

C. J. HOLMAN.
Adding-Machines.

No. 153,826.

Patented Aug. 4, 1874.

FIG. I.

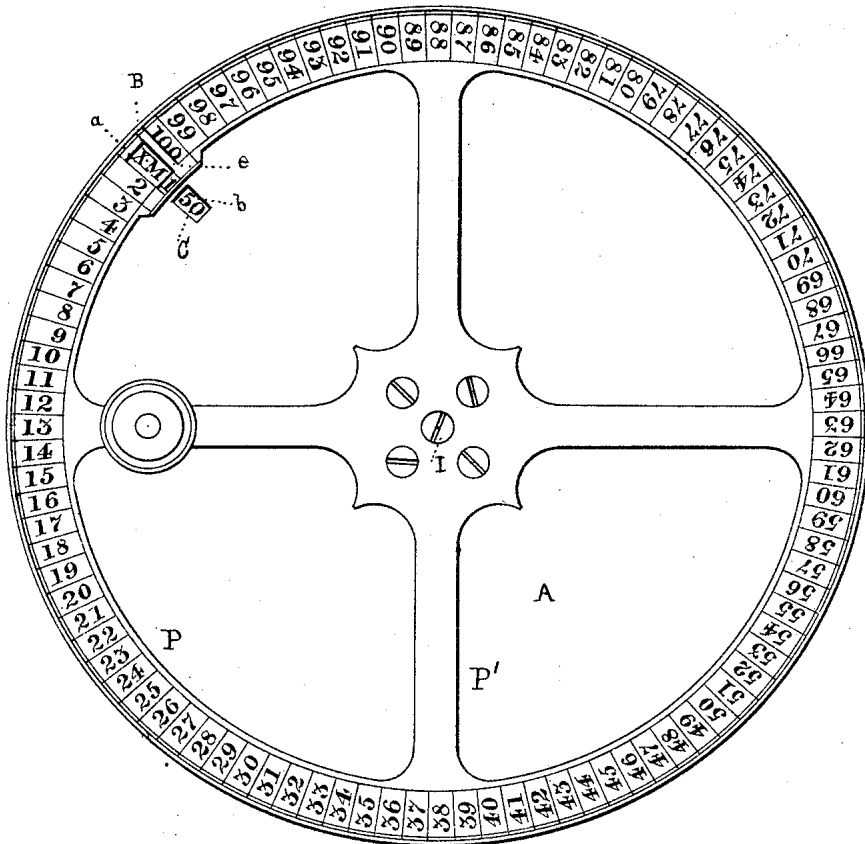
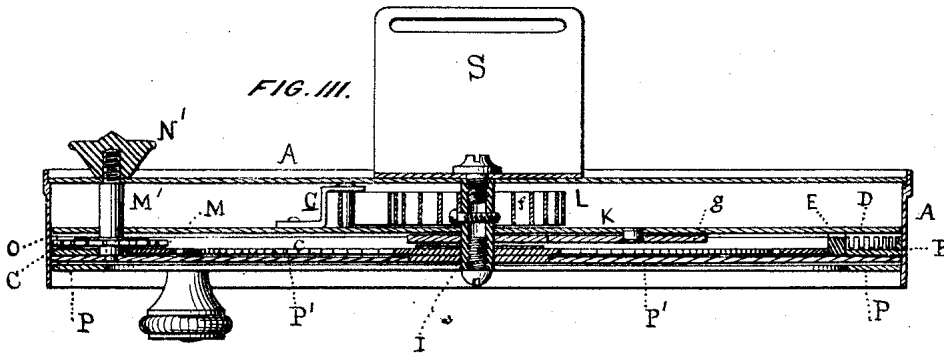


FIG. III.



WITNESSES:
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A. H. Norris

INVENTOR:
Calvin J. Holman.
By James L. Norris,
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FIG. II.

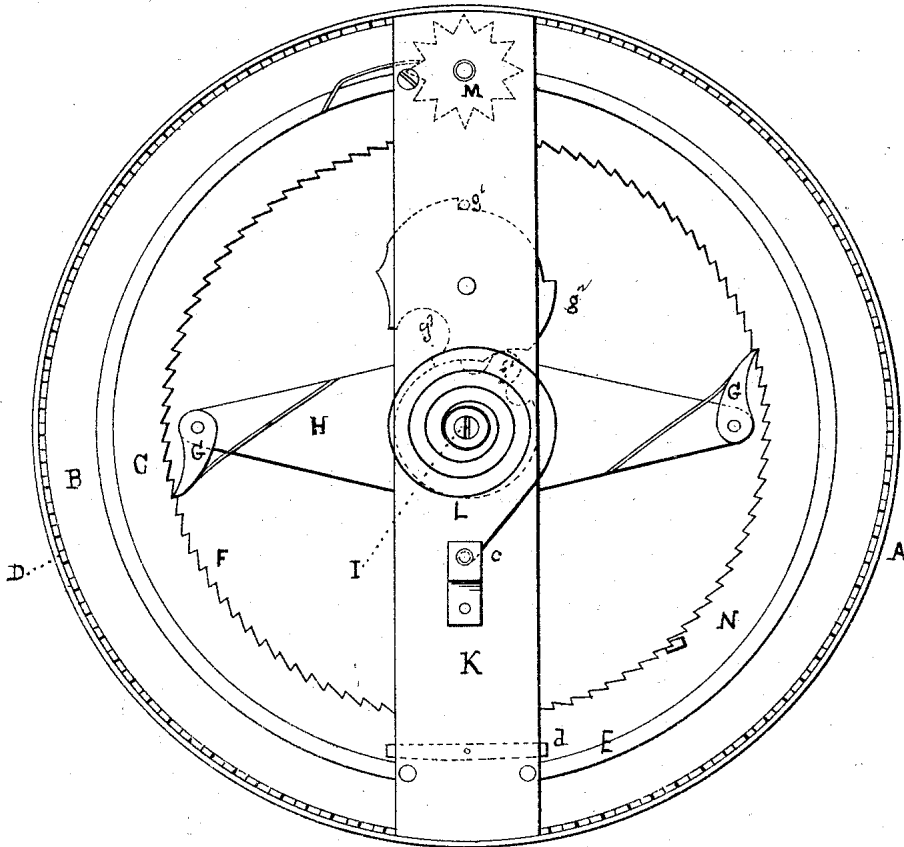
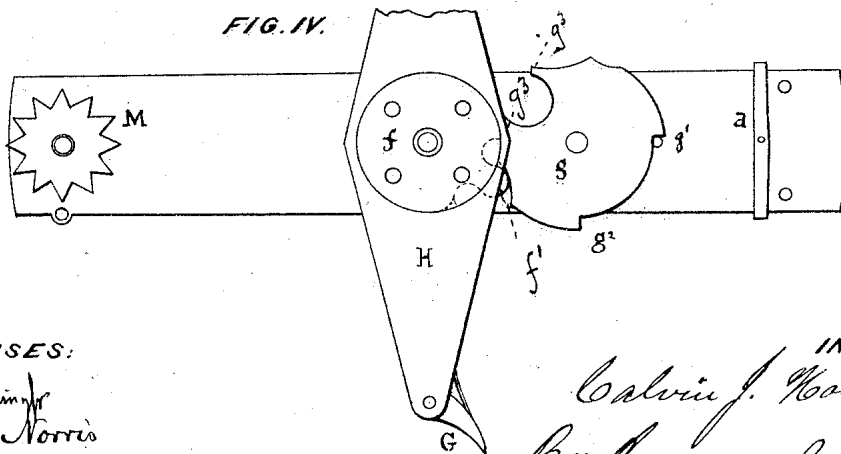


FIG. IV.



WITNESSES:

George Washington
a. h. Norris

INVENTOR:

Calvin J. Holman.
By *James L. Norris.*
Atty.

UNITED STATES PATENT OFFICE.

CALVIN J. HOLMAN, OF TOLEDO, OHIO.

IMPROVEMENT IN ADDING-MACHINES.

Specification forming part of Letters Patent No. 153,826, dated August 4, 1874; application filed April 21, 1874.

To all whom it may concern :

Be it known that I, CALVIN J. HOLMAN, of Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Adding-Machine, of which the following is a specification :

This invention relates to certain improvements in portable adding machines or devices in which numbered disks are operated by suitable mechanism for registering or adding numbers; and the present invention consists of a peculiar construction and arrangement of parts which render the device more perfect and reliable in operation, as will be hereinafter more fully described.

In the accompanying drawings, Figure 1 is a plan view of the outside disk or wheel with its knob for rotating the same. Fig. 2 is a view of the internal adding mechanism. Fig. 3 is a longitudinal central section of the same. Fig. 4 is a detached view of the cross-plate with the pawl-carrying lever and the stop-arrangement.

A designates a cylindrical casing, made of sheet metal or other suitable material, and composed of two disks or heads and a circumferential flange or rim. Said casing is provided with two parallel openings, *a b*, near its rim, through which are exhibited the numbered rings or disks located within the casing and constituting the adding mechanism. The outer annular ring or wheel B is located at the rim of the casing, and it has engraved or otherwise applied to its front face numbers ranging from one to one hundred, and within said outer ring there is arranged a secondary ring or disk, C, which is numbered in correspondence with the outer wheel. The ring or wheel B has a continuous series of teeth, D, around its periphery extending at right angles therefrom, or it may be provided with an ordinary rack-surface. The movement of both internal rings or wheels is guided and retained in place by raised ribs or rails E applied to the inner side of one of the heads of the casing. The ring C is formed with a ratchet-surface, F, around its inner periphery, with which engages a pawl, G, carried by a lever, H. Said lever is fixed on an axis or arbor, I, extending through the front head of the casing, and journaled at its inner end in a plate, K, extending across the

casing and secured to the guide-ribs E. The arbor I is extended beyond the plate K, to adapt it for the reception of a coiled spring, L, the inner end of which is secured to the arbor, while the outer end is attached to a bracket, *c*, on the plate K. A spring-tongue, *d*, is attached to the plate K, for the purpose of causing said spring to be in frictional contact with the inner ring, in order to prevent the same from becoming loose. A spur-wheel, M, is located near the rim of the casing, and in proper relation to the teeth of the outer ring or wheel, and a projection or stop, N, located exactly opposite the highest number on the inner ring C, operates it, as hereinafter described, for indicating hundreds. The wheel M is mounted on an arbor or post between the head of the casing and a retaining-plate, O, secured to one of the ribs E, and said arbor is extended and provided with a screw-threaded extremity, which projects through the loose head of the casing, so as to enable a nut to be applied for securing the head in position.

The above description refers to devices concealed or inclosed within the casing or shell of the machine, and on the outside thereof there is located an annular ring or wheel, P, which is provided with radiating arms P', fitted centrally on the arbor I, which carries the pawl-lever. The ring P is numbered from one to one hundred in a conspicuous manner, and is provided with a knob or handle for turning the same.

The operation of a machine constructed according to the present invention is as follows: Supposing all the numbered disks to be at zero, which is the case when the lowest number of each disk is opposite the openings *a b* in the face of the casing, then, if it is desired to register a certain number—say, 84—the external disk is rotated by its knob until the requisite number is opposite a fixed pointer, *e*, on the casing at the side of the openings, which will cause the inner ring C to be moved through the medium of the ratchet-rim and pawl-lever until the desired number is exhibited through its proper opening in the casing. The spring on the arbor I, which has been coiled up in the act of turning the outer ring, will then serve to bring the same back to its

normal position by its expansive force for repeating the operation. The ring B is moved one tooth or number every time the ring C makes one revolution, for whenever the projection on the inner ring comes opposite the spur-wheel it will turn the same one tooth, and the outer ring to a corresponding extent.

It will, of course, be apparent that the wheels or disks may be numbered in any suitable manner to adapt the same for recording different sums or numbers.

Adding or counting machines constructed as above described are eminently applicable for use in measuring lumber, and in order to render them more portable and capable of being easily carried I provide them with a loop or curved plate, S.

In order to prevent the number 1 on the outer disk or wheel P from being retracted by the spring L beyond the slots *a* and *b* in the casing, which would render the operation of the device impracticable, I provide the under side of the plate K with a pivoted cam, *g*, having shoulders *g*¹ *g*², and recesses to form a projection, *g*³, and also provide the plate H, which carries the pawls and moves with the outer disk P, with a stationary disk, *f*, having a rounded projection, *f*'. By this means the outer disk can be moved to the right to the desired extent, but will be arrested after one revolution by the projection on the disk *f* coming in contact with the projection *g*³, and moving the said cam until one of its shoulders comes in contact with a stop, *h*, in the plate *k*.

By releasing the outer disk P the pawl-carrying plate and said disks will be retracted to their normal position by the spring L, but the disk will be arrested when the number 1 comes opposite the slots *a b* by the other shoulder of the cam *g* coming in contact with the stop *h*.

In order to turn the numbered disk B back to zero after it has been used for indicating or registering, I provide the toothed wheel M with a stem or shank, M', which projects beyond the casing A, and is provided with a screw-button, N'. By turning this button the disk B is turned back without any movement of the other parts.

What I claim is—

1. The combination, with the pivoted cam *g* having shoulders *g*¹ *g*² and projections *g*³, and with the stop *h*, of the arm H, carrying the pawl or pawls G and the disk *f*, having projection *f*', the whole constructed to operate substantially as described.

2. The radiating-arms P', attached to the arbor I and carrying the numbered disk P and an operating-handle, in combination with the plate H, carrying the pawls G, the spur-wheel M, and the numbered disk C, having the lug N, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of April, 1874.

CALVIN J. HOLMAN.

Witnesses:

JAMES L. NORRIS,
A. H. NORRIS.