(No Model.) 2 Sheets—Sheet 1.

B. E. STONEBRAKER.

ARITHMOMETER.

No. 550,030. Patented Nov. 19, 1895.

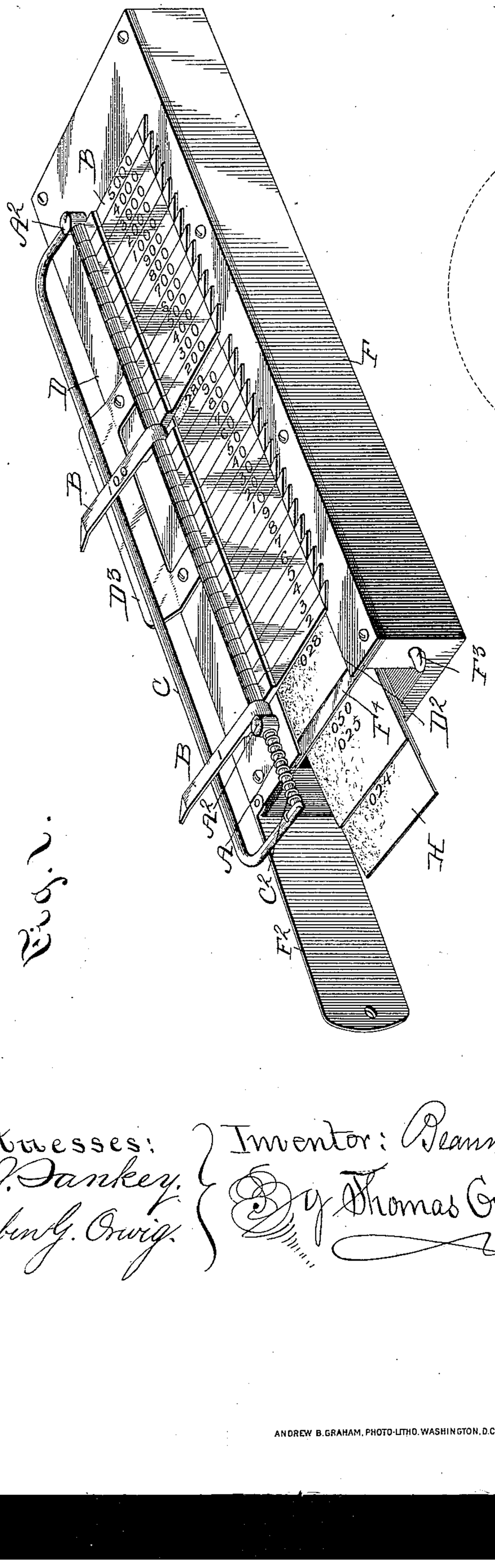

Fig. 1.

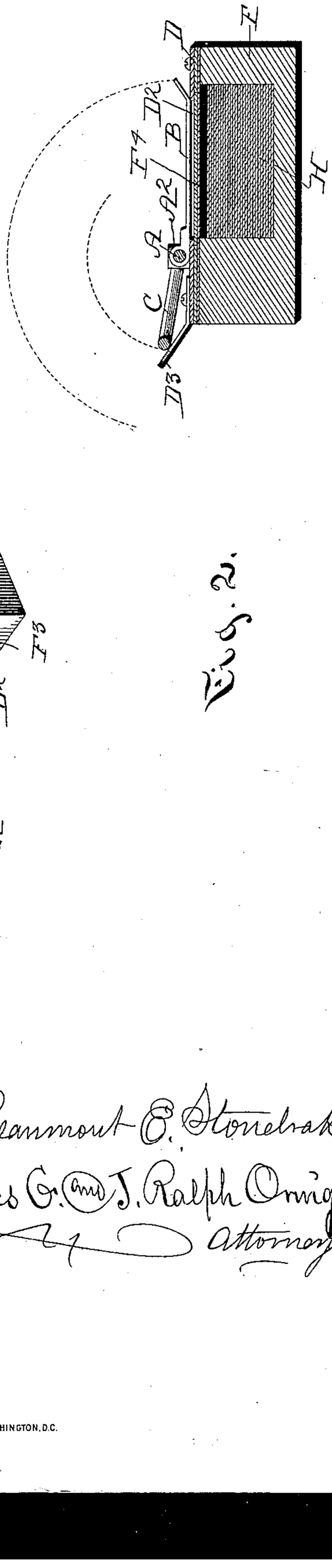

Fig. 2.

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Reuben G. Owig.

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(No Model.) 2 Sheets—Sheet 2.

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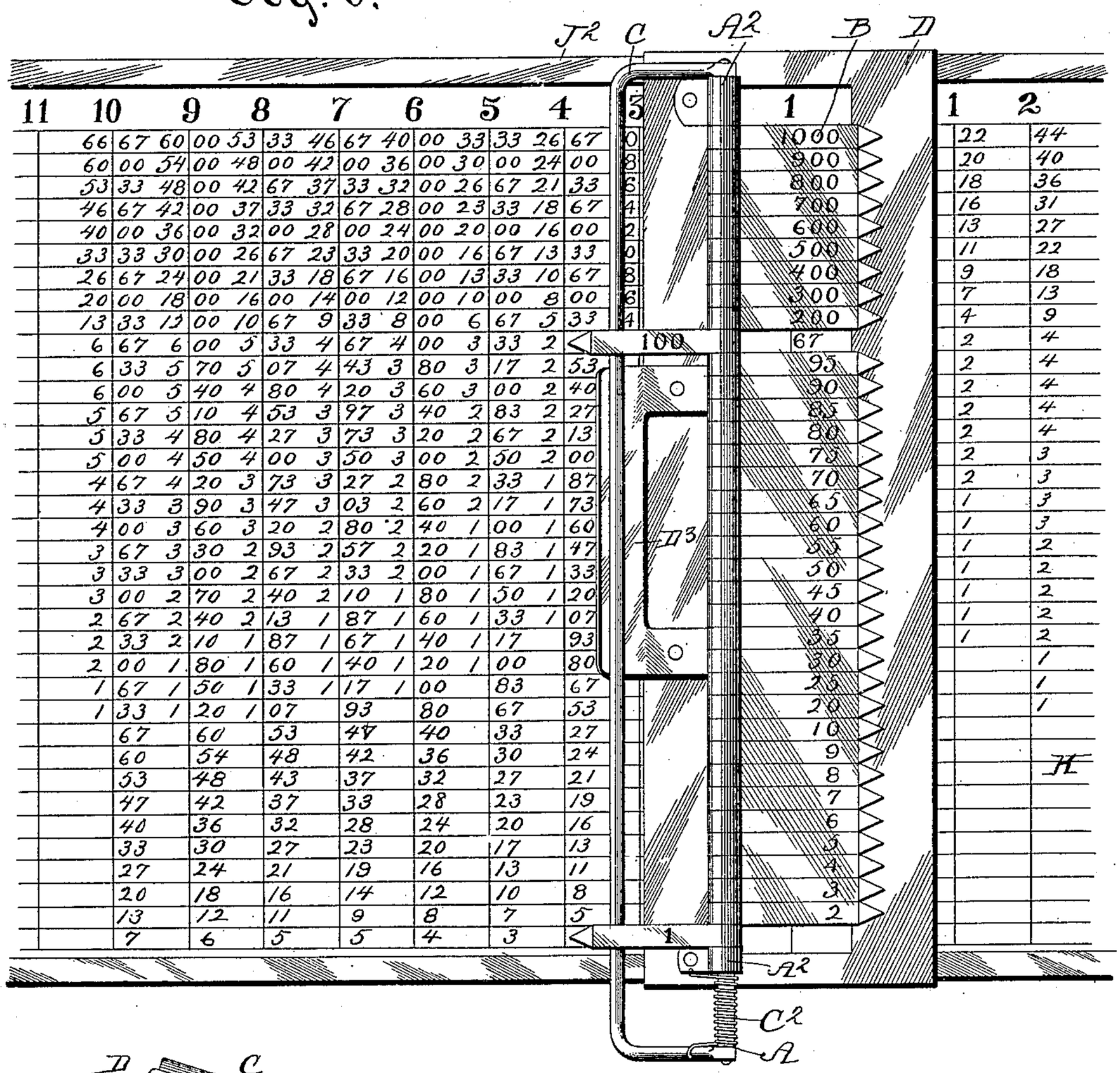
Fig. 3.



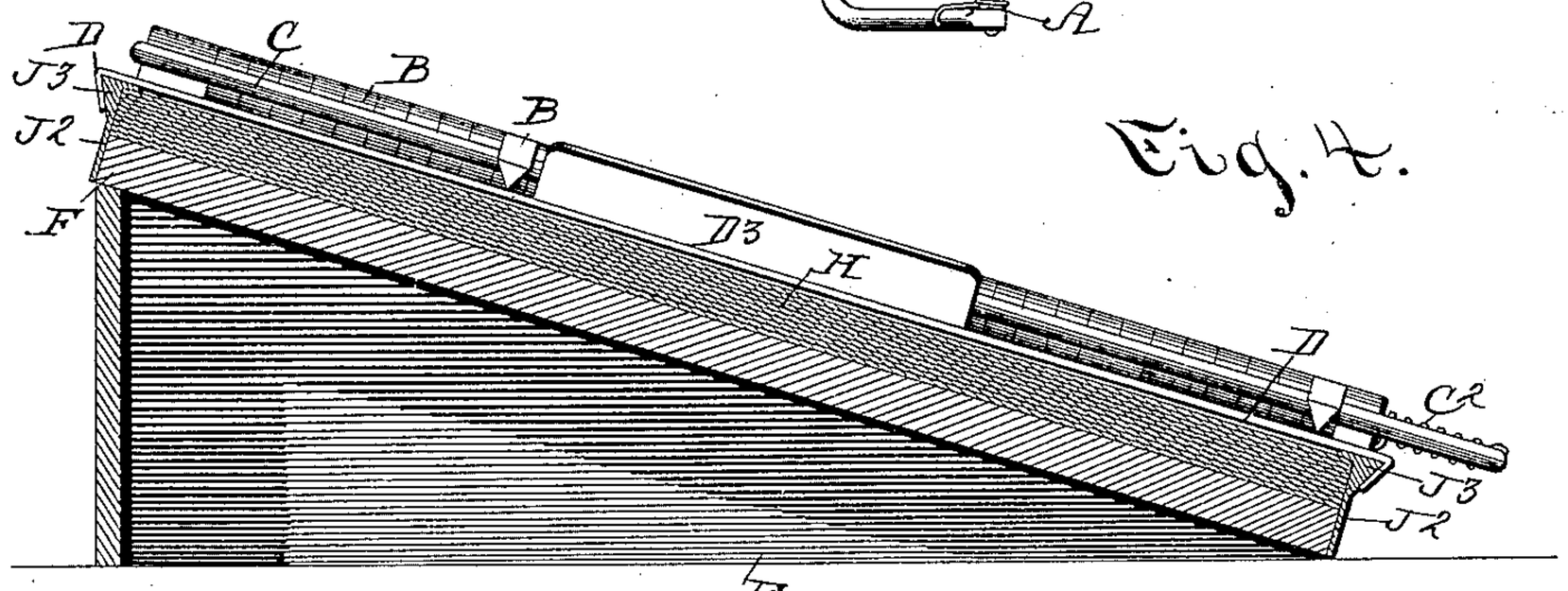


Fig. 4.

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UNITED STATES PATENT OFFICE.

BEAUMONT E. STONEBRAKER, OF ROCKWELL CITY, IOWA.

ARITHMOMETER.

SPECIFICATION forming part of Letters Patent No. 550,030, dated November 19, 1895.

Application filed April 1, 1895. Serial No. 544,073. (No model.)

To all whom it may concern:

Be it known that I, BEAUMONT E. STONEBRAKER, a citizen of the United States of America, residing at Rockwell City, in the county of Calhoun and State of Iowa, have invented an Improved Arithmometer, of which the following is a specification.

The object of this invention is to provide a cheap and durable machine designed for the rapid and thorough computation of arithmetical problems entailing a multiplication by any given number of a series of numbers or amounts—such, for instance, as interest, taxes, commissions, &c.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the form used in computations where one multiplier is used. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a perspective view of the form used when there are two multipliers, and Fig. 4 is a transverse section of this modified form.

Referring to the accompanying drawings, the reference-letter A indicates a straight rod pivotally mounted in the bearers A^2.

B indicates a number of metal plates, each of which is bent at one end to overlap the rod A to form a pivotal connection therewith, and its other end is tapered to a point and bent upwardly and outwardly, so that any one of said plates may be conveniently grasped at said end by a person's fingers without disturbing the adjoining plates. Upon the top surfaces of these plates are stamped numbers, beginning with "1" on the lower plate and graduated in an ascending scale, with nine plates each to the numbers having an equal number of digits. This series may be extended to sums as high as it is ordinarily desired to compute. By a combination of plates in the various series any number may be obtained.

C indicates a wire loop fixed to the rod A at its ends, with its central portion parallel therewith, and C^2 is a spring wound upon the rod A to normally hold the loop C to its limit distance from the plates B. The function of this loop is to support the outer ends of the plates B when elevated and to enable the operator to return all of the plates to their normal position at one time without handling separately each plate.

D indicates a sheet-metal frame, having a central opening at D^2 of such a width that the plates B will overlap the space, and on one side of the plate-frame D is a guard D^3, adapted to serve as a handle and limit the rearward movement of the loop C.

In the form shown in Fig. 1, designed for the computation of interest, taxes, &c., for a fixed period, in which there is but one multiplier—namely, the rate—I have provided a hollow wooden block or base F, having a door F^2 at one end designed to be held in place by a spring-latch F^3 and a sheet-metal plate F^4 on its top.

H indicates strips or sheets of paper of a size and shape designed to be placed between the sheet-metal plate F^4 and the frame D. On each of said strips or sheets are marked a series of numbers so arranged that one number will be covered by each of the plates B. The lower number in the column indicates the product of the rate multiplied by the number on the plate, or the interest for one year on said number.

A number of slips or sheets bearing the like numbers at different rates may be conveniently carried within the block or base.

As an example of the operation of the form of the device shown in Figs. 1 and 2 of the drawings, we will assume that the rate of interest is twenty-eight (28) mills. This number is found on the bottom of the sheet indicating the interest on one dollar for the desired time. Assuming, further, that it is desired to find the interest at the same rate on one hundred and one (101) dollars, the plate B bearing the mark "100" is raised, as seen in Fig. 1, and the number "2.80" on the strip H is exposed to view. Then the plate bearing the number "1" is raised and the number ".028" exposed. The sum of these numbers thus exposed indicate the interest on one hundred and one dollars at the rate mentioned.

In the modified form shown in Figs. 3 and 4 the device is designed to be employed in computing interest for any length of time, on

any amount, and comprises a base F preferably inclined, and having sheet-metal strips J^2 on its sides overlapping the top of the base a slight distance, and ribs J^3 on its top edges. The ends of the sheet-metal frame D are bent to overlap the ribs J^3, so as to produce a sliding connection between the frame D and the base F. The frame D may be readily detached from the base, and a sheet of paper H placed on the top of the base with its edges beneath the edges of the strip J^2. Marked upon this sheet H is a series of columns of figures designated by the headings, one month and upwardly indefinitely to the left, and one day and upwardly to the right. In each column is a series of numbers of a value corresponding to the interest on the sums found on the corresponding plates B for the time indicated by the day or month at the head of the column. In this form of the device I prefer to insert the numbers between the tens, (higher than 15,) such as 25 35 45, &c., and this arrangement is illustrated in the drawings. As an example, the sheet shown in Fig. 3 is on a basis of an interest of eight per cent. Assuming that it is desired to calculate the interest on one hundred and one dollars for one month and two days, the frame D is placed over the one-month column, and the plates B, marked "100" and "1," are elevated. This discloses the number ".67" beneath the first plate and a blank under the plate marked "1," making a total of .67. The device is then moved over the column marked "two days," and the number observed under the plate 100 is 4. This added to the .67 before obtained makes a total of .71. These additions may ordinarily be obtained by mental calculations.

A number of sheets figured at different rates of interest are provided and may be placed in the frame beneath the top sheet.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States therefor, is—

1. An arithmometer comprising a suitable base having an elongated opening in its central portion, a rod pivotally mounted on the base at the side of the opening, a series of plates pivoted to the said rod and bearing a series of numbers graduated in value, a loop fixed to said rod, and extended parallel therewith and a spring for normally holding the said loop to the side opposite from the said plates, substantially as set forth for the purposes stated.

2. An arithmometer, comprising a suitable base, two metal strips on the edges of said base overlapping its top and ribs at the said edges, a sheet metal base having an elongated central opening and having its ends bent to overlap the said ribs, a rod pivotally mounted on said base at one side of the opening, a loop connected with said rod, a spring on the rod to engage the loop, and a series of metal plates pivoted to the said rod to overlap the opening and bearing a series of numbers, substantially as and for the purposes stated.

BEAUMONT E. STONEBRAKER.

Witnesses:
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JNO. C. DIXON.