United States Patent

[11] 3,584,696

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[21] Appl. No. **826,425**
[22] Filed **May 21, 1969**
[45] Patented **June 15, 1971**

[54] **SPRING SCALE WITH PROTECTIVE COVER**
3 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **177/127,** 177/169, 177/225
[51] **Int. Cl.** **G01g 21/28**
[50] **Field of Search** 177/126, 127, 168, 169, 170, 262, 225

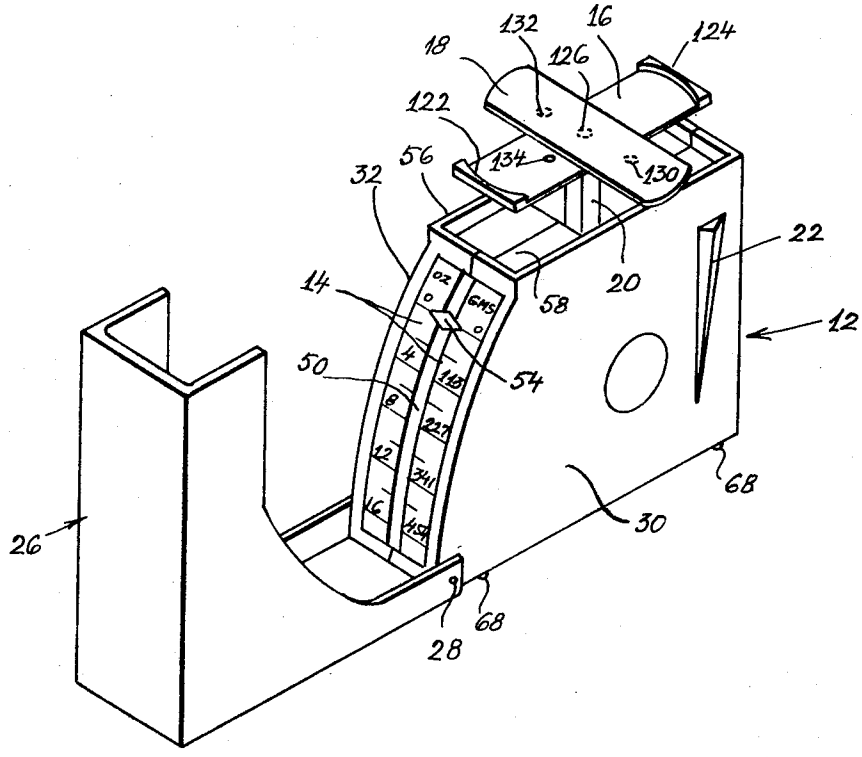
[56] **References Cited**

UNITED STATES PATENTS

171,993	1/1876	Chatillon	177/168
601,273	3/1898	Pelouze	177/168
729,207	5/1903	Mulligan	177/169
1,067,213	7/1913	Christopher	177/168
2,036,636	4/1936	Kingsbury	177/168
2,036,637	4/1936	Kingsbury	177/169
2,186,913	1/1940	Jonas	177/126X
2,564,361	8/1951	Hanssen	177/168
2,588,322	3/1952	Herbst	177/225X

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ABSTRACT: A diet or weight watching and postal scale made of lightweight plastic parts including a two part casing and links assembled between the casing parts, a platform and a shank depending from the platform into the casing parts to be journaled by parallel links in a manner having but line contact for frictional engagement therewith and support by a measuring spring assembled within the linkage and connected to the lower end of the platform shank to support the same and the linkage. A measuring extension extends from one of the links to a slot in the front of the casing parts with a pointer that runs over the measuring scale. A platform is provided with a fixed part and a turnable part adapted to increase the supporting area. A cover is pivoted upon the scales and is adapted to be extended upwardly over the platform and front of the casing parts to enclose the same and be held in its closed position by the engagement of the spring biased platform with the inner face thereof.

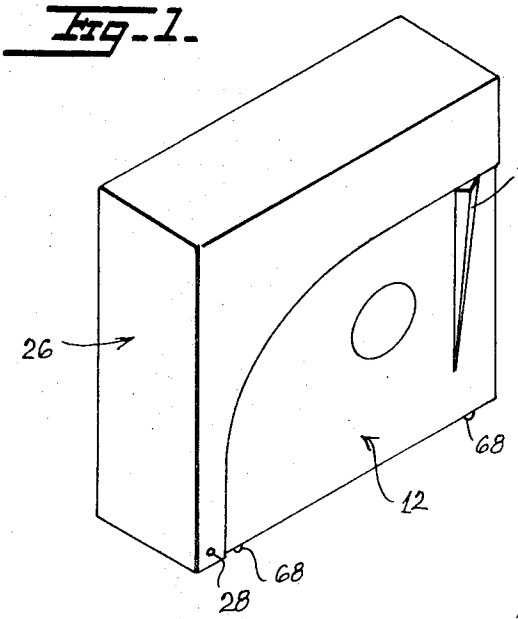


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Fig-1.



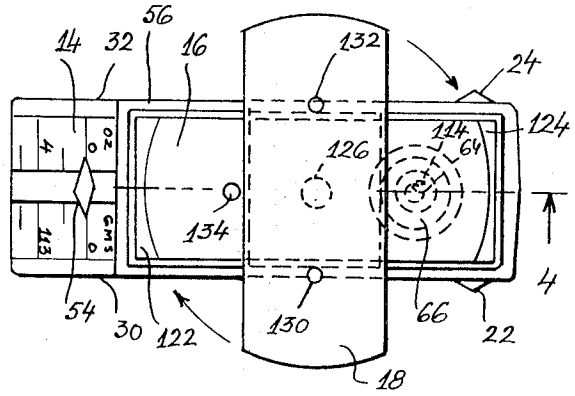


Fig-3.

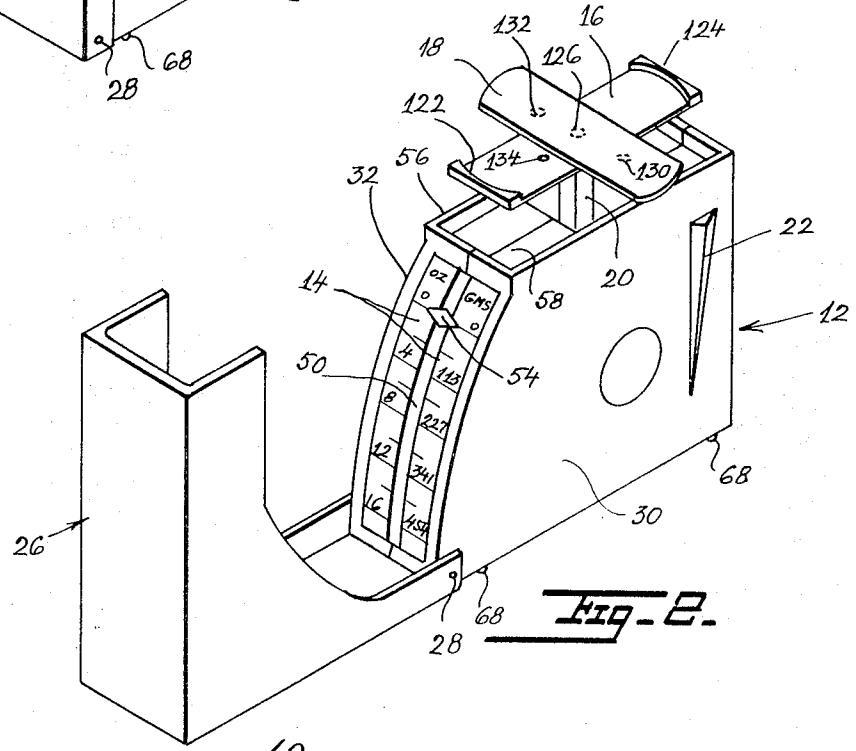


Fig-2.

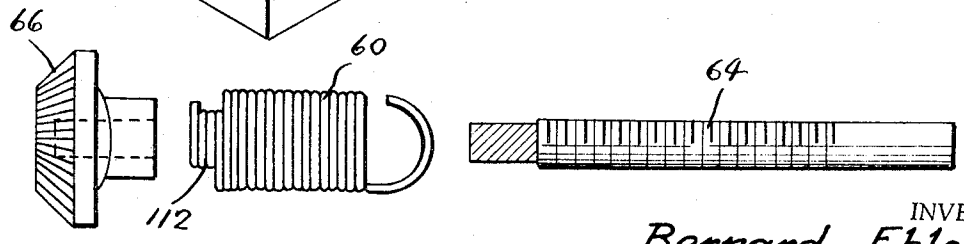


Fig-9.

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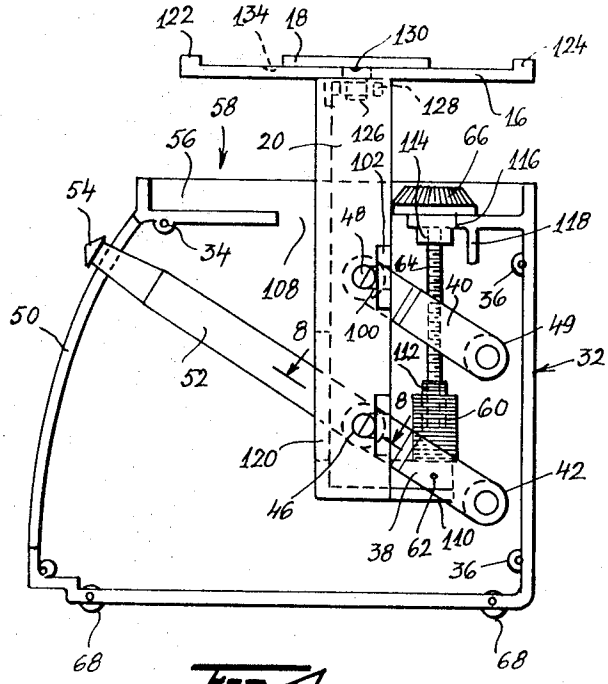


Fig-4-

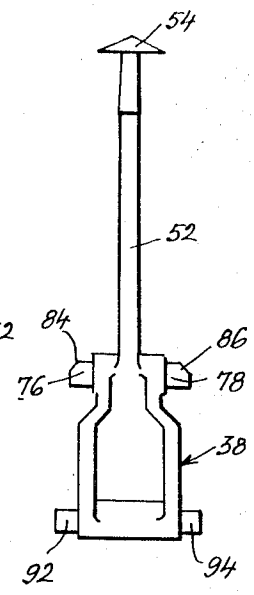


Fig-5-

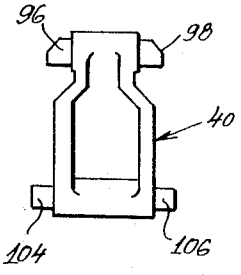


Fig-6-

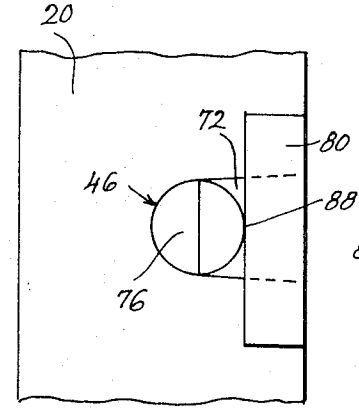


Fig-7-

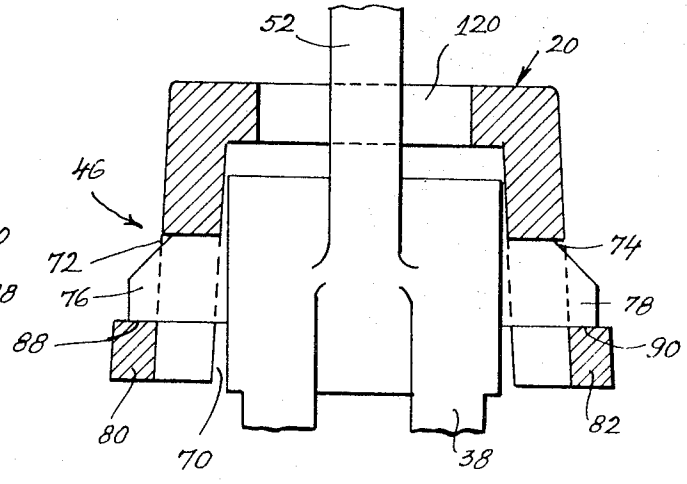


Fig-8-

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SPRING SCALE WITH PROTECTIVE COVER

This invention relate to small size scales such as may be used for measuring small portions of food, or light envelope postage.

It is the principal object of the present invention to provide a lightweight inexpensive scale for use by weight watchers to measure the food intake and inherent calories for a given kind of food.

It is another object of the invention to provide a portable scale that can be enclosed when not in use and that is adapted to be carried as part of the luggage of a person who would be watching their food intake wherever they may go.

It is still another object of the invention to provide a lightweight scale not only adapted for use by weight watchers but for measuring envelopes to determine the weight for postage required.

It is a further object of the invention to provide lightweight scales which can be made generally from plastic parts in which a minimum number of parts are required and which can be assembled in an easy and compact manner.

It is a further object of the invention to provide scales in which the weight being measured is offset and determined from a novel and adjustable spring arrangement anchored between the weighing links and the frame and in which the opposite ends of the springs are adjustably connected by means of a threaded shaft having a turn knob on its upper end resting upon a top surface and directly threadedly engaging the reduced diameter turns of the end of the coil spring.

It is still a further object of the invention to provide in a pair of lightweight plastic scales a novel engagement of the outer ends of the parallel weighing levers and the depending shank of the weighing platform in which the bearing engagement between the lever and the shank result in line contact therewith and provide thereby a frictionless bearing.

For a better understanding of the invention, reference may be had to the following description taken in connection with the accompanying drawing, in which

FIG. 1 is a perspective view of the weight watching and postage scale employing the features of the present invention and with the cover pivoted to a closed position over the scales.

FIG. 2 is a perspective view of the scales with the cover pivotally withdrawn from the scales to expose them for use, the platform having been widened by turning its top plate to increase the supporting area.

FIG. 3 is an enlarged top plan view of the scales with the cover removed therefrom.

FIG. 4 is an elevational view of the interior of the scales with one-half section removed therefrom and looking on line 4–4 of FIG. 3.

FIG. 5 is a plan view of the lower supporting link with the pointer extension thereon.

FIG. 6 is a plan view of the upper parallel link.

FIG. 7 is a fragmentary elevational view looking upon the bearing connection of the outer end of the short link and the depending shank of the scale platform, and

FIG. 8 is an enlarged fragmentary sectional view of the connection of the lower link with the depending platform shank, this view being taken on line 8–8 of FIG. 4.

FIG. 9 is an exploded side view of the assembly of spring and adjustment screws.

Referring now to FIGS. 1—4, 12 represents generally the scale constructed according to the present invention. The scale 12 includes a boxlike casing having spaced parallel vertical side and rear walls; horizontal top and bottom walls, and a curved front wall on which are graduated lines and index numbers 14 by means of which the weight can be read. Disposed over top wall 56 is a platform plate 16 with a turnable support plate 18 thereon. Secured to form is a shank 20 depending therefrom. Decorative protrusions 22 and 24 provided on the sides of the scale, the upper ends of which to serve as a stop for a cover 26 that is pivotally connected body to the lower

end of the scale body and can be extended over the scale platform with the turnable member 18 turned to overlie the rigid platform member 16 to close the scales when not in use and to provide a package as shown in FIG. 1 by which the scale can be readily carried as in a suitcase, and its working parts protected from dirt and other objects.

The scale 12 is formed of separable casing parts 30 and 32 joined together by threaded elements 34 entering bosses 36 on the inner sides of the parts 32 and 34 nd the parts assembled thereon.

The parts within the assembled casing are mainly the shank 20 for the platform 16, lower and upper parallel links 38 and 40 and vertically spaced from one another and journaled on respective inwardly extending bosses 42 and 44 opposing one another and provided upon the respective half sections 30 and 32. The outer ends of these links or pivot arms 38 and 40 are journaled respectively at 46 and 48 to the platform shank 20 in a manner to have line contact therewith and to be freed of friction.

The front faces of the scale casing parts 30 and 32 are relieved to provide a slot 50 through which an integral indicator arm extension 52 of the link 38 extends. The outer end of this extension 52 has laterally extending indicator 54 that runs over the scale 14 to give indication in ounces or gram measurements on the scales.

The upper ends of the casing parts 30 and 32 provide for a top wall 56 about a depressed top recess 58 and to which the platform 16 with its turnable member 18 can be depressed and indicated against spring action when the cover 26 is pivoted to the closed position shown in FIG. 1. The cover 26 is so shaped and pivoted to lock the cover by the spring action that is effected upon the weighing platform by a coil spring 60 anchored at 62 to the lower lever 38 and connected by an adjusting screw 64 to the bottom of the top recess 58 by an adjusting screw 66.

All of the working parts except for the spring 60 and adjusting screw 64 and attaching screws are formed of molded plastic to render inexpensive the manufacture, and which is adapted for manufacture of scales such as these. On the bottom of the casings 30 and 32 are depending feet 68 for support upon a horizontal surface. The shank 20 is formed of molded plastic and is generally of channel shape provided with a channel opening 70 spaced so as to accommodate the ends thereof in the links 34 and 40. As best seen in FIGS. 7 and 8, opposing slots 72 and 74 are cut into the opposing sides of the shank 20 sufficiently deep to receive and locate opposite stud bearings 76 and 78 of the link 38. The studs 76 and 78 are generally round in section and more or less adapted to fit loosely within the bottom of the recesses 72 and 74 and are generally open along the edges of the shank side flanges; to provide a bearing engagement that will have line contact with the studs 76 and 78 small vertically extending pieces 80 and 82 are bridged across the open ends of the slots 72 and 74 and extend vertically on the outer faces of the flanges of the shank 20.

It will also be seen that the studs 76 and 78 are respectively beveled at 84 and 86. This is so as to accommodate the easy and simple assembly of the studs 76 and 78 into the slots 72 and 78 under slight pressure sufficient to force outwardly the flanges of the shank 20 and allow the outer ends of the studs 76 and 78 to respectively engage at 88 and 90 with line contact upon the bearing faces of the pieces 80 and 82. This construction not only allows for easy assembly of the links but also provides for less frictional contact of the studs 76 and 78 with the shank 20.

The lower end of the link 38 is provided with round studs 92 and 94 that are pivotally connected to the bosses 42 upon the casing parts 30 and 32 being assembled with one another.

The link 42 is similarly joined to the platform shank 20 by beveled studs 96 and 98 that are similarly engageable with open end slots 100 in the flanges of the shank 20 and retained by small pieces 102 overlying the outer faces of the flanges and the slots 100 as do the pieces 80 and 82 for the lower link 38. The upper link 40 has round studs 104 and 106 that are connected to bosses 44 in the casing parts 30 and 32.

I should now be apparent that the platform shank is freely supported on the outer ends of parallel links **38** and **40** and that these links are carried by the casing parts and that the platform and its shank **20** can move vertically up and down through the recess **58** and a bottom opening **108** therein with little or no friction yet the parts are formed of plastic with the studs being of plastic and journaled in plastic faced pieces or parts.

The lower end of the shank **20** has a laterally extending projection **110** to which spring **60** is connected by the pin **62**. Spring **60** is a tightly coiled lightweight spring and is of the nature of a spring in tension. Its wire hook at the lower end serves for connection by pin **62** with the shank projection **110**. The upper end of the spring is provided with a coil **112** of the same wire but of reduced diameter to provide a threaded connection for the securement of the adjusting screw **64** thereto. The upper end of the shaft **64** is molded or tight fitted into a shank **114** of the turn knob **66** and is journaled and supported through a recess **116** in the bottom of the recess **56** at the top of the casing parts. Turning the knob **66** will zero the pointer **54** with relation to the scale **14** and the assembly will readily springly support the platform **16** and its shank **20** within the casing parts. The casing parts are reinforced adjacent the slot **116** by depending portions **118**.

The pointer extension **52** carried on the link **38** extends through a vertical slot **120** in the depending shank **20** and as well at its outer end through the scale face slot **50** so that its pointer **54** can be read against the scale **14**.

The platform **16** is preferably formed integral with the shank **20**. It has however actually supporting ledges **122** and **124** with inner curved edges to accommodate the turnable platform part **18** that has rounded edges and which is pivoted on the top of the platform **16** centrally by a pivot pin **126** and secured against outward displacement by a nut **128**. The turnable member **18** has a detent **130** and **132** depending from the lower face of the turnable member **18** and adapted to engage with a depression **134** when aligned therewith as when the platform **18** is not being used and is adjusted to run coextensively with the main platform **16**. In this latter position it can be retracted into the top recess **58** of the casing parts and the cover extended over the same to close the scale. The cover is particularly adapted for enclosing the curved front wall and top wall of the scale for protecting the pointer and platform when the scale is packed for traveling or is otherwise not in use. When the cover is opened it serves to stabilize the scale since it is a massive structure and extends forwardly of the casing as clearly shown in FIG. **2**. The cover is a four sided structure with sidewalls parallel to the sidewalls of the parts **30, 32** but spaced slightly wider apart for juxtaposition to these walls and for frictionally engaging the same when the cover is closed as shown in FIG. **1**. The cover has top and end walls integral with the two sidewalls for overlaying the top and front walls respectively of the casing. The sidewalls have extensions in which pins **28** are inserted for engaging at front corners of the sidewalls of the casing. By this arrangement the cover can be pivoted from the stabilizing position of FIG. **2** to the closed protective position of FIG. **1**. The engagement of the spring-biased platform with the underface of the top wall of cover **26** helps in holding the cover locked against opening movement. Edges of sidewalls of the cover contact protrusions **22, 24** on the outer sides of the casing to serve as stop members limiting pivotal movement of the cover over the casing. The sidewalls of the cover should be spaced so as to engage snugly and frictionally the sidewalls of the casing to ensure the entire boxlike package remains closed as shown in FIG. **1**.

It should now be apparent that there has been provided a weight watcher and mail postage scale that is formed mainly of plastic parts assembled in a manner to relieve friction upon the working of the parts to make the adjustment f the spring and attachment of the spring to the parts in a simple manner to permit a covering to be extended over the parts to more or less be held in the closed position by the platform and to provide thereby a compact lightweight and dirt proof package and a set of scales readily available to be set up for use and adjustment and of such lightness in weight that they can be carried with the luggage of a person, and even in their handbag so that their food intake can be measured anytime and at the same time have scales available for measuring postage weight.

What I claim is:

1. A spring scale comprising a boxlike casing having spaced parallel flat sidewalls, a rear wall, a horizontal top wall, and a curved front wall having a longitudinal slot therein with index numbers thereon adjacent said slot for reading weights; a platform for supporting articles to be weighed movably disposed above the top wall of said casing; and axially movable vertical shank supporting said platform and extending downwardly into the the interior of the casing; linkage means pivotally attached to said sidewalls and to said shank for movably supporting the shank; adjustable spring means connected between said top wall and said shank for yieldably supporting the platform; a pointer extending from said linkage means outwardly through said slot and movable along said front wall for indicating weights when the platform is depressed; and a cover for said casing comprising a four sided structure formed with mutually perpendicular integral top, side and end walls, said sidewalls of the cover being formed with extensions pivotally joined to the sidewalls of said casing for pivoting the cover over the casing, stop means on the casing for limiting pivotal movement of the cover over the casing, the interior spacing of the sidewalls of the cover being slightly greater than the spacing of the sidewalls of the casing so that the sidewalls of the cover can be juxtaposed to the sidewalls of the casing for frictional engagement therewith, while the top and end walls of the cover overlay and protect the top and front walls respectively of the casing, and while the platform bears against the top wall of the cover to hold the same in place on the casing when the cover is pivoted over the casing.

2. A scale as defined in claim **1**, wherein said platform comprises a rectangular first plate joined nonrotatably and inseparably to said shank, and a second plate substantially equal in width to the first plate rotatably connected to said first plate and rotatable thereon in a plane parallel thereto for widening the platform when said second plate is disposed transversely of the first plate, said second plate being turnable to a position in registration with the first plate for enclosure by the cover when pivoted over the casing.

3. A scale as defined in claim **2**, wherein the casing is formed with an upper extension defining a recess for receiving the platform in retracted position when the cover is pivoted over the casing.