

No. 655,147.

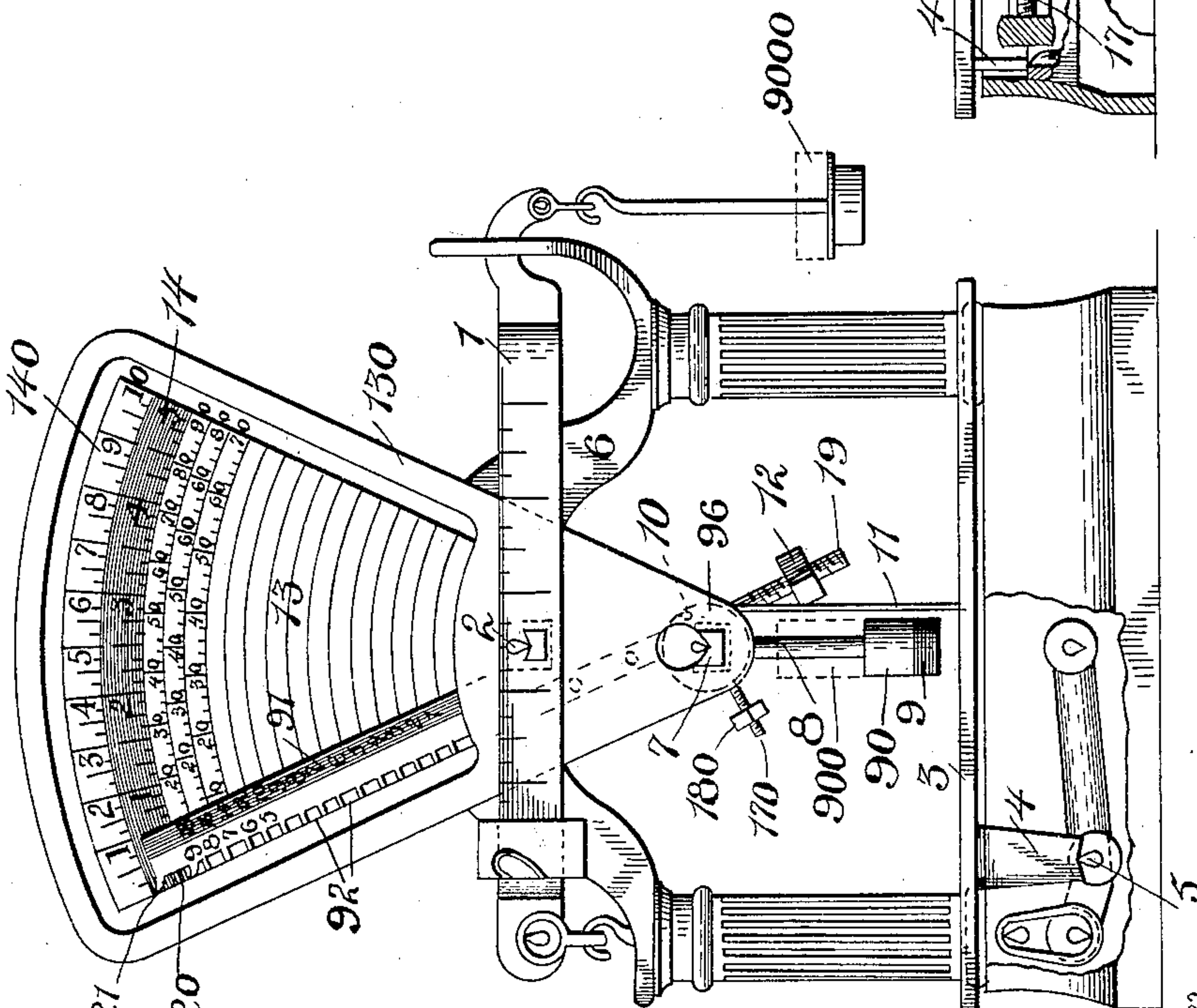
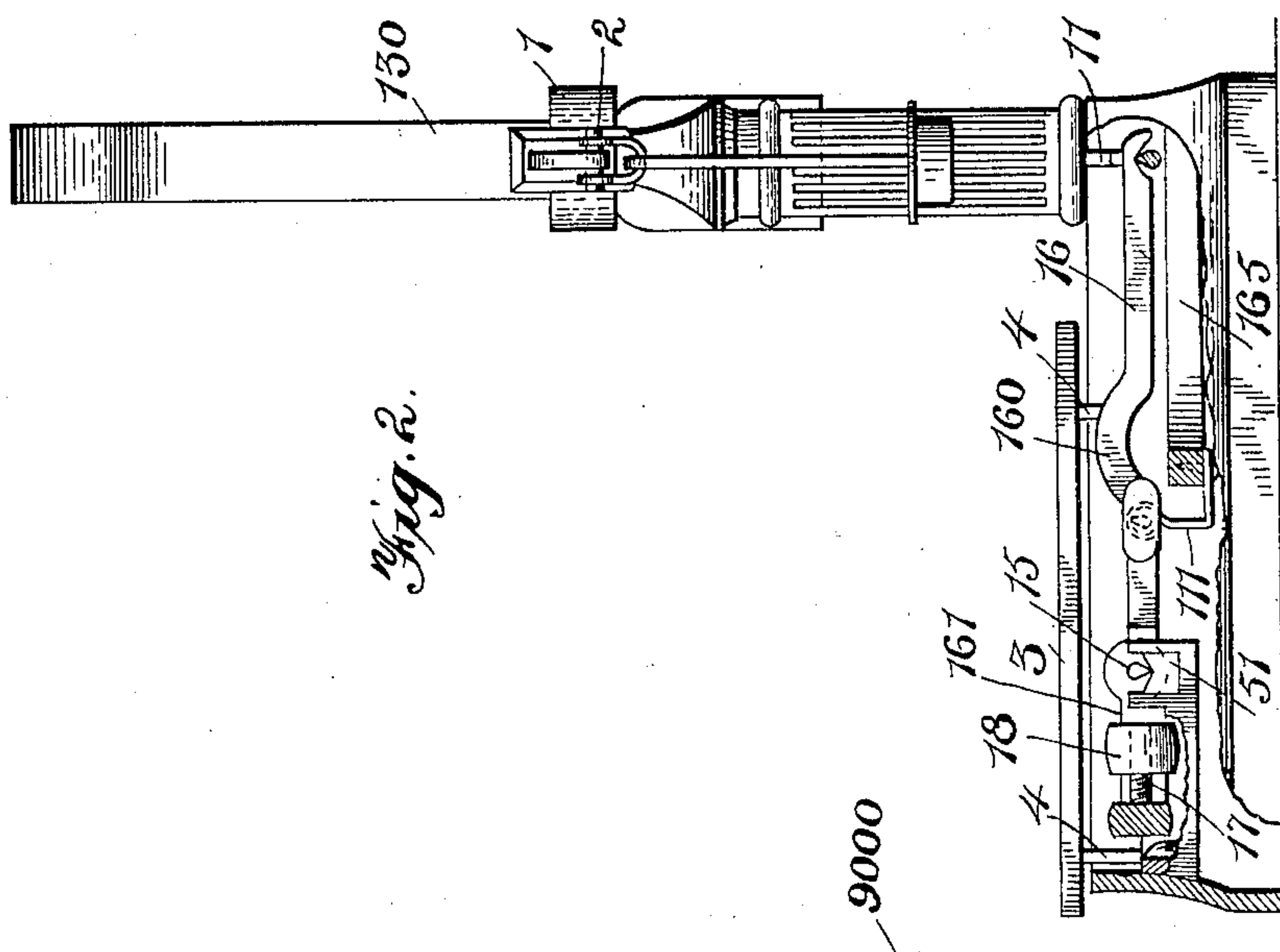
Patented July 31, 1900.

A. DE VILBISS, JR.
COMPUTING ATTACHMENT FOR SCALES.

(Application filed Nov. 21, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 3.

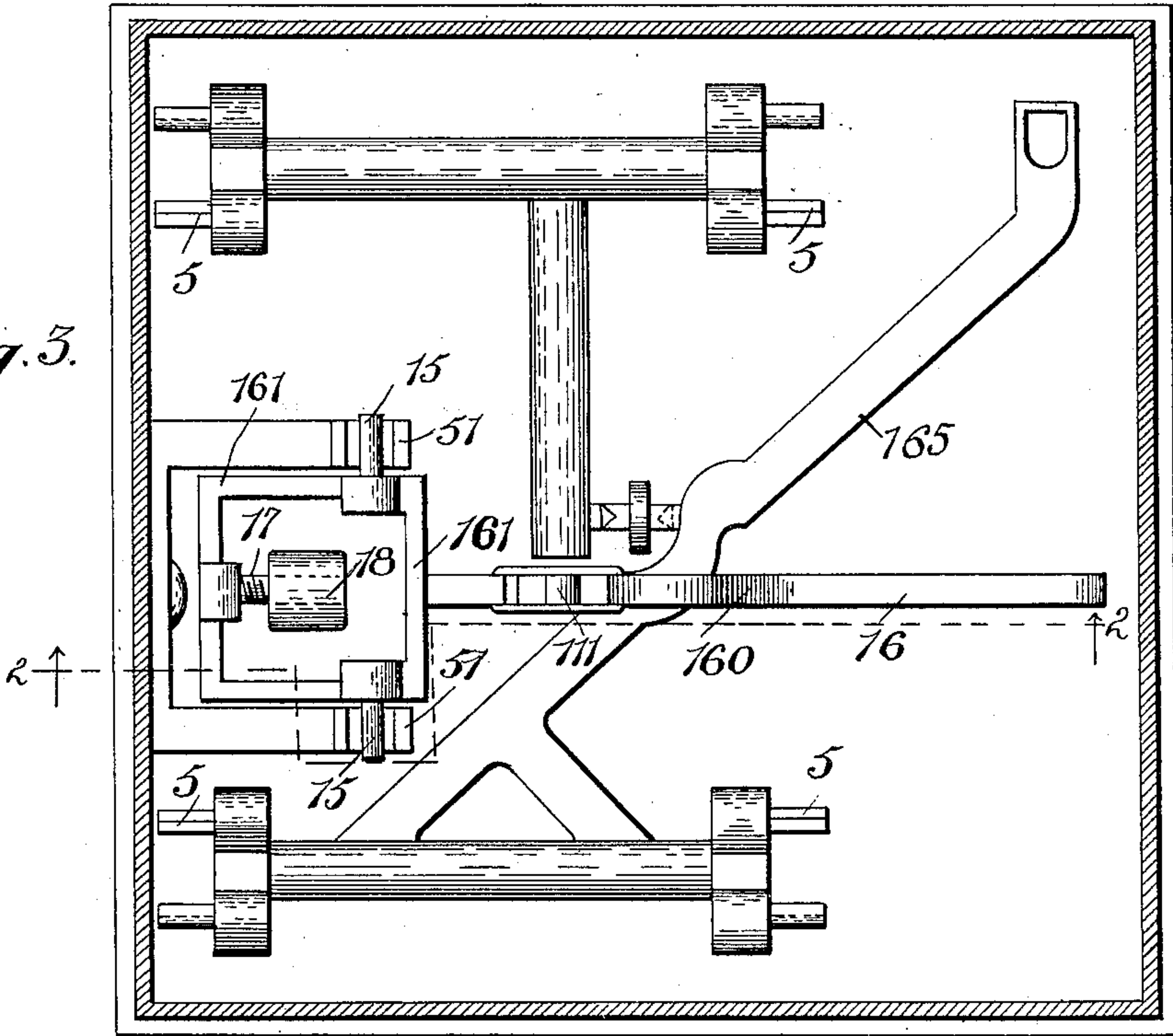
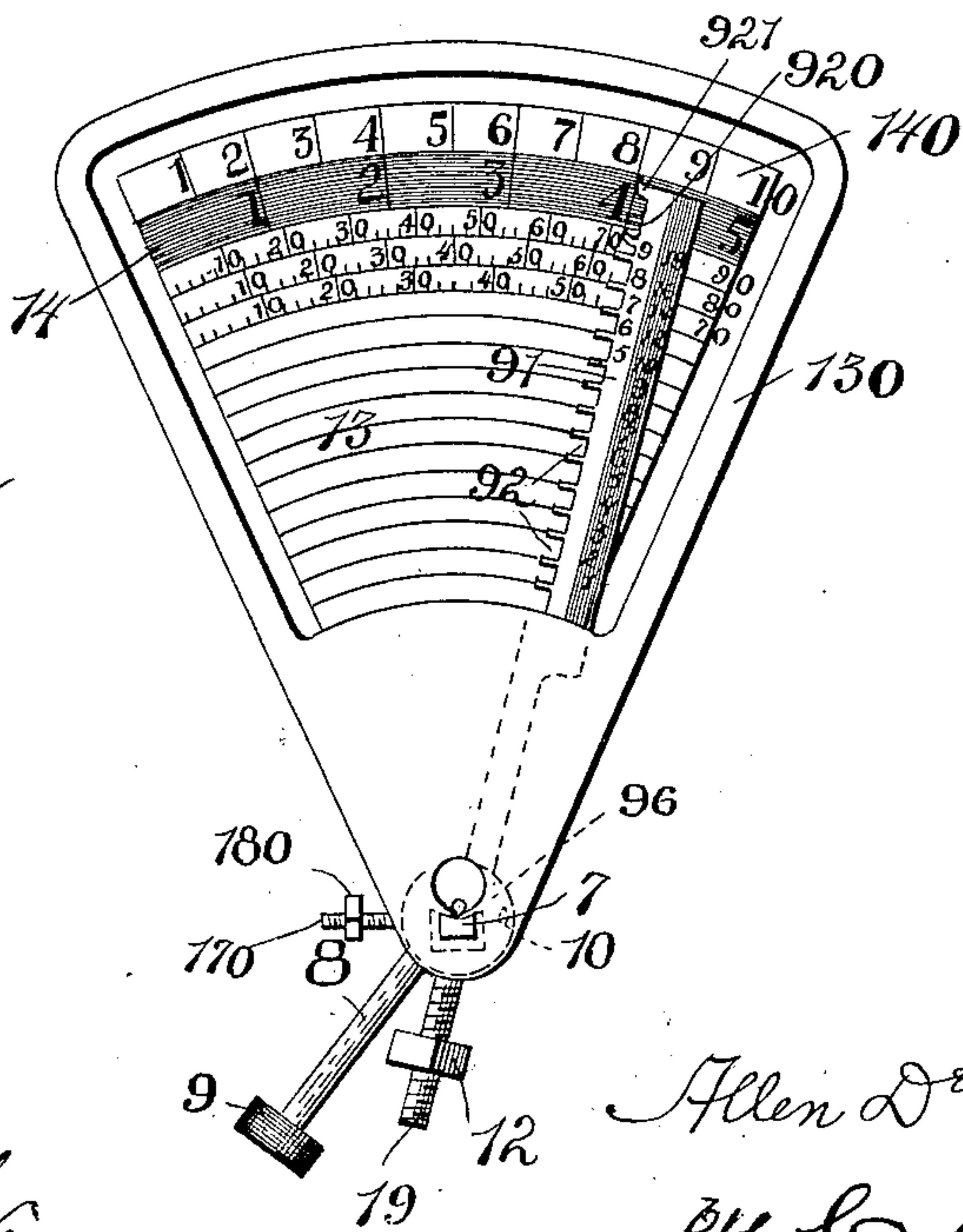


Fig. 4.



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UNITED STATES PATENT OFFICE

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COMPUTING ATTACHMENT FOR SCALES.

SPECIFICATION forming part of Letters Patent No. 655,147, dated July 31, 1900.

Application filed November 21, 1899. Serial No. 737,770. (No model.)

To all whom it may concern:

Be it known that I, ALLEN DE VILBISS, Jr., a citizen of the United States, and a resident of Toledo, Lucas county, State of Ohio, have
5 invented certain new and useful Improvements in Computing Attachments for Scales; and my preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with
10 claims particularly specifying the novelty.

This invention relates to scales, and more especially to that class thereof which are used to designate the price as well as the weight of an article; and the objects of the same are,
15 first, to provide means whereby a single table and hand can be utilized to designate weights and totals within a plurality of registers without necessarily employing too large a table or too great a multiplicity of figures, and,
20 second, to provide means whereby a price-scale of this character can either be built initially or produced by applying my improved attachment to scales of well-known types already in use.

25 To these ends my invention consists in the details hereinafter more fully described and claimed, and as illustrated in the accompanying drawings, wherein—

Figure 1 is a front elevation of an ordinary
30 grocery-scale with its base partly broken away and with my attachment applied thereto. Fig. 2 is a view in elevation taken from the right side of Fig. 1 with the base broken away and some of the parts in section. Fig. 3 is a
35 plan view of the mechanism within the base. Fig. 4 is an elevation of the housing with the hand swung to eight pounds on the upper row of weight-totals and only one of the weights shown on the pendulum.

40 It is well known to the trade that computing-scales now on the market are open to the usual objection that in order to cover a register or range of totals within the usual requirements of the grocer or dealer the table
45 of weights and totals must be made very large or the figures thereon very fine, resulting in one instance in a cumbersome machine which obstructs the counter and in the other instance in difficulty in finding and reading the
50 figures. Attempts have heretofore been made to overcome these objections; but all of such efforts are more or less complicated and

imperfect as far as I am aware. The laws of some States prohibit the use of spring-scales, and to meet that requirement I have employed 55 gravity alone in the present construction. Furthermore, the salesman often becomes attached to a scale which he has used successfully perhaps for years, and on account of that sentiment, from his familiarity with the 60 machine, or possibly because of the price of a new scale, he prefers not to part with the old one. The present invention therefore contemplates a price or computing attachment which any ordinary mechanic can place 65 upon numerous of the scales now on the market at the expense of but little time and trouble and with the modification of few, if any, parts. In fact, this attachment could be connected with a spring-scale or with a 70 variety of types not necessary to be illustrated and described herein, as the construction of the scale itself forms no essential part of the present invention.

Referring now to the accompanying draw- 75 ings, 1 designates the scale-beam, mounted on the fulcrum 2 in the usual manner, as by the employment of a knife-edge, and 3 is the platform, supported by standards 4 upon knife-edges 5, which latter form part of the 80 mechanism within the base, which is illustrated in diagram in Fig. 3 and constitutes no part of the present invention, as it is well known in the art. Briefly, it may be described as a system of levers all finely adjusted and 85 connected in such manner that the placing of a weight upon the platform will rock the beam over its fulcrum. As above stated, the specific construction of this mechanism and the design of the base and framework of the 90 scale proper is immaterial; but I have illustrated on the drawings herewith one common design of scale-frame which coöperates successfully with the parts to be described below. 95

6 is a bracket or yoke carried by the framework of the scale and supporting a housing 130, which in turn carries bearings 7 of any suitable character, and 8 is a poise or pendulum pivoted therein as on knife-edges and 100 hanging normally vertical, as illustrated in Fig. 1, its lower end carrying a weight 9, preferably painted black or of some dark color for a purpose to be described.

96 designates a disk rigidly secured to and surrounding the pivot of the poise, and 11 is a link or connection of any suitable character leading from a knife-edge or pivot 10 near the outer edge of this disk and normally above the pivot of the pendulum downward into the base and connected with the mechanism therein in such manner that the descent of the platform will draw upon the link and swing the pendulum on its pivot. The latter and the link are counterbalanced by a nut 180 on a screw 170 projecting from the disk diametrically opposite the pivot.

If this computing attachment is applied to a scale which has already been built, the mechanic must use his skill in attaching the link to the mechanism within the base in such manner that there will be no appreciable friction or resistance likely to interrupt the successful operation of the machine, and the illustration herewith may be followed by him as nearly as possible, as it shows my preferred manner of accomplishing the end in view while the machine is being built.

16 designates an arm arched, as at 160, or otherwise shaped so as not to interfere with the main lever 165 of the mechanism within the base, connected at one end with the link 11, mounted intermediate its ends on a pivot or pivots 15 and extended therebeyond to carry a counterpoise 18, adjustable by means of a screw 17, so as to accurately counterbalance the weight of the arm. By preference I form at the outer end of the arm 16 a frame 161, (best seen in Fig. 3,) from which the pivots 15 project outward and engage bearings in a yoke 51, properly supported within the base, and from the outer side of this arm a screw 17 extends inward in line with the body of the arm and has mounted upon it an adjustable counterpoise 18. However, these details of construction are not absolutely necessary, so long as there is some counterpoise which is preferably adjustable. Between the link 11 and the pivot 15 a connecting-link 111 connects the arm 16 with the main lever of the mechanism within the base, by which construction the descent of the platform operates said mechanism and main lever 165, the link 111 swings the arm 16, and the latter, through the link 11 and knife-edge 10, turns the disk 96 and swings the pendulum 8, so as to carry the weight 9 out of its vertical position. (Shown in Fig. 1.)

91 is a hand or index of any suitable light material, rigidly secured to the disk 96 in such manner that one edge (here the left) will aline with the pendulum-pivot and at such an angle to the pendulum that when the latter stands vertical the index will stand at one extreme of its movement, (here the left,) as seen in Fig. 1. What weight this hand or index possesses, standing normally as it does at an inclination, is counterbalanced by means of a counterpoise, here shown as consisting of a nut 12, adjustably mounted upon a screw 19, which projects from the disk di-

ametrically opposite to the center of gravity or axial line of the hand or index, and this counterpoise 12, together with those numbered 18 and 180, is so proportioned and is capable of such adjustment that true accuracy may be maintained, and the index will ever point to zero when the scale is not in use. By preference the left or active edge of the index is provided with a series of openings 92, through which certain figures on the table may be read, and its face is colored or shaded as well as inscribed with numbers, as described below.

The said bracket 6 supports a housing 130 (which latter in the present instance carries the bearings 7) and by the housing is supported a table 13, marked with a series of rows of price-totals, and near its upper edge this table is marked with two rows of weight-totals, of which the lowermost (numbered 14) is here shown as painted black or of a dark color and inscribed with figures up to five pounds, while the uppermost (numbered 140) is painted red or shaded light and inscribed with figures up to ten pounds, its graduation-marks being respectively opposite to and double those of the lowermost row. In conjunction with these weight-totals the price-totals will be, as indicated, on the three lines that are numbered in Fig. 1, and the left half of the index 91 will be painted red or shaded light and inscribed with price units opposite the openings 92, while the right half will be painted black or shaded dark and inscribed opposite these units with other units, respectively, of double amount. The uppermost opening 920 in the index here moves across the smaller row of weight-totals, while the extreme end of the index is provided with a pointer 921, which coacts with the larger row of weight-totals. In conjunction with these parts there is provided a weight 90, painted red or shaded of a light color and which may be removably engaged with the pendulum 8 above and in addition to the weight 9.

With the above construction of parts, the proper adjustments having been made to accurately counterbalance all members so that they will normally stand at zero, let us suppose that it is desired to weigh four pounds of some commodity at sixteen cents a pound. The limit of weight-total being under "5," the operator knows it can be read on the black line, and he accordingly removes the red weight. Then placing the commodity on the platform, the parts move to the position shown in Fig. 4, and through the opening 920 he reads four pounds. Opposite the price per pound, which is sixteen cents, he reads through the proper opening 92 the total price of "64c.," here indicated on the second row of price-totals. Thus in an instant the scale gives the accurate totals of weight and price, and if the operator had not cut his commodity exactly at four pounds the scale would indicate just what it did weigh and precisely what that weight of it did cost. Hence there is no loss

to either the merchant or the customer through imperfect and hurried calculation. In case the operator did not remove the red weight it is clear the hand would move only to "4" on the row 140; but then when he attempted to read the price-total he would find no "16" in the red-units row on the hand. Suppose the operator desires to weigh nine pounds of some commodity at nine cents per pound. The limit of weight-total now being above five pounds, he knows that the black row cannot be used, and hence he adds the red weight 90 to the pendulum 8 above the fixed black weight 9, which addition gives the poise the necessary additional weight to cause the hand to move more slowly over the table. On placing nine pounds of the commodity on the platform the hand will move so that its pointer indicates nine pounds, and reading through the opening 92 opposite "9c." on the red half of the hand he finds "81c." on the uppermost row of price-totals. Had the price been eighteen cents per pound for nine pounds it would not take much mental calculation to double eighty-one cents, as is obviously necessary. If, however, the weight had been eighteen pounds or anything above the limit of the red row of weight-totals herein shown, it is clear that an additional weight 900 could be added to the pendulum above the weight 90, or it might be added at 9000 to the outer end of the beam 1, both as indicated in dotted lines in Fig. 1, and the weight being of proper size the total must thereafter be mentally doubled. The price-total must also be doubled at nine cents or quadrupled at eighteen cents. However, it is my intention to build the scales in several sizes, of which that for ordinary use, as shown herein, will have a black-row limit of five pounds and a red-row limit of ten pounds, while larger scales will work within larger registers. Hence I do not confine myself strictly to the totals or registers herein shown nor strictly to the fact that there are only two rows, (one black and one red,) as there might be more than two rows all with different colors or shading.

What is claimed as new is—

1. A computing attachment for scales consisting of a table, a disk pivotally connected thereto and having a pendulum hanging normally vertical and a hand standing normally at zero on the table, both rigid with the disk, a screw projecting from the disk diametrically opposite the hand, and a counterpoise-nut thereon; combined with an arm pivoted within the base, a link connecting one end with a pivot on said disk, a connecting-link connecting said arm with the scale mechanism within the base, and means for counterbalancing the weight of the arm and link, substantially as described.

2. A computing attachment for scales consisting of a table, a pendulum and hand standing at angles to each other and pivotally connected to said table at their point of juncture, and means for counterbalancing the

weight of the hand when the pendulum stands vertical; combined with an arm pivoted within the base and arched over and connected with the main lever of the mechanism therein, a link connecting the outer end of the arm with said pendulum at a point normally above the pivot of the latter, and means for counterbalancing the weight of the arm and link, substantially as described.

3. A computing attachment for scales consisting of a table, and a pendulum and index at an angle to each other and pivotally connected to said table at their point of juncture; combined with an arm within the base connected respectively with the mechanism therein and with the pendulum, a frame at the inner end of the arm, aligned pivots projecting laterally therefrom, a yoke carried by the base and having bearings for said pivots, and an adjustable counterpoise for the arm located within the frame, as and for the purpose set forth.

4. A computing attachment for scales consisting of a table, and a pendulum and index standing at an angle to each other and pivotally connected to said table at their point of juncture; combined with an arm within the base connected respectively with the mechanism therein and with the pendulum, a frame at the inner end of the arm, pivots for supporting this frame, a screw projecting from its outer side toward and in alignment with the body of the arm, and a counterpoise threaded upon said screw, as and for the purpose set forth.

5. A computing attachment for scales consisting of a table, a pendulum, a hand moved by the pendulum over the table, and an arm within the base connected at its outer end with said pendulum; combined with a frame carried rigidly by the inner end of the arm, outwardly-projecting aligned knife-edge pivots on the frame, a yoke within the base having bearings for said pivots, a screw within the frame in alignment with the body of the arm, and a counterpoise-weight adjustable thereon, all as and for the purpose set forth.

6. A computing-table for scales having a plurality of rows of weight-totals differently colored, and a plurality of rows of price-totals contiguous thereto and correctly graded; combined with indicating mechanism connected with and moved by the descent of the scale-platform, of which the hand or index moves along said rows and coacts with their figures, and the pendulum carries a fixed weight colored to correspond with the color of the row of smaller weight-totals as well as a removable weight colored to correspond with the color of the row of larger weight-totals, the whole capable of operation substantially as described.

7. A computing-table for scales having a plurality of rows of weight-totals differently colored, and a plurality of rows of price-totals contiguous thereto and correctly graded; combined with indicating mechanism connected

with and moved by the descent of the scale-
platform, of which the hand or index moves
along said rows and coacts with their figures,
and the pendulum carries a fixed weight col-
5 ored to correspond with the color of the row
of smaller weight-totals as well as a remov-
able weight colored to correspond with the
color of the row of larger weight-totals, said
hand being also provided with a plurality of
10 rows of price units colored to correspond with
said weights and weight-totals and whereof
each unit in one row is a multiple of that in
the row adjacent, as and for the purpose set
forth.

15 8. A computing-table for scales having a
row of weight-totals, and a plurality of rows
of price-totals contiguous thereto and cor-
rectly graded; combined with indicating

mechanism connected with and moved by the
descent of the scale-platform, of which the 20
hand or index moves along said rows and co-
acts with their figures, and the pendulum
carries a fixed weight of one color and a re-
movable weight of another color, the face of
the hand having two rows of price units col- 25
ored to correspond with the weights and
whereof the units in one row are respectively
multiples of those in the other, substantially
as described.

In testimony whereof I have hereunto sub- 30
scribed my signature this 18th day of Novem-
ber, A. D. 1899.

ALLEN DE VILBISS, JR.

Witnesses:

JAMES R. SMITH,
LEVI CANFIELD.