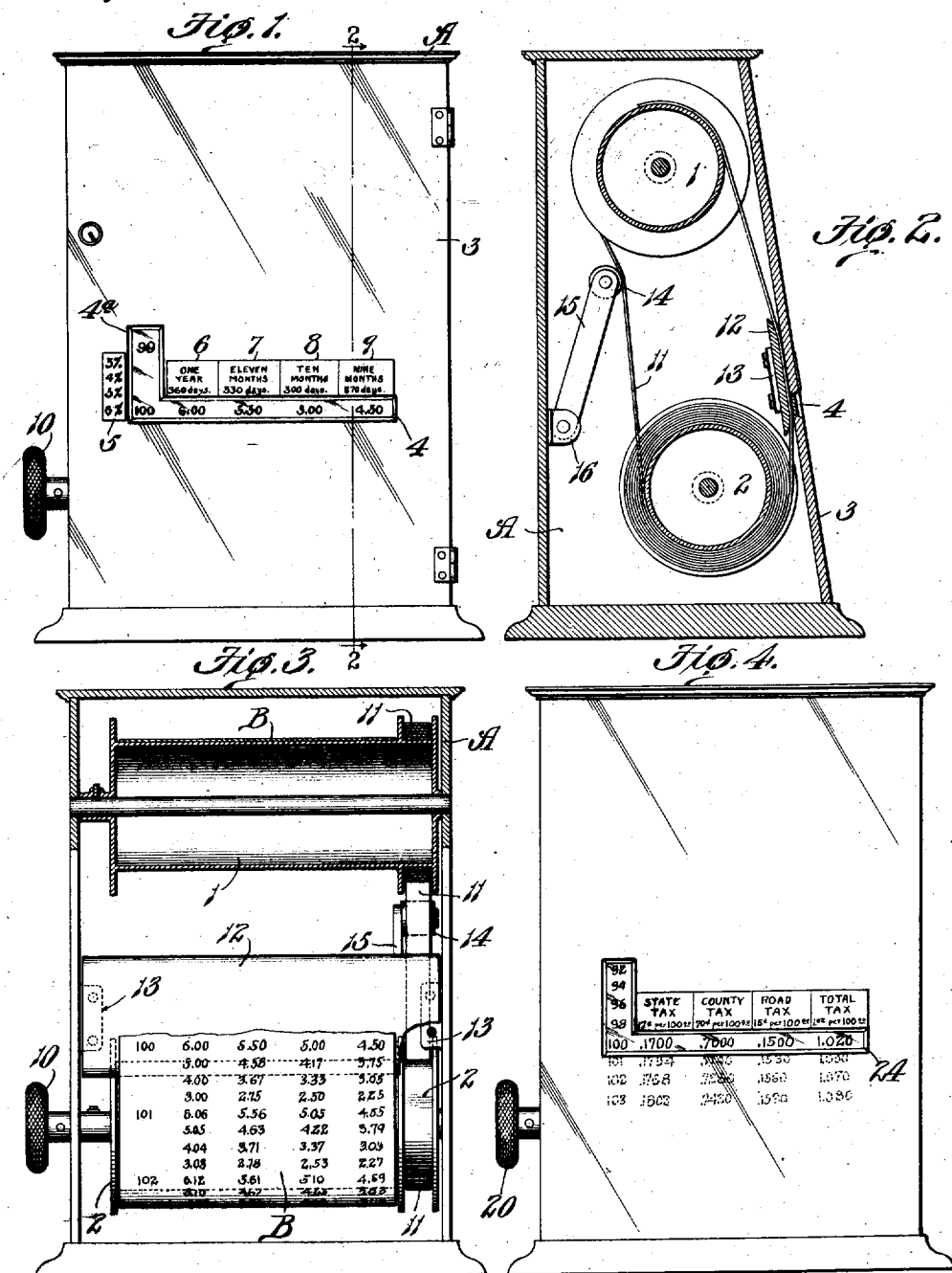


N. R. LONG.
 CALCULATING DEVICE.
 APPLICATION FILED JULY 2, 1909.

979,678.

Patented Dec. 27, 1910.



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UNITED STATES PATENT OFFICE.

NIM R. LONG, OF TROY, MISSOURI.

CALCULATING DEVICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NIM R. LONG, a citizen of the United States, residing at Troy, Missouri, have invented a certain new and useful Improvement in Calculating Devices, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention relates to calculating devices, and particularly to that type which comprise a long flexible strip that is adapted to be wound from one roller onto another roller so as to bring characters or numbers 15 on said strip adjacent to a cooperating scale or indicator.

The main object of my present invention is to provide a calculating device of simple construction that can be manufactured at a low cost and which will not be apt to get out of order.

Figure 1 is a front elevational view of an interest calculating device constructed in accordance with my invention; Fig. 2 is a vertical sectional view taken on approximately the line 2--2 of Fig. 1; Fig. 3 is a front elevational view of the device with the front door of the casing removed and the upper roller in section so as to more clearly illustrate the construction of the device; and Fig. 4 is a front elevational view of a tax calculator constructed in accordance with my invention.

While I have herein illustrated my invention embodied in devices for calculating interest and taxes I do not wish it to be understood that my broad idea is limited to calculating devices of this character for the characters or numbers on the flexible strip and on the cooperating scale or indicator could be modified in various ways so as to enable the device to be used for calculating numerous other things.

Referring to Fig. 1 of the drawings which illustrates an interest calculating device constructed in accordance with my invention, A designates a casing or cabinet inside of which an upper roller 1 and a lower roller 2 are arranged, and B designates a long flexible strip or sheet whose opposite ends are connected to said rollers. This strip B is provided with a plurality of vertical columns of numbers which designate different amounts of money, and the front wall or door 3 of the casing is provided with an opening that exposes said numbers to view.

I prefer to provide the front wall 3 with a long narrow horizontal slot 4 that is just wide enough to permit one number of each of the second, third, fourth and fifth columns on the strip to be seen, and a vertical slot 4^a is formed in said front wall at the left-hand end of the slot 4 so as to expose several of the numbers of the first left hand column on the strip.

A scale or indicator 5 is arranged adjacent the left-hand side of the vertical slot 4^a on the outside face of the front wall of the cabinet so that it can be seen easily by the operator, and in an interest calculator as shown in Fig. 1, said scale will consist of a vertical column of figures with a % sign placed at one side of each figure. Headings 6, 7, 8 and 9, which designate periods of time, are arranged above the horizontal slot 4 on the front wall of the cabinet in alinement with the second, third, fourth and fifth columns, respectively, on the strip B, the heading 6 for the second column being one year, for example, and the headings 7, 8 and 9 for the third, fourth and fifth columns being eleven, ten, and nine months, respectively. The numbers in the first column on the strip are separated from each other a greater distance than the numbers in the other columns on said strip, as shown in Fig. 3, so that each number in the first column can be arranged in horizontal alinement with each character on the scale 5 without bringing one of the other numbers in said first column in horizontal alinement with the characters on the scale. For example, if it is desired to compute the interest on \$100 at six per cent. the strip B will be moved until the number 100 is arranged in horizontal alinement with the character 6% on the scale 5. The operator can then run his eye across the horizontal slot 4 in the front wall of the casing and the numbers on the strip B which are exposed in said slot will indicate the interest on \$100 at 6% for one year, for eleven months, for ten months, and for nine months. If it is desired to compute the interest on \$100 at five per cent. the strip B will be moved until the number 100 is in horizontal alinement with the character 5% on the scale 5, the numbers on the strip which then appear in the horizontal slot 4 indicating the interest on \$100 at 5% for the various periods referred to in the headings above the slot 4. In computing compound interest,

for example, the interest on \$100 at six per cent. for one year and nine months, the operator first determines the interest on \$100 for one year which is \$6.00 and then moves the strip B until the number 106 is in horizontal alinement with the character 6% on the scale 5. He then glances at the exposed number in the nine-month column and sees that it is 4.77 which he adds to the number 6.00, thus obtaining 10.77 which indicates the compound interest on \$100 for one year and nine months at 6%. While I have herein shown a device that is only arranged for computing interest at 3, 4, 5 and 6% for one year, eleven months, ten months and nine months, it will, of course, be obvious that the strip and scale could be provided with more numbers or fewer numbers without departing from the spirit of my invention.

I prefer to secure the upper and lower rollers 1 and 2 to shafts which are journaled in the side walls of the casing A and provide one of said shafts, preferably the shaft of the lower roller, with a handle or knob 10 by which it can be turned. In view of the fact that the opposite ends of the strip B are connected to said rollers the strip will be wound from the upper roller onto the lower roller when the handle 10 is turned clockwise, and the reverse movement of the strip is effected by means of a band 11 which is connected to the rollers in such a manner that the strip will be wound from the lower roller onto the upper roller when the handle 10 is turned anti-clockwise. The strip B preferably passes between the rear side of the front wall of the casing and a guide member 12 which is fastened to lugs 13 on the side walls of the casing, and a gravity roller 14 is provided for taking up the slack in the band 11 so as to keep the strip B taut, said roller 14 being carried by an arm 15 that is pivotally connected at its lower end to a bracket 16 inside of the casing. While I have herein shown a single strip B provided with a plurality of separate columns, it will, of course, be obvious that the same results could be obtained by using a plurality of separate strips arranged side by side and each having a single column. Therefore, I wish it to be understood that the term "strip" herein used refers either to a single sheet or strip provided with separate columns or a plurality of narrow strips provided with individual columns.

The main advantage of a computing device of this construction is that it comprises very few parts so that it can be manufactured cheaply and is not liable to get out of order.

Another advantage is its simplicity of operation as any one with ordinary intelli-

gence can quickly compute compound interest or simple interest by merely rotating the handle 10 until the amount on which the interest is to be determined comes into horizontal alinement with the character on the scale 5 that designates the rate of interest.

In Fig. 4 I have shown a tax calculator or computing device constructed in accordance with my invention. In this device the numbers in the first left hand column on the strip designate the valuations of property, those in the second column the State tax figured at a certain rate, those in the third column the county tax figured at a different rate, those in the fourth column the road tax figured at a different rate, and those in the fifth column the total tax. In calculating the taxes on property valued at \$100 for example, the operator turns the handle 20 until the number 100 lies just above the lower edge of the horizontal slot 24 in the front wall of the casing. He then glances along the slot and the numbers on the strip that are exposed to view will indicate the State, county, and road taxes on said property and also the total tax for said property. It will, of course, be obvious that the device could be arranged for calculating various other taxes so that I do not wish it to be understood that my broad idea is limited to the exact construction herein shown.

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

An interest-computing device, comprising a casing provided with a vertical opening and a horizontal opening in one wall thereof, a scale arranged at one side of said vertical opening and consisting of a vertical column of figures with % signs placed at one side of the same, a flexible member arranged inside of said casing and provided with a plurality of vertical columns of numbers that can be seen through the horizontal opening in said casing, the numbers in each column being spaced apart the same distance as the figures of said scale, an independent vertical column of numbers on said flexible member arranged in alinement with the vertical opening in said casing and spaced apart from each other a distance equal to the length of said scale, and means for moving said flexible member so as to bring the numbers of said independent column into alinement with one or the other figures of said scale.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this 29th day of June 1909.

NIM R. LONG.

Witnesses:

PORTER JONES,
JAMES V. MOXLEY.