G. W. GOSS.

CALCULATOR.

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943,779.

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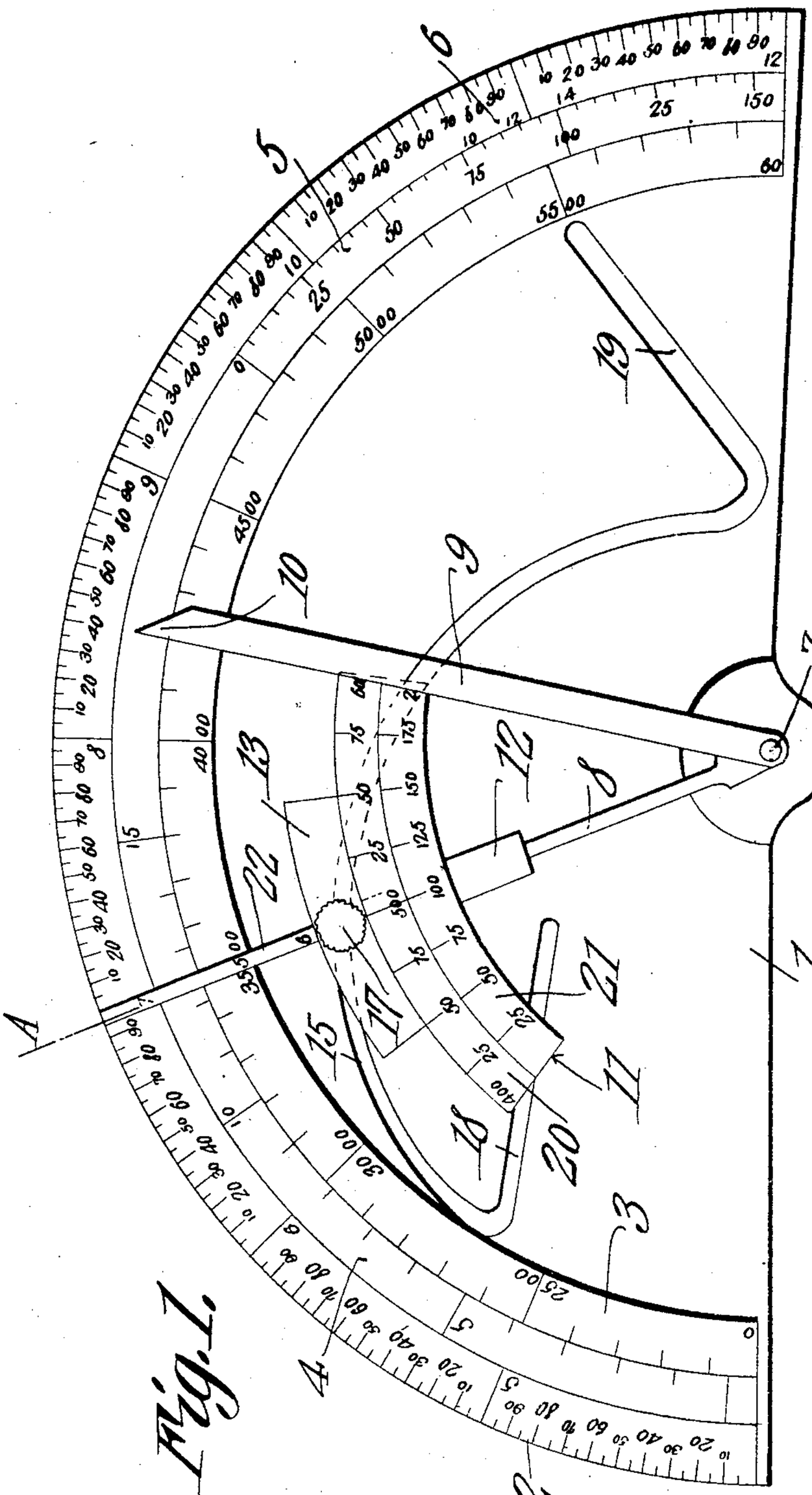

Fig. 1.

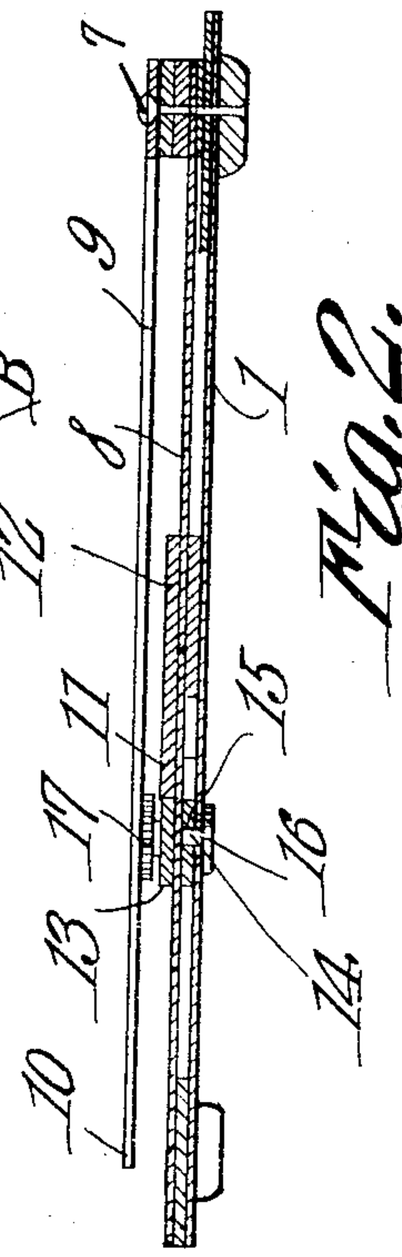

Fig. 2.

Witnesses

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CALCULATOR.

943,779. Specification of Letters Patent. Patented Dec. 21, 1909.

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To all whom it may concern:

Be it known that I, GEORGE W. GOSS, a citizen of the United States, residing at Orla, in the county of Reeves and State of Texas, have invented a new and useful Calculator, of which the following is a specification.

This invention has reference to improvements in calculators and is designed to provide a means for solving various mathematical problems, more especially such problems as occur in the ordinary course of business.

The present invention comprises a tablet preferably though not necessarily semicircular in shape and on this tablet and movable about the same center are two pivoted arms, one arm being of a simple pointer type, and the other arm carrying an index member constrained to move in a certain definite path with relation to the arm carrying it by a groove or slot in the tablet, said groove or slot being so shaped as to cause a proper relation between an index on the tablet described about the pivot point of the arms to said arms and the index member carried by one of them so that when the index carrying arm is moved to a certain point on one of the indexes on the tablet and the other arm is moved to a certain point on the index carried by the first arm an index on the tablet will show the answer to the problem proposed.

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification in which drawings—

Figure 1 is a plan view of the calculator. Fig. 2 is a section on the line A—B of Fig. 1.

Referring to the drawings there is shown a tablet 1 which may be made of any suitable material and be also of any desired shape but preferably this tablet is semicircular, but under some circumstances may be in the form of a full circle.

Adjacent to the periphery of the tablet are a number of concentric series of numbers, the outer series in the particular instance shown running from 400 to 1200, the inner series of numbers running from 0 to $60.00. The outer series of numbers is indicated by the reference numeral 2, while the inner series in indicated by the reference numeral 3. There are intermediate series of numbers 4, 5 and 6 which will be referred to hereinafter.

The several series of numbers are described in arcs about a central point where there is secured a pivot pin 7 extending through the tablet 1 and above the same and this pivot pin carries two arms 8—9, the arm 9 terminating in a pointing end 10 remote from the pivot and constituting a simple pointer. The arm 8 is also used as a pointer but likewise is shaped to carry certain members to which reference will now be had.

Mounted on the arm 8 is a segmental strip 11 provided with a radial extension 12 midway of its length, the said extension 12 having a longitudinal passage therethrough for the arm 8 and being capable of sliding on the arm 8 easily while at the same time the segmental strip 11 is prevented from rocking on the arm 8. On the edge of the strip 11 remote from the extension 12 is another extended member 13 from which projects a stud 14 extending through a slot 15 in the tablet 1 and this stud may have a head 16 engaging the face of the tablet remote from that carrying the arm 8. A thumb nut or button 17 on the member 13 facilitates the manipulation of the instrument.

It will be observed that the slot 15 extends in a curved path from near the beginning of the index series 2 and 3 across the face of the tablet in an approximately parabolic curve approaching the pivot point until near the radial line of the ending of the index series referred to. At the beginning of the slot 15 there is a straight continuation 18 tangential to a circle described about the pivot 7 and at the end of the slot 15 there is another straight continuation 19 tangential to another circle described about the pivot 7 and at an angle to the first named continuation, the relation of these two straight portions being such that if the straight portion 18 were continued it would intersect the straight portion 19 near the middle of the latter.

When the arm 8 is moved about its pivot then the segmental member 11 is caused to move longitudinally on the arm by the engagement of the stud 14 in the slot 15 and consequently this segment 11 has different relations to the arm 8 when the said arm is in operative relation to different portions of

the series of indices on the face of the tablet. The strip 11 carries two index series 20 and 21, the series 20 running from 400 to 600 and the series 21 running from 0 to 200.

The several series of numbers given are not at all mandatory but may be different from those given which are taken merely as examples and by suitably enlarging the tablet 1 and lengthening the arms 8 and 9 a great number of index series may be provided for many different purposes.

As an example of the operation of the calculator let it be assumed that it is desired to ascertain what would be the cost of 600 lbs. of a commodity at $.07 a pound. For this purpose the arm 8 is moved until it is coincident with 7 on the index series 2. This movement of the arm 8 has caused the strip 11 to assume a certain position with reference to said arm because of the shape of the slot 15. Now the arm 9 is moved until it coincides with the number 600 on the index 20 of the strip 11. By now referring to the index series 3 it will be found that the pointer end of the arm 9 is coincident with 42 of the index 3 thus showing that at $.07 a pound 600 pounds of a commodity would come to $42.00.

Suppose it is desirable to ascertain the amount of interest due on a certain sum at a certain per cent. Under these conditions the guide pin or stud 14 is moved into the slot extension 18 and then is moved along the arm 8 until the number 6 of a series of numbers 22 on said arm is visible just beyond the member 13. If now the index or pointer arm 9 be moved to the number 200 its pointed end 10 will be found to be coincident with the number 12 of the index series 4, thus showing that at 6% the yearly interest on $200.00 is $12.00. While not so shown in the drawings it will be understood that for fractions of years other index series may be provided on the tablet 1. If 5% be the rate then the movement of the strip 11 to bring 5 on the index series 22 of the arm 8 just beyond the member 13 will cause the relation of the strip 11 to the index series 4 to be such that the pointer 10 will then be coincident with the number 10 on the index 4.

Suppose it be desirable to ascertain the price of individual articles where the quantity price is given. The stud 14 is then moved so as to engage in the slot 19 and the arm 8 is brought into coincidence with the proper number on the index series 6 and by moving the index arm 9 to the proper number on the index series 21 of the strip 10 there will be shown in the index series 5 the individual price of the article. As an example, suppose that ten dozen articles cost $125.00 and it is desirable to ascertain the individual cost of an article. Then the pin 14 is moved into the slot continuation 19 and the arm 8 is brought into coincidence with the number 10 of the index series 6. Now by moving the arm 9 to 125 of the index series 21 of the strip 11 it will be found that the index end of the arm 9 will indicate just beyond $1.04 of the index series 5 showing that the individual cost of an article in the quantity and at the price named is slightly over $1.04 each. Of course other index series may be provided at this point to enlarge the scope of the apparatus but those shown and described will be sufficient for an understanding of the invention.

It will be understood of course that the slot 15 may be replaced by a groove where the tablet 1 is made thick enough, the said slot 15 or groove of like shape serving simply as a guide for the stud 14 and thereby causing the strip 11 to have a certain relation to the arm 8 in accordance with the position of the arm with reference to the index series on the tablet or to bring the index series on the strip 11 into certain relation with the pointer arm 9 under certain conditions.

What is claimed is:

1. In a calculator, a tablet with indices thereon and provided with a guide on its face, an arm pivoted to the tablet, an index member on and movable along the arm and constrained by the guide in its relation to the arm, and a pointer arm also pivoted to the tablet and adapted to coact with the indices on the arm-carried index member and the indices on the tablet.

2. In a calculator, a tablet with indices thereon and provided with a guide on its face, an arm pivoted to the tablet, an index strip on and movable along the arm and provided with a projecting member engaging the guide, and constrained thereby to determine the relation of the strip to the arm, and a pointer arm also pivoted to the tablet at the same point as the first-named arm and adapted to co-act with the indices of the arm-carried index strip and the indices of the tablet.

3. In a calculator, a tablet having a series of indices thereon and also provided with a guide having a curved projection progressing away from the indices and continuations at the ends in different relations to said indices, an arm pivoted to the tablet and adapted to coact with the indices thereon, an index strip on and movable along the arm and provided with means engaging the guide, and another arm pivoted to the tablet and movable into operative relation to both the index strip and the indices of the tablet.

4. In a calculator, a tablet having a series of indices thereon, and also provided with a guide having a curved projection progressing away from the indices and continuations at the ends in different relations to the said indices, an arm pivoted to the tablet and adapted to coact with the indices thereon