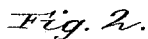
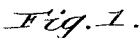


F. M. SMILEY.
BEAM SCALE.

No. 525,517.

Patented Sept. 4, 1894.



Inventor,

F. M. Smiley
By James J. Shuey
Attorney.

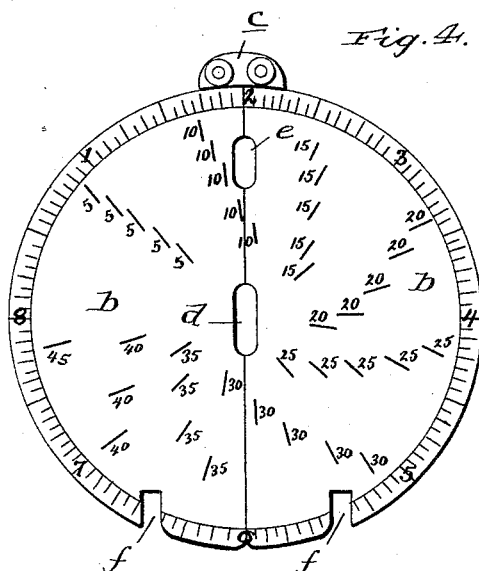
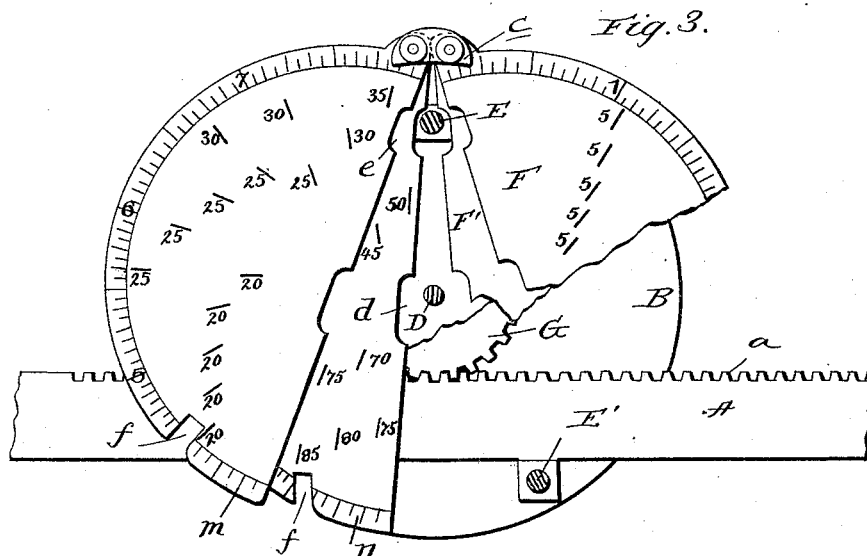
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

FRANK M. SMILEY, OF GOSHEN, INDIANA.

BEAM-SCALE.

SPECIFICATION forming part of Letters Patent No. 525,517, dated September 4, 1894.

Application filed April 4, 1894. Serial No. 506,328. (No model.)

To all whom it may concern:

Be it known that I, FRANK M. SMILEY, a citizen of the United States, residing at Goshen, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Beam-Scales; and I do 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 beam scales or attachments therefor; and it has for its general object to provide a beam pea or poise adapted when it is adjusted on the beam to balance a weight, to indicate to a person knowing the price per pound of such weight, the exact price or value thereof.

Other objects and advantages will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1, is a front elevation of my improved pea or poise in position upon a scale beam. Fig. 2, is a diametrical section of the same taken in the plane indicated by the line *x, x*, of Fig. 1. Fig. 3, is a front elevation of the device with the rotary indicator or index removed and the sections of the dials spread apart, and Fig. 4, is an elevation of the reverse side of the outer dial.

Referring by letter to said drawings:—A, indicates an ordinary scale beam having rack teeth as *a*, upon its upper edge and B, indicates my improved pea or poise which is designed to be adjusted upon the beam A, in the usual manner. This pea or poise B, comprises a body C, and the said body which rests at one side of the beam and is preferably of a circular form as shown, affords a bearing for the central lateral shaft D, and is provided with lateral studs or bolts E, E', which are preferably headed as illustrated and are designed to support the dials F, F', in the manner shown. The said dials F, F', are similar in construction and they respectively comprise two semicircular sections *b*, which have their contiguous edges notched as indicated at *d*, and *e*, to form elongated openings for the passage of the shaft D, and the stud or bolt E, and also have their peripheral edges notched adjacent to their lower ends as shown at *f*, to receive the studs or bolts E', and a

link *c*, to which the upper ends of the sections *b*, are pivotally connected as shown. By having the dials of the peculiar construction just described, the outer dial may be conveniently removed to expose the inner one and both dials may be reversed upon the studs when they are provided with figures upon both sides as will be presently described. I would have it understood however that when but one dial is employed and figures are provided on but one side thereof such dial might be of any suitable construction and might be connected to the body C, in any approved manner.

To remove the dials F, F', for the purposes above stated, it is simply necessary to first raise them so as to disengage their notches *f*, *f*, from the studs or bolts E', and then spread them apart as illustrated in Fig. 3, to disengage them from the shaft D, and the stud or bolt E. The elongated notches *d*, and *e*, permit of the dials being moved vertically and it will therefore be obvious that said dials may be readily raised and disengaged from the bolts E', as above described.

G, indicates a gear wheel which is fixedly mounted on the shaft D, and engages the teeth *a*, of the beam in order that when the pea is moved on the beam, the shaft will be rotated, and H, indicates the rotary indicator or index which is fixedly mounted on the outer end of the said shaft. This indicator H, as better shown in Fig. 1, preferably comprises the arms I, I', I², I³, which are by preference tangentially disposed to the shaft D, although they might be radially disposed if desired, the parallel circular wires *i*, which are connected to the arms I, I', and I², the parallel circular branches, which extend from the arm I², and may if desired be terminations of the wires *i*, and the parallel circular branches *k*, which extend from the arm I³, as shown. These branches *j*, *k*, of the arms I², I³, are provided with graduations and have such graduations numbered from one to five to represent cents, and the arms I², I³, are provided at points opposite the branches *j*, *k*, with figures representing the price per pound of the several substances which the scale is designed to weigh. The arm I³, is provided with the price figures $4\frac{1}{2}$, $4\frac{1}{4}$, 4, $3\frac{3}{4}$, and $3\frac{1}{2}$, and is designed to be employed in conjunction with the figures on the obverse sides of the two

dials F, F', while the arm I³, is provided with the price figures 5 $\frac{1}{4}$, 5 $\frac{1}{2}$, 5 $\frac{3}{4}$, 5, and 4 $\frac{1}{4}$, and is designed to be employed in conjunction with the figures on the reverse sides of the dials. The dial F, is provided upon its obverse and reverse sides with the circular scales *m*, which are divided into eight divisions representing pounds and have such divisions numbered from one to eight as shown in Figs. 1, and 4, and the dial F', is provided upon its obverse and reverse sides with similar circular scales *n*, the eight divisions of which however are numbered from eight to sixteen. The said dial F, having the circular scale *m*, divided into eight divisions is designed for use when the substance to be weighed does not exceed eight pounds, and when it is not necessary to hang a weight on the beam, while the dial F', having the circular scale *n*, is designed for use when the substance to be weighed exceeds eight pounds and when it is necessary to hang an eight pound weight on the beam.

Both dials are provided upon their obverse and reverse sides within the scales *m*, *n*, with the groups of figures representing various amounts. The obverse side of the dial F, for instance is provided with the groups of figures 5, 10, 15, 20, 25, 30, and 35, arranged in the manner or substantially the manner shown, while the reverse side of said dial is provided with the groups of figures 5, 10, 15, 20, 25, 30, 35, 40, and 45, arranged in substantially the manner shown. The dial F', which as before stated, is designed for use when substances exceeding eight pounds in weight are to be weighed is provided upon its obverse face with the groups of figures 30, 35, 40, 45, 50, 55, 60, 65, and 70, and upon its reverse face with the groups of figures 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, and 90.

In the practical embodiment of my invention the rack upon the beam A, should be of such a length and the gear wheel G, of such a size that the indicator or index H, will make but one complete revolution when the pea or poise is moved the full length of the rack. Care must also be taken to have the dials F, F', properly adjusted, that is to say if the price per pound of the substance to be weighed is found on the arm I², of the indicator, the obverse side of the dial F, or the dial F', according to the approximate weight of the substance should be arranged next to the indicator, while if the price per pound of the substance is found on the arm I³, of the indicator, the reverse side of the dial F, or the dial F', according to the approximate weight of the substance should be arranged next to the indicator. I would also have it understood that the circular scales *m*, upon the obverse sides of the dials F, F', are so arranged with respect to the arm I², the beam D, and the gear wheel G, as to enable the said arm I², to indicate the weight as well as the total cost of the substance, being weighed, when the obverse side of either dial is employed, while the circular scales *n*, upon the reverse sides

of the dials F, F', are so arranged with respect to the indicator arm I³, the beam D, and the gear wheel G, as to enable the said arm I³, to indicate the weight as well as the total cost of the substance being weighed when the obverse side of either dial is employed. I would furthermore have it understood that while the dials F, F', are adapted to be removed and reversed in position, yet their portions which are uppermost in one position, are uppermost in the other position; and since both dials are in position upon the poise when the same is in use, the adjustment of the dials will not affect the weight of the poise.

With this understanding of the device, the operation will be fully understood from the following description: When a substance, weighing for instance five pounds, and worth four and one-half cents per pound is placed upon the platform of the scale, the obverse side of the dial F, should be presented to the indicator after which the pea is moved upon the beam until it balances the weight, when the arm I², of the indicator pointing to the figure 5, of the scale *m*, of the dial F, will indicate the weight of the substance. Now if the weigher knows the price per pound of the substance he may readily ascertain the price of the whole by referring to the figures on the dial nearest the right hand edge of the arm I². The price being four and one half cents per pound, the operator will find a figure 20 below the branch *j* opposite the figures 4 $\frac{1}{2}$, which figure 20, will rest at a point midway the two and three cent marks of said branch *j* indicating that five pounds of the substance at four and one half cents per pound is worth twenty two and one half cents. If the substance be worth for instance four and one quarter cents per pound, the operator will find a figure 20, below the branch *j*, opposite the figures 4 $\frac{1}{4}$, which figure 20, will rest at a point between the 1, and 2 cent marks of said branch and adjacent to the 1 ct. mark so as to indicate that the price of the substance is twenty one and a quarter cents. When the price per pound of the substance to be weighed is found on the arm I³, instead of the arm I², the dial F, should be reversed so as to present its side shown in Fig. 4, to view, and when this is done the arm I³, will not only indicate the total price of the substance weighed but will in conjunction with the scale *n*, indicate the number of pounds. When the weight of the substance exceeds eight pounds and it is necessary to hang an eight pound weight on the beam, the dial F, is removed so as to present the dial F', to view. This dial F', is used in the same manner as the dial F, that is to say that if the price per pound of the substance is found upon the arm I², such arm will be used in conjunction with the obverse face of the dial to indicate the number of pounds and the price of the whole, while if the price per pound is on the arm I³, such arm will be used in conjunction with the reverse face of the dial.

The arms I, I', of the indicator H, perform no function when but two dials are employed. Said arms I, I', are however designed for use when the poise is provided with four dials, in which case said arms would be provided with scales of prices different from those of the arms I², I³, and the wires *i*, intermediate of the arms would be provided with numbered notches, while the two additional dials would be provided upon their obverse and reverse sides with groups of figures representing amounts and would also be provided with circular scales the same as the dials F, F'.

It will be seen from the foregoing that my improved device while very simple enables a weigher to readily ascertain the price of the substance weighed without taking up the time necessary to figuring. It will also be noticed that the device is very simple and easily adjusted and that it embodies no complicated parts likely to get out of order which is a desideratum.

When my improved device is to be employed for weighing certain substances, the prices of which might be placed upon a single arm, one indicator arm might be employed in conjunction with a single dial which might be connected to the body C, in any approved manner. I therefore do not desire to be understood as confining myself to the specific construction of dials herein set forth, nor do I desire to be confined to the specific construction and relative arrangement of the other parts as such changes or modifications may be made in practice as fairly fall within the scope of my invention.

Having described my invention, what I claim is—

1. The computing poise or pea, comprising a body or frame, two removable and reversible dials respectively formed of two sections connected together and supported on the body or frame, arms having lateral branches *i*, at intervals in their length, a wheel adapted to engage a scale beam, and mechanism inter-

mediate of said wheel and the indicator arms, all substantially as and for the purpose set forth.

2. A computing device comprising a body or frame, a rotary shaft journaled in the body or frame and carrying an indicator and a removable dial formed of two sections connected together and adapted to straddle the rotary shaft and also adapted to engage projections on the body or frame, substantially as and for the purpose set forth.

3. A computing device comprising a body or frame having lateral studs as E, E', a dial formed of two sections loosely connected together and adapted to engage the studs E, E', and a rotary indicator, substantially as and for the purpose set forth.

4. A computing device comprising a body or frame having lateral studs as E, E', two dials respectively formed of two sections loosely connected together and adapted to engage the studs E, E', and an indicator mounted on the shaft journaled in the body or frame and consisting of two arms having lateral, circular branches, substantially as and for the purpose set forth.

5. The combination with a scale beam, of a computing poise or pea adapted to slide on the beam and comprising a body or frame having lateral studs as E, E', two dials respectively formed of two sections loosely connected together and adapted to engage the studs E, E', a shaft journaled in the body or frame and extending between the dial sections, an indicator mounted on said shaft and consisting of two arms having lateral, circular branches, and a wheel also mounted on said shaft and engaging the beam, substantially as and for the purpose set forth.

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

FRANK M. SMILEY.

Witnesses:

CHARLES H. RAEDER,
K. F. MATTHEWS.