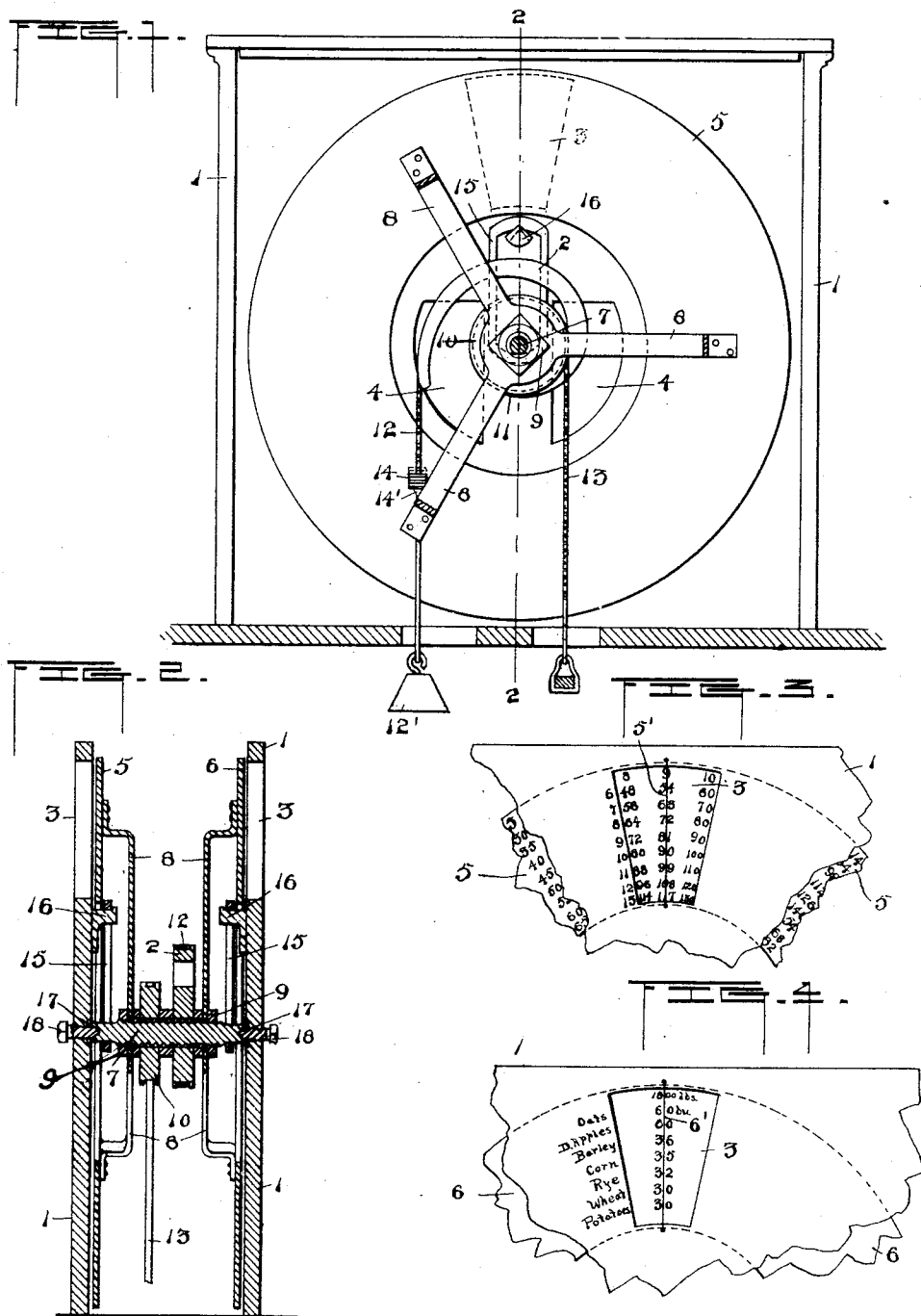


(No Model.)

C. L. & P. C. WOODS.
PENDULUM SCALE.

No. 510,948.

Patented Dec. 19, 1893.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES L. WOODS AND PERRY C. WOODS, OF CANTON, ILLINOIS, ASSIGNORS
OF ONE-FOURTH TO SAMUEL H. ARMSTRONG, OF SAME PLACE.

PENDULUM-SCALES.

SPECIFICATION forming part of Letters Patent No. 510,948, dated December 19, 1893.

Application filed June 9, 1893. Serial No. 477,128. (No model.)

To all whom it may concern:

Be it known that we, CHARLES L. WOODS and PERRY C. WOODS, both residents of Canton, in the county of Fulton and State of Illinois, have invented certain new and useful Improvements in Weighing Apparatus; and we 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 pertains to make and use the same.

The invention relates to weighing apparatus and has for its object to improve the indicating devices and it consists in the matters hereinafter described and particularly pointed out.

In the accompanying drawings Figure 1 is an elevation one side of the cabinet being removed. Fig. 2 is a section on line 2—2 Fig. 1. Figs. 3 and 4 are details.

N numeral 1 denotes a cabinet or stand adapted to support and inclose the mechanism to be described. It has a window 3 on each side which may be glazed if desired and holes 4 which may be provided with covers pivoted or otherwise made movable. The openings 4 permit the manipulation of weights from without the cabinet and the windows allow inspection of the annuli or dials 5 and 6. These are preferably situated in suitable recesses formed in the walls of the inclosing structure. In front of these may be arranged any suitable pointer such as wires 5' and 6'.

The dials are made fast on an axis 7 by means of spiders or frames 8 having arms fixed to said dials and nuts 9 which are threaded to screw upon the axis against the frames and force them against other parts on the axis whereby said frames are firmly clamped in suitable situation. On the shaft or axis a spiral 2 and pulley 10 are also secured by any convenient means. To the former at point 11 near the axis is secured a chain or strap 12 which lies in the groove of the spiral and at its suspended end is connected to a weight 12'. Removable weights 14 can be attached as at 14'. To the pulley 10 a chain or strap 13 is also made fast and arranged to pass about said pulley in a direction opposite to that of chain 12. This strap or chain at its suspended end is connected to

scale levers of any approved kind. These are usually concealed by a platform. They form no part of this improvement and are not fully shown in the drawings.

The shaft 7 is loosely supported on the bottom bar of stirrups 15 which in turn depends from the knife edge brackets 16 secured to the wall of the cabinet. These bottom bars are curved about the points of suspension of the stirrups as centers and in operation when the shaft and disks are turned the stirrups are moved or swung by friction to one side by the action of the shaft rolling upon said bar the shafts being held in place by the pins 18. The stirrups return to their normal position in vertical lines whenever the load is removed from the scales. By this construction the curved bearing bars which support the shaft are swung about their knife edge bearings and the friction of the shaft is materially reduced. The ends of shaft 7 are provided with cone shaped sockets 17 and the shaft is held against endwise and lateral movement by similarly shaped pins 18 which enter these sockets and are made adjustable from the exterior of the cabinet.

In Fig. 3 is illustrated means for indicating both weight and total cost. The numbers 1, 2, and upward on the dial 5 are designed to indicate weight, the weight of an object on the platform being denoted by the number under the wire 5. On the wall of the cabinet at the side of the window 3 are arranged numbers to indicate different prices per pound. Upon the dial are denoted the products of the various weights multiplied by the prices, these products being arranged in radial lines with respect to the weight numbers and circular lines with respect to the cost numbers. In the case illustrated in the drawings the weight indicated is 9. If the price be 11 the total value is indicated where the corresponding circular and radial lines cross as 9 9. The use of two dials as 5 and 6 affords a larger range of indications and the indicating capacity of the second dial can commence at the maximum indication of the first. Instead of one of the dials having numbers corresponding to total cost, it may be supplied with others corresponding to measures, indicating for example the number of bushels. Referring to Fig. 4

let various articles be noted on the cabinet and let the total weight of wagon and load as eighteen hundred be noted near the periphery of the dial and place on the dial opposite the various articles the number of bushels of said article corresponding to said total weight. Thus in the example given opposite "oats" indicates that sixty bushels of oats will weigh eighteen hundred pounds and 30 opposite "wheat" indicates that thirty bushels of wheat will weigh the same. This of course implies that a bushel of oats weighs thirty pounds, and a bushel of wheat sixty pounds. Assuming then that the total weight of the wagon and a load of oats for example is eighteen hundred and that the weight of the same exclusive of the oats is six hundred, which latter weight must be separately ascertained, the number of bushels of oats is ascertained by dividing the weight of the tare, six hundred, by thirty which gives twenty as the number of bushels corresponding to said tare which being subtracted from the total corresponding to the total weight eighteen hundred leaves the actual number of bushels of oats as forty. It will of course be understood that if the wagon be weighed separately on the same scales the dial will indicate its weight which weight will correspond to the number of bushels of any article indicated at the side of the name of such article. Thus in the case supposed the tare weight six hundred will be indicated near the circumference of the dial and the bushels twenty corresponding to such weight will be found below in the same radial line and opposite the word "oats."

We are aware that a disk provided with an index and with figures denoting price has been secured to the spring of a so called scale calculator and combined with a second disk in such manner that the first named disk could be adjusted by hand to indicate a given price and that thereupon when a desired weight was put in the scale pan it would be indicated near the periphery of the second disk and the product of the price by the weight displayed through an opening in said first named disk, and we are also aware that cabinets or cases have been provided with figures having correspondence with others marked on a dial and visible through a window in the cabinet, and such devices are not broadly of our invention. By our improvement we avoid the necessity of a special adjustment of any part to indicate particular prices or weights and of a special index and rely upon the weight acting upon the scales to disclose both the weight and the total price, the price per unit being always visible.

Having thus described our invention, what we claim is—

1. In a weighing apparatus the combination of a dial, a dial shaft provided with sockets in its ends, pins entering said sockets to limit endwise movement of the shaft, knife-edged supports, swinging stirrups depending from said supports to hold up the shaft, and weighing mechanism consisting of said shaft provided with a spiral 2 and pulleys 10, the chains 13 and 12 and the lever system, said chain 13 being connected to the proximate lever and chain 12 to a weight, substantially as set forth.

2. In a weighing apparatus comprising a dial shaft with sockets in its ends, pins entering said sockets to limit endwise movement of the shaft, knife edged supports, swinging stirrups depending from said supports to hold up the shaft, and weighing mechanism consisting of said shaft provided with spiral 2 and pulley 10, chains 13 and 12 and the lever system, a cabinet having a window, a dial provided with a circumferential row of figures to indicate pounds, figures on the cabinet to denote price per pound, and figures radially arranged on the dial in line with those denoting weight, said radially arranged figures denoting the multiples of the weight number when multiplied by the adjacent cabinet figures denoting the price per pound, substantially as set forth.

3. In a weighing apparatus comprising a dial shaft with sockets in its ends, pins entering said sockets to limit endwise movement of the shaft, knife edged supports, swinging stirrups depending from said supports to hold up the shaft, and weighing mechanism consisting of said shaft provided with spiral 2 and pulley 10, chains 13 and 12 and the lever system, a cabinet having a window, a dial provided with a circumferential row of figures to indicate weight, an index of articles adapted to be measured arranged on the cabinet and a series of numbers radially arranged on the dial in line with a weight number indicating the measure of the adjacently named article corresponding to the weight indicated near the periphery, substantially as set forth.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

CHARLES L. WOODS.
PERRY C. WOODS.

Witnesses:

W. H. DRIGGS,
W. W. ELLIOT.