No. 804,833. PATENTED NOV. 21, 1905.

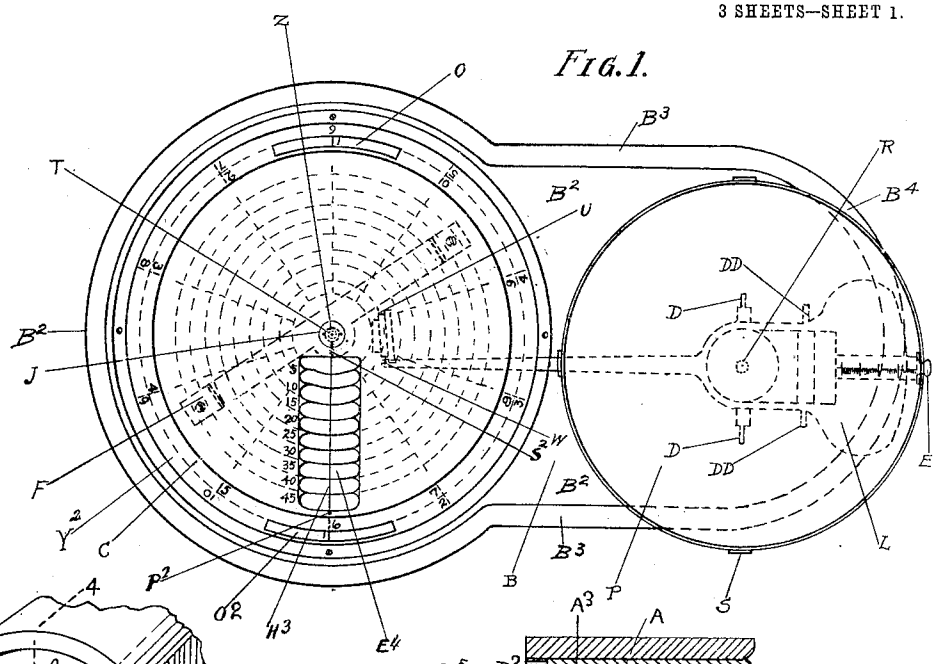
W. A. DICKMANN.

WEIGHING AND PRICE COMPUTING MACHINE.

APPLICATION FILED OCT. 24, 1904.

3 SHEETS—SHEET 1.

FIG. 1.



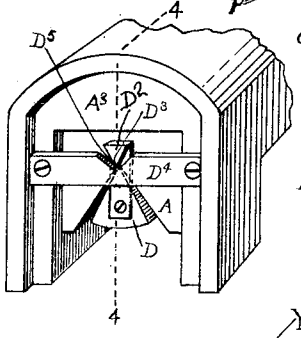


FIG. 3.

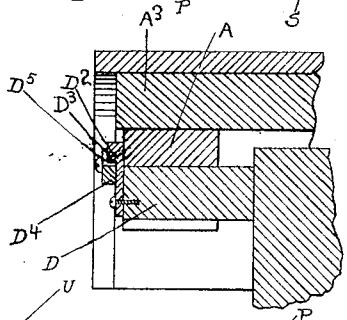


FIG. 4.

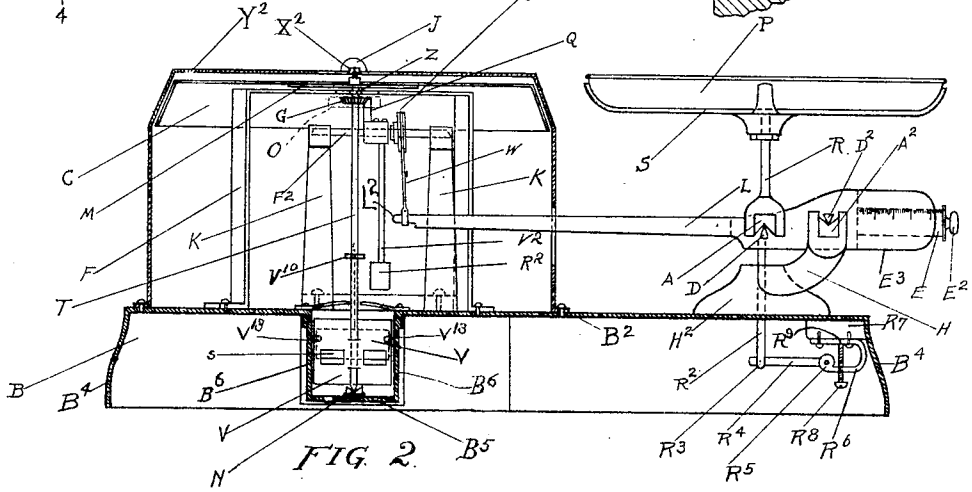


FIG. 2.

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3 SHEETS—SHEET 2.

Fig. 5.

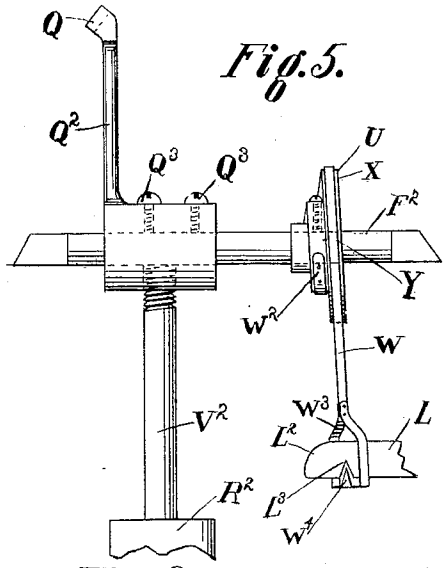


Fig. 6.

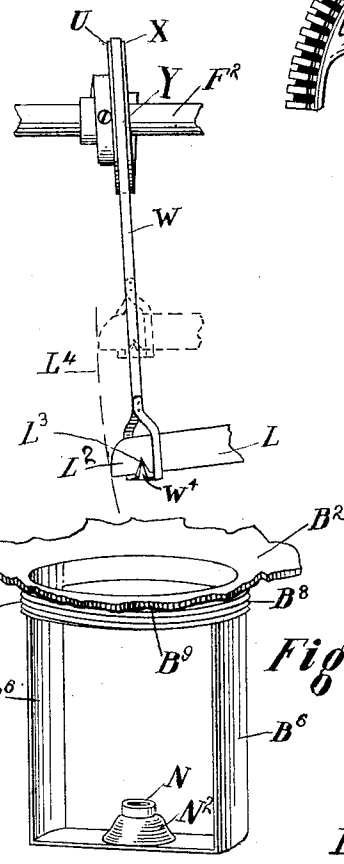


Fig. 7.

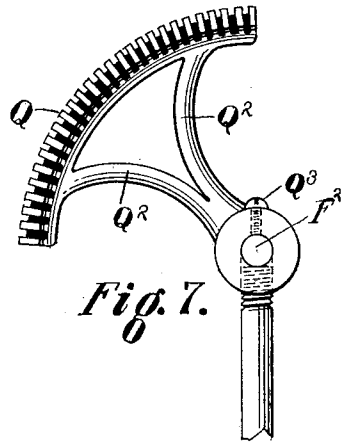


Fig. 9.

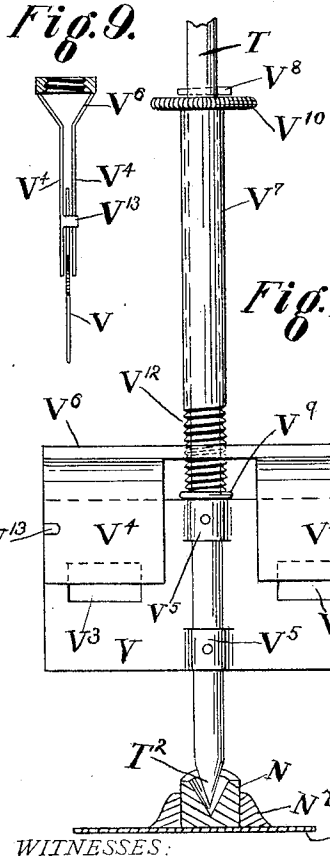
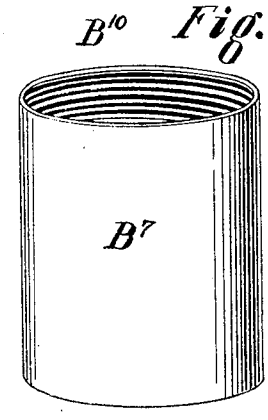


Fig. 8.

Fig. 10.

Fig. 11.



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3 SHEETS—SHEET 3.

Fig. 12.

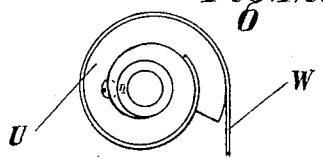


Fig. 13.

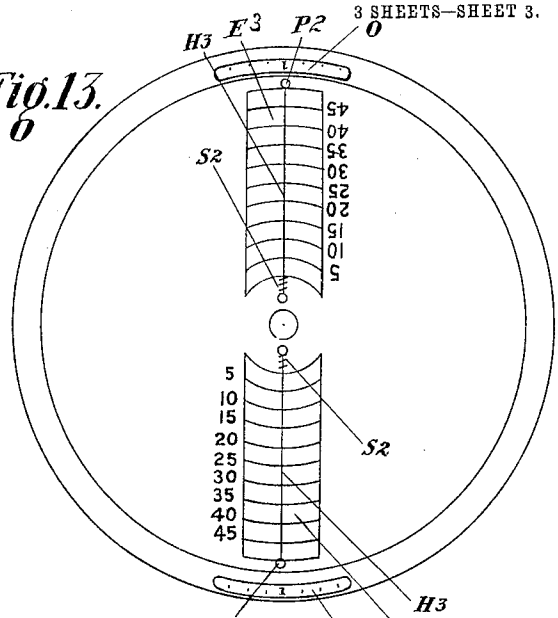


Fig. 15.

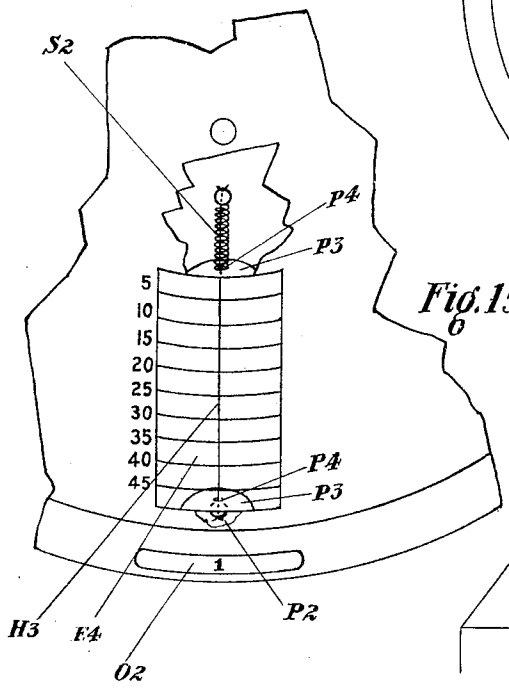
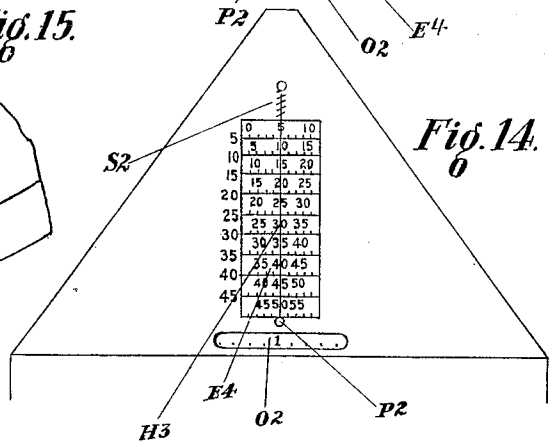


Fig. 14.



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UNITED STATES PATENT OFFICE.

WILLIAM A. DICKMANN, OF CINCINNATI, OHIO.

WEIGHING AND PRICE-COMPUTING MACHINE.

No. 804,833. Specification of Letters Patent. Patented Nov. 21, 1905.

Application filed October 24, 1904. Serial No. 229,867.

To all whom it may concern:

Be it known that I, WILLIAM A. DICKMANN, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Weighing and Price-Computing Machines, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

I will now proceed to describe my invention in detail.

In the accompanying drawings, making part of this specification, and in which similar letters of reference indicate corresponding parts, Figure 1, Sheet 1, is a top view of a machine illustrating my invention. Certain parts of the machine below those that are uppermost are indicated by dotted lines. Fig. 2, Sheet 1, is a side view, partly in elevation and partly in section, the section being a vertical longitudinal one this side of the longitudinal center of the scales. Fig. 3 is a view in perspective of the precautionary and preferred construction of the centers or knife-blades and a connection between them for always keeping the support of the platter in position even when the weight or heft of the substance to be weighed is at the extreme end of the platter. Fig. 4 is a central vertical section taken in the plane of the dotted line 4 4 of Fig. 3. Fig. 5 represents an elevation of a detail of parts of my machine—viz., of the operating end of the scale-beam, its stirrup, and the strap, the spiral eccentric rotated thereby, a sector of the beveled gear with hub, a pendulum connected to said hub and shaft on which this spiral eccentric and said pendulum are mounted. Fig. 6 is a view similar to that of Fig. 5, but illustrating the mode in which my improved construction of the spiral eccentric operates relatively to the strap and scale-beam. Fig. 7 is a side or face elevation of the beveled gear-sector and its connection to the shaft. Fig. 8 is a view, partly in elevation and partly in section, illustrating the combination of a novel construction of the paddle and of mechanism for adjusting the doors which regulate the size of the openings through the paddles. Fig. 9 is an end view of the paddle and of the doors for controlling the openings of the paddles. Fig. 10 is a view in perspective of the preferred construction of frame for supporting the vessel or cup for holding the oil. Fig. 11 is a perspective view of the oil-cup. Fig. 12 is a side view of the pulley U. Fig. 13 is a view of a modification. Fig. 14 is a view of a further modification. Fig. 15 is an enlarged detail.

B indicates the foundation frame or platform of the machine. Below the upper part or floor B^2 of this platform I locate certain portions of the scale, hereinafter described. This floor is supported on legs or wall sides B^3 and wall ends B^4 B^4. This structure may for convenience be termed the "base."

The scale-beam L oscillates on a knife-edge center D^2, working in bearings A^2. These latter are duly supported on arms H, suitably supported, preferably, by the base H^2, fixed on the platform B^2.

The preferred construction of knife-edges for supporting the spider and on which it can oscillate is as follows: D D are the main centers, one of which is on each side of the main beam. Each of these centers has a lug D^2, which carries a reverse center edge D^3. The edge of this center-piece rests upon a bearing D^4, fixed to the frame A^3 of the bearing-piece A. This bearing D^4 has a notch D^5, in the bottom of which the edge of the center D^3 sits. The apex of the notch of the bearing A is in alinement with the apex of the notch of the bearing D^4.

Heretofore when an article bore on the outer edge of the spider or platter and the bulk of the weight came there the effect of this one-sided pressure was to lift the bearing A off from the center D. My improvement prevents this result. Therefore the position of the center D relative to the bearing A will always be the correct one.

The spider or frame S is for holding the thing or things to be weighed, and it is adapted in form to receive the pan, platter, or scoop P for holding such classes of articles directly on the platter. This spider is carried on an upright R, in turn fixed upon and supported by bearing-pieces A, respectively resting and oscillating on the knife-edges D. The spider is prevented from tipping out of line and is kept in a position substantially horizontally by means of the rod R^2, which may be considered as a continuation of the rod R and extends downward, as shown. Its lower or free end is pivoted at R^3 to one end of a link R^4, whose other end is pivoted at R^5 to the end of an elastic curved arm or spring R^6, whose

other end is duly bolted or otherwise secured to a suitable part of the base. In the present instance this part is shaped as shown and is lettered R^7. That part of the curved arm which carries the end that is pivoted at R^5 to the link R^4 is capable of being raised and lowered and of being set in such elevated or depressed position. Means for such purpose consist of the set-screw R^8, whose upper end is pivotally set at R^9 in the upper end of the arm R^6 or in the part R^7, as preferred. This set-screw passes through the lower part of the arm R^6, and the thread of this set-screw engages a female thread in this part of the arm R^6. This adjustment enables me to move the adjacent end of the rod R^4 so that the bottom of the platter at all times—viz., when stationary and when moving up and down—shall be horizontal.

I combine with that end E^3 of the scale-beam that is nearest the platter a new counterbalance or tare-piece. This consists of a weight E, preferably cylindrical in form, provided with means for grasping it, preferably a knob E^2. This cylindrical weight slides in a recess in the scale-beam. Drawing out the cylinder E increases the leverage and capacitates the scale to counterpoise the extra weight of the bag, wrapper, basket, pail, or other receptacle which is placed on the pan, platter, or scoop, and which is to hold the article to be sold. Pushing in the cylindrical weight E decreases the amount of the tare-poise. When it is in as far as it is limited to go, it will be out of use. When the article itself and alone is to be weighed on the scale, this counterpoise will not be in use. This counterpoise is also of this other advantage—viz., it increases the weighing capacity of the scale. The cylindrical form of this counterpoise E has this advantage: It can be turned so that its graduations can be seen from above, at the sides, and below. A child can read the graduations as well as a grown person.

Another advantage of my tare-poise is that it distributes the weight of it equally upon the pivot-bearings D^2 A^2 on the one side and upon the other pivot-bearings D^2 A^2 on the opposite side of the scale-beam.

That end L^2 of the scale-beam L which is to operate the chart is duly connected to a strap W. Above is a shaft F^2, supported on upright frame-pieces K K. This shaft carries a spiral eccentric worm or pulley U. The strap embraces this spiral eccentric and is connected to the latter at W^2 in a suitable manner. In the illustration screws are shown as a preferred means.

To obtain greater accuracy in the adjustment and in the operation of my scale, I connect the strap W to the scale-beam L as follows: I provide a stirrup W^3, whose upper end is connected to the strap. The lower end of the stirrup carries a steel cone W^4, and this is received against a steel or agate conical cup L^3 of the beam. Therefore the stirrup cannot slip on the beam, and the friction of this connection is reduced to a minimum.

By certain improvements in the construction of the eccentric I am enabled to avoid much unnecessary friction and increase the delicacy of operation of the apparatus. These improvements are as follows: In making the spiral eccentric I incline it on the shaft so that the length of the strap will when the end L^2 of the beam descends always be parallel to the lines of the edges of that part of the face of the eccentric whereon the strap lies and next to where it leaves the eccentric in descending to the beam.

By way of illustration I submit the following: When the end L^2 of the scale-beam descends, it will describe a curve shown by the dotted lines L^4. (See Fig. 6.) In the points of such descent the point W^4 of the stirrup will leave the perpendicular plane which it first occupied. Consequently the strap W will be inclined relatively to the shaft F^2, and this inclination will be increased as the end L^2 of the beam descends. To accommodate this inclination, I incline the entire working portion of the eccentric so that at whatever point in its descent the end L^2 of the beam may be the upper quarter of the eccentric between the lines X and Y will be parallel to the normal inclination of the strap. For this reason the strap has no tendency to slip off the eccentric and does not make any friction by sidewise slipping on the working face of the eccentric. On the shaft F^2 is also mounted the sector-gear Q, supported by a frame either solid or of arms Q^2. The collar of this frame is fixed on the shaft. Bolts Q^3 Q^3 are a desired means for setting it thereon. This sector-gear engages a beveled gear G, mounted on the vertical shaft T. The upper end of this shaft is pointed and rotates in the bearing X^2. The latter is protected from injury by the shield J. Fixed to the shaft below the housing Y^2 is the rotatable chart M. On the upper horizontal surface of this chart is an indication of prices, and on the peripheral beveled portions the indications C of weight are marked. There are two columns of indications of weight thereon. The one for the buyer to inspect is to be seen through the opening O in the housing. The other for the seller to inspect is to be seen through the opening O^2 in the housing. Both of these agree, but are thus located for convenience of inspection. In the top of the housing is an opening E^4. Stretched across this opening is a thread, hair, wire, or other filament H^3. Being able to stretch this thread, &c., close to the chart, the buyer or seller is alike enabled to read the chart more correctly. This thread, hair, wire, or other filament is connected at one end, preferably the inner one, to the frame by a spring, preferably a spiral one S^2. At the other end it is connected to the frame, preferably at P^2. This connec-

tion insures at all times that the hair, &c., shall be kept at all times taut, and consequently in a straight line. This spring takes up all slack of the hair, thread, wire, or other filament arising from expansion by reason of the influence of the weather or from the natural stretching of the material of which this line is made. On the side of the opening E^4 and upon the housing is a column or row of figures indicating prices by pound. The mode of computation and of reading such chart is well-known and need not be more fully specified here.

The chart and its housing may be cone-shaped instead of flat, as shown. (See Fig. 14.)

As illustrated, the chart rotates at times to the extent of a circle. In case it is to rotate to the extent of one-half a circle only, then I locate another opening E^3 on the other opposite side of the housing and provide this with duplicate indications. (See Fig. 13.)

The shaft T extends down. Its lower end is pivoted at T^2 and is stepped in a conical cup N. When turned, it rotates in this cup. This cup is duly supported in a block N^2. The latter is supported on a base B^5, upheld by side walls B^6 B^6, connected to the platform B^2 of the frame. The connection between these walls B^6 and the platform is preferably an integral one. An oil-cup B^7 is present, and it embraces these parts B^5 B^6 B^6 and is secured in a proper manner to the frame. A preferred means is by means of a screw-thread B^8 on a rim B^9, extending around from one wall B^6 to the other wall B^6, and an interior screw-thread on the upper edge of the oil-cup B^7.

I will now describe the mechanism of the paddles or wings V of the shaft T. The paddles are connected to the shaft T and by it are rotated in the oil-cup. The function of the oil is to furnish a proper resistance to the otherwise too rapid rotation of the chart when the scale-beam is moved. The paddles are preferably in one sheet and fixed at V^5 V^5 to the shaft T.

I have devised means for enabling the speed of the rotation of the paddles in the oil, and consequently of the speed of the turning of the shaft T and of its chart C to be regulated, namely: I provide openings V^3 V^3, one in each paddle. I further provide doors adapted to close more or less of these openings V^3 V^3. A preferred kind of such doors V^4 V^4 and a preferred means for operating them are shown. Each door consists of two pieces, and the paddle is between. The doors are connected by a piece V^6. There is a sleeve V^7, rotatable on the shaft T. This sleeve cannot rise because of the pin V^8 nor fall because of the projection or disk V^9, both fixed on the shaft. On the sleeve is a thumb-piece V^{10}, whereby the sleeve may be turned. The sleeve carries a screw-thread V^{12}, which engages a screw-thread in the piece V^6. By rotating the sleeve V^7 in one direction the doors V^4 are raised, and vice versa. Clamp-pieces V^{13} are located at the outer edges of the doors, so as to prevent the doors from moving apart and from sliding sidewise on the paddles. The rapidity with which the rotation occurs depends upon the extent of the paddle-surface or the viscosity of the oil, or both.

It may be here noted that the viscosity of the oil, and consequently its resistance to the rotation of the paddle, is increased when the atmosphere around this machine and in contact with it is cold.

Wherever in the description and claims the word "spider" without other equivalent terms is employed, this word is to be understood to stand for and include whatever is adapted on the upright (support) R to hold the article or things to be weighed.

A great many slight changes might be made in the general form and arrangement of the parts described without departing from my invention, and hence I do not confine myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. In a weighing-machine, the combination of the scale-beam having center at D^2, on which it oscillates, a center D, spider S, supported on center D, beam portion L^2 being on one side, and an extension E^3 of the beam having a recess thereon on the other side of the center D^2, means for indicating the weight connected to portion L^2 and a sliding weight cylindrical in form and sliding in the recess in this extension, graduated and rotatable for inspection, substantially as and for the purposes specified.

2. In a weighing-machine, the scale-beam having an operative end L^2, center D^2 on which the scale-beam oscillates, a center D, the spider centered on center D, rod R^2 extending down from the spider, the curved elastic rod R^6, eye R^5, link R^4 pivoted to this eye and to the rod at R^3, and the adjusting-bolt R^8, adapted to move and set the eye R^5, substantially as and for the purposes specified.

3. In a weighing and computing machine, a spider, a scale-beam, centered substantially as set forth, a rotatable index, a shaft, means for enabling the shaft to rotate the index, the spiral eccentric located on this shaft, having its planes inclined relatively to the adjacent operating end of the scale-beam, a flexible connection from this end portion of the beam, and running over the working face of the eccentric, for enabling this flexible connection to move on and off the eccentric in alinement with the face of the eccentric, and without tendency to slip thereon, while the end of the scale-beam changes its angles with relation to the shaft, substantially as and for the purposes specified.

4. In a weighing and computing machine, a spider, a scale-beam, centered substantially as set forth, a rotatable index, a shaft, means between the index and the shaft for rotating the index, by the rotation of the shaft, the spiral eccentric located on this shaft, having its planes inclined relatively to the shaft, and relatively to the adjacent operating end of the scale-beam, a flexible connection from this end portion of the beam, and running over the working face of the eccentric, a stirrup connected to said flexible connection, the center W^4 mounted on the stirrup, said beam having a cup bearing on its end which engages with said center w^4.

5. In a machine for weighing and computing the price, a chart, a housing over the same, the housing provided with an opening E^4, through which the numbers on the chart can be read, the border of this opening carrying figures of the price per pound, and an index-thread or other filament, stretched across the opening, a spring connected to one end of this thread or filament and to the frame or housing, for keeping this thread or filament at all times taut, substantially as and for the purposes specified.

6. In a machine for weighing and computing the price, a chart, a housing over the same, the housing provided with an opening E^4, through which the numbers on the chart can be read, the border of this opening carrying figures of the price per pound, and an index-thread or other filament stretched across the opening, the chart having a broad inclined peripheral edge portion, containing figures of weight, the housing having a peripheral edge substantially parallel to the edge portion of the chart and provided with an opening for reading the figures on such peripheral edge portion of the chart, substantially as and for the purposes specified.

7. In a machine for weighing and computing the price, a chart, a housing over the same, the housing provided with an opening E^4, through which the numbers on the chart can be read, the border of this opening carrying figures of the price per pound, and an index-thread or other filament, stretched across the opening, the chart having a broad inclined peripheral edge portion, containing figures of weight, the housing having a peripheral edge substantially parallel to the edge portion of the chart and provided with two openings for reading the figures on such peripheral edge portion of the chart, one of the openings being below the opening E^4 and the other on the opposite side, substantially as and for the purposes specified.

8. In a machine for weighing and computing, a chart, a shaft T for operating it, means for supporting the shaft, a paddle fixed to the shaft, an oil-cup in which the paddle is located, said paddle having an opening therein, and a door for opening or closing said opening, substantially as and for the purposes specified.

9. In a machine for weighing and computing, a chart, a shaft T, means for supporting the shaft, an oil-cup in which said means is located, a paddle having an opening therein, said paddle being fixed on the shaft and located in the oil-cup, and a door for opening or closing said opening, and means for moving said door to close the opening to any desired degree.

10. In a machine for weighing and computing, a rotatable chart, a shaft for operating it, an oil-cup, means for supporting the shaft, a paddle fixed to the shaft and located in the oil-cup, and provided with an opening through which the oil can pass, doors V^4, embracing the paddle, a rotatable sleeve, fixed bearings on the shaft for said sleeve, and a support V^6 for the doors adjustably carried on said sleeve.

WILLIAM A. DICKMANN.

In presence of—
JOHN E. FITZPATRICK,
K. SMITH.