No. 706,460. Patented Aug. 5, 1902.

H. B. SHERWOOD.

PRICE SCALE.

(Application filed Oct. 7, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

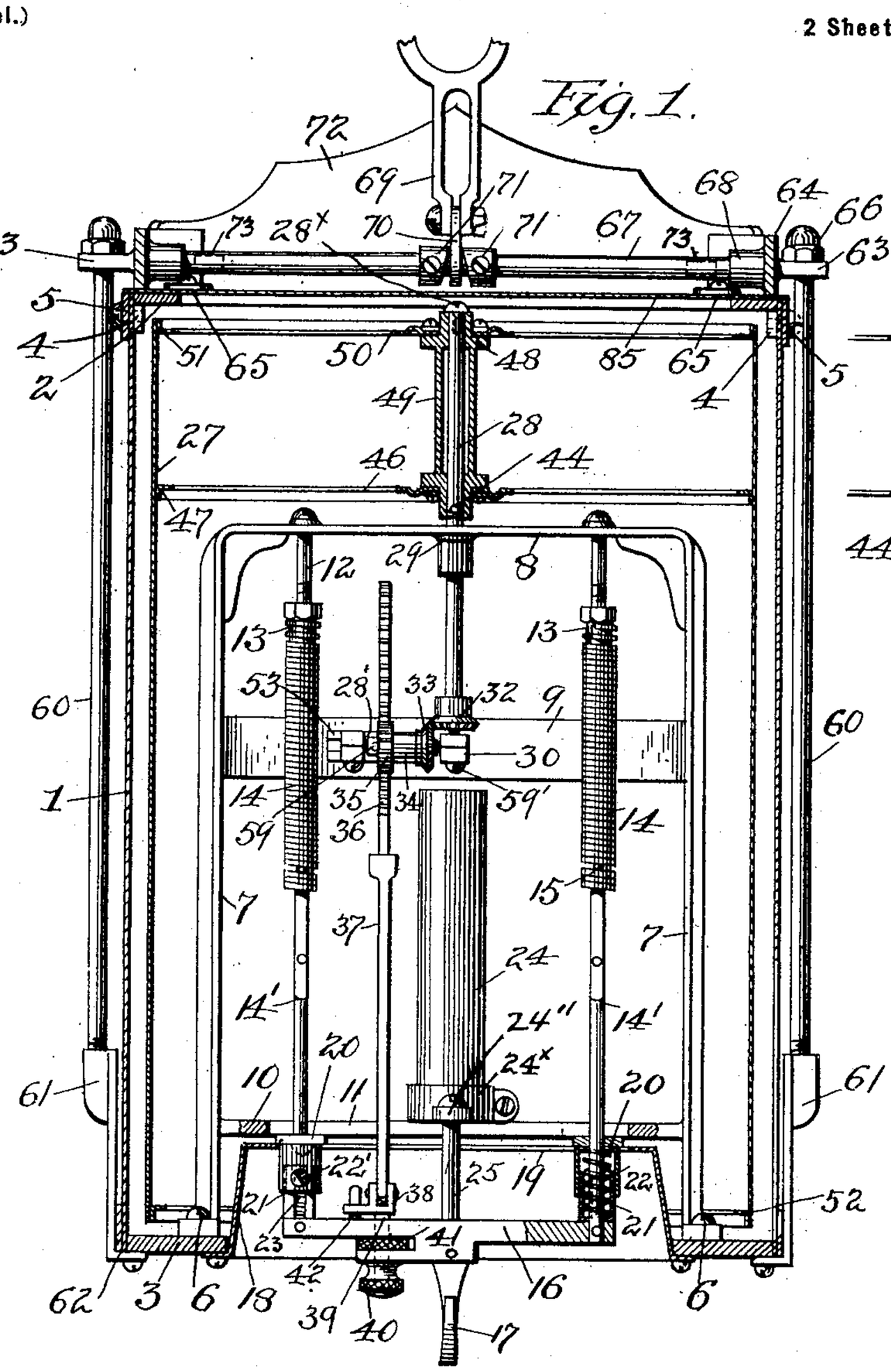


Fig. 4.

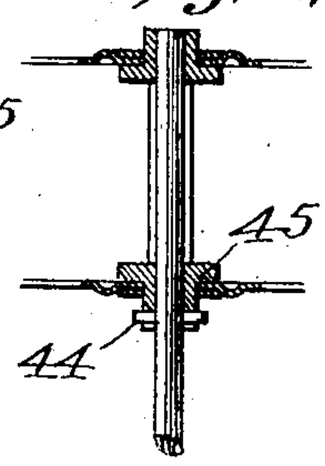


Fig. 2.

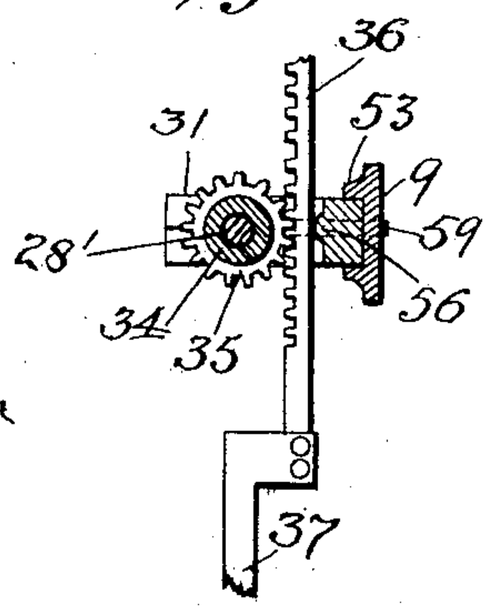
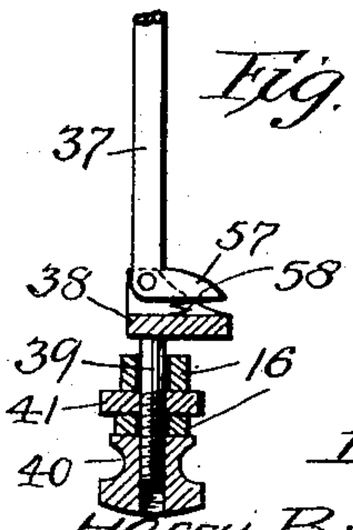


Fig. 3.



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H. B. SHERWOOD.

PRICE SCALE.

(Application filed Oct. 7, 1901.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

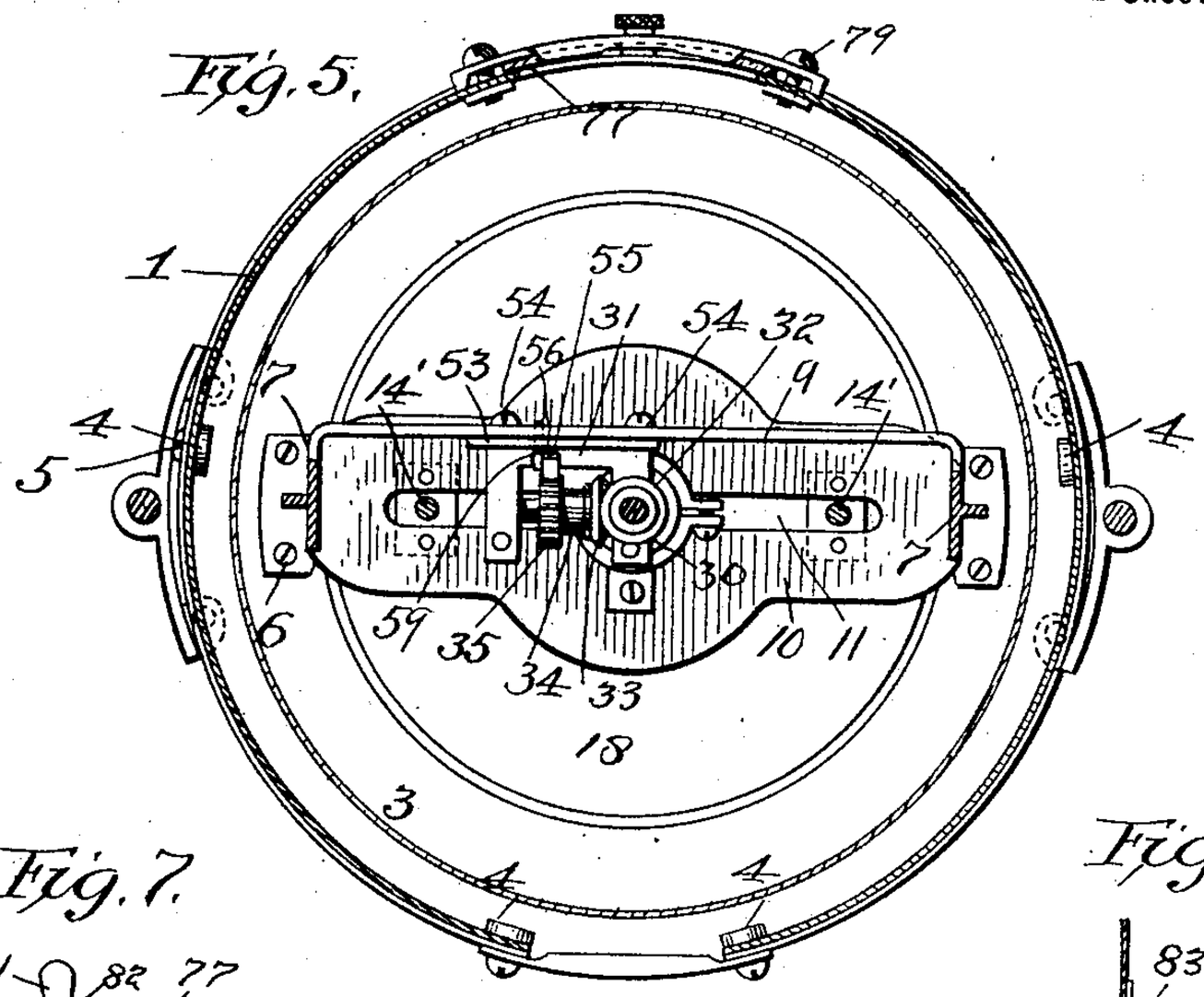


Fig. 7.

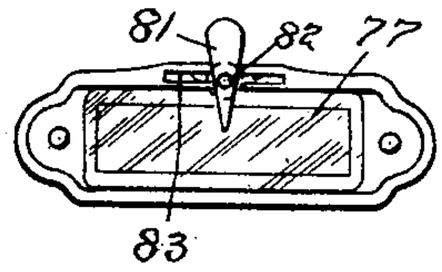


Fig. 8.

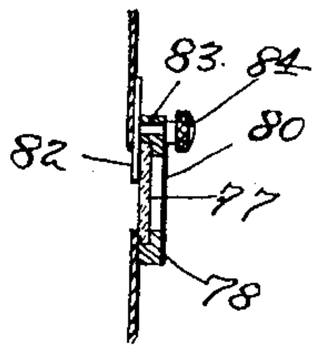


Fig. 6.

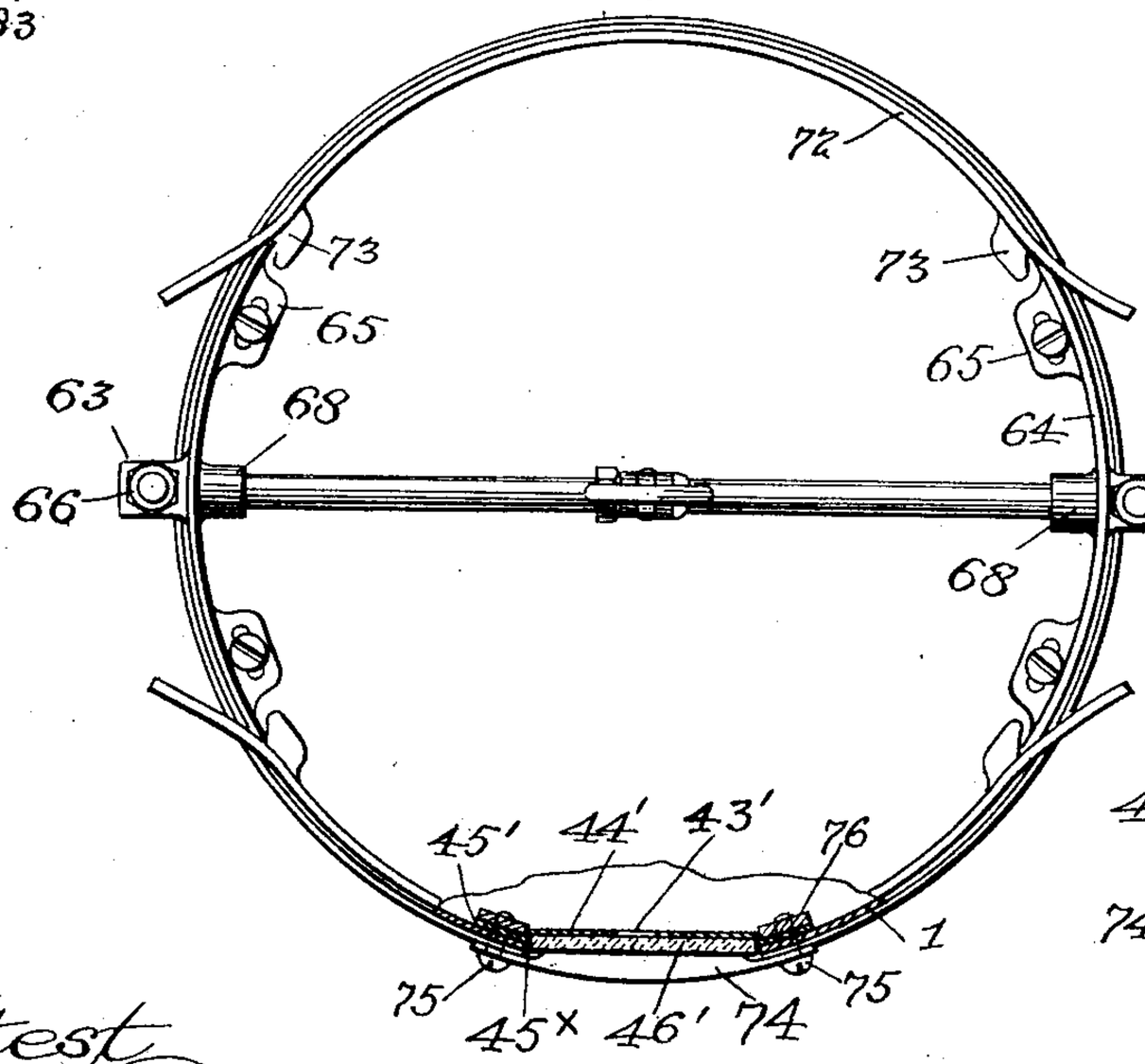
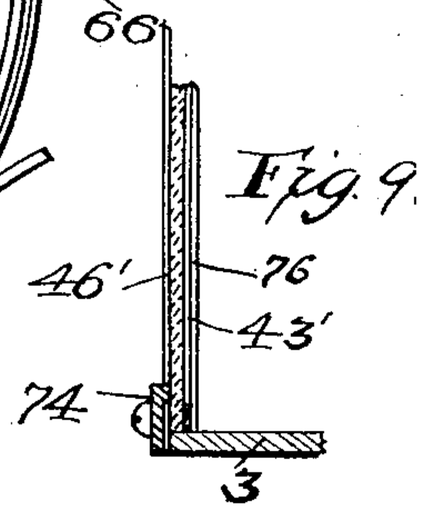


Fig. 9.



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UNITED STATES PATENT OFFICE.

HARRY B. SHERWOOD, OF ASHBOURNE, PENNSYLVANIA, ASSIGNOR TO THE AUTOMATIC SCALE COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF NEW JERSEY.

PRICE-SCALE.

SPECIFICATION forming part of Letters Patent No. 706,460, dated August 5, 1902.

Application filed October 7, 1901. Serial No. 77,875. (No model.)

To all whom it may concern:

Be it known that I, HARRY B. SHERWOOD, a citizen of the United States, residing at Ashbourne, Montgomery county, Pennsylvania, have invented certain new and useful Improvements in Price-Scales, of which the following is a specification.

My invention is an improvement in price-scales; and it consists in the features and combinations of parts hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of the invention. Figs. 2, 3, and 4 are detail views. Fig. 5 is a horizontal sectional view. Fig. 6 is a top view, partly broken away; and Figs. 7 and 8 are views of details. Fig. 9 is a detail view showing the manner of holding the glass in place.

The present invention is an improvement upon that disclosed in application for Letters Patent of the United States of William F. Hummer, Serial No. 45,798, filed January 24, 1901, my purpose being to improve the general structure and efficiency of the apparatus.

In the drawings the outer fixed casing is shown at 1, comprising a shell of cylindrical form having screwed thereto at the upper and lower ends metal rings 2 3, fitting closely within the ends of the cylindrical casing. The rings are provided with lugs 4 to receive the attaching-screws 5. Upon the lower ring is supported, by being screwed thereto at 6, a frame, which extends up within the fixed casing and comprises the uprights 7 and cross-bar 8 at their upper ends, an intermediate cross-bar 9, set on edge and located in rear of the vertical plane of the standards or uprights 7, and a lower cross-bar 10, which is slotted at 11. This cross-bar is arranged somewhat above the lower ends of the uprights 7. From the upper cross-bar 8 hangers 12 depend, said hangers at their lower ends supporting adjustable blocks or collars 13, to which the upper ends of the springs 14 are fixed by fitting in grooves in the block. The lower ends of these springs 8 are connected with the rods 14′ by means of pins 15 on the rods extending through the coils of the springs. These rods 14′ at their lower ends extend through the slot 11 in the lower bar 10 of the interior supporting-frame and carry at their extreme lower end a cross-head 16, from which the scale-pan or other receptacle for the goods to be weighed is suspended by means of a hook 17 on said cross-head. The hook 17 is fixed to the cross-head, and the rods 14′ are secured to the cross-head by pins. This hook 17 may be rigidly secured to the cross-head in any obvious manner, such as by a pin. The lower end of the apparatus is closed by a shell 18, which is attached to the lower ring 3 of the casing and extends upwardly within said casing, the top of said shell being slotted at 19 for the passage of the rods 14′ and for the passage also of other elements hereinafter referred to. Impact or buffer blocks 20 are interposed between the shell 18 and the cross-bar 10 of the supporting-frame, said blocks being secured by screws to the under side of the cross-bar 10. Between these blocks and the cross-head 16 buffers or cushions 21 are arranged, consisting of telescoping sleeves inclosing a spring 22, which bears at its upper and lower end upon the head of the outer and inner sleeves, respectively. The sleeves loosely surround the rods and are not attached to either the casing or the cross-head. They simply rest upon the latter. A screw 22′ passes through the outer sleeve and into a slot 23 in the inner sleeve, this serving to prevent the sleeves from separating beyond a certain limit. These cushions surround the rods 14′, and when the weight is removed from the scale-pan or other receptacle and the springs draw the cross-head 16 upwardly the final shock is taken up by the cushions contacting with the impact-blocks 20, and jarring of the mechanism is thus prevented. In order to prevent a too-quick return of the parts under the action of the contracting springs when the scale is relieved of the weight, I provide a pneumatic cushion consisting of a cylinder 24, secured to the lower cross-bar 10 of the interior frame and extending vertically therefrom. Its open lower end is in line with the slot 11 of the lower cross-bar, and a piston-rod 25, connected with the cross-head 16, extends through said slot and up into the pneu-

matic cylinder, where it is connected with a piston therein. This pneumatic cushion will prevent the parts from rising too suddenly, and, as before stated, final shock will be prevented by the cushions 21. The rod 25 is rigidly secured to the cross-head in any suitable manner. The cylinder 24 is held by a clamp-ring $24^{\times}$ at its lower end, which has ears 24″, one of which is shown in Figs. 1 and 5, secured to the cross-bar 10.

In my machine, as that shown in the application referred to, the operating parts are inclosed by the revolving cylinder or chart which carries the computations and the indications of weight. This cylinder 27 is supported by a vertical shaft 28, which has its bearings in the interior supporting-frame, one bearing 29 being on the upper cross-bar 8 of said frame and the other bearing 30 being in an arm of a bracket 31, adjustably fixed to the intermediate vertically-arranged cross-bar 9 of said interior supporting-frame. The shaft 28 has a collar thereon resting against the lower side of the bearing. This shaft is rotated by a beveled gear 32 thereon meshing with a similar gear 33 on a sleeve 34, which carries also a pinion 35 and is mounted on a pin 28′, supported in the bracket meshing with a vertical rack-bar 36, the lower end of which is attached to a vertical rod 37, pivotally connected at its lower end to a block or bracket 38, the stem 39 of which passes through the cross-head 16 and is held by the nuts 40 41 to said cross-head, so as to be adjusted as desired. The bracket 38 is guided in said adjustment by a pin 42, extending up from the cross-head through an opening in the bracket. When the cross-head moves downwardly under the weight of the article in the scale-pan, the rack 36, moving therewith, will turn the pinion 35 through the gearing and vertical shaft 28, and the indicating and computing chart will be rotated to display the weight-number and price-number at the opening 43 of the casing. In my machine I have improved the manner of supporting the chart from the vertical shaft. Instead of supporting the chart at its extreme upper end on the shaft I arrange a supporting-point on the shaft intermediate of the upper and lower ends of the cylindrical chart. This supporting-point is shown at 44 and consists of a pin extending transversely of the shaft 28, upon which rests a collar or hub-section 45, the lower end of which is notched to fit over the pin. This hub-section or collar has secured thereto a light frame 46, the outer edge of which is of angular form, as shown at 47, furnishing a broad vertical bearing for connection with the chart, which is preferably made of the lightest possible material, such as paper. The supporting hub or collar 45 is connected with an upper hub-section or collar 48 by metallic pieces 49, and preferably the hub-sections, together with the connecting-pieces, are all cast in one. The upper collar or hub-section has likewise attached thereto a light frame or wheel 50, which, like that before described, is provided with an angular rim 51, to which the extreme upper edge of the cylindrical chart is attached. By this construction, in which the supporting-point is below the upper end of the cylindrical chart and in which the chart is supported at a point intermediate of its length, the perfect operation of the chart is insured and there is no danger of the chart getting out of proper alinement or position with respect to the other parts of the apparatus. The lower end of the chart is furnished with a stiffening-ring of angular cross-section, (shown at 52.) By this construction the chart is stiffened at both of its extreme ends and at an intermediate point, and being made of thin material, such as paper, this is an important feature in preserving the cylindrical form of the chart and preventing it from contacting with any of the surrounding or closed parts of the apparatus.

The bracket 31, which carries the bearings for the vertical shaft 28 and for the horizontal shaft 28′, is formed of a single piece of material held between ribs 53, formed on the intermediate cross-bar 9 of the interior frame, screws 54 being employed to complete the attachment. This bracket has a way or kerf 55, through which the rack-bar 36 extends, the back of the rack-bar resting on a narrow rib 56 in said kerf. This rib is arranged directly opposite the center of the pinion and holds the rack-bar in mesh therewith. The lower end of the vertical rod 37, which forms, substantially, an offset continuation of the rack-bar, is, as before stated, pivotally supported. It has a laterally-extending foot 57, which is pressed by a spring 58 to force the rack-bar into engagement with the pinion. The rack-bar is held in position laterally by bearing against one side of the kerf and by bearing against a pin 59, extending through the bracket 31 into said kerf. The arms of the bracket 31 are split, and these split ends are held together by screws 59′, by which the bearings for the shaft or pin 28′ may be adjusted.

I have aimed to so arrange the parts that the pneumatic cushion may be central in respect to the working parts and to the strain due to the weight. In Fig. 1 I have shown the cylinder 24 arranged axially in respect to the vertical shaft 28, the center of which is in direct line with the hook 17, from which the weight is supported. By this central arrangement of the pneumatic cushion there will be no tendency whatever for working parts to be deflected from their vertical course of movement, thus preventing all danger of jamming and preventing also undue wear.

The suspension-frame of the apparatus comprises the rods 60, arranged outside of the fixed casing and extending vertically thereof, their lower ends fixed in brackets 61, provided with feet 62, screwed to the bottom ring 3. Said rods 60 may be rigidly secured

to the brackets 61 in any suitable manner—such, for instance, as by a screw-thread connection. The upper ends of these suspension-rods pass through ears 63, extending from segments 64, which are provided with horizontal ears 65, screwed to the upper ring 2 of the fixed frame. The suspension-rods 60 have nuts 66 at their upper ends resting on the ears 63. A cross-bar 67 is fitted to bosses 68, carried by the segments 64, said cross-bar being centrally arranged and at its middle having secured thereto the suspension device 69. This suspension device comprises a link 70, fitting between collars 71, fixed by set-screws on the cross-rods. Plates 72, bearing the name of the maker and of any suitable design, are held in place by lugs 73 thereon engaging the ends of the segments 64—that is to say, the lugs 73 fit against and extend inside of the end of the segment 64.

The display-opening 43′ is formed in a sheet-metal plate 44′, having flanges 45′ resting upon the interior of the fixed shell or casing 1. This shell or casing has a segment removed at 45× for the display of the indications. A glass plate 46′ covers the plate 44′, upon which latter plate the price-marks are arranged vertically, and the glass is held in place by its upper and lower ends fitting behind tie-pieces 74, which extend across the opening 45′ in the fixed casing, being screwed to the edges of said fixed casing at 75. The plate 44′ is secured in place by clamp-plates 76 and suitable screws passing through the edges of the fixed casing 1. On the fixed casing at a point opposite the display-opening 43′ a window 77 is arranged, consisting of a glass and a frame 78, the said frame being held by screws 79 and having a sight-opening 80. A pointer 82 is carried by the frame, the spindle of the pointer passing through a slot 83 in the frame and having a jam-nut 84 at its outer end. Through this window the customer may see the weight indication.

It will be understood that the computing-chart may be removed by simply lifting it from the shaft 28, and in placing it in position it is simply necessary to place it upon the shaft so that the notched end of the supporting hub or collar 45 will drop onto the pin 44.

The upper end of the casing 1 is closed by the plate or disk 85, secured to the upper ring 2.

The rotary chart is held on the shaft 28 against vertical displacement by a screw 28×. (Shown in Fig. 1.)

I claim as my invention—

1. In a computing-scale, and in combination, a vertically-arranged cylindrical chart supported upon frames 46 50, one below the other and both mounted upon connected hubs, whereby is furnished a broad upper bearing for the upper end of the chart, the said hubs and frame being connected with the vertical shaft, with which the chart turns, all substantially as described.

2. In combination in a computing-scale, a casing having a bottom ring, a suspension-frame comprising rods 60, brackets carried by the lower ends of said rods and having feet fixed to the bottom ring of the casing, an upper ring 2 connected to the casing, segments 64 fixed to said upper ring, ears 63 on the segments from which the said rods 60 are suspended, a cross-bar 67 connecting the segment 64 and a suspension device connected to the bar 67, substantially as described.

3. In combination in a computing-scale, a casing, a frame supported at the lower end of the casing and comprising a cross-bar 10, a movable cross-head, springs for supporting said cross-head, rods 14′ interposed between the cross-head and the springs, telescoping sleeves on the rods 14′ and springs within the sleeves arranged to take up the shock when the weight is removed, the said bar 10 serving to sustain the blow of the sleeves, substantially as described.

4. In combination, a rotary chart, a shaft carrying the same and operating mechanism for said shaft, a supporting-frame, a cross-head, the rods 14′ connected with the cross-head, the suspension-springs connected with the rods, a pneumatic cushion for retarding the return of the cross-head, and cushions for taking up the final impact, said cushions comprising the sleeves surrounding the rods 14′ and the springs inclosed within the sleeves, substantially as described.

5. In combination with the supporting-frame comprising the cross-bar 10, the outer casing, the ring 3 connected therewith, the shell 18 closing the lower end of said casing and connected with the ring 3, impact-blocks 20 arranged between the cross-bar 10 and the shell 18, a cross-head, supporting means therefor, operating mechanism controlled thereby and the spring-cushions arranged between the cross-head and the impact-blocks, substantially as described.

6. In combination, the rotary chart, a rack-and-gear connection for operating the same, a bracket supporting the gearing, said bracket having a kerf for the rack-bar with a rib therein to afford a bearing for the rack-bar and a pin 59 extending into said kerf for engaging the rack-bar, substantially as described.

7. In combination, the casing, mechanism inclosed therein, suspension means comprising the suspension-rods extending along the outside of the casing and connected with the lower end of the same, a connection for the upper ends of the said suspension-rods extending transversely of the upper end of the casing and means connected with said transverse connection for suspending the casing, substantially as described.

8. In combination, the casing, the suspension-segments connected with the upper end of the same, the cross-rod extending between the segments, suspending means connected with the cross-rod, and the suspending rods

extending from the segments along the outside of the casing and connected at their lower ends thereto, substantially as described.

9. In combination, the casing, mechanism inclosed therein, the suspending-segments connected with the upper ends of the casing, a cross-rod connecting the segments, ears extending from the segments, suspending-rods extending down from said ears and connected at their lower ends with the casing, substantially as described.

10. In combination, a casing, consisting of a shell, upper and lower rings connected with said shell and suspending means consisting of the segments connected with the upper ring, a suspension device connected with the segments, suspending-rods connected with the segments and extending downwardly along the casing and brackets at the lower ends of the suspending-rods connected with the lower ring, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY B. SHERWOOD.

Witnesses:
GILBERT B. GIBSON,
GOULD MURRAY.