

E. B. ALLEY.
CALCULATING DEVICE.
APPLICATION FILED MAY 10, 1902.

NO MODEL.

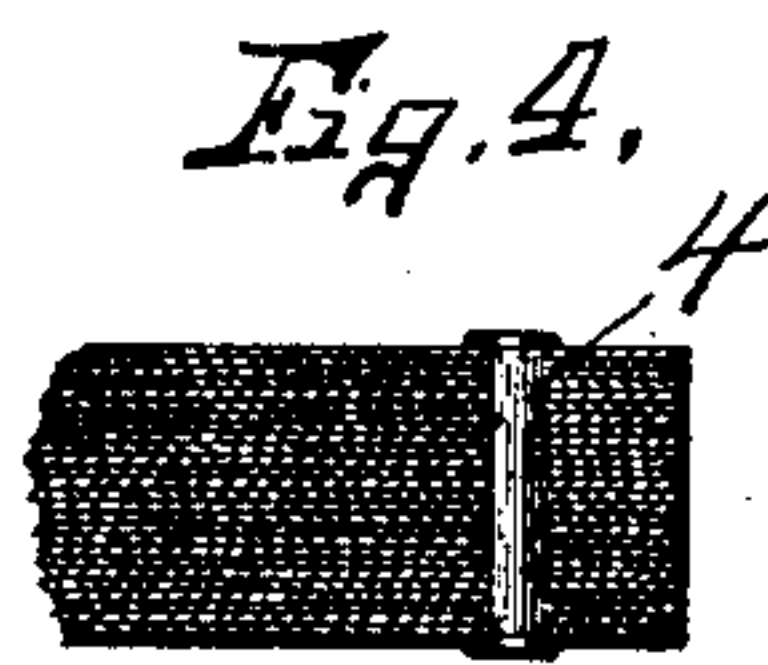
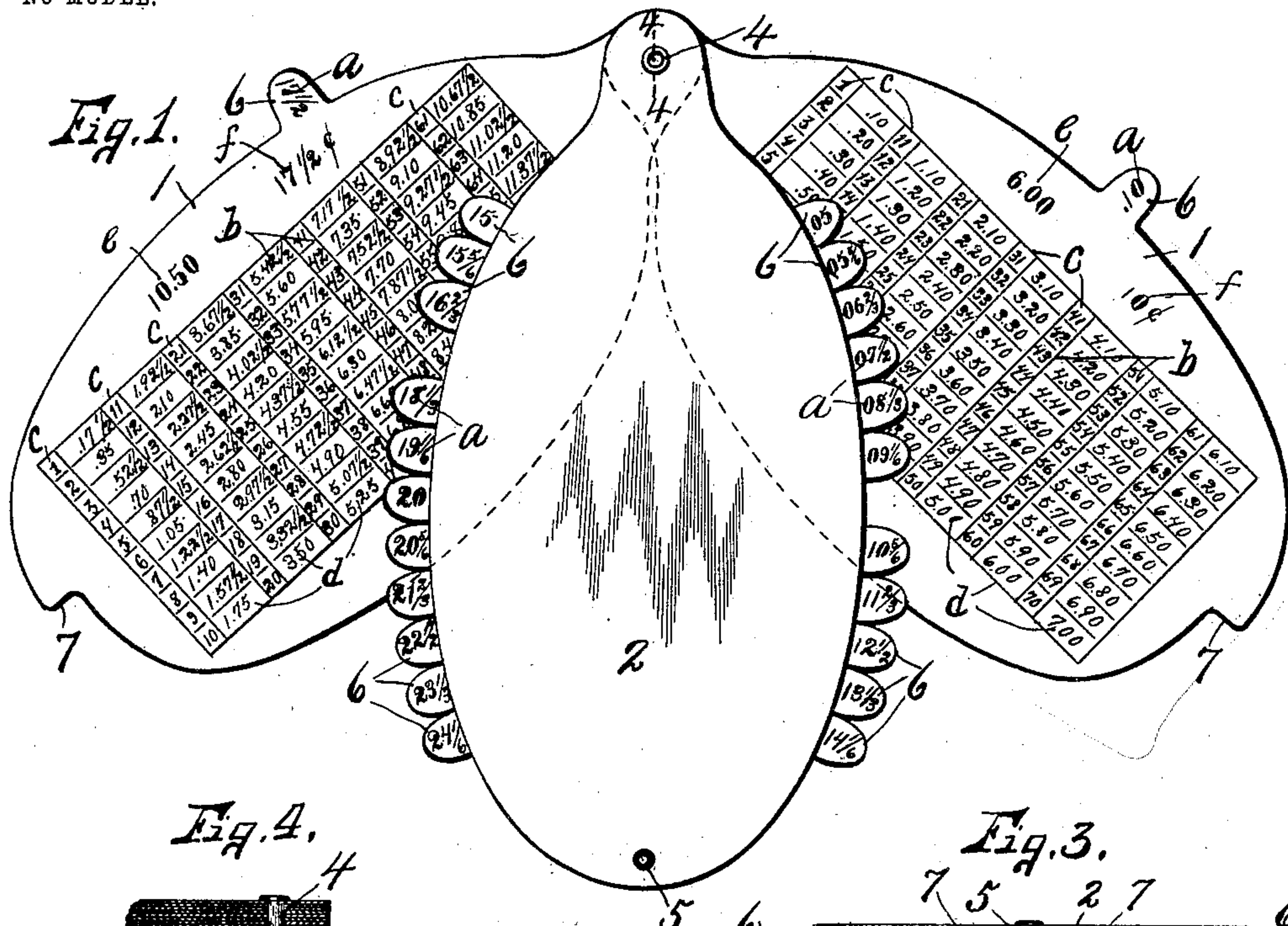
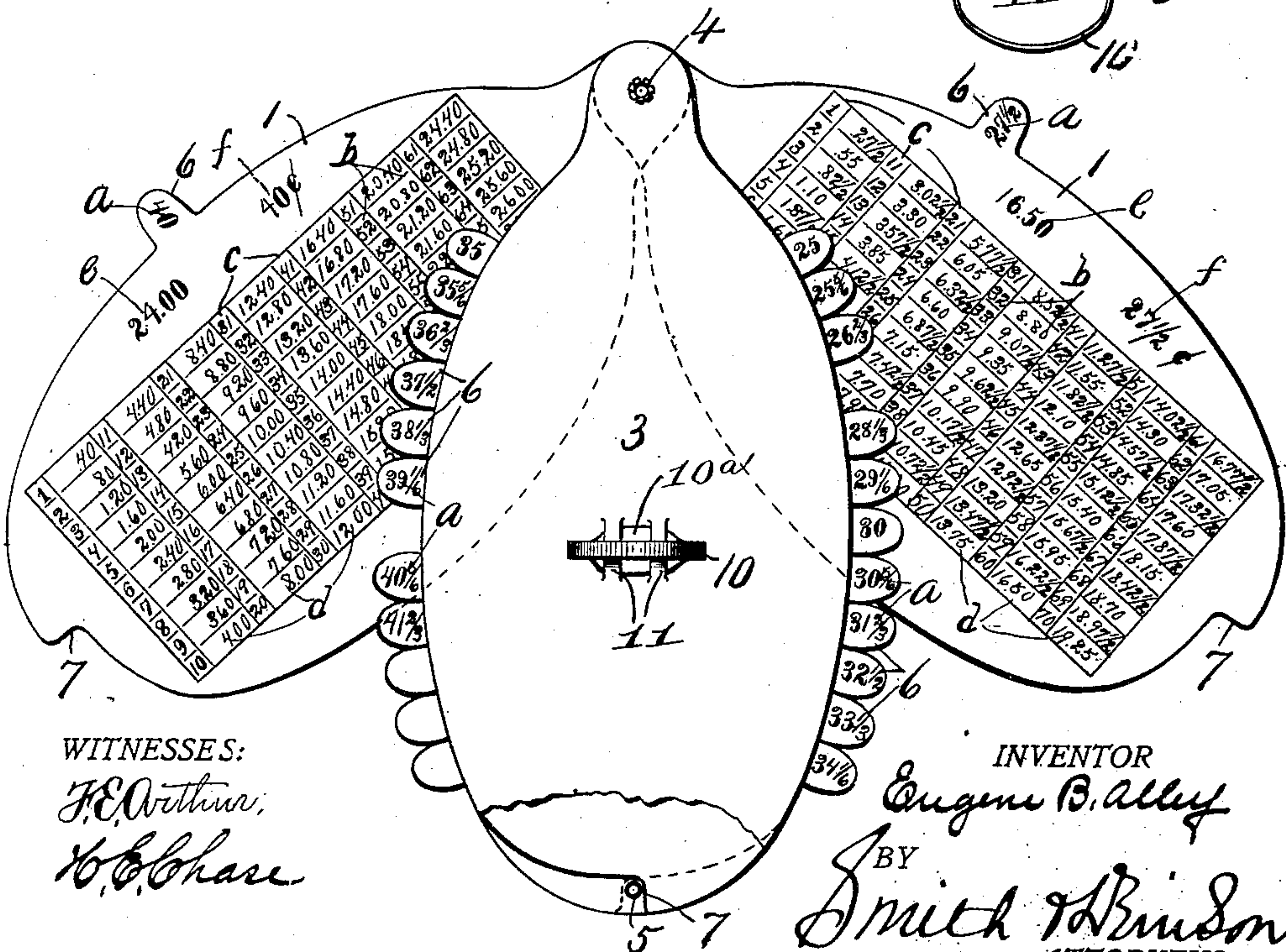
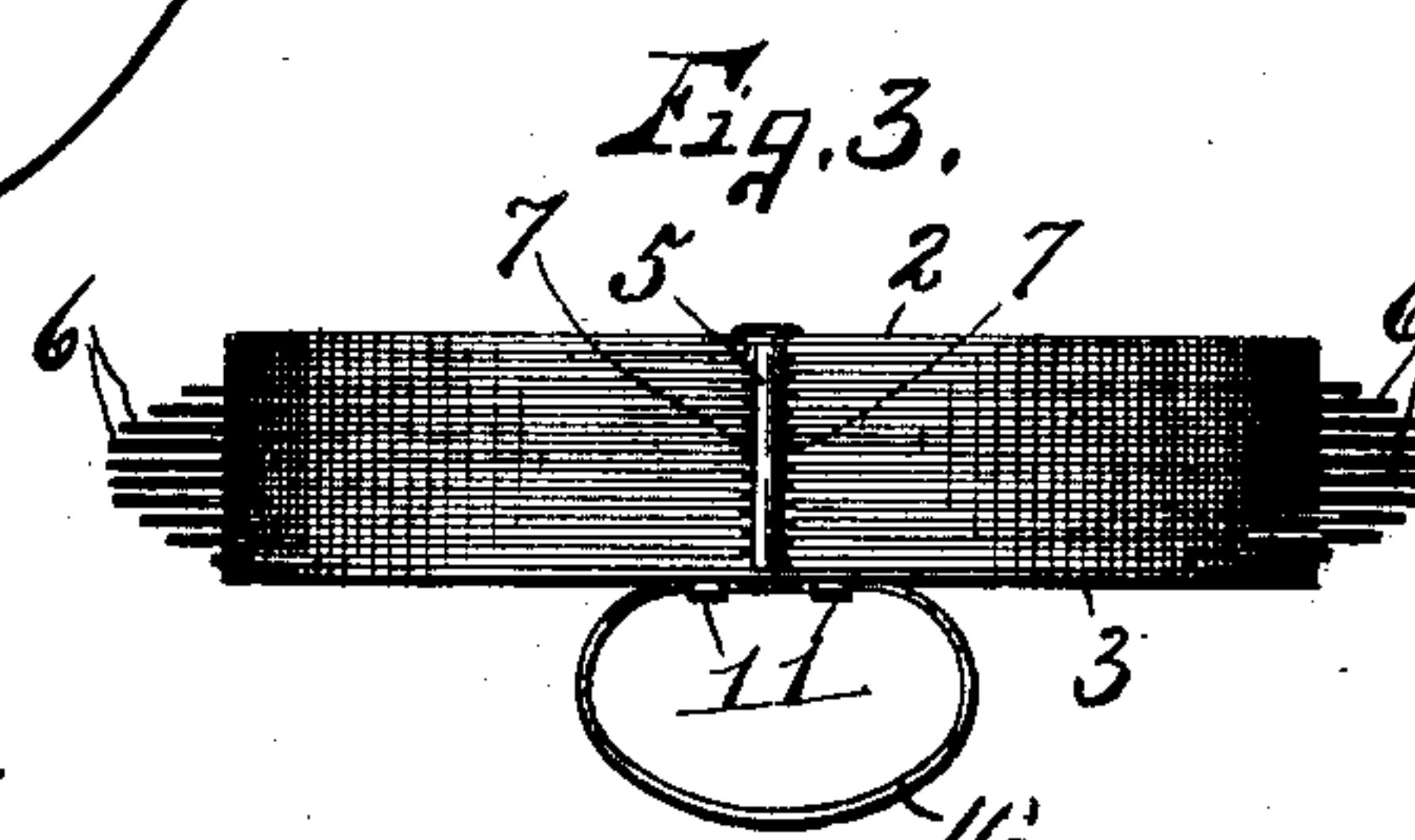


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EUGENE BLISH ALLEY, OF ARLINGTON HEIGHTS, MASSACHUSETTS.

CALCULATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 733,930, dated July 21, 1903.

Application filed May 10, 1902. Serial No. 106,801. (No model.)

To all whom it may concern:

Be it known that I, EUGENE BLISH ALLEY, of Arlington Heights, in the county of Middlesex, in the State of Massachusetts, have invented new and useful Improvements in Calculating Devices, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in calculating devices, being particularly applicable for calculating wage earnings and to be used in making up a pay-roll.

The object of this invention is to produce a simple, compact, and efficient device by which the total earnings or wages for consecutive units of time at predetermined rates per unit can be readily and accurately determined without the necessity for any calculation.

To this end the invention consists in the combination, construction, and arrangement of the parts of a calculating device, as hereinafter fully described, and pointed out in the claim.

Referring to the drawings, Figures 1 and 2 are respectively obverse and reverse face views of my improved calculating device, some of the plates being extended for the purpose of revealing the tabulations. Fig. 3 is an end view of the device seen in Figs. 1 and 2, showing particularly the abutment and finger-ring, the plates being shown in their closed position. Fig. 4 is a sectional view taken on line 4-4, Fig. 1.

Similar reference characters indicate corresponding parts in all the views.

As seen in the drawings, this invention consists, essentially, of a series of plates 1, pivotally connected at one end to a suitable enclosing case or frame, consisting of separated upper and lower walls 2 and 3, the opposite ends of said walls being united by studs 4 and 5, which serve to hold the walls in separated relation to each other, the stud 4 serving as a pivot for the several plates 1, and the studs 5 form an abutment for engaging and limiting the inward movement of the opposite ends of the plates 1. The plates 1 and the walls 2 and 3 are preferably of substantially the same form, said plates being arranged one over the other between the walls 2 and 3.

As seen in the drawings, the plates 1 and walls 2 and 3 consist of substantially flat pieces or sheets of suitable material, the walls 2 and 3 being formed of celluloid, metal, or any other material adapted to receive and maintain the plates 1. These latter plates 1 may also be of any desired material—such as celluloid or cardboard, preferably the latter—and are pivotally mounted one over the other upon the stud 4, each of said plates being provided with a laterally-projecting tab 6, which projects beyond the lateral edges of the upper and lower walls 2 and 3 when the plates are in their closed position. The adjacent plates 1 are arranged to swing laterally in opposite directions into and out of engagement with the opposite faces of the abutment or stud 5, said plates being provided with abutting shoulders 7 for engaging said abutment 5 and limiting the inward swing of the plates. The tabs 6 of adjacent plates are secured to opposite edges of their respective plates, and these tabs are arranged out of vertical alinement with each other in order that each may be visible when the plates are moved to their closed position.

Upon each of the tabs 6 are printed numerals *a*, indicating the wage earnings for a unit of time—as, for instance, the tab at the right of Fig. 1 bears the numeral “10,” which indicates the wage earnings for one hour of time or ten cents an hour, while the tab at the left indicates wage earnings at seventeen and one-half cents per hour. In like manner the opposite faces of said tabs are printed with different numerals to indicate different prices per hour, as seen in Fig. 2. The opposite faces of the body or central portion of each of the plates are also provided with tables *b*, consisting of a series of columns *c* of consecutive numerals indicating consecutive hours, in this instance from “1” to “70,” inclusive, this being the number of hours for seven days or a full week with an average for each day of ten hours, each column containing a number of hours corresponding to a day's work—as, for instance, the first column numbers from “1” to “10” and the second column from “11” to “20” and the third column from “21” to “30,” and so on, each successive column containing ten consecutive numbers. As previously stated, the printed

numeral on the tab of each plate indicates the wage earnings per hour, and in order to readily determine the total earnings for any number of units of time I provide the table 5 with additional columns *d* of numerals, which are multiples of the numerals upon the same face of the tab 5. These numerals in the column *d* are alined with the numerals in the column *c*, and the numeral in any particular line is a product of the corresponding number in that line multiplied by the numeral on the corresponding face of the tab 5. For instance, an employee working eight hours at seventeen and one-half cents an hour is readily seen to amount to one dollar and forty cents, and one working seventeen hours at seventeen and one-half cents, indicated by the tab, is apparent in the second column *d*, at the left of Fig. 1, to be two dollars and ninety-seven and one-half cents, and so on, each number of hours at the indicated price per hour upon the tab the total earnings for any number of hours may be readily ascertained. It is customary in most places where help is employed to limit the week's labor to six days. The tabulated faces of each plate are provided with numerals *e* and *f*, the numerals *e* indicating the wage earnings for the full week of six days, ten hours per day, or sixty hours, at the price per hour as indicated by the numeral on the tab and also by the numeral *f*, which is simply a duplicate of the similar numeral on the tab. I also print upon the faces of each of the plates, usually beneath the table *f*, the wage earnings for fractions of an hour at the price per hour indicated on the tab—as, for instance, when the tab indicates wage earnings at ten cents per hour, the fourth of an hour computed to be two and a half cents; one-half hour, five cents; three-fourths hour, seven and a half cents—which may be readily added to the totals indicated after each numeral in the column *c*. For example, suppose a workman receives seventeen and a half cents an hour, as indicated on the tab on the plate at the left of Fig. 1, and his total time for the week was sixty-three and a

half hours. Then the timekeeper finds upon the table "63" in the last column *c*, and immediately after that the total earnings for the sixty-three hours to be eleven dollars and two and a half cents, and at the bottom of the card or plate he finds the earning for a half hour to be eight and three-fourths cents, which the timekeeper then adds to the total of eleven dollars and two and a half cents and readily obtains the full earnings to which the employee is entitled.

In order to enable the time or book keeper to readily manipulate the cards, I provide the device with a suitable finger ring or loop 10, which is usually secured to the bottom plate in any desired manner and facilitates the holding of the device when the pay-roll is being made up from the figures on the plates: The ring 10 is provided with a flat enlarged portion 10^a, whereby it can be held firmly in the keepers 11.

The operation of my invention will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be noted that the exact form of the case and plates is immaterial and may be changed without departing from the spirit of the invention.

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

The combination with the frame comprising upper and lower walls, and the plurality of the plates pivotally mounted between said walls, and a pair of spaced-apart keepers formed integrally with one of the said walls, and the ring having a flat enlarged portion arranged between the said keepers and engaging the adjacent wall whereby the said ring is prevented from tilting.

In witness whereof I have hereunto set my hand this 7th day of May, 1902.

EUGENE BLISH ALLEY.

Witnesses:

ELIZABETH W. CARTER,
ARTHUR F. BREED.