

F. A. BORST.

TAX AND PERCENTAGE COMPUTATION DEVICE.

(Application filed July 24, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

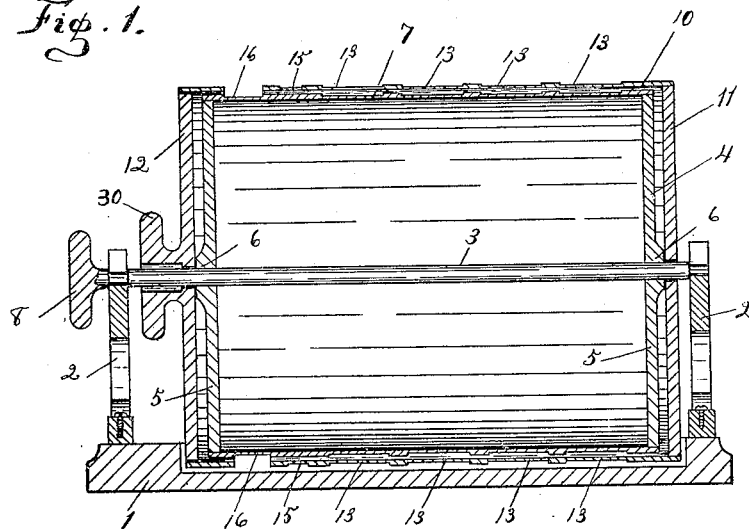
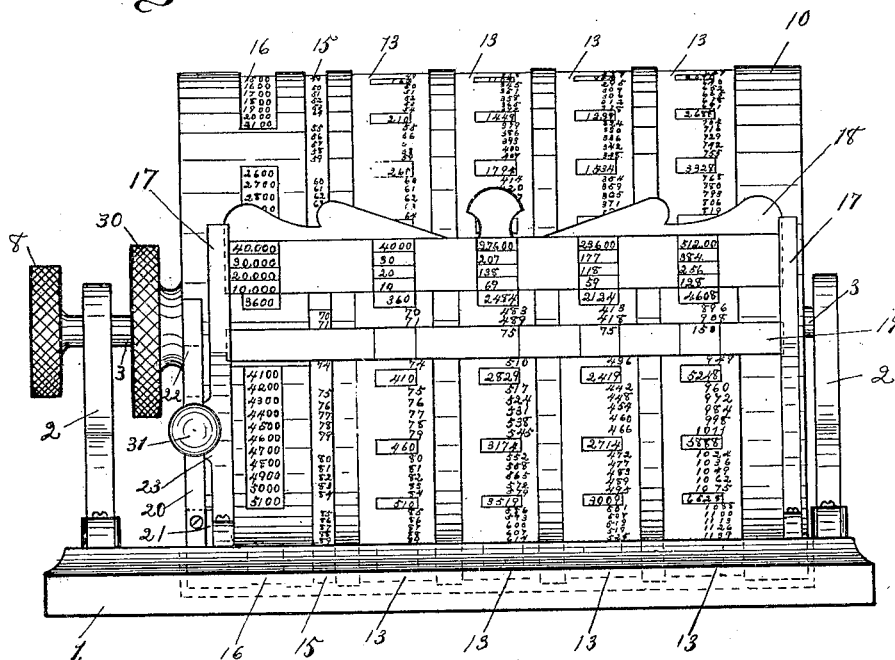


Fig. 2.



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No. 648,584.

Patented May 1, 1900.

F. A. BORST.

TAX AND PERCENTAGE COMPUTATION DEVICE.

(Application filed July 24, 1899.)

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2 Sheets—Sheet 2.

Fig. 3.

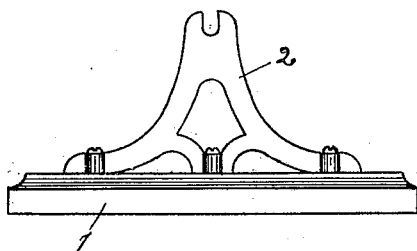
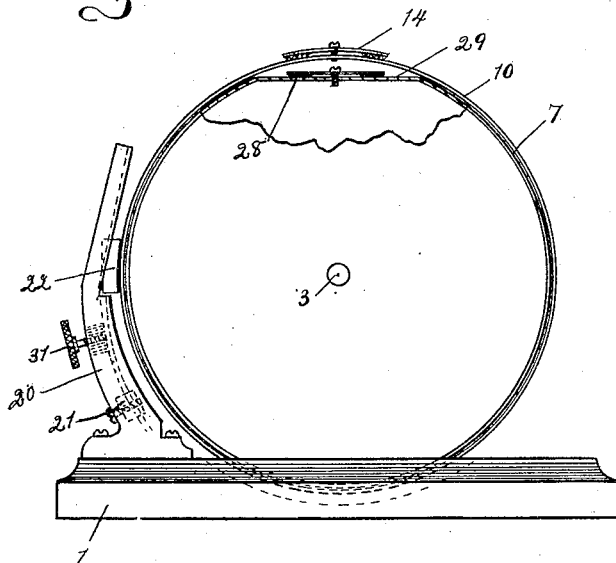


Fig. 4.

| Val. 100 1000 | Rate Per 100 Val. | Val. 1 100 | Rate Per 100 Val. |
|---------------------|----------------------|------------------|----------------------|
| | 1.28 | | 1.28 |
| 100 | 1.28 | 1 | 1.2 |
| 200 | 2.56 | 2 | 2.5 |
| 300 | 3.84 | 3 | 3.8 |
| 400 | 5.12 | 4 | 5.1 |
| 500 | 6.40 | | |
| 600 | 7.68 | 5 | 6.4 |
| 700 | 8.96 | 6 | 7.6 |
| 800 | 10.24 | 7 | 8.9 |
| 900 | 11.52 | 8 | 10.2 |
| 1000 | 12.80 | 9 | 11.5 |
| 1100 | 14.08 | | |
| 1200 | 15.36 | 10 | 12.8 |
| 1300 | 16.64 | 11 | 14.0 |
| 1400 | 17.92 | 12 | 15.3 |
| 1500 | 19.20 | 13 | 16.6 |
| 1600 | 20.48 | 14 | 17.9 |
| | | 15 | 19.2 |
| | | 16 | 20.4 |
| | | 17 | 21.7 |
| | | 18 | 23.0 |
| | | 19 | 24.3 |
| | | 20 | 25.6 |
| | | 21 | 26.9 |
| | | 22 | 28.2 |
| | | 23 | 29.5 |
| | | 24 | 30.8 |
| | | 25 | 32.1 |
| | | 26 | 33.4 |
| | | 27 | 34.7 |
| | | 28 | 36.0 |
| | | 29 | 37.3 |
| | | 30 | 38.6 |
| | | 31 | 39.9 |
| | | 32 | 41.2 |
| | | 33 | 42.5 |
| | | 34 | 43.8 |
| | | 35 | 45.1 |
| | | 36 | 46.4 |
| | | 37 | 47.7 |
| | | 38 | 49.0 |
| | | 39 | 50.3 |
| | | 40 | 51.6 |
| | | 41 | 52.9 |
| | | 42 | 54.2 |
| | | 43 | 55.5 |
| | | 44 | 56.8 |
| | | 45 | 58.1 |
| | | 46 | 59.4 |
| | | 47 | 60.7 |
| | | 48 | 62.0 |
| | | 49 | 63.3 |
| | | 50 | 64.6 |
| | | 51 | 65.9 |
| | | 52 | 67.2 |
| | | 53 | 68.5 |
| | | 54 | 69.8 |
| | | 55 | 71.1 |
| | | 56 | 72.4 |
| | | 57 | 73.7 |
| | | 58 | 75.0 |
| | | 59 | 76.3 |
| | | 60 | 77.6 |
| | | 61 | 78.9 |
| | | 62 | 80.2 |
| | | 63 | 81.5 |
| | | 64 | 82.8 |
| | | 65 | 84.1 |
| | | 66 | 85.4 |
| | | 67 | 86.7 |
| | | 68 | 88.0 |
| | | 69 | 89.3 |
| | | 70 | 90.6 |
| | | 71 | 91.9 |
| | | 72 | 93.2 |
| | | 73 | 94.5 |
| | | 74 | 95.8 |
| | | 75 | 97.1 |
| | | 76 | 98.4 |
| | | 77 | 99.7 |
| | | 78 | 101.0 |
| | | 79 | 102.3 |
| | | 80 | 103.6 |
| | | 81 | 104.9 |
| | | 82 | 106.2 |
| | | 83 | 107.5 |
| | | 84 | 108.8 |
| | | 85 | 110.1 |
| | | 86 | 111.4 |
| | | 87 | 112.7 |
| | | 88 | 114.0 |
| | | 89 | 115.3 |
| | | 90 | 116.6 |
| | | 91 | 117.9 |
| | | 92 | 119.2 |
| | | 93 | 120.5 |
| | | 94 | 121.8 |
| | | 95 | 123.1 |
| | | 96 | 124.4 |
| | | 97 | 125.7 |
| | | 98 | 127.0 |
| | | 99 | 128.3 |
| | | 100 | 129.6 |

Fig. 5.



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TAX AND PERCENTAGE COMPUTATION DEVICE.

SPECIFICATION forming part of Letters Patent No. 648,584, dated May 1, 1900.

Application filed July 24, 1899. Serial No. 724,908. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. BORST, a citizen of the United States, residing at Auburn, in the county of De Kalb, in the State of Indiana, have invented certain new and useful Improvements in Tax and Percentage Computation Devices; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in tax and percentage computation devices.

One object of my improvement is to provide a tax and percentage computing device of simple and economical construction adapted to aid in the calculation of taxes and percentage with speed and accuracy.

A further object of my invention is to provide a computator adapted for the calculation of the poll-tax as an additional feature.

My improvement consists of two hollow concentric cylinders mounted upon a horizontal axis or shaft which is revolubly mounted in suitable bearings in upright supporting standards and means for independently rotating the said cylinders upon which the proper valuation and tax-rate slips are detachably arranged.

In the accompanying drawings similar reference-numerals indicate like parts in the several views, in which—

Figure 1 is a longitudinal vertical central section of my improved apparatus. Fig. 2 is a side elevation of the same, showing the valuation and tax-rate slips in position. Fig. 3 is a detail of one of the supporting-standards in position upon its base. Fig. 4 is a detail of the valuation and tax-rate slips broken away in part. Fig. 5 is an end view of my improvement with the outer cylinder broken away in part to show the manner of securing the said slips in position on the inner and outer cylinders.

Upon a suitable base-frame 1 of any desired form, size, or material, preferably slightly recessed upon its upper face to admit the lower portion of the perimeter, as shown in Figs. 1 and 2, are rigidly fixed the upright standards

2, in the top of which the opposite ends of the shaft 3 are revolubly mounted. Upon this horizontal shaft 3 is rigidly fixed in any proper manner the inner cylinder 4, formed of the ends 5, which are preferably provided upon their outer face with a boss 6, surrounding the shaft-openings and the perimeter 7. This cylinder 4 is thus adapted to rotate with the said shaft 3, which is provided upon one extended end thereof with a fixed handle, knob, or disk 8, preferably having a milled perimeter for a proper handhold. The outer cylinder is loosely mounted on the shaft 3, is concentric with the said cylinder 4, and is longitudinally separable as follows, for the purpose of adjusting the printed rate-slips in the manner hereinafter described:

One end of the perimeter 10 is fixed on the cylinder end 11 in any suitable manner, while the opposite end is adapted to snugly slip over the other cylinder-head 12, where it holds by frictional contact. The outer face of the said head 12 is provided with a proper knob or handle 30 for operating the same, which is preferably in the form of a disk having a milled perimeter and is preferably integral with said head. All parts of both cylinders are preferably made of aluminium. The outer surface of the perimeter 10 of the outer cylinder is provided with a series of circumferential recesses 13, in which the tax-rate slips of paper are detachably arranged. Each of these slips is secured in position by means of a flat steel spring 14, which is rigidly fixed to the cylinder by a proper screw. This spring holds the opposite ends of the slips by frictional contact. This spring may also have its lower face corrugated, if necessary, to more firmly hold the slip, Fig. 5. The outer cylinder also has a narrow circumferential recess 15 to receive the paper valuation-slips, Fig. 2. The perimeter of the said outer cylinder is also provided with a series of slots 16, arranged in circumferential alinement through which the valuation-slip upon the inner cylinder may be read. This last-mentioned slip shows valuations by hundreds from one hundred to nine thousand nine hundred, while the slip in recess 15 shows valuations from one dollar to ninety-nine dollars. Each recess 13 is provided with a series of

transverse slots, slits, or openings through which the numbers on the inner cylinder may be successively read through coincident openings in the printed paper slips 24. The inner cylinder has a series of circumferential recesses coincident with the said recesses 13 of the outer cylinder and with the openings 16 thereof. Upon one side of the base 1 and adjacent to the perimeter of the said outer cylinder is arranged an upright longitudinal rack consisting of the curved uprights 17, rigidly secured in position by proper holding-screws through the feet thereof. The upper ends of the said uprights 17 are made straight instead of continuing their curvature in order to permit the ready removal vertically of the said shaft and cylinders from their supporting-standards 2. To the rear face of the uprights 17 are rigidly secured the cross-pieces 18 and 19, the former of which preferably has its upper edge scalloped or ornamented. On the outer face of the cross-piece 18 is arranged a paper slip showing the tax on valuations in excess of nine thousand nine hundred and ninety-nine dollars, the column of valuations being printed, and the tax on levy desired is pencil-marks. On the outer face of the cross-piece 19 is arranged a paper slip employed as a memorandum of the poll-tax to be added to the proper funds. These paper slips are detachably secured in position by slipping their ends in proper recesses in the inner face of the said uprights 17.

To firmly secure the outer cylinder in position while the inner cylinder is being rotated, I provide an upright friction-brake 20, whose lower end is rigidly secured to an integral lateral lug 21 on the outer face of one of the standards 17 by means of a proper holding-screw 31. This brake 20 consists of a piece of sheet-steel, whose upper end is free and has upon its inner face a proper shoe 22, which normally drags on the adjacent face of the perimeter of the outer cylinder. In another lateral lug 23 on one of said standards 17 is arranged a proper set-screw 31, which passes through a screw-threaded opening therein, and whose inner end bears upon the outer face of the said spring-brake 20. By adjusting this set-screw 31 the tension of the said spring-brake is conveniently regulated.

In Fig. 4 are shown details of a portion of each of the valuation and rate-printed paper slips, 24 being the slotted tax-rate slips for the circumferential recesses of the outer cylinder. 25 is the valuation-slip. 26 is the valuation-slip for the inner cylinder, and 27 is the tax-rate slip for the inner cylinder. The inner cylinder is provided with a longitudinal flat surface 29 of proper width and extending its entire length. Upon this flat surface I rigidly secure a series of holding-springs 28 by means of a proper screw 30 midway their ends, which springs are adapted to firmly secure the opposite ends of the said

valuation and rate slips. The valuation-slip 26 runs from one hundred dollars to nine thousand nine hundred dollars, with tax-rate slip corresponding therewith with rates from one cent to three dollars or higher, if necessary. Slip 25 gives the valuation from one dollar to ninety-nine dollars, inclusive, and rate-slip 24 gives a corresponding tax for the values on slip 25.

The manner of employing my improvement is briefly stated as follows: To place the said valuation and rate-slips in position, the operator lifts the cylinders and their supporting-shaft out of their bearings in the supporting-standards. He then slips the outer cylinder off of the end or head 12 by holding with one hand to the integral handle or knob 30, after which the slips for the inner cylinder can readily be placed in position in their respective recesses and then secured therein by the said springs 28. The slips for the outer cylinder are next placed in position in their respective recesses and firmly secured therein by means of the said holding-springs 28. The outer cylinder is next replaced in position, and the supporting-shaft is mounted in its bearings on the said standards 2. My device is now ready for the computation of taxes, in which we proceed as follows: Suppose, for an illustration, that the valuation upon which it is desired to compute the taxes is three thousand six hundred and seventy dollars, with a total levy of one dollar and twenty-eight cents per hundred, which includes a road-tax levy of ten cents, which under the laws of the State of Indiana is collected in the first instalment, thereby giving a first instalment levy of sixty-nine cents and a second instalment of fifty-nine cents. The machine is now adjusted for these levies. The outer cylinder is first rotated by means of the knob or handle 30 until the "\$70" valuation appears in the indicator-space between the said cross-pieces 18 and 19. The inner cylinder is next rotated by knob 8 until the "\$3,600" valuation appears in a like position, Fig. 2. At the same time in the second column of the inner cylinder, in longitudinal alinement with the said "\$3,600," appears a tax of "\$3.60," which, added to the "7¢" shown in third column of the outer cylinder, makes a road-tax of "\$3.67." In the fourth column of the indicator-space is shown on inner cylinder a tax of "\$24.84" and upon the outer cylinder a tax of ".483," making a total of "\$25.32." In the fifth column of the indicator-space is shown on the inner cylinder a tax of "\$21.24" and upon the outer cylinder a tax of ".413," making a total of "\$21.653." In the sixth column of the indicator-space is shown on the inner cylinder "\$46.08" and upon the outer cylinder ".896," making a grand total of "\$46.976," which is the entire tax. The last figure to the right in the tax upon the outer cylinder represents mills, and can be used, if desired.

In States where tax is placed on lists by funds separately the rate-slips can be arranged accordingly.

My invention thus described is cheap, simple, accurate, efficient, and convenient and has two independently-revoluble cylinders upon which the valuation and tax-rate slips are detachably mounted. By means of my combined rack and indicator the tax upon valuations in excess of nine thousand nine hundred and ninety-nine dollars, as well as the amount of poll-tax, is conveniently shown. This arrangement of the poll-tax is a novel and important feature of my present invention.

My improved means for firmly securing the valuation and tax-rate slips in position whereby they can be readily and conveniently removed, replaced, or adjusted without the adjustment of set-screws is another feature of my invention.

My improved brake is simple, automatic, and reliable and an improvement over prior holding devices.

In my improved device both cylinders can be manipulated by the left hand alone, while the right hand is always free for the use of the pen and in copying results. My cylinders are also readily and conveniently adjustable for the changing, replacing, or adjusting of slips.

In my arrangement of valuation and tax-rate slips the computations are concentrated at or in the indicator-space.

Having thus described my invention and the manner of operating the same, what I desire to secure by Letters Patent is—

1. In a computing device of the class described, the combination of two concentric, independent, rotatably-mounted cylinders, having shallow circumferential recesses in their surfaces, tax-tables removably fastened therein, and two shields mounted at the front and adapted to hold removably a calculation-table and a blank paper respectively; and a spring-actuated brake.

2. In a computing device of the class described, the combination of two concentric independently-rotatable cylinders, having shallow circumferential recesses in their surfaces to receive tax-tables, and circumferential slots at intervals; spring-clips upon the cylinders holding the tax-tables within the recesses, uprights, at each end of the cylinders and provided with recesses, slightly-separated shields, supported upon the uprights, a computing-table, a blank paper held within the recesses and upon the shields, and an adjustable spring-actuated brake acting upon the outer cylinder.

Signed by me at Fort Wayne, Allen county, State of Indiana, this 18th day of July, 1899.

FRANK A. BORST.

Witnesses:

AUGUSTA VIBERG,
ADELAIDE KEARNS.