(No Model.)

E. HALSEY.

TAX AND PERCENTAGE CALCULATOR.

No. 344,182. Patented June 22, 1886.

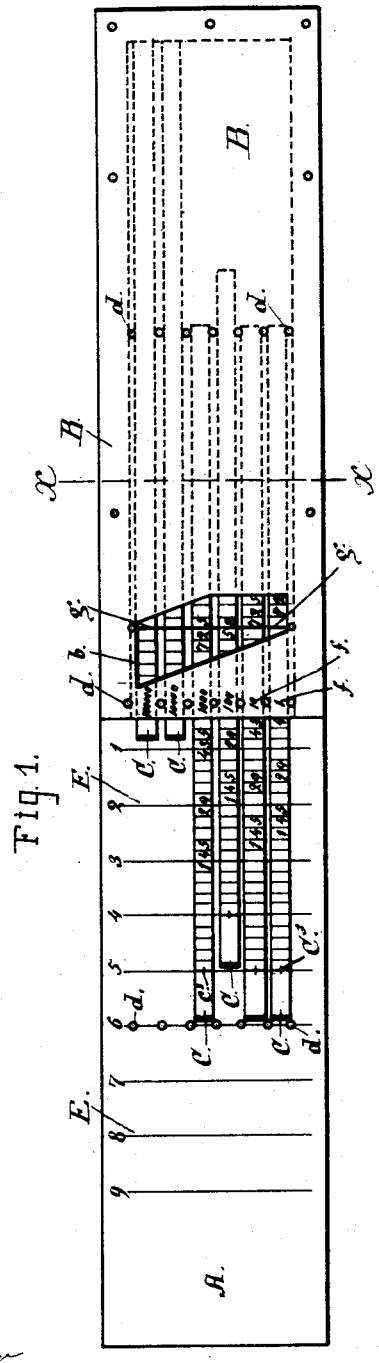

Fig. 1.

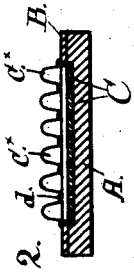

Fig. 2.

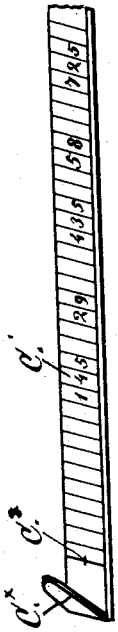

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

EDWARD HALSEY, OF SAN JOSÉ, CALIFORNIA.

TAX AND PERCENTAGE CALCULATOR.

SPECIFICATION forming part of Letters Patent No. 344,182, dated June 22, 1886.

Application filed September 28, 1885. Serial No. 178,480. (No model.)

To all whom it may concern:

Be it known that I, EDWARD HALSEY, a citizen of the United States, residing in San José, in the county of Santa Clara and State of California, have invented a certain new and useful Improvement in Tax and Percentage Calculating Machines, of which the following is a specification.

My invention has for its object to provide a machine or mechanical contrivance to perform calculations in tax and percentage, for the purpose of facilitating such operations and reducing the mental labor.

To construct and produce a machine for computing the tax on any given amount at a fixed rate, I proceed as follows, the accompanying drawings, that form a part of this specification, being referred to by figures and letters.

In the drawings, Figure 1 is a top view of the machine. Fig. 2 is a cross-section at any point, as *x x;* and Fig. 3 is a view of a portion of one of the slides.

A represents a suitable board or tablet, forming the base of the machine, and B a top plate covering about one-half of the surface, and also raised above this covered portion sufficiently to afford a space or way for a number of slides, C C. By means of the pins *d d*, placed in rows across the board, this space is divided into separate grooves to hold and guide the slides, which are fitted to move easily out from under the plate and in again. The end of each slide is turned up to form a stop, $C^{\times}$, that serves also for a finger-piece to work the slide. At the inner edge of the top plate, B, is an opening, *b*, of peculiar shape, that uncovers and exposes to view a portion of each slide upon both sides of a fixed line, *g*. Its peculiar shape, as seen in Fig. 1, is given for the purpose of uncovering only the figures or such portions of the whole set of slides as are necessary to be read in performing ordinary calculations, and the opening has at the bottom greater width on the right of the line *g* at the left, while from this point the opening regularly increases in width upward to the top slide on the left-hand side of the line. On the face of the board, to the left of the plate B, are transverse parallel lines E, set at equal distance apart, numbered from 1 to 9, inclusive, and each slide C has its face divided by parallel cross-lines C^2 into spaces of equal size, of which any five correspond in width to the distance between any two lines E on the board.

The machine herein described having six slides will perform calculations on figures to the sixth place in one hundred thousands, and the slides are designated by the scale seen at *f* along the inner edge of the top plate. The lowermost slide is appropriated for units and is marked "1," the second "10," the third "100," and so on to the topmost slide, "100,000." The several slides are marked on their spaces according to that percentage or rate on the $100 upon which all the calculations to be performed by the machine are based.

The rate taken for the machine shown in the drawings is $1.45 on the $100, and the slides are marked as follows: Draw out all the six slides until their pointers C^3 register with line 1 on the board, then on the third or hundredth slide mark the figures 145 in the space exposed through the opening *b* in such position that the figure 1 shall lie on the left of the line, *g* and the figure 45 on the right. The second or tens slide will have the same figures repeated, but in suitable position to bring the first figure, 1, one space farther to the right, or in the cents column, and in the same manner repeating the rate 145 on the first slide. Upon the remaining slides above the hundreds or third slide the rate figures are marked in such order that they advance one space to the left of the line *g* for each slide in succession, this being equivalent to multiplying the rate figures by 10 for each slide. After these figures are so placed the amount representing the tax on $200 at the same rate is obtained by calculating, and then marked on the hundreds or third slide in such position that when the slide is drawn out to line 2 the figures showing this amount will be visible in the opening *b*, and in position as required on the proper sides of the line *g* to divide the dollars and cents. In this case the figures required are 29, and these are repeated upon all the slides, but with such change in position that they advance one space to the left in succession on those slides above the third one, and are moved one space to the right or decreased by ten below it; and in like manner the amount on each succeeding hundred is first calculated

for the sums represented by the remaining figures of the lines E, first for the third or hundreds slide, and then properly marked and located on the other slides above and below. Thus it will be obtained for each slide the numbers 145, 29,435, 58,725, &c., representing the amount of tax $100, $200, $300, $400, $500, &c., and being arranged upon the several slides, as before explained, there will be shown to view through the opening *b* that amount of tax at the rate of $1.45 on the hundred which is required to be known on any given sum from one cent up to six places of figures.

To find, for example, the tax on $5,455.00 at the rate of $1.45 on the $100, the fourth or thousands slide is drawn out to the line 5 on the board, the third slide to the fourth line, and the second and first slides to the fifth line. The several sums shown up in the slides in the opening are then to be added:

72.50
5.80
.725
.072

$79.097,

which is the amount of tax in the given sum.

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

The combination of the board A, the top plate, B, having the irregularly-shaped opening *b*, across which is stretched the thread or wire *g* transversely to the top plate, the spaced and numbered lines E on the left portion of the board A, and the series of parallel longitudinal slides C, each having an end stop, $C^{\times}$, and adapted to be moved out and in underneath the top plate and confined and guided in their movements by pins *d d*, and each of said slides being further provided on its upper face with spaces or divisions having figures which are based on a given percentage or tax rate, and are produced by regularly increasing and decreasing the same above and below hundreds by ten, all arranged and operating substantially in the manner shown, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

EDWARD HALSEY. [L. S.]

Witnesses:
C. W. M. SMITH,
CHAS. E. KELLY.