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Patented May 1, 1900.

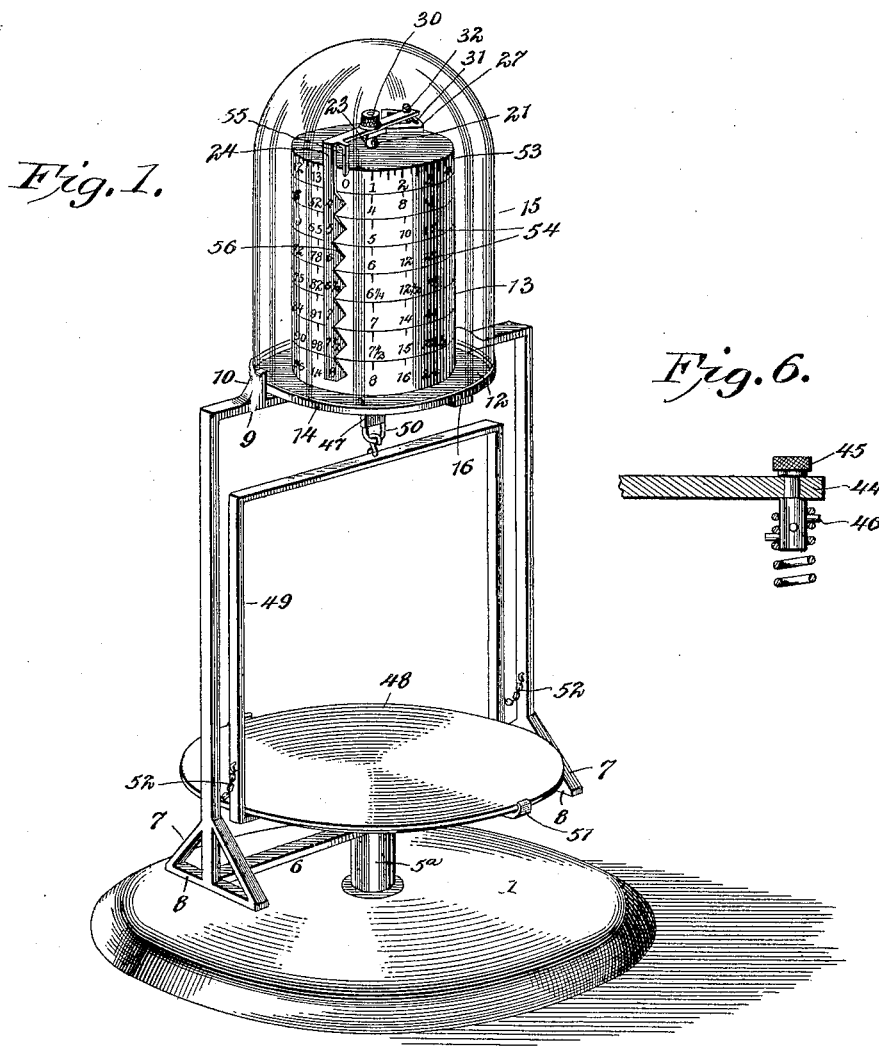
C. F. CHRISTOPHER.

PRICE SCALE.

(Application filed Dec. 9, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

Howard P. Orr.

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By his Attorneys,

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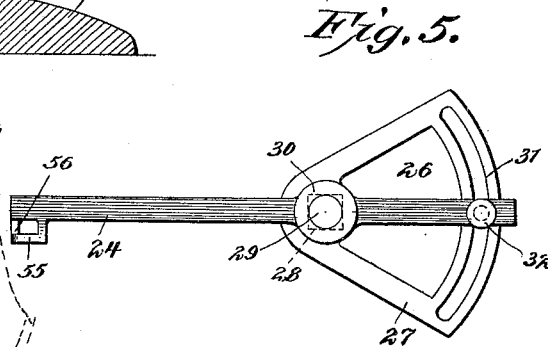
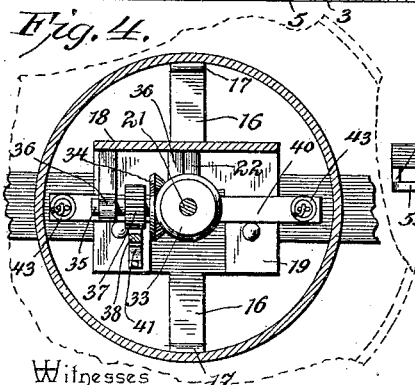
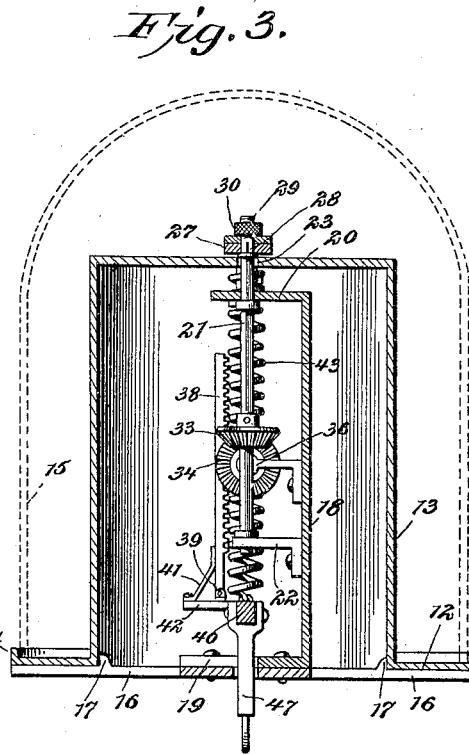
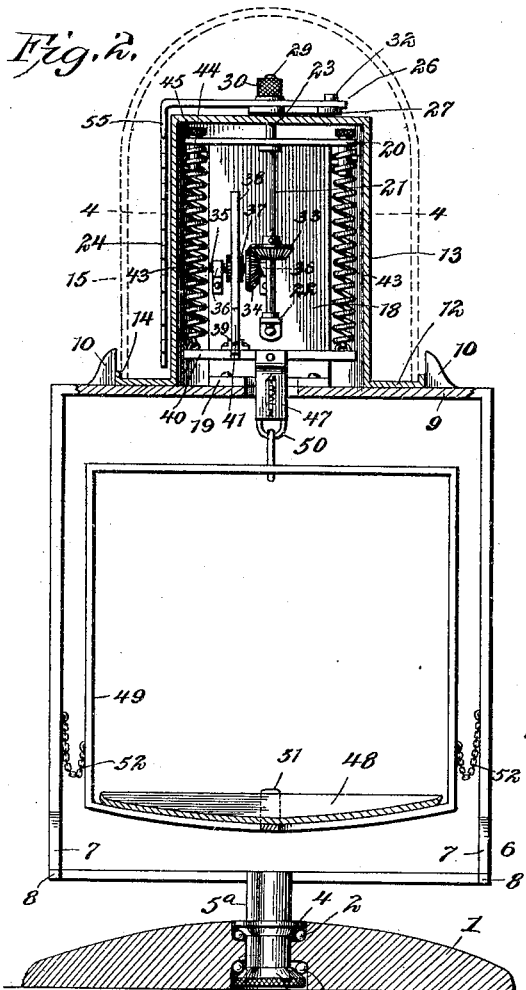
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2 Sheets—Sheet 2.



Witnesses

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UNITED STATES PATENT OFFICE.

CALVIN F. CHRISTOPHER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE COLUMBIAN AUTOMATIC COMPUTING SCALES COMPANY, OF NEW JERSEY.

PRICE-SCALE.

SPECIFICATION forming part of Letters Patent No. 648,609, dated May 1, 1900.

Application filed December 9, 1899. Serial No. 739,826. (No model.)

To all whom it may concern:

Be it known that I, CALVIN F. CHRISTOPHER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Price-Scale, of which the following is a specification.

The invention relates to improvements in price-scales.

The object of the present invention is to improve the construction of price-scales and to provide a simple and comparatively-inexpensive one designed to be mounted for rotation on a counter or other suitable support and capable of simultaneously indicating the weight and price of an article and adapted to be readily rotated, so that the buyer and seller may successively see the price and the weight.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a price-scale constructed in accordance with this invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a similar view of the upper portion of the scale, taken at right angles to Fig. 2. Fig. 4 is a horizontal sectional view on line 4 4 of Fig. 2. Fig. 5 is a detail view illustrating the manner of mounting the indicator. Fig. 6 is a detail view illustrating the manner of adjusting the coiled springs.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a circular base having a central opening enlarged at the top and bottom to provide upper and lower ball-races for the reception of upper and lower antifriction-balls 2 and 3, which are interposed between the base and upper and lower cones 4 and 5. The upper cone 4 is rigid with a depending stem 5^a of a rectangular frame 6, and the lower cone 5 preferably consists of a nut engaging a threaded portion of the stem 5^a to enable the wear of the parts to be readily taken up. The rectangular frame 6, which may be of any desired construction, is preferably reinforced at the bottom at opposite sides by in-

clined braces 7 and horizontal extensions 8, and the top 9 of the supporting-frame 6 is provided near its ends with upwardly-extending lugs 10, between which is arranged a horizontal annular flange 12 of a graduated drum or casing 13, and the said flange 12, which is suitably secured to the top of the supporting-frame, is provided with an upwardly-extending rim 14 and is adapted to support a transparent receiver 15, of glass or other suitable material, which protects the scale from dust and prevents any one from tampering with the mechanism. The top of the supporting-frame is also provided with arms 16, extending centrally from it at right angles and provided with lugs 17, located at the upper faces of the arms and arranged at the inner face of the graduated drum or cylinder to support the same. The lugs 10 extend above the rim and support the same and the glass receiver.

Mounted upon the top of the supporting-frame is a centrally-arranged bracket 18, having a bottom flange 19 and provided with a top flange 20, forming a bearing for a central vertical shaft 21, which has its lower end stepped in a suitable bearing 22, extending horizontally from the bracket at an intermediate point. The central vertical shaft extends upward through a central aperture 23 of the top of the drum or casing, and it carries an approximately L-shaped indicator 24, adapted to revolve around the exterior of the drum or casing and extending horizontally over the top of the same and depending at the exterior thereof, as clearly illustrated in Figs. 1 and 2 of the accompanying drawings. The horizontal portion of the indicator is provided between its ends with an opening for the reception of the shaft, and its inner or rear portion 26 constitutes an arm and is adapted to be secured to a sector-shaped frame or plate 27, which is fixed to the shaft. The shaft 21, which is disposed axially with relation to the casing, is provided above the same with a squared portion 28, which fits into a corresponding opening of the sector-shaped frame or plate, and the upper end 29 of the shaft is threaded for the reception of a nut 30. The sector-shaped plate or frame 26 is provided adjacent to its periphery with a curved slot

31, in which is arranged a suitable fastening device 32 for clamping the arm 26 of the indicator at the desired adjustment. The fastening device 32, which may be of any desired construction, preferably consists of a threaded shank or screw passing through the slot 31 and the perforation of the arm 26 and a thumb-nut arranged on the upper portion of the shank or screw and engaging the upper face of the arm. The shank or screw is provided at its lower end with a suitable head to engage the lower face of the plate or frame 27, and by operating the thumb-nut the parts may be secured at any desired adjustment, and this construction will permit the vertical portion of the indicator to be adjusted so that it will register accurately with the graduations of the drum or casing.

The central vertical shaft carries a bevel-pinion 33, which meshes with a vertical bevel-pinion 34 of a horizontal shaft 35, journaled in suitable bearings 36 of the bracket 18 and carrying a spur-pinion 37, which meshes with a pivotally-mounted rack-bar 38. The rack-bar 38, which is pivotally mounted at its lower end 39 on a vertically-movable horizontal bar 40, is held in engagement with the spur gear-wheel 37 by a spring 41, secured at its lower end to an arm 42 of the bar 40 and having its upper end bearing against the back of the rack-bar at a point above the pivot thereof. The horizontal bar has its ends connected with the lower terminals of a pair of coiled springs 43, which are suspended from the bracket 18, which is provided with perforated ears or extensions located at opposite sides of the top flange 20. The perforated ears or flanges 44 of the top flange receive adjusting devices 45, consisting of stems provided with lugs or projections 46 and having a suitable milled head. The lugs or projections 46 are located at different points and are adapted to engage the coils of the spring, the stem of the adjusting device extending into the spring, as clearly illustrated in Fig. 6 of the accompanying drawings. By rotating the adjusting devices it will be apparent that the springs are drawn upward and downward, and by this construction any inaccuracy of the scale resulting from long use of the springs may be readily corrected.

The vertically-movable connecting-bar 40, which carries the rack-bar, is provided with a depending stem or arm 47, extended through an opening of the bottom flange of the back 18 and through a central aperture of the top of the supporting-frame, and it has a scale-pan 48 suspended from it; but any other suitable device, such as a hook or the like, may be employed for receiving the goods to be weighed.

The scale-pan is supported in a frame or hanger 49, provided at its top with a hook which engages a loop 50, depending from the lower end of the stem or arm. The bottom of the frame or hanger 49 consists of curved bars arranged at right angles to each other

and conforming to the configuration of the lower convex face of the scale-pan. One of the curved bottom bars connects the sides of the frame 49, and the other is provided with upwardly-extending projections or hooks 51, adapted to engage the opposite edges of a scale-pan, whereby the latter is retained in the frame or hanger. The sides of the hanger 49 are connected with the sides of the supporting-frame by chains 52 or other suitable flexible connections, which will prevent the scale-pan and its supporting-hanger from rotating independently of the supporting-frame and twisting the hook out of engagement with the loop 50. When the yieldingly-supported scale-pan moves downward, it carries with it the rack-bar, which produces a rotation of the central vertical shaft, and the exterior indicator is caused to revolve around the curved surface of the graduated drum or casing. The drum or casing is preferably provided at the top with an annular series of weight-graduations 53, preferably pounds and fractions thereof; but any other unit of measurement may be taken, as will be readily apparent. The cylinder or drum is provided below the weight-graduations with annular series of price-graduations 54, corresponding with the weight-graduations, and the indicator is provided at its top with a depending finger 55, and it has a vertical series of indicating points or projections 56. The finger operates in connection with the top graduation 53, and the vertical series of indicating points or projections are arranged to correspond with the price-graduations and bear characters indicating the price per pound or other unit of measurement. The drum or casing and the exterior indicator may be constructed of any desired size, and any number of price-graduations and price-per-pound points or projections may be provided to adapt the scale for the particular use for which it is intended. The exterior indicator is adapted to revolve around the cylindrical drum or casing, and the supporting-frame may be readily rotated to swing the indicator into the view of the purchaser and the seller, so that each may readily see the weight and the price of an article. The casing or drum may be of any diameter to provide a scale of the desired capacity, and the latter may be constructed so that the indicator will make one or more revolutions around the drum or casing, and the number of revolutions will be indicated by characters on the depending arm or stem to which the scale-pan is connected.

It will be seen that the scale is exceedingly simple and inexpensive in construction, that the parts are compactly arranged and housed from the dust, and that any inaccuracy of the weighing mechanism may be readily corrected by either adjusting the indicator or the springs. It will also be apparent that all of the graduations of the drum or casing are within full view and that the supporting-frame may be readily rotated to swing the

indicator toward either the purchaser or the seller, so that the weight and the price of an article may be ascertained at a glance. It will also be seen that the graduations may be marked directly upon the drum or casing or may be provided on a suitable covering of paper or other material, and I desire it to be understood that various changes in the form, proportion, size, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

The invention is susceptible of various modifications, and in an application filed on or about March 20, 1900, Serial No. 9,426, I have shown and described the mechanism for rotating the exterior indicator around the casing applied to different forms of scales, and in this application the invention is claimed generically.

What is claimed is—

1. A device of the class described comprising a cylindrical casing provided with exterior graduations, a central shaft mounted within the casing, an exterior indicator mounted on the shaft and arranged to revolve around the cylinder, gearing located within the casing for rotating the shaft, a yieldingly-supported device for receiving the goods to be weighed, and mechanism connected with the device for receiving the goods to be weighed, for actuating the gearing, substantially as described.

2. A device of the class described comprising a cylindrical casing provided with a vertical series of horizontal annular graduations, an exterior indicator arranged to revolve around the cylindrical casing and provided with a vertical series of indicating points or devices corresponding with the graduations, a yieldingly-supported device for receiving the goods to be weighed, and mechanism connected with the device for receiving the goods to be weighed, for rotating the indicator, substantially as and for the purpose described.

3. A device of the class described comprising a cylindrical casing provided with annular graduations, an exterior indicator arranged to revolve around the cylindrical casing, a central shaft mounted within the casing and carrying the indicator, gearing also located within the casing for rotating the shaft, and a yieldingly-supported device for receiving the goods to be weighed, connected with and adapted to actuate the gearing, substantially as described.

4. A device of the class described comprising a cylindrical casing provided with an annular series of weight-graduations disposed horizontally, concentric series of horizontally-disposed price-graduations corresponding with the weight-graduations, an exterior indicator arranged to revolve around the casing, and provided with a series of indicating points or projections corresponding with the series of graduations, and a yieldingly-supported device to receive the goods to

be weighed connected with and adapted to revolve the indicator, substantially as described.

5. A device of the class described comprising a graduated casing, a vertical shaft arranged centrally of the casing, an exterior indicator arranged to revolve around the casing and carried by the shaft, a horizontal shaft provided with a spur gear-wheel, gearing connecting the said shafts, a spring-supported vertically-movable device designed to have a scale-pan or the like connected with it, and a rack-bar mounted on the spring-supported device and meshing with the gear-wheel, substantially as described.

6. A device of the class described comprising a casing provided with exterior graduations, a central shaft, an exterior indicator carried by the shaft and arranged to revolve around the casing, a vertically-movable support designed to have a scale-pan or the like connected with it, springs supporting the same, and gearing connecting the vertically-movable support with the shaft, whereby the latter will be rotated when the support is moved vertically, substantially as described.

7. A device of the class described comprising a graduated casing, a central shaft, an exterior indicator arranged to revolve around the casing and carried by the shaft, a vertically-movable support, springs connected with the support, a shaft arranged at right angles to the central shaft, and provided with a spur-pinion, gear-wheels connecting the shafts, and a rack-bar mounted on the support and meshing with the pinion, substantially as described.

8. A device of the class described comprising a graduated casing, a central vertical shaft extending through the casing, an exterior indicator arranged to revolve around the casing and carried by the shaft, a pair of springs supported within the casing, a bar connecting the lower ends of the springs and designed to be connected with a scale-pan or the like, a horizontal shaft connected by gearing with the vertical shaft, a spur-pinion mounted on the horizontal shaft, a rack-bar pivoted to the horizontal bar, and a spring engaging the rack-bar and holding the same in mesh with the pinion, substantially as described.

9. A device of the class described comprising a rotary supporting-frame, a graduated casing fixed to the same and carried thereby, an exterior indicator arranged to revolve around the casing, a shaft carrying the indicator, a scale-pan arranged within the supporting-frame, a spring supporting the scale-pan, and gearing operated by the movement of the scale-pan, connected with the shaft and adapted to actuate the indicator, substantially as described.

10. A device of the class described comprising a supporting-frame, a casing provided with exterior graduations and mounted upon the supporting-frame, a vertical shaft, an exterior indicator arranged to revolve around the

casing and carried by the vertical shaft, springs suspended within the casing, a vertically-movable bar connecting the springs and provided with a depending arm or stem, a scale-pan connected with the arm or stem and gearing connecting the vertically-movable bar with the shaft, substantially as described.

11. A device of the class described comprising a rotary supporting-frame, a casing having exterior graduations and mounted on the supporting-frame, an exterior indicator arranged to revolve around the casing, springs located within the casing, a vertically-movable bar connected with the springs, a scale-pan having a hanger suspended from the vertically-movable bar, gearing connecting the vertically-movable bar with the exterior indicator, and flexible connections between the hanger and the rotary supporting-frame, substantially as described.

12. A device of the class described comprising a base, a rotary supporting-frame journaled on the base, a graduated casing secured to the supporting-frame and provided with an annular flange, a transparent receiver supported upon the flange, an exterior indicator arranged to revolve around the casing and located within the receiver, and a yieldingly-supported device for receiving the goods to be weighed connected with the indicator and adapted to actuate the same, substantially as described.

13. A device of the class described comprising a fixed casing having a curved surface provided with exterior graduations, an axially-arranged shaft set in suitable bearings and carrying an arm parallel with the said shaft and arranged to move over the said graduations, a yieldingly-supported receptacle for receiving the goods to be weighed, and mechanism operating in the casing and actuated by the movement of said receptacle to turn the said shaft, substantially as described.

14. A device of the class described comprising a vertical casing provided with exterior graduations, a vertical shaft journaled in suitable bearings within the casing, a horizontally-swinging vertically-disposed indicator revolving with and supported by the shaft, said indicator being located on the exterior of the casing, a vertically-movable yieldingly-supported device for receiving the goods to be weighed, and gearing connecting the vertically-movable device with the shaft, whereby the latter will be turned when the receptacle moves vertically, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CALVIN F. CHRISTOPHER.

Witnesses:

W. E. HOPKINS,
W. J. HUMMER.