D. B. BENTON.

ADDING MACHINE.

APPLICATION FILED SEPT. 14, 1908.

916,411.

Patented Mar. 30, 1909.

2 SHEETS—SHEET 1.

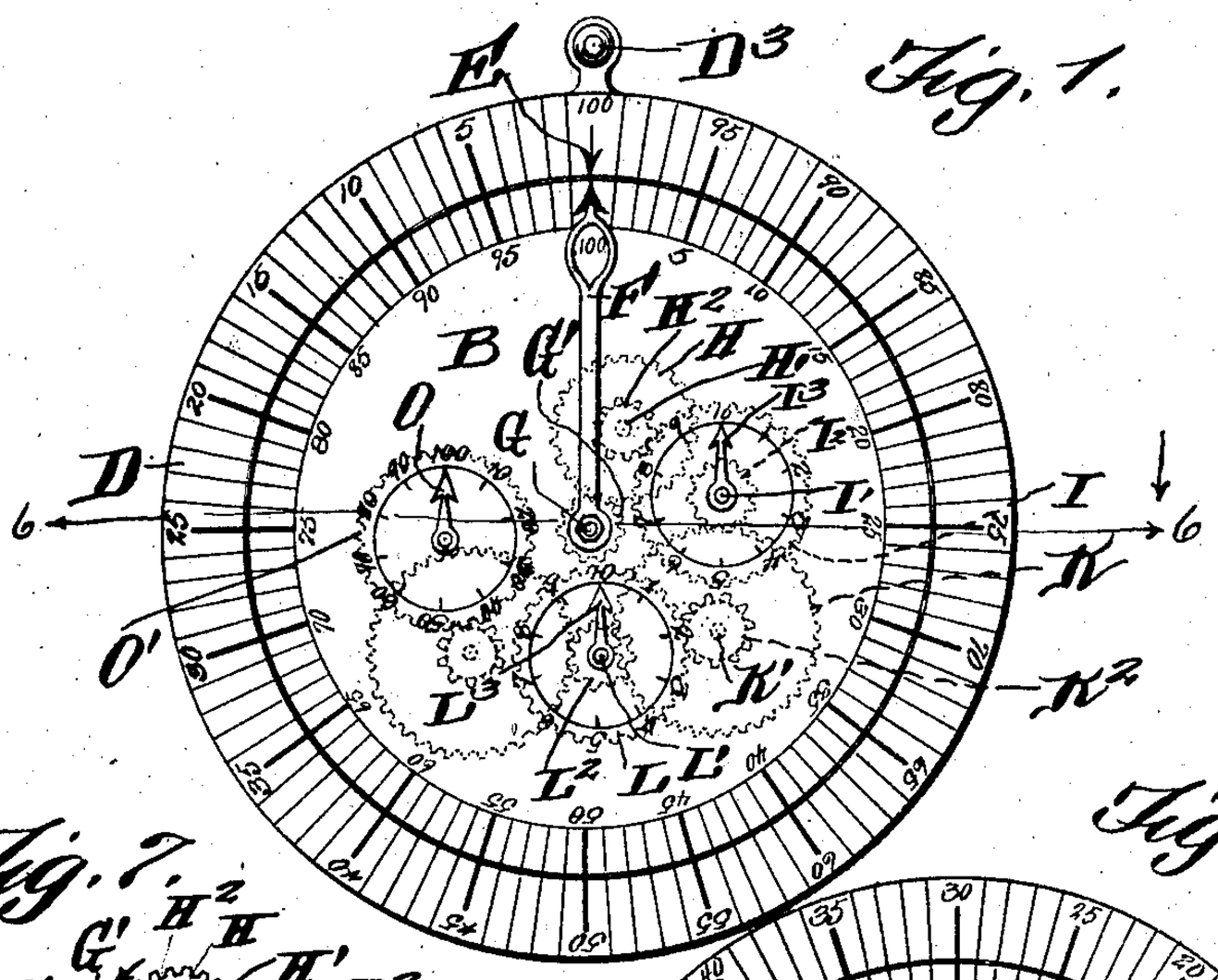

Fig. 1.

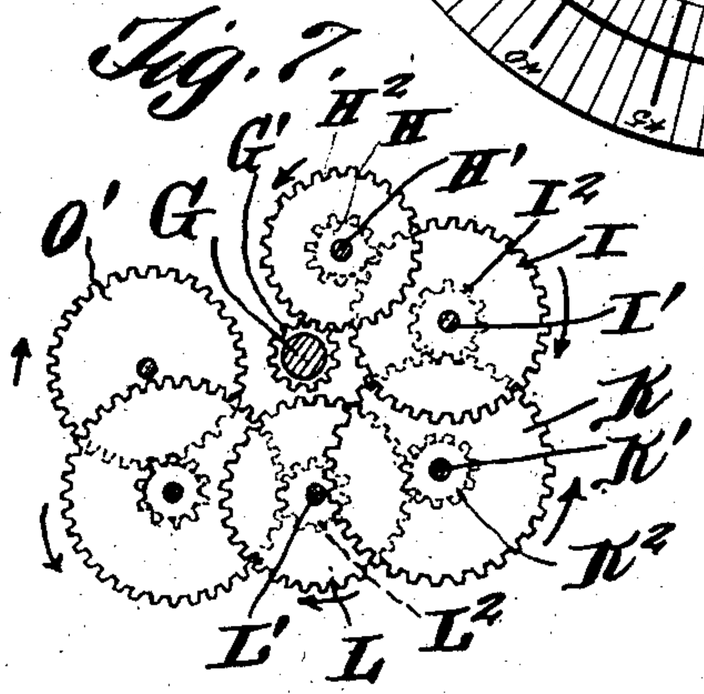

Fig. 7.

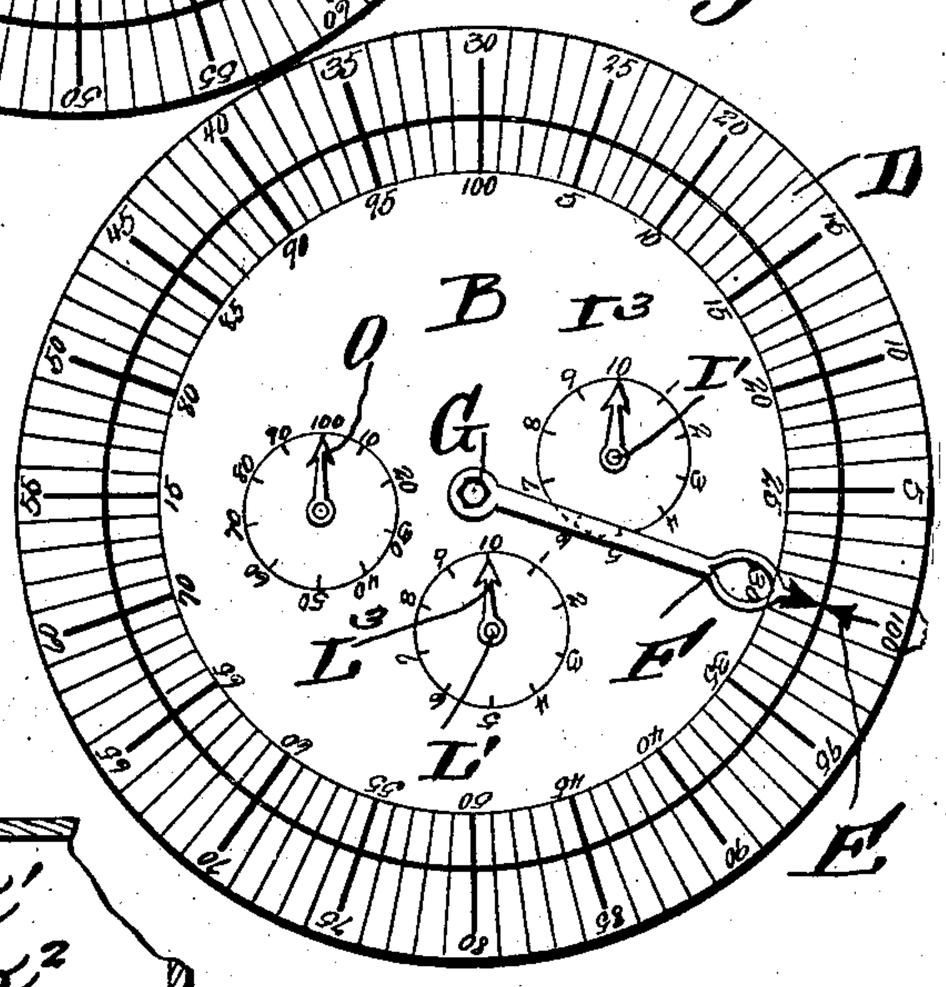

Fig. 2.

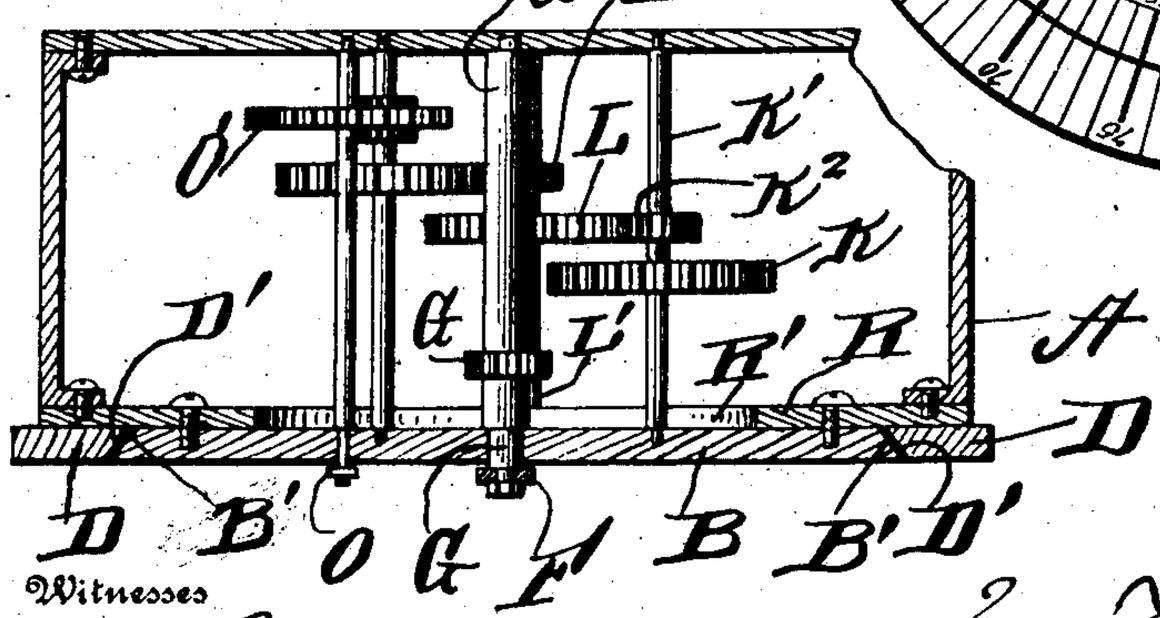

Fig. 6.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

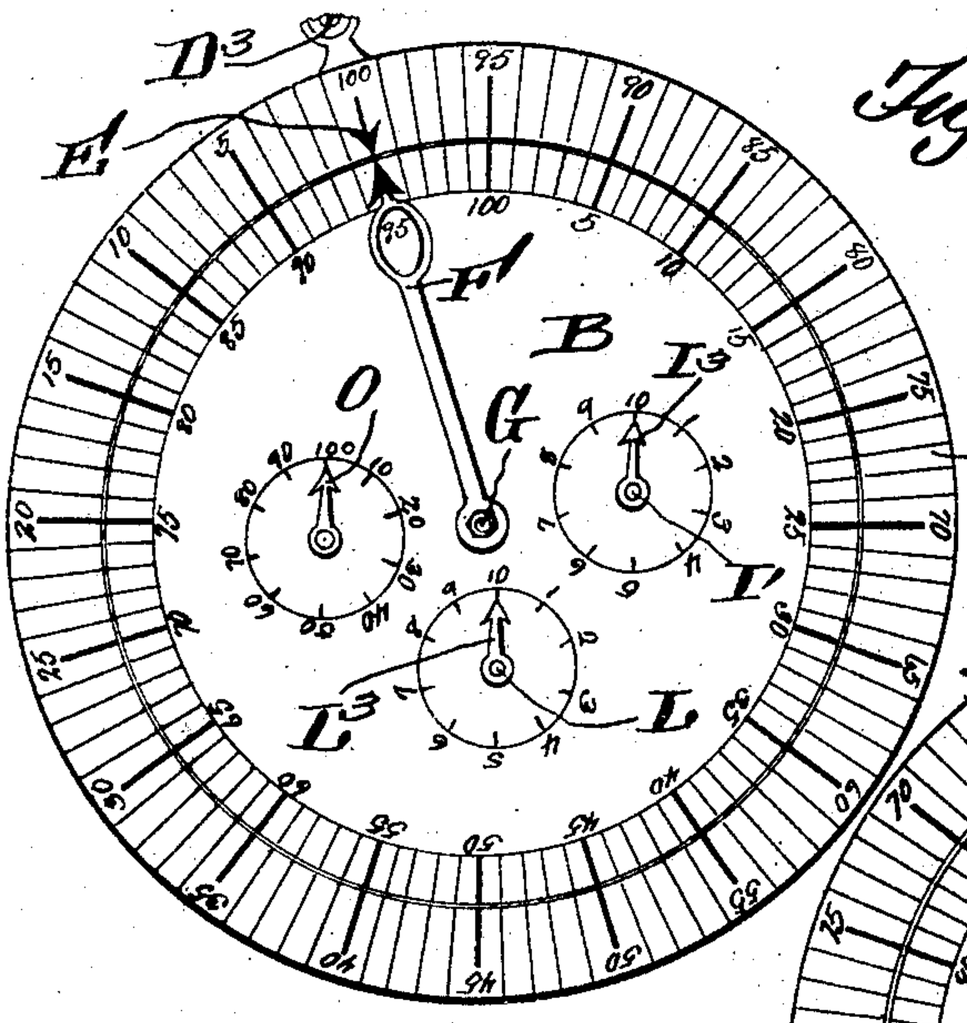


Fig. 3.

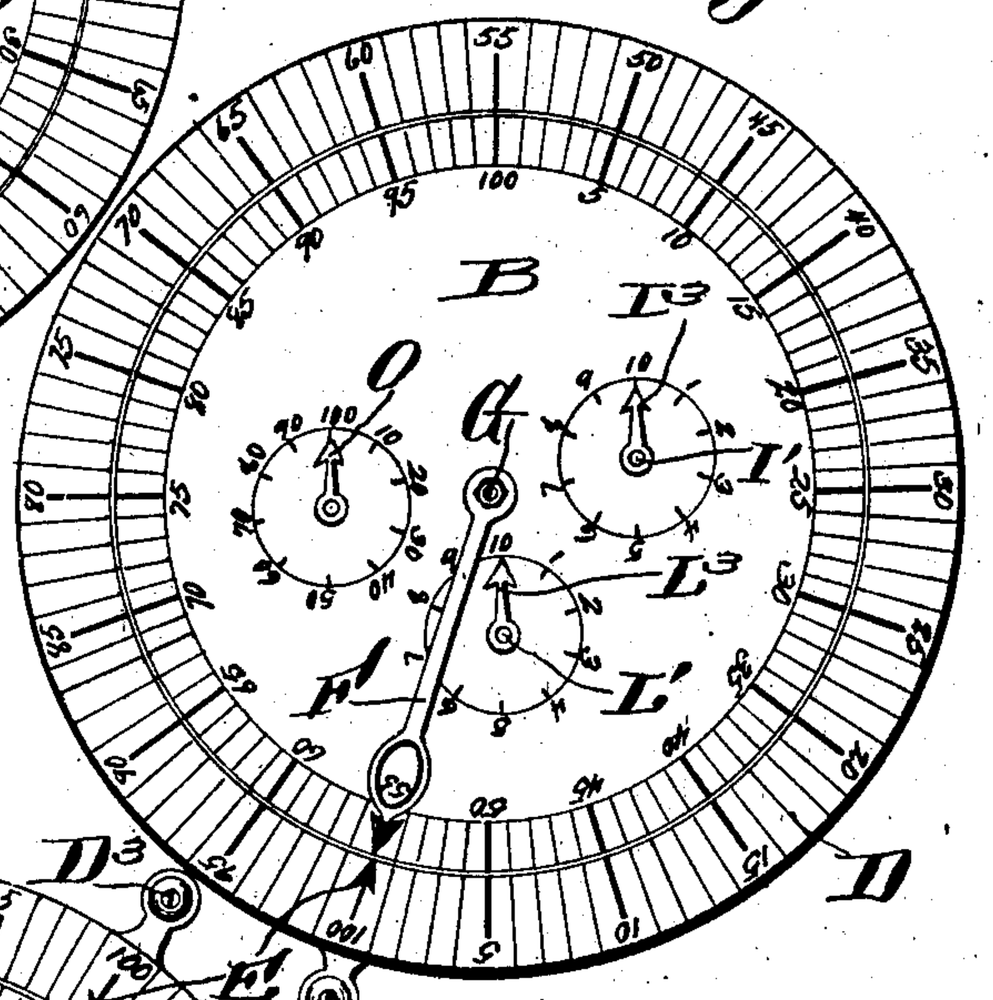
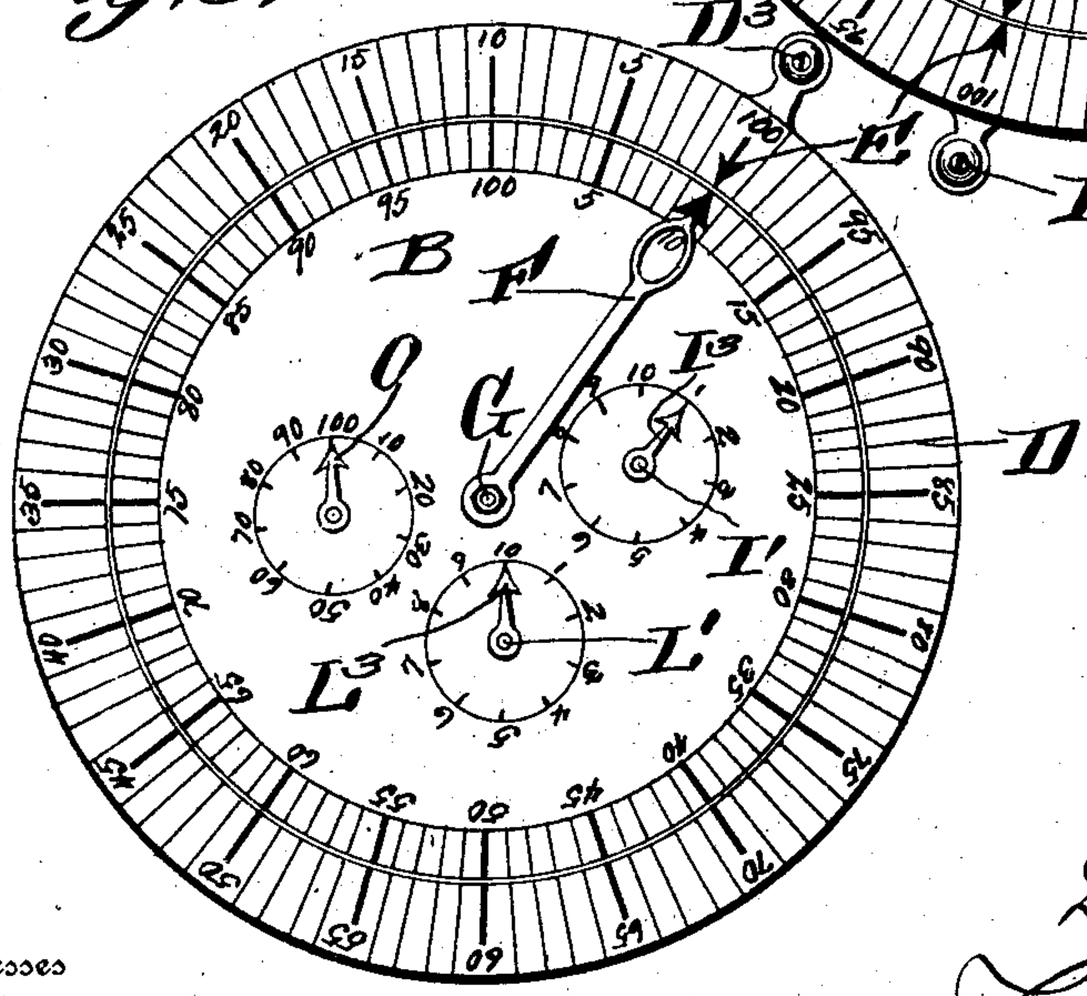


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

DANIEL B. BENTON, OF CLYDE, GEORGIA.

ADDING-MACHINE.

No. 916,411. Specification of Letters Patent. Patented March 30, 1909.

Application filed September 14, 1908. Serial No. 452,897.

To all whom it may concern:

Be it known that I, DANIEL B. BENTON, a citizen of the United States, residing at Clyde, in the county of Bryan and State of Georgia, have invented certain new and useful Improvements in Adding-Machines; and I 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in adding machines and the object in view is to produce a simple and efficient device of this nature so arranged that numerals of any denominations may be quickly added.

The invention comprises various details of construction, combinations and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claim.

I illustrate my invention in the accompanying drawings, in which:—

Figure 1 is a plan view of the apparatus showing the various pointers indicating zero. Fig. 2 is a similar view showing the parts in their relative positions and indicating the first numeral or numerals to be added. Fig. 3 is a similar view showing the second numeral or series of numerals to be added to the first numeral or numerals indicated at the end of the pointer in Fig. 2. Fig. 4 is a similar view showing the relative positions of the parts and indicating a third numeral or series of numerals to be added to the other two. Fig. 5 is a similar view showing the relative position of the parts indicating an additional numeral or numerals to be added to the others indicated in views 1 to 4 inclusive, and Fig. 6 is a cross sectional view through the adding device. Fig. 7 shows the relative position of the various gears in a horizontal plane with the casing removed.

Reference now being had to the details of the drawings by letter, A designates a casing to which the dial B is fixed and held stationary, said dial being divided off by radial lines into a number of sub-divisions. In the drawings, I have shown a hundred of these lines spaced apart and numbered from zero 5, 10 to 100.

D designates a graduated ring which rotates about the dial B and is rotated by a knob D^3 and, as noted in the cross sectional view of the drawings, the inner marginal edge of the dial B is beveled as at B′ and projects over a similar beveled edge D′ formed along the inner marginal edge of the opening of the ring D, said overlapping beveled edges serving to retain the ring D in place and still allow the same to turn freely upon said beveled edge and about the dial B. A ring R is fastened to tne dial B and has a central opening R′, said rings being adapted to turn together with a portion of the ring R positioned behind the dial B. Said ring D is sub-divided in a similar manner as is the dial B and bears the numerals grouped in the same way from zero to 100. A pointer E is fixed to the ring D and at the zero indication thereon. A pointer F is pivotally fixed to a central shaft G and is adapted to turn over the face of the dial B to indicate at any one of the numerals thereon.

Fixed to rotate with the shaft G is a pinion G′ which meshes with a gear wheel H mounted upon a shaft H′, and a pinion H^2 is fixed to rotate with the wheel H and is in mesh with a gear wheel I mounted upon the shaft I′ and to said gear wheel I is fixed a pinion I^2 which has fastened thereto an indicating pointer I^3 adapted to register over a dial bearing numerals from zero to 10 as shown. A gear wheel K, similar to the other gear wheels referred to, is mounted upon a shaft K′ and has a pinion K^2 fixed to move therewith which meshes with a gear wheel L mounted upon a shaft L′, and L^2 is a pinion wheel fixed to rotate with the gear wheel L and has an indicating pointer L^3 which is also adapted to indicate adjacent to the face of the dial sub-divided in the manner clearly described of the dial over which the pointer I^3 indicates. A third indicating pointer designated by letter O is mounted upon a pinion O′ and is operated by the intermeshing gears, in the manner shown so that each time the indicating pointer L makes one revolution the indicating pointer O will be moved one point or one tenth of the distance of its complete revolution thereof.

The operation of my adding apparatus is as follows:—Assuming that it is desired to add, for instance, the numerals 30, 25, 40 and 15, all of the indicating pointers are

placed to register zero in the manner shown in Fig. 1 of the drawings with the indicator F and the fixed indicator upon the graduated ring pointing toward each other. The first step in the operation of the machine to add the numerals referred to is by turning the graduated ring by taking hold of the knob thereon and causing the same to be given a partial revolution until the numerals 30 upon the ring register opposite the pointer F. Then the pointer F is given a partial rotary movement to bring the same to point toward the fixed indicating pointer upon said ring. When this has been done, the parts will assume the relative positions shown in Fig. 2 of the drawings in which the pointer F will register opposite 30 upon the dial B. The graduated ring is then rotated sufficiently to bring the numerals 25 opposite the end of the pointer F and then the pointer is moved to come into alinement with the fixed pointer upon the graduated ring and will indicate opposite 55 upon the dial B, being the sum of the two numerals 30 and 35 added together. The ring is then moved in order to bring 40, the third numeral to be added, so that it will come opposite the dial B and the pointer thence turned to indicate in alinement with the fixed pointer of the rotatable ring and in which position the pointer F will indicate 95 upon the dial B and, when the last numerals 15 are brought opposite the pointer F and the pointer brought into alinement with the fixed pointer upon the ring, the dial B will have made a complete revolution and 110 will register opposite the pointer upon the dial B, making the total amount 110. As the dial B makes a complete revolution, the pinion fixed to its inner end will have imparted an intermittent movement of one space to the pointer I^3 through the medium of the intermeshing gear wheels. Each time the pointer F makes a revolution, an additional intermittent movement is imparted to the pointer I^3 and, at ten revolutions of the pointer F, the pointer I^3 will have made one revolution or indicating 1000. Each time the pointer I^3 makes a revolution, an intermittent movement of one space is imparted to the indicating pointer L^3 which makes a complete revolution every ten revolutions of the pointer I^3 and so on indicating from 1000, 10,000, 100,000 and so on.

While I have shown an adding device subdivided each dial into one hundred spaces, it will be understood that the sub-divisions may be larger, 1000 if desired without departing from the spirit of the invention.

From the foregoing, it will be noted that, by the provision of an adding machine as shown and described, a simple and efficient device is afforded whereby numerals of any size may be quickly and mechanically added, the total sum being indicated upon the various indicating dials.

What I claim to be new is:—

An adding device, comprising a casing having a circumferential wall with flanged edges, an apertured disk fastened to one of said flanges, a dial fixed to said disk and provided with an inwardly inclined beveled edge, a movable graduated ring having its inner marginal edge beveled and engaging the beveled edge of said dial, the outer edge of said ring projecting beyond the circumference of the casing, shafts supported in suitable bearings in the rear wall of said casing and said dial, intermeshing gear wheels for operating said shafts, and indicating pointers upon the latter, as shown and described.

In witness whereof I hereunto affix my signature in the presence of two witnesses.

DANIEL B. BENTON.

Witnesses:
J. E. WARREN,
E. BENTON.