

W. A. NEAL.
ADDING AND REGISTERING MACHINE.

No. 510,927.

Patented Dec. 19, 1893.

FIG. 1.

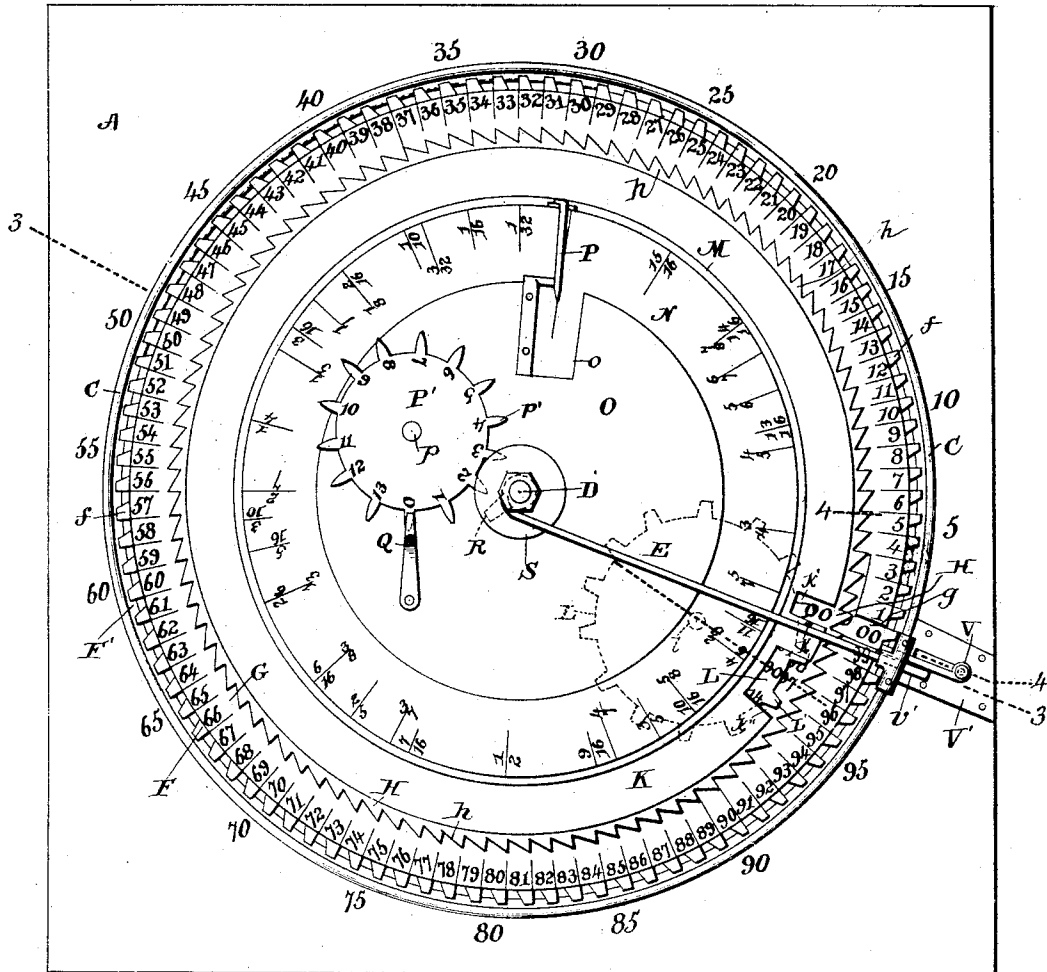
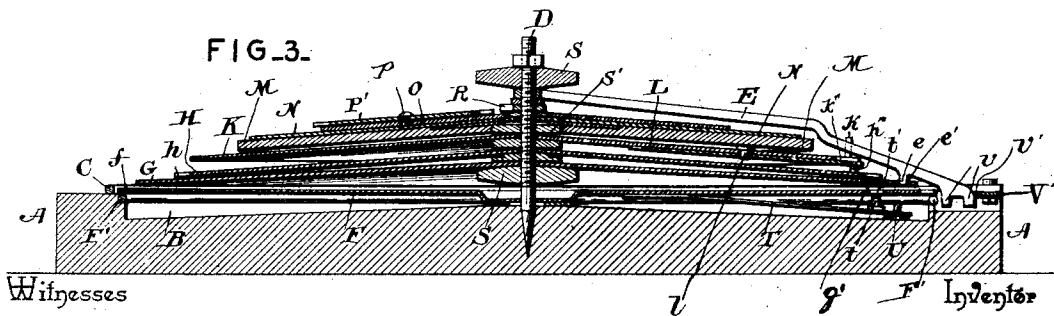


FIG. 3.



Witnesses

Inventor

James K. McArthur

William A. Neal

[Handwritten signature]

By his Attorneys,

Chas. Snow & Co.

W. A. NEAL.
ADDING AND REGISTERING MACHINE.

No. 510,927.

Patented Dec. 19, 1893.

FIG. 2.

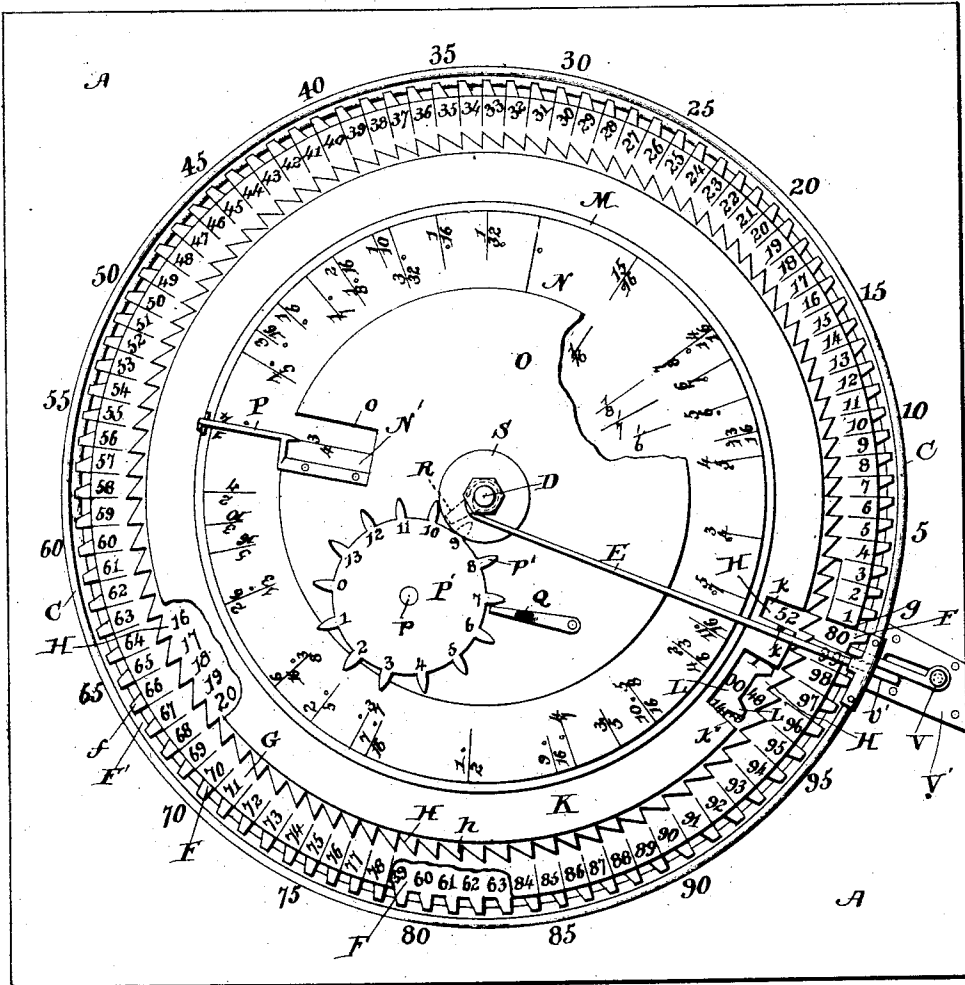
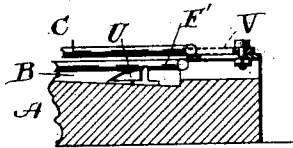


FIG. 4.



Witnesses

Inventor

Jas. H. McLaughlin

William A. Neal

O. E. Doyle

By his Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

WILLIAM A. NEAL, OF BUNGER'S, WEST VIRGINIA.

ADDING AND REGISTERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 510,927, dated December 19, 1893.

Application filed February 23, 1893. Serial No. 463,415. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. NEAL, a citizen of the United States, residing at Bunger's, in the county of Greenbrier and State of West Virginia, have invented a new and useful Adding and Registering Machine, of which the following is a specification.

My invention relates to an improved adding and registering machine, the objects in view being to provide a simple, cheap and effective device for adding successive numbers, as amounts of sales, &c.

It is the primary object of my invention to provide a device which, being accurate in operation, is free from complex construction, may be easily understood and readily operated.

Further objects of my invention will appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a plan view of a machine embodying my invention, with all the parts set at zero. Fig. 2 is a similar view with the parts set to register a sum of five thousand two hundred and eighty. Fig. 3 is a central sectional view of the machine, line 3—3 of Fig. 1. Fig. 4 is a similar view, line 4—4 of Fig. 1.

The same letters refer to the same or corresponding parts throughout the several views.

A designates the base, provided with a central circular depression or cavity B surrounded by a guard-ring C, and D designates a central perpendicular arbor from the upper end of which to a point outside the circumference of the depression B extends a radial gage-bar E, provided with terminal point or points, *v*, to engage a slot, *v'*, in the guide-plate V', to hold the outer end of the gage-bar from lateral displacement. Mounted centrally upon the arbor and arranged in the depression or cavity B below the plane of the upper surface of the base is a rotary disk F whose serrated periphery *f* rests upon an annular bearing rim F'.

G designates a superposed fixed dial, of less diameter than the disk F, with its periphery on the line of the bases of the serrations in the latter, and inscribed with numerals from 0 to 99, the intervals between such numerals corresponding with the inter-

vals between the serrations *f*. The disk F is also provided, (see Figs. 1 and 2,) beneath the dial G, with a corresponding series of numerals ranging from 0 to 99. Said disk is provided with one hundred teeth.

Rotatably mounted upon the arbor D and resting upon the dial G is a smaller disk H, also provided with peripheral serrations *h* which are numbered from 0 to 99, (see Figs. 1 and 2,) and arranged above this disk is a smaller fixed plate K which covers the numerals upon the disk H.

The dial G is held from rotation by the gage-bar E, which is provided with a depending lug *e* to engage a perforation *e'* therein, and this dial is also provided with a notch *g* through which one numeral of the disk F may be seen.

Affixed to the under side of the disk F is a spring tongue T, provided at its free end with a pin *t* which projects vertically upward through a perforation *t'* in said disk when the free end of the tongue is elevated and which is normally held out of engagement with said perforation by the spring. A cam U is arranged in the depression or cavity B adjacent to the gage-bar E whereby when the disk F has been turned through a complete rotation the free end of the tongue T engages the cam and is elevated thereby and the pin *t* is caused to engage a tooth of the rotatable disk H. The dial G is slotted as shown at *g'* to allow the pin *t* to project upward to engage the teeth of the disk H.

The plate K is held from rotation at all times by a stop-pin *k*, which engages the gage-bar E, and it is provided, adjacent to such pin with a notch *k'* through which may be seen one of the numerals upon the disk H.

The disk F is the units-disk, and as one complete rotation of said units-disk causes the disk H to move through the distance of one tooth (caused by the engagement therewith of the spring actuated pin *t*) the disk H will be designated the hundreds-disk.

The plate K is provided with an opening *k''*, and pivotally connected to the under side of said plate by the pivot *l*, in position to cause a portion of its surface to be visible through the opening *k''* is a thousands-disk L, whose upper surface is provided with numerals ranging from 0 to 14 and correspond-

ing respectively with the peripheral teeth L', fifteen of which are provided. The thousands-disk is operated by a pin or stud *h'''* carried by the hundreds-disk H to engage a tooth of such thousands-disk and move the latter through the distance of one tooth for each complete rotation of the hundreds-disk.

It will be seen that the highest amount which can be registered upon the hundreds-disk is ninety-nine hundred, and therefore, when the units-disk has been turned through an entire rotation and indicates ninety-nine, thus making the total nine thousand nine hundred and ninety-nine, the movement of the units-disk through the distance of one space will turn the hundreds-disk through the distance of one space and thus rotate the thousands-disk through the distance of one space, whereby the thousands-disk, which registers tens of thousands, will stand at 1, and the hundreds and units disks will stand at 0, thus registering ten thousand.

Rotatably mounted upon the arbor D above the plate K is a fractions-disk M, and above the latter is arranged a fixed dial N, whose surface is inscribed with fractions ranging from one thirty-second to thirty-one thirty-seconds, with intermediate fractions, as one-sixteenth, one-tenth, one-eighth, one-seventh, one-fifth, one-third, one-half, &c., of different denominations, and also a point marked zero.

Above the dial N is arranged a rotatable plate O, which is connected by an arm P see Figs. 1 and 2 to the periphery of the disk M to rotate therewith, said plate being provided with a rotatable disk P' mounted on a pivot *p*, a pointer Q, and a finger R, the latter being fixed to the arbor D, whereby as the plate O is rotated each rotation will carry the disk P' about with it and cause the disk P' to be turned through the distance of one space by means of the finger R. The disk P' is provided with peripheral teeth *p'* which are numbered from 0 to 13 and are adapted to be engaged by the finger R.

The pointer Q is designed to indicate the registered numeral of the disk P'. As shown in Fig. 1, the pointer indicates 0.

The plate O is provided with an opening *o* through which figures upon the dial N may be seen, this dial being provided with two complementary series of numerals, which increase in opposite directions.

To add a series of fractions, the parts of the mechanism being in the positions indicated in Fig. 1, place the point of a pencil or other sharp instrument upon the fractions-disk M opposite the fraction of the dial N and move to the gage-bar, (the fraction register will be seen through the opening *o*.) and repeat this operation for the entire number of fractions to be added. The disk M is provided with a series of perforations *m* to receive the point of a pencil to facilitate movement thereby. Each time the disk M makes a complete rotation, thereby showing that the sum of the

fractions has amounted to a unit, the disk P' will be turned to indicate such unit.

The arbor D is screw-threaded, as shown, and the disks are held in the required relative positions by nuts S S and washers S' S'.

The operation of my improved machine will be apparent from the foregoing description without employing examples. The gage-bar is employed as the stopping point, and to this bar all of the disks are turned in adding successive numbers. A longitudinally slidable catch V is arranged in a slot formed in the guide-plate V' upon the base in position to engage one of the teeth of the disk F to lock said disk in position to preserve the adjustment thereof to indicate a certain sum or amount registered.

Changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a device of the class described, the combination with a base and a perpendicular arbor, of a disk rotatably mounted upon said arbor, and a bearing rim to support the periphery of said disk, a fixed superposed dial bearing numerals, a hundreds-disk rotatably mounted upon said arbor and provided with numerals and peripheral teeth, and a spring-operated pin carried by the units-disk to periodically engage the teeth of the hundreds-disk, and a fixed cam to operate the pin substantially as specified.

2. In a device of the class described, the combination of a rotatable units-disk provided with a serrated periphery, a fixed dial, a rotatable hundreds-disk provided with a serrated periphery, means to connect said disks whereby the latter is turned the distance of one tooth for each complete rotation of the former, a fixed plate arranged in juxtaposition to the hundreds-disk and provided with a peripheral opening, a thousands-disk pivotally mounted upon the under side of said plate and provided with peripheral teeth and numerals, one of which is visible at a time through said opening, and a pin or stud carried by the hundreds-disk to engage the teeth of the thousands-disk, substantially as specified.

3. In a device of the class described, the combination with a fixed fractions-dial, N, provided with circular columns of complementary fractions, of a subjacent rotatable fractions-disk, M, of greater diameter than said dial, a rotatable plate, O, arranged above and of smaller diameter than said dial, the disk M and plate O being connected for simultaneous rotation, a fixed finger, and a rotatable toothed disk, P', pivoted upon and carried by said rotatable plate and adapted to be engaged by said finger at each rotation

of the plate, to cause a partial rotation of the disk P', substantially as specified.

4. In a device of the class described, the combination with a common arbor, of a rotatable units-disk, a fixed dial, a rotatable hundreds-disk, a fixed plate, a rotatable thousands-disk pivotally mounted upon said plate, a rotatable fractions-disk, a fixed fractions-dial, a rotatable plate connected to said fractions disk, a fixed finger, a rotatable toothed disk pivotally mounted upon said rotatable plate, and a stationary gage-bar attached at one end to the upper end of said arbor and extending radially over said disks and dials, provided with a depending stud to engage a perforation in said fixed dial and engaging a pin upon said fixed plate, substantially as specified.

5. In a device of the class described, the

combination with a base having a circular depression or cavity, a central arbor and a peripheral bearing-rim, of a rotatable units-disk mounted upon said arbor and provided with peripheral serrations which rest and travel upon said bearing-rim, a superposed fixed dial, a hundreds-disk rotatably mounted upon the arbor and provided with serrations, means for communicating motion from the units-disk to the hundreds-disk, and a slidable locking bolt to engage the serrations of the units disk substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM A. NEAL.

Witnesses:

J. W. MATHEWS,
J. M. McWHORTON.