

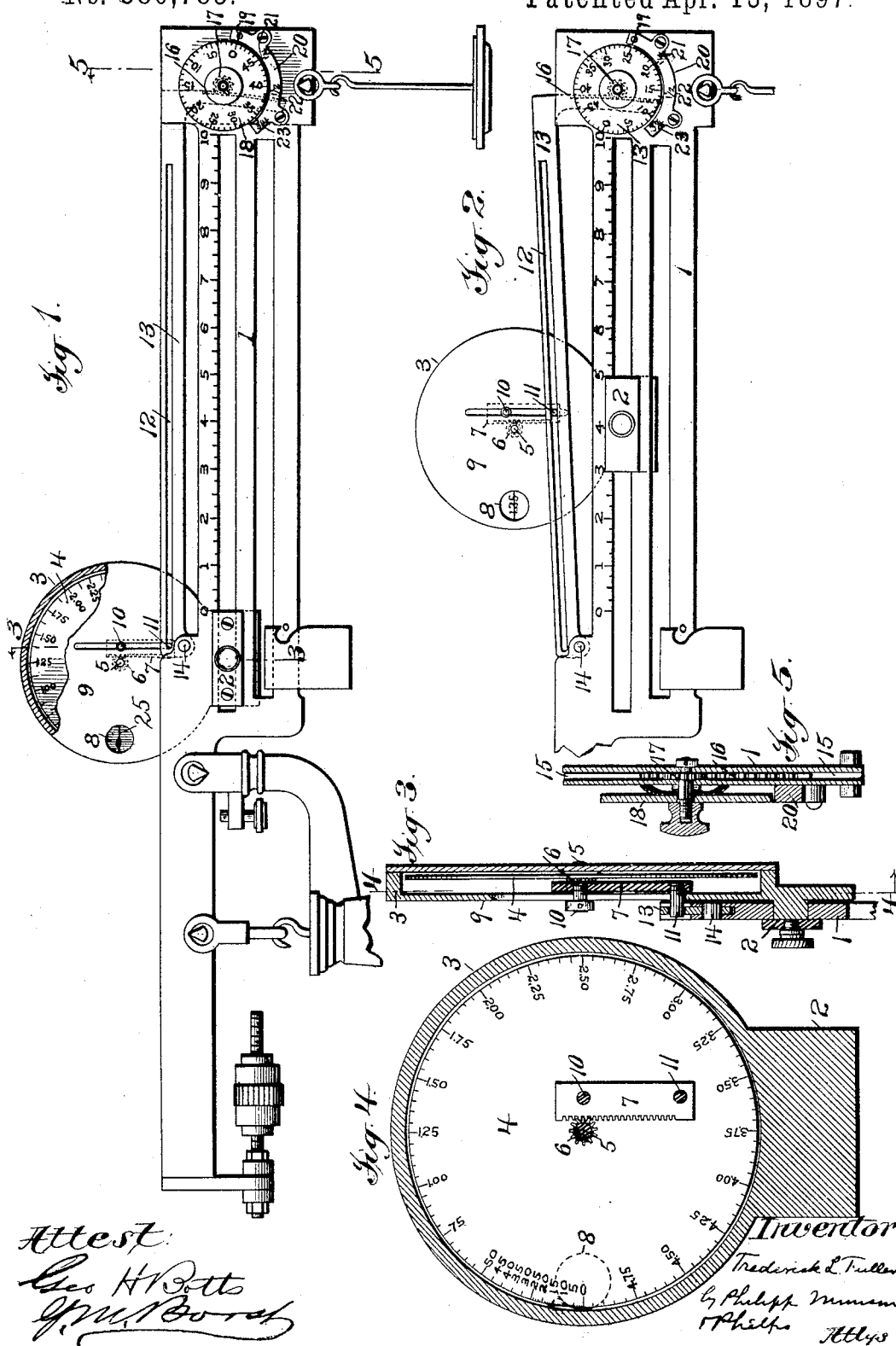
(No Model.)

F. L. FULLER.

COMPUTING SCALE OR OTHER CALCULATING MACHINE.

No. 580,783.

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Attest:
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UNITED STATES PATENT OFFICE.

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COMPUTING-SCALE OR OTHER CALCULATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 580,783, dated April 13, 1897.

Application filed September 23, 1895. Serial No. 563,290. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK L. FULLER, a citizen of the United States, residing at Trenton, county of Mercer, and State of New Jersey, have invented certain new and useful Improvements in Computing-Scales or other Calculating-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part
10 of the same.

This invention relates to improvements in calculating-machines intended for use by accountants or storekeepers, either alone for the purpose of figuring sums generally or to be
15 applied to computing-scales or the like for the purpose of automatically figuring and indicating the cost of goods sold at different rates.

The present invention has for its object the provision of such an apparatus which will
20 have the very important advantage of simplicity and cheapness in construction over practical apparatus of the character heretofore devised and which will also at the same time be absolutely reliable and certain in its
25 operations.

In the accompanying drawings, Figure 1 illustrates a calculating mechanism embodying the present invention applied to a weighing-scale, the several parts being shown in zero
30 position. Fig. 2 is a similar view of a portion of Fig. 1, illustrating the several parts of the calculating apparatus in the positions they occupy after an operation of said apparatus. Fig. 3 is a section on the line 3 of Fig. 1. Fig.
35 4 is a section on the line 4 of Fig. 3. Fig. 5 is a section on the line 5 of Fig. 1.

The invention has for convenience been illustrated in the drawings as applied to a weighing-scale, because in such connection it
40 has peculiar advantages, but it is to be understood that broadly the invention is independent of such combination.

Referring to said drawings, 1 represents an ordinary scale-beam, and 2 its poise, the beam
45 being provided with the usual pound index or scale. The parts of the scale illustrated are, except for the poise 2, of substantially well-known construction and therefore need no further description here. The poise 2 has
50 formed integrally with it a hood or frame 3,

in which is a rotating dial 4, connected to a stud 5, provided with a pinion 6, engaged by a rack 7, by which the pinion and dial are, as will presently appear, rotated to make an indication through sight-opening 8 in the
55 face-plate 9 of the hood 3. The rack 7 is located upon the inner face of the plate 9 and is provided with guide-pins 10 and 11, projecting through a vertical slot in said plate, by which the rack is guided vertically. The
60 lower guide-pin 11 enters a longitudinal slot 12 in an angular actuating or controlling member, herein shown as a lever 13, fulcrumed at its inner end at 14 to the scale-beam and at its outer end entering a recess 15 in the outer
65 end of the scale-beam. (See Fig. 5.) The indicating-dial 4 moves with the poise in weighing, and as it is thus moved it is actuated by the angular member 13, through the rack 7, to an extent depending upon the angular
70 position of the angular member 13 with relation to the beam 1, which latter acts as a support and guide for the indicating mechanism, through the poise 2, during such movement. The angular member 13 normally occupies
75 the position in which it is shown in Fig. 1—that is to say, with its slot 12 in parallelism with the scale-beam 1—and while it occupies this position the poise 2 and hood 3 may be moved back and forth, as in a simple weighing operation, without effecting any
80 movement of the rack 7. This position of the angular member or lever 13 is its zero position, and means are provided for adjusting its outer end to and from the scale-beam
85 to thereby vary its angularity in accordance with variations in rates per pound, to thereby control or determine the operation of the indicating mechanism, as will now be described. The outer end of angular member 13 is, as
90 shown in Figs. 1 and 2, provided with a segmental rack 16, which is engaged by a pinion 17, carried by a rotatable dial 18, mounted in the end of the scale-beam, upon rotating which by hand the angular member 13 is raised or
95 lowered, as the case may be, to greater or less degrees of inclination with reference to the scale-beam, according to the extent of rotation of the dial 18, which is governed by the rate per pound or other unit of the goods, the
100

price whereof is to be computed. To guide the operator in this, the outer face of dial 18 is provided with a rate index or scale, which makes its indication at the point 19 of the scale-beam, as shown in Fig. 2. As the dial, therefore, is rotated it will, through rack 16 and pinion 17, correspondingly raise or lower the angular member or lever 13 into position for operating the rack 7 and dial 4 in accordance with the rate per pound or other unit indicated upon the dial 18.

The operation of the apparatus is as follows: The parts, as before stated, are, as shown in Fig. 1, in zero position, and if the poise 2 be moved along the beam the pin 11 of rack 7 will move through the slot 12 idly and without any movement being imparted to the rack 7. Let us assume that an article is to be weighed the price per pound of which is twenty-five cents. The dial 18 will first be rotated from zero until the numeral "25" comes opposite the point 19. As the dial is thus rotated the angular member 13 is raised and adjusted angularly with reference to the scale-beam 1. The parts then occupy the position shown in Fig. 2. The goods being placed upon the platform of the scale, the poise 2 is moved along the beam 1 in the usual way until it balances. As the poise is thus moved the angular member 13, through its slot 12, engaging the pin 11, raises the rack 7 and through it rotates the dial 4, and this upward movement of the rack will continue until the poise is brought to rest. If the weight of the goods be five pounds, this will occur at the numeral "5" on the scale-beam index and the angular member 13 will have raised the rack 7 until the numerals "125"—that is, the sum of five by twenty-five—appear at the sight-opening 8, as shown in Fig. 2. If the rate per pound for the goods next weighed be greater, the dial 18 is farther rotated in the same direction thus increasing the degree of inclination of the angular member 13, or, if it be less, the movement is reversed, thus decreasing it. The operation may be reversed—that is, the weight of the article may be ascertained in the usual manner first, after which dial 18 is rotated to correspond with the unit price, said movement raising the end of angular member 13, which movement causes the elevation of rack 7 and rotary movement of dial 4 through the action of angular member 13 on stud 11 of rack 7. In addition to index upon dial 18 there may be provided a stationary decimal-index 20, beginning at the left of the point 19, if decimal rates be employed.

It will be seen that the line 21 is five and one-fourth spaces, that line 22 is ten and one-half spaces, and that line 23 is fifteen and three-fourths spaces to the left of line 19—that is, the lines 21, 22, and 23 are one-fourth, one-half, and three-fourths of a space, respectively, to the left of the three five-cent graduation-lines to the left of line 19, so that if the rate per pound included a

fraction, as in the case of twenty-five and one-fourth cents, it would only be necessary to rotate the dial until the number "25" rested opposite the line 19, which would give the twenty-five cent rate. Then by continuing to rotate dial until the number "20," which would be the first long line (five-cent graduation) to the left of line 19, rested opposite line 21 this extra rotation would be one-fourth of one space. The lines 21, 22, and 23 are separated, so as to make it plain for the operator and accomplish the same result as if they were placed one-fourth, one-half, and three-fourths of one space, respectively, from line 19.

It will be evident that the indicating movement of the indicating mechanism is determined or controlled as to its operation or indication by the angularity of the angular member, whether such member constitutes the means for actuating such indicating mechanism or merely controls its actuation or movement.

Opening 8 of hood 3 is covered by glass, on the inner side of which is scratched or painted line 25, said line determining the proper place at which amount shown by indicating mechanism should be read.

My invention of course is not limited to the particular embodiment or construction herein shown, for the same may be varied within the spirit and scope of my invention.

What I claim is—

1. The combination of an angular member, a suitable support therefor, and an indicating mechanism movable past said angular member, the latter being arranged angularly with relation to the line of said movement and coöperating with the said indicating mechanism, substantially as described.

2. The combination of an angular actuating member, a suitable support therefor, and an indicating mechanism movable past the said member, said member being arranged angularly with relation to the line of such movement to engage and actuate the indicating mechanism, substantially as described.

3. The combination of an angular member, a suitable support therefor, and an indicating mechanism movable past the said member, the latter being adjustable to different angles with relation to the line of such movement into desired position to coöperate with and control the operation of the said indicating mechanism, substantially as described.

4. The combination of an angular member, a suitable support therefor, an indicating mechanism movable past the angular member, the latter being adjustable to different angles with relation to the line of such movement into position to control the operation of said indicating mechanism, and an index by which to regulate the adjustment of the angular member, substantially as described.

5. The combination with a suitable support, and a member angularly adjustable with relation to the said support, of an indicating

mechanism movable along one member and engaged and actuated as determined by the other, substantially as described.

6. The combination with a suitable support, and a member angularly adjustable with relation to the support, of an indicating mechanism movable along the support and engaged and actuated by the said member to and from zero position, substantially as described.

7. The combination with a suitable support and an indicating mechanism adapted to slide on said support, of means immovable longitudinally of the support but movable transversely thereto into position to engage and control the operation of said indicating mechanism, substantially as described.

8. The combination with a suitable support and an indicating mechanism adapted to slide on said support, of a member pivoted to and angularly adjustable on said support into position to determine the operation of said indicating mechanism, substantially as described.

9. The combination with a suitable support and an indicating mechanism adapted to slide on said support, of means carried by and immovable longitudinally of said support but adjustable transversely thereto into position to govern the operation of the indicating mechanism and an index by which to regulate such adjustment, substantially as described.

10. The combination with a suitable support, and an indicating mechanism adapted to slide on said support, of an angular member pivoted to and angularly adjustable on said support into position to actuate the indicating mechanism, and an index by which to regulate the adjustment of the said angular member, substantially as described.

11. The combination with a stationary pivoted angular actuating member, of an indicating mechanism adapted to move past said angular member, the latter being adjustable angularly with relation to the line of movement of the indicating mechanism into position to actuate the same, and an index by which to regulate the adjustment of the said angular member, substantially as described.

12. The combination with a suitable support, and an angular member pivoted to said support, of an indicating mechanism adapted to move past said angular member, the latter being adjusted angularly with relation to the line of movement of the indicating mechanism into position to engage and actuate the same, and a rack and pinion between the said angular member and support for adjusting the former, substantially as described.

13. The combination with a scale-beam, and an angular member pivoted to and angularly adjustable on the beam, of a poise on one member and an indicating mechanism movable therewith and engaged and controlled as to its operation by the other member, substantially as described.

14. The combination with a scale-beam, and an angular member pivoted to and angularly adjustable on said beam, of a poise on one member and an indicating mechanism movable therewith and engaged and actuated to and from zero position by the other member, substantially as described.

15. The combination with a scale-beam, and its poise, of an indicating mechanism movable with the poise in line with the beam, and means carried by and immovable longitudinally of the beam but movable transversely thereto into position for actuating said indicating mechanism, substantially as described.

16. The combination with a scale-beam and its poise, of a rotary indicating mechanism movable with the poise in line with the beam, and means carried by and adjustable on the beam into position for actuating said indicating mechanism, substantially as described.

17. The combination with a scale-beam, of an indicating mechanism and an angular member for engaging and controlling the operation of said indicating mechanism, said angular member being adjustable angularly with relation to the beam, and said indicating mechanism and angular member being movable one past the other, substantially as described.

18. The combination with a scale-beam, an angular member adjustable angularly with relation to the beam and a poise movable along the beam, of an indicating mechanism movable with the poise and engaged and controlled in its operation by the angular member, substantially as described.

19. The combination with a scale-beam, an angular member adjustable angularly with relation to the beam, and a poise movable along the beam, of an indicating mechanism movable with the poise and engaged and controlled in its movement to and from zero position by the said angular member, substantially as described.

20. The combination with a scale-beam, an angular member pivotally connected at its inner end to the scale-beam and adjustable angularly with relation to the beam, and a poise movable along the beam, of an indicating mechanism movable with the poise and engaged and actuated by said angular member, substantially as described.

21. The combination with a scale-beam, an angular member pivotally connected at its inner end to the scale-beam and adjustable angularly to the beam and a poise movable along the beam, of an indicating mechanism movable with the poise and engaged and actuated by said angular member, and a rack and pinion between the beam and angular member for adjusting the latter, substantially as described.

22. The combination with a scale-beam and its poise, of a rotary indicating mechanism movable with the poise in line with the beam, a lever pivotally connected to the scale-beam in proximity to the indicating mechanism

and adjustable angularly with relation to the beam into position to actuate said indicating mechanism, and a rack connecting said lever to the indicating mechanism, substantially as described.

23. The combination with a scale, and its poise, of a rotary indicating mechanism movable with the poise in line with the beam, a lever pivotally connected to the beam in proximity to the indicating mechanism and adjustable angularly with relation to the beam into position to actuate the indicating mechanism, a rack connecting said lever to the indicating mechanism for operating the latter, and a rack and pinion upon the beam for adjusting the lever, substantially as described.

24. In a computing-scale, a fulcrumed weighing member; an angular member; a poise movable past said weighing member, and computing mechanism, having its actuator arranged to be moved with the said poise and coöperating with said angular member, substantially as described.

25. In a computing-scale, a fulcrumed weighing member; an adjustable angular member mounted thereon; a poise movable on said weighing member, and computing mechanism, having its actuator on and mov-

able with the said poise and coöperating with said angular member, substantially as described.

26. In a computing-scale, a movable weighing member; an adjustable angular member, and means to adjust the same relatively to said weighing member; a poise embracing both the weighing member and angular members, and computing mechanism having its actuator arranged to be moved with said poise, substantially as described.

27. In a computing-scale; a fulcrumed weighing member; an angular member adjustable thereon; a controlling mechanism carried by said weighing member for and to control the position of said angular member; a poise arranged on said weighing member and computing mechanism having its actuator arranged to be moved with said poise and coöperating with said angular member, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK L. FULLER.

Witnesses:

G. M. BORST,

WM. R. WARREN.