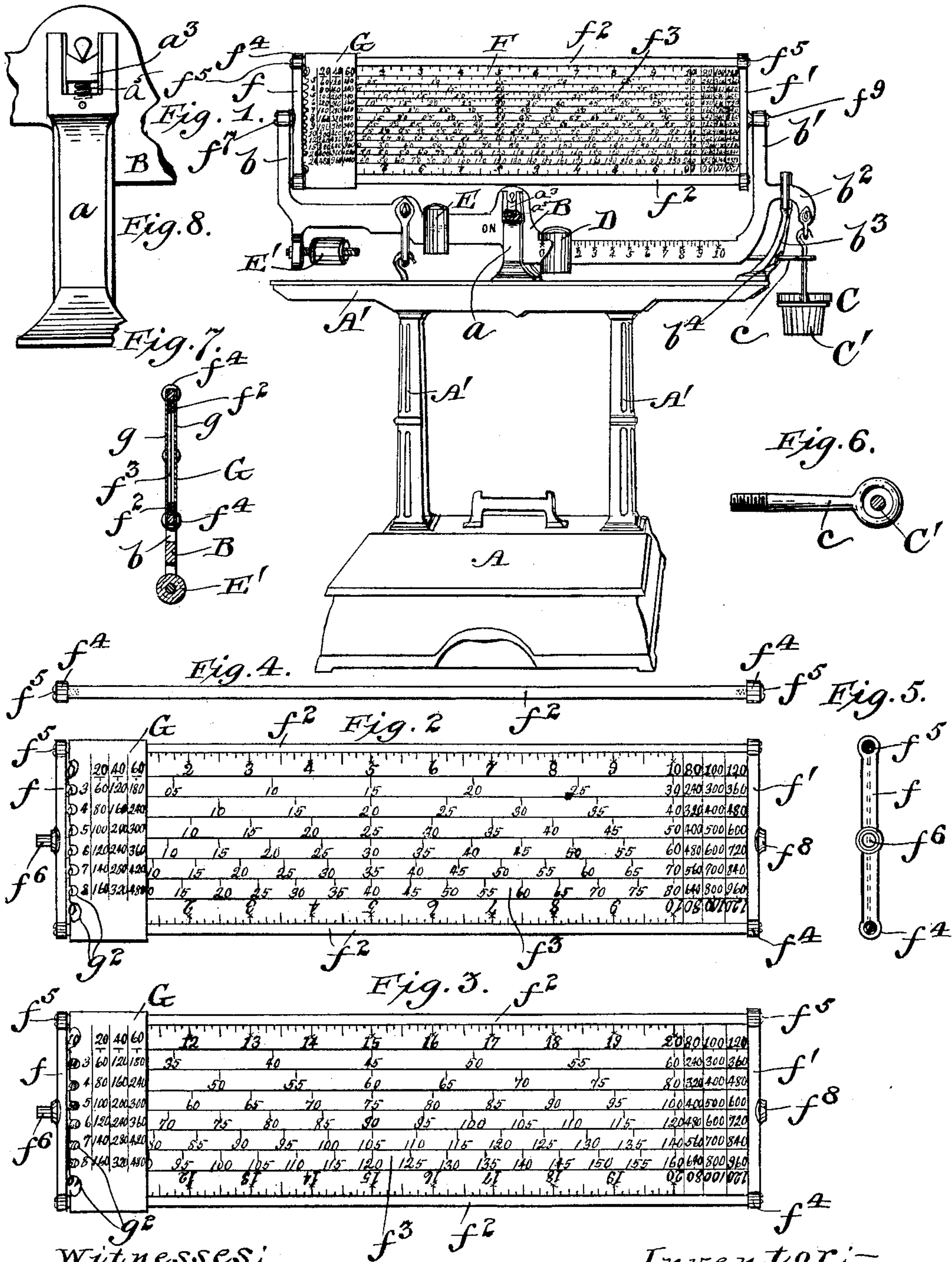


(No Model.)

C. G. STRUBLER.
COMPUTING SCALE.

No. 596,726.

Patented Jan. 4, 1898.



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UNITED STATES PATENT OFFICE.

CHARLES G. STRUBLER, OF TECUMSEH, MICHIGAN.

COMPUTING-SCALE.

SPECIFICATION forming part of Letters Patent No. 596,726, dated January 4, 1898.

Application filed January 15, 1896. Serial No. 575,629. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. STRUBLER, a citizen of the United States, residing at Tecumseh, in the county of Lenawee and State of Michigan, have invented certain new and useful Improvements in Computing-Scales; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in weighing and computing scales; and the invention consists of certain novel constructions, combinations, and arrangements of parts, all of which will be hereinafter more particularly set forth and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 represents a front elevation of a scale embodying my invention. Fig. 2 represents an enlarged detail side elevation of the computing-panel. Fig. 3 represents a similar view, but of the opposite side of said panel. Fig. 4 represents a top plan view of said panel. Fig. 5 represents an end elevation of the same. Fig. 6 represents a detail top plan view of the counterpoise-guard. Fig. 7 represents a detail transverse section through the panel and its poise. Fig. 8 represents a detail side elevation of a portion of the tare-beam, showing the trunnion-standard and the spring-supports for the trunnions.

A in the drawings represents the scale-platform; B, the tare-beam; C, the main poise; D, the auxiliary poise adapted to slide on the tare-beam; E, the scoop-poise; F, the computing-panel, and G the poise for the same.

The tare-beam is suitably mounted on trunnion-standards a of the frame A' and rests with its supporting knife-edge a^2 upon blocks a^3 , supported in the upper ends of the standards by springs a^5 , which fit into coinciding recesses in the upper ends of the standards and said blocks.

The tare-beam is connected with the platform A by an ordinary arrangement of mechanism.

The tare-beam is provided at each end with a vertically-extending arm b and b' , respec-

tively. The arm b' is constructed with an outwardly and downwardly extending bracket b^2 . The poise-support C' is attached in the usual manner to the outer end of said bracket, so as to hang pendent therefrom. The said bracket b^2 is guided in its vertical movements by a slotted standard b^3 , mounted on the frame A' , said bracket working in a slot b^5 of said standard. This slot is provided at top and bottom with transverse bars covered with rubber or other soft material, whereby the movements of the tare-beam are limited, and there is no jar when the beam comes to rest against either the top or bottom bar.

The poise-support is prevented from swinging from side to side by a guard c . The guard comprises a shank having screw-threads at one end and a ring at the other, said ring surrounding the supporting-stem of the support C' and the screw-threaded end being secured in the tare-beam, so that said guard moves therewith.

The standard b^3 is provided with a vertical slot b^4 , through which the guard c passes. The tare-beam to the right of its support is divided into suitable numbered divisions over which the poise D slides.

The cross-poise E is suitably mounted on said beam to the left of its support and is adapted to balance the scale by being moved to the right or to the left, according to whether the scoop is included in the weighing or not. The usual adjusting-poise E' is suitably mounted on said beam in any convenient position. The upper ends of the arms b b are enlarged to furnish trunnion-supports for the computing-panel F. This panel comprises end pieces f f' , respectively, side bars f^2 , and chart f^3 . Both the end pieces and the side bars are grooved on their inner sides to receive the edges of the chart f^3 . The end pieces are provided at each end with apertured enlargements f^4 , that receive the round ends of the side bars f^2 , the rounding of said ends resulting in the formation of shoulders on said bars, against which the end pieces are forced by screws f^5 , that pass through said ends and engage screw-threaded recesses in the ends of the side bars. The end piece f is provided with a trunnion f^6 , adapted to be journaled in the apertured end of the arm b .

This trunnion is secured in the arm *b* against longitudinal movement by a screw *f*⁷. The end piece *f*⁸ is provided with a screw-threaded recess *f*⁸, adapted to be engaged by a screw *f*⁹, that passes through the apertured end of the arm *b*¹. This screw serves the double purpose of acting as a trunnion and an adjusting-screw for the chart. By tightening said screw the side bars of the panel are caused to closely hug the chart *f*³ and thus secure the same firmly in position. The poise *G* is adapted to slide over the chart and comprises two side plates *g*, having sight-notches *g*². The plates *g* are each bent at the ends at right angles and when secured together form a hollow box adapted to surround and slide upon the panel.

A portion of the chart *f*³ is divided along its upper edge into ten equal sections, said sections on one side of the panel, as shown in Fig. 2, being numbered from "1" to "10." The divisions on the opposite side of the chart are arranged in exactly the same manner, only that they are numbered from "11" to "20." Each one of these divisions is divided again into fractional divisions representing fractions of a pound. The bottom portion of the chart is divided into divisions representing the metric system of kilograms and fractions thereof, and the scale is thus adapted for both domestic and foreign calculations. The space between the top and bottom scale on each side of the chart is divided into six longitudinal divisions which are adapted to register with the price-per-pound marks or indications on the poise, which will be hereinafter more fully described. These longitudinal divisions are each divided longitudinally in a number of equal divisions, which are marked with suitable numerals indicating the amount of the purchase. At the right-hand end of said chart a table *h* is provided, the use of which will be hereinafter more fully set forth.

The poise *G* is provided upon each side with a vertical row of price-per-pound figures *g*², ranging from "3" to "8." These numerals register with the notches on the edge of the poise, which in turn register with the six vertical divisions on the chart. To the right of each of these price-per-pound numerals are arranged three vertical lines of figures representing the different sums of different numbers of pounds at different prices, the use of which will be hereinafter more fully set forth.

The operation of the scale is as follows: If it is desired to weigh ten pounds or under, it is accomplished in either of three ways—first, by means of the poise *C*; second, by means of poise *D*, and, third, by means of the poise *G*, but the latter is the preferable method. Suppose it is desired to weigh seven pounds of sugar and sugar is five cents per pound. The poise *G* is pushed out over the panel until the seven-pound numeral is visible through the top notch in the poise. The sugar is then placed on the platform, either in the scoop

or in a bag, until the scale balances. By looking in the division on the panel opposite the price-numeral "5" the sum of the cost, thirty-five cents, will be read and the cost thus ascertained at a glance without any figuring. If it is desired to weigh more than ten pounds, (which is an exception,) the panel is revolved on its trunnions so as to bring the side shown in Fig. 3 into view. Suppose the amount to be weighed is fifteen pounds. Either a ten-pound poise is put on the support *C* or the poise *D* is run out to "10" on the tare-beam. The poise *G* is then moved to "15" on the panel-scale and the goods put upon the platform *A* until a balance is reached. If the goods were six cents per pound, the sum of the cost, ninety cents, will appear through the notch opposite the six-cent price-mark on the poise. If the amount of pounds rises above twenty, (the capacity of the panel,) the tables on the poise and to the right of the panel are resorted to. The vertical columns of the table on each side of the poise are marked at the top "20," "40," and "60," respectively. To find the sum of cost of twenty, forty, or sixty pounds, it is simply necessary to look in the proper column and in a horizontal line with the numeral representing the price per pound. If the amount should run over sixty pounds, the additional sums of eighty, one hundred, and one hundred and twenty pounds at so much per pound may be read on the table at the right of the panel. These tables can of course be raised or extended to include any amount. If the number of pounds though is not represented in any division of the tables, then the odd numbers are calculated by moving the poise *G* on the panel and adding the two results together. Thus if forty-seven pounds at six cents per pound are to be weighed the poise *D* is moved to "10" and a thirty-pound poise added to the poise-support *C*. The poise *G* is then moved to "7" on the scale. Goods are then piled on the platform until a balance is reached. By looking in the forty column on the poise *G* we find "\$2.40" in the same horizontal line with the price-numeral "6." The poise in its position at "7" will indicate "42" on the panel, which added to "\$2.40" will give the sum of the cost, "\$2.82." If a twenty-pound weight is placed on the support *C*, we look in the column on the poise *G* marked "20" at the top. If the weight on the support is forty, we look in the column marked "40" at the top, &c.

To further illustrate the working of the scale, as shown in the drawings, suppose the article weighed sold at eight cents a pound and the amount weighed was one hundred and twenty pounds, we would see at a glance that it would be necessary to look in the column of figures marked "120" at the top and located at the right-hand side of the panel. Following this column down to the price-per-pound line we find that one hundred and twenty pounds at eight cents per pound

amounts to nine dollars and sixty cents. We arrive at this result at once without mental operation or possibility of mistake.

It will be observed that the panel can be instantly reversed, so as to bring either one or the other side of it toward the operator. At the same time the customer standing in front of the scale can read the position of the poise G on the panel by means of the pound-scales on the front of the panel.

It will be seen that the poise-support C' will be prevented from undue oscillation by its guard and will thus permit the tare-beam to come to a balance at once.

The chart f^3 is preferably formed of metal and the numerals are printed or stamped thereon; but it may be formed of any other suitable material—such as cardboard, celluloid, or the like.

By printing the pound-scales on the chart with a black and white contrast the numerals can be more easily read than if stamped on shining metal.

It will be noted that if a load is suddenly dumped upon the platform the strain will be taken off the knife-edge of the tare-beam support to some extent by the springs of the supporting-blocks a^3 , and the knife-edges will thus be prevented from breaking.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a computing-scale, the combination with a suitable frame, a tare-beam mounted upon the same, a swinging poise-support pivotally attached to said beam and a guard also attached to and moving with the beam and comprising a ring to surround the poise-supporting stem to prevent the excessive swinging of the said support, the construction and operation being such that the balance is not destroyed by the scraping of the weight-support against the guide; said guide moving with the beam, substantially as described.

2. In a computing-scale, the combination with a suitable frame, a tare-beam, supporting-blocks mounted in suitable guides for supporting said tare-beam, springs under said blocks, and a computing-panel on said tare-beam, substantially as described.

3. In a computing-scale, the combination with a weighing-beam, of a rectangular frame mounted thereon comprising side strips provided with guide-grooves and having journal-shaped ends, and end pieces also provided with guide-grooves and having bearings to receive said journal-shaped ends and being normally joined to the side strips by screws adapted to pass through the said ends and into the ends of the side strips, and a price and weighing chart loosely mounted in said rectangular frame, and a sliding poise on said frame, substantially as described.

4. In a computing-scale, a weighing and computing panel having on both sides scale-divisions and longitudinal spaces provided with monetary divisions, the scale-divisions

on one side being a consecutive continuation of the scale-divisions on the other, and a poise movably mounted on said panel and provided on both sides with similar price-per-pound numerals adapted to register with the spaces upon both sides of the panel, and a table on said poise arranged in vertical columns giving the monetary values of different weights at the different prices per pound, and numbers at the head of each column indicating the number of pounds represented by each column, substantially as described.

5. In a computing-scale a weighing and computing panel having on both sides scale-divisions and longitudinal spaces provided with monetary divisions, and additional columns of figures at one end of the panel indicating higher numbers of pounds and the prices of said pounds at certain rates per pound, and a poise movably mounted on said panel and provided on both sides with price-per-pound numerals adapted to register with the spaces upon said panel, substantially as described.

6. In a computing-scale, the combination with a scale-beam having upwardly-extending arms, a rectangular frame journaled between said arms and extending above and beyond the fulcrum-point of the beam and above and beyond the point where the load is attached to said beam, said rectangular frame comprising side strips provided with guide-grooves and having journal-shaped ends and end pieces, and also provided with guide-grooves and having bearings to receive said journal-shaped ends and being normally joined to the side strips by screws adapted to pass through the said ends, and into the ends of the side strips, a price and weighing chart loosely mounted in said rectangular frame, and a poise with price and monetary values marked thereon loosely mounted on said frame, substantially as described.

7. In a computing-scale the combination with a suitable frame of a single tare-beam mounted on the same and having upwardly-extending arms, a computing-panel pivotally mounted between the said arms and extending above and beyond the fulcrum-point of the beam, and above and beyond the point where the load is attached to said beam so as to be free to rotate horizontally above the tare-beam, a poise mounted on said panel, said panel having on both sides scale-divisions and longitudinal spaces provided with monetary divisions, the scale-divisions on one side being a consecutive continuation of the scale-divisions on the other and additional columns of figures on the end of the panel indicating higher numbers of pounds and the prices of said pounds at certain rates per pound, and a poise movably mounted on said panel and provided on both sides with similar price-per-pound numerals adapted to register with the spaces on said panel and a table on said poise giving the monetary value of different weights at the different prices

per pound and numbers at the head of each
column indicating the number of pounds rep-
resented by each column, a rod connecting
the weighing-beam with levers which carry
5 the swinging supporting-frame upon which
the platform rests, said rod being connected
directly to said weighing-beam between its
pivotal point and one of its ends and directly

beneath the computing-panel, substantially
as described. 10

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

CHARLES G. STRUBLER.

Witnesses:

B. E. STRUBLER,

CHRISTINA KILLIN.