part of this specification, like characters of reference have been applied to corresponding parts throughout the several views which make up the drawings.

Fig. 1 is a sectional side elevation of a self-leveling cantilever type storing and dispensing apparatus in connection with a novel anti-oscillating mechanism.

Fig. 2 is a rear view of the same.

Fig. 3 is a sectional side elevation of a locking device for the anti-oscillating mechanism.

With reference to the drawings, the self-leveling cantilever type storing and dispensing apparatus illustrated is an improvement on the general type of self-leveling type dispenser such as that disclosed in U. S. patent application Ser. No. 270,796, filed February 9, 1952, by Fred L. Waite.

The self-leveling dispensing apparatus consists of two suitably shaped tubular frames **10** and **12** which, at convenient points, are welded together to form the frame for the apparatus. The two top loops as well as the two bottom loops of frame members **10** and **12** are connected by a pair of horizontal rectangular plates **14** arranged in such a manner as to form the top and bottom support of a vertical supporting column or guide post **16**.

A pair of cantilever arms **18** suitably bent and spaced by means of two studs **20** each of which carries a loosely mounted roller **22** having a concave periphery and arranged to ride in the center between the two spaced

cantilever arms **18**. The two rollers **22** are spaced in such a manner that one roller contacts the front portion while the other roller contacts the rear portion of the vertical post **16**. A lug **24** is welded to each of the arms **18** to support a horizontal rod or bar **26**. The lower ends of balancing springs **28** are hooked to the projecting ends of rod **26**. The upper end of each balance spring is suitably secured to the under side of the upper horizontal plate **14**.

Two spaced, horizontally arranged tubular supporting bars **30** and **32** are welded to the cantilever arms **18** and are suitably attached to a horizontal carrier platform **34**. Suitable counterbalancing means, such as compression or tension springs are employed for exerting a counterbalancing force on the carrier or platform **34** which is proportional to the distance the carrier moves due to the weight supported thereon. The balancing springs **28** used to illustrate the invention are calibrated for the type of load or articles to be supported on the carrier platform **34** so that the articles on the carrier are balanced and the top layer is maintained at substantially the same height regardless of whether layers of articles of the same type are added to or removed from the stack of articles on the carrier platform **34**.

The dispenser illustrated in the drawings is also equipped with a plurality of suitable, easily removed separating partitions **36** which may ride up and down freely on suitable guides **38**. These partitions may be of the same type and construction as that shown and disclosed in aforementioned U. S. patent application Ser. No. 270,796.

Since self-leveling dispensers are automatic in that they are very sensitive to increments and measurements of weight, they sometimes have a tendency to oscillate. This characteristic may be also created by individuals either intentionally, playfully, or otherwise, pushing the dispenser downwardly so as to let it jump upwardly, which is undesirable for many reasons. For example, oscillation might cause damage to the goods being stored, it may upset the arrangement of the displayed goods, or even pinch or injure the hands of a person taking an article from the dispenser. In order to overcome this undesirable feature of self-leveling dispensers, and still enable the user to obtain all of the benefits of a self-leveling dispenser, I have equipped my self-leveling dispenser with an anti-oscillating mechanism which permits the carrier to move only in one direction after it has been loaded and which, by a very simple device, allows the dispenser to be readily loaded when the anti-oscillating mechanism is placed in inoperative position, while still maintaining its self-leveling characteristics.

The anti-oscillating mechanism or one-way clutch which I have used to illustrate my invention consists of a vertical rack **40** placed adjacent to the path of travel of the rear portion of the cantilever arms **18**. The lugs **24** attached to said arms carry at their free protruding end a pin or stud **42** to which is loosely mounted a pawl **44** which engages with the teeth **46** of the vertical rack **40** when the latter is in operating position. The pawl **44** is pivoted and the teeth **46** are cut and slanted in such a way as to permit said pawl to ride over the top of said teeth during an upward movement of the carrier but arrest said pawl and carrier during a downward movement of the latter.

The bottom or lower end of the rack **40** is rotatably supported in a suitable indentation or hole in the lower plate **14** and the lower loop of tubular frame **12**. The upper end of rack **40** is secured to a cylinder **50** of a suitable conventional lock **52** (Fig. 3) by means of a suitable threaded stud **48**. Within cylinder **50** is slidably mounted a spring loaded slotted lug **54** provided with a lock pin **56**. When lug **54** is not retracted by a key **58**, the lock pin **56** engages with slot or hole **60** in the lock

barrel 62. The barrel 62 is mounted in a suitable housing 64 in the upper loop of tubular frame 12 and the upper plate 14.

Ordinarily the cylinder 50 keeps the vertical rack 40 rigid and its teeth 46 in engagement with the pawl 44 so that the carrier can only move upward as one or more articles are removed from the stack of articles on said carrier. With the rack 40 in this operating position the carrier cannot be pushed down, since the pawl engaging with one of the teeth would prevent such movement.

To load the dispenser, the pawl 44 must be disengaged from the teeth of rack 40 to permit the carrier to descend. In order to move the rack 40 into an inoperative position the key 58 is inserted in the slot of the cylinder 50 of the lock 52 and then turned 180°. The insertion of the key disengages the lock pin 56 of the lug 54 from the hole 60 of the barrel 62 and—once free—the turning of the key also causes the turning of rack 40. This affects a disengagement of the teeth of said rack with the pawl 42 so that it simply slides along the smooth side of said rack as the carrier descends during loading.

It will be appreciated that while I have used a pawl and rack to illustrate an anti-oscillating device, any other suitable device which will allow movement in only one direction could also be employed and this device would be incapitated whenever it is desired to load the dispensing apparatus.

The invention hereinabove described may be varied in construction within the scope of the claims, for the particular device selected to illustrate the invention is but one of many possible embodiments of the same. The invention, therefore, is not to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. A self-leveling, storing, and dispensing apparatus comprising a substantially vertical framework, vertical guides connected to said framework, a material supporting platform having rollers engaging with said guides to limit said platform to relative movement with respect to said guides, counterbalancing means coacting with said platform to maintain the top of the material supported thereon at a constant level with respect to said framework by exerting a force which is proportional to the distance moved by said platform, a vertical shaft connected to said framework, a sliding member coacting with said shaft to allow said platform to move in only one direction relative to said shaft, and means for moving and maintaining said member and shaft out of operative engagement to allow said dispensing apparatus to be loaded.

2. A self-leveling, storing, and dispensing apparatus comprising a substantially vertical framework, vertical guides connected to said framework, a material supporting platform having rollers engaging with said guides to limit said platform to relative movement with respect to said guides, counterbalancing means coacting with said platform to maintain the top of the material supported thereon at a constant level with respect to said framework by exerting a force which is proportional to the distance moved by said platform, a vertical shaft connected to said framework, a sliding member coacting with said shaft to allow said platform to move in only one direction relative to said shaft, and means for moving and maintaining said shaft out of operative engagement with said member to allow said dispensing apparatus to be loaded.

3. A self-leveling, storing, and dispensing apparatus comprising a vertical frame, vertical guides connected to said frame, a cantilever platform for supporting material, means mounted on said platform and riding on said guides for maintaining said platform in a predetermined plane, a counterbalancing spring for exerting a counterbalancing force on said platform so as to maintain the top of the material supported thereon at a constant level with respect to said frame, a vertical rack positioned adjacent the path of travel of said cantilevel platform, a pawl connected to and travelling with said cantilever platform and positioned to engage with said rack so as to allow said cantilever platform to move in only one direction and means for moving and maintaining said rack out of operative engagement with said pawl to allow said self-leveling cantilever platform to move in more than one direction.

4. A self-leveling, storing, and dispensing apparatus comprising a vertical frame, vertical guides connected to said frame, a cantilever platform for supporting material, means mounted on said platform and riding on said guides for maintaining said platform in a predetermined plane, a counterbalancing spring for exerting a counterbalancing force on said platform so as to maintain the top of the material supported thereon at a constant level with respect to said frame, a vertical rack positioned adjacent the path of travel of said cantilever platform, a pawl connected to and travelling with said cantilever platform and positioned to engage with said rack so as to allow said cantilever platform to move in only one direction and key receiving means for moving and maintaining said rack out of operative engagement with said pawl to allow said cantilever platform to move in more than one direction.

References Cited in the file of this patent

UNITED STATES PATENTS

833,167	Hughes	Oct. 16, 1906
1,239,666	Bladholm	Sept. 11, 1917
1,853,507	Chandler	Apr. 12, 1932
2,071,930	Hunter	Feb. 23, 1937
2,251,873	Gibbs	Aug. 5, 1941
2,431,542	Caruso	Nov. 25, 1947
2,444,776	Kalning et al.	July 6, 1948
2,604,996	Smith	July 29, 1952