No. 673,088. Patented Apr. 30, 1901.

G. ROEGNER.

CALCULATOR.

(Application filed Nov. 9, 1900.)

(No Model.)

Fig. 1.

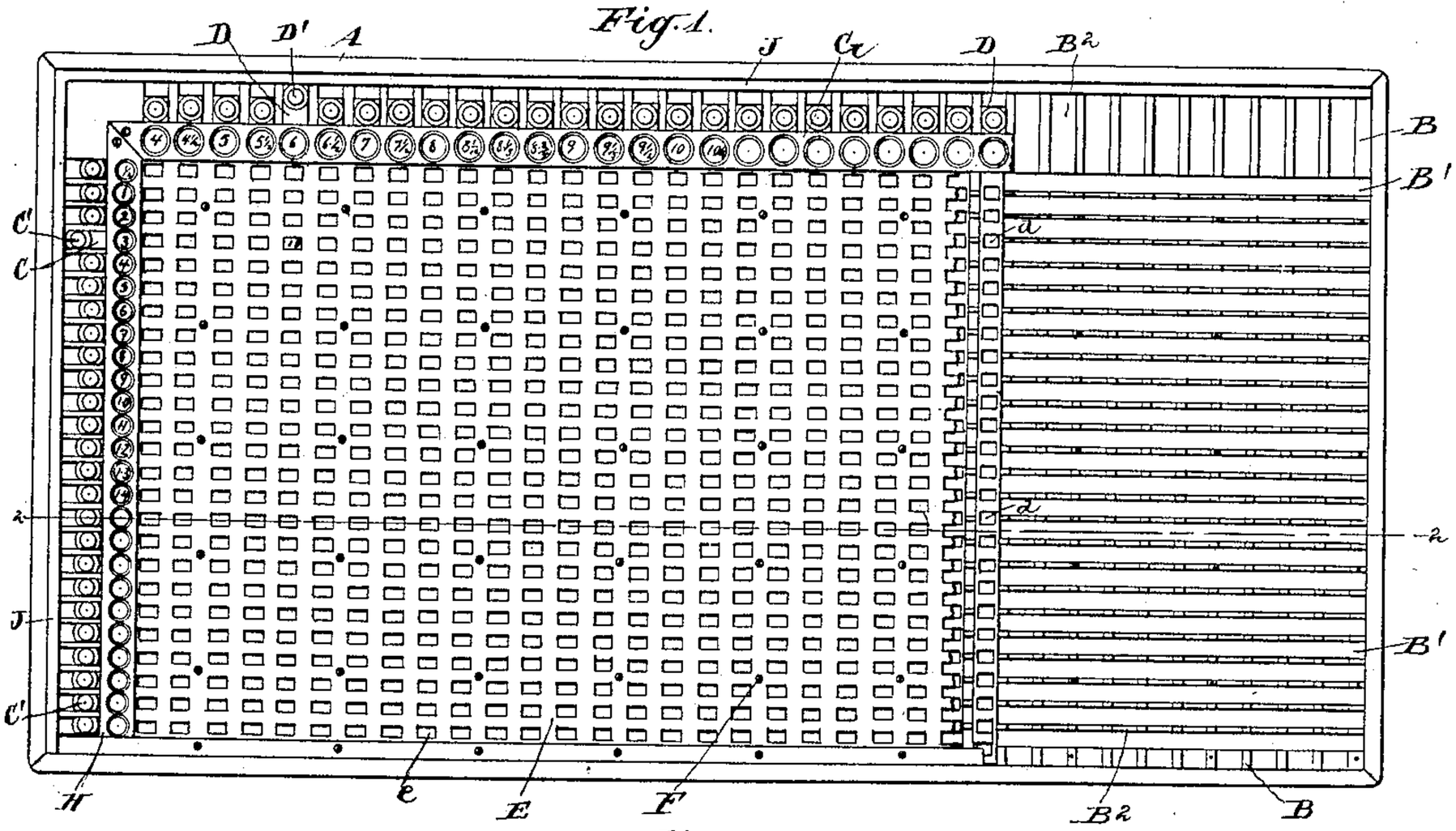

Fig. 2.

Fig. 3.

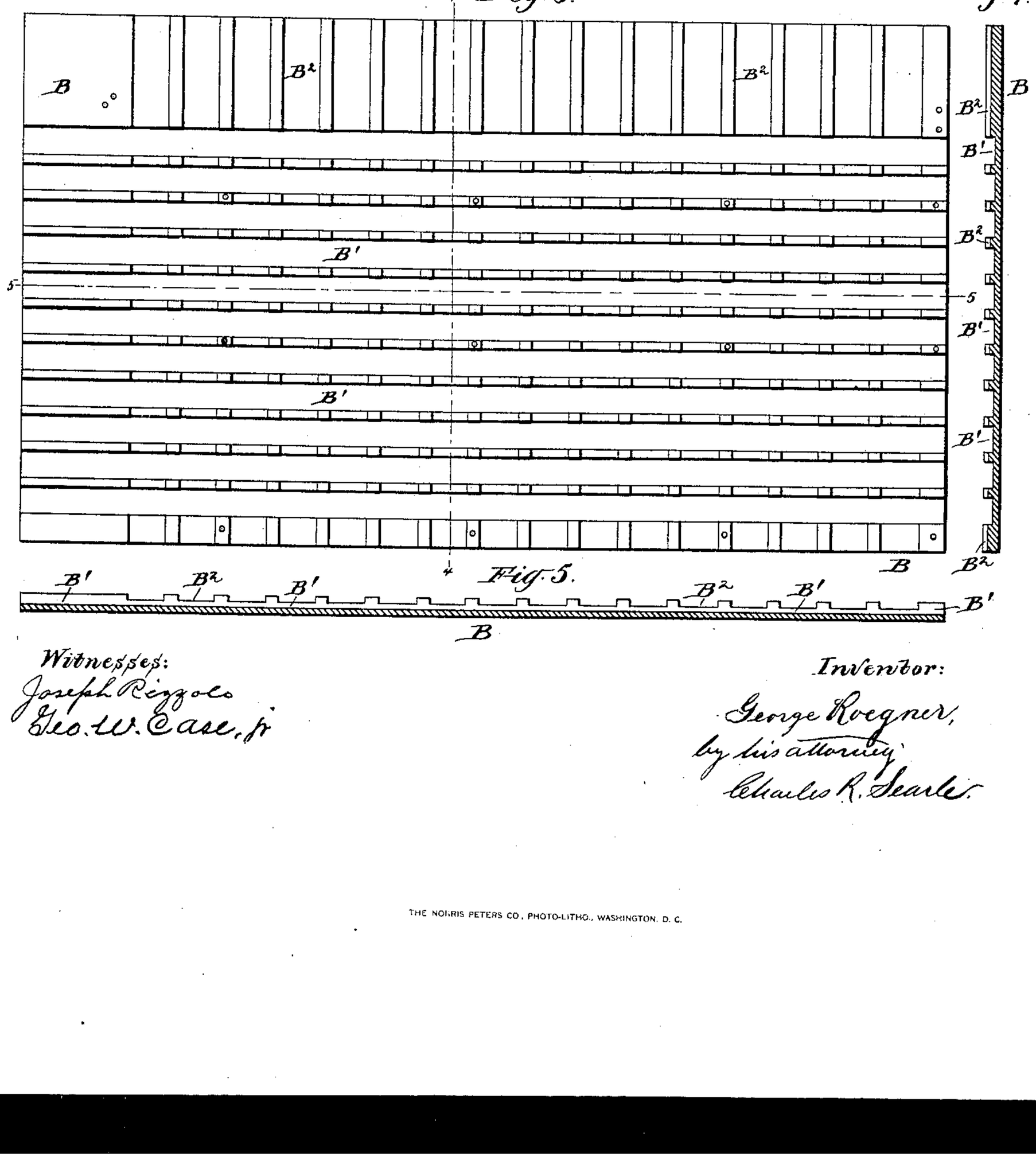

Fig. 4.

Fig. 5.

Witnesses:
Joseph Riggole
Geo. W. Case, Jr

Inventor:
George Roegner,
by his attorney
Charles R. Seare.

UNITED STATES PATENT OFFICE.

GEORGE ROEGNER, OF PASSAIC, NEW JERSEY, ASSIGNOR TO THE CARLTON MANUFACTURING COMPANY, OF CARLTON HILL, NEW JERSEY.

CALCULATOR.

SPECIFICATION forming part of Letters Patent No. 673,088, dated April 30, 1901.

Application filed November 9, 1900. Serial No. 35,909. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROEGNER, a citizen of the United States, residing in Passaic, in the county of Passaic and State of New Jersey, have invented a certain new and useful Improvement in Calculators, of which the following is a specification.

The invention relates to instruments for easily and quickly determining the amount due for a period of service, the rate per hour, day, or week, and the number of hours being known. A calculator of this class is shown and described in the patent to W. D. Conklin, dated October 3, 1899, No. 633,989, upon which the present invention is based.

The calculator comprises a bed-plate having a series of longitudinal and a series of transverse ways or grooves upon one face, one series being deeper than the other and each serving as guideways for corresponding slides, one series of which bears figures expressing amounts in dollars and cents and the other series containing openings arranged to coincide with openings in a cover-plate, through which the figures may be read when the slides are properly moved into position to present them. It is obviously important in the successful manufacture and use that the grooves serving as guideways for each series of slides be uniform in depth, equally spaced, and very exactly parallel. In the construction shown in the above patent the bed-plate is plane, and one series of grooves is formed by applying strips thereto, receiving between them one set of slides, and upon these is superposed a second series of strips, forming ways for the second series of slides. These strips are held in place by small bolts passing through the cover-plate, the points of intersection of the strips, and the base-plate and secured by nuts beneath the latter. This construction has been found to be expensive and almost impracticable, because of the difficulty experienced in producing the great number of bolt-holes required in the several parts with the extreme nicety necessary to the exact matching together, upon which depends the exact spacing and parallelism essential in an instrument of this character.

My invention is intended to avoid the above difficulties and provide an instrument in which there shall be few parts and in which the spacing and parallelism shall be practically exact, and also allow the size of the instrument to be reduced without impairing its efficiency.

It consists in forming the grooves by removing portions of the base-plate by milling or otherwise longitudinally and transversely, preferably by a single operation, in each direction by gangs of milling-cutters strongly supported and accurately sized and spaced, so that if the plate be fed squarely thereto the grooves will be correspondingly accurate and uniform. As the metal remaining between the grooves need be only sufficient to insure the required strength and spacing, the area of the plate designed for a given number of calculations may be correspondingly reduced.

A further advantage of the improved construction is in the additional stiffness of the plate, due to the ribs or lands being integral therewith, and thus lessening the liability of distortion during the process of assembling.

The improved calculator is also of less depth than before by reason of the omission of the nuts below the bed-plate.

The accompanying drawings form a part of this specification and show the invention as I have carried it out.

Figure 1 is a plan view of a calculator constructed in accordance with my invention. Certain portions are shown as broken away to show the parts beneath. Fig. 2 is a longitudinal section taken on the line 2 2 in the preceding figure. Fig. 3 is a plan or face view of the bed-plate alone. Fig. 4 is a transverse section of the same on the line 4 4 in Fig. 3, and Fig. 5 is a corresponding longitudinal section on the line 5 5 in the same figure.

Similar letters of reference indicate the same parts in all the figures.

The general construction is the same as in the patent before referred to and need not be specifically described.

The calculator comprises a rectangular tray or shallow box A, which may be of wood, within which and matching thereto is laid the base-plate B, having a series of deep lon-

gitudinal grooves B′, receiving slides C, bearing numerals, and a series of shallower and wider grooves B^2, crossing the others at a right angle and receiving slides D, having openings *d* therein, through which the numerals on the slides C beneath them may be read.

A cover-plate E, having openings *e*, coinciding with the intersections of the slides, extends over nearly the whole surface and holds the slides in place. It is secured in position by screws reaching into the bed-plate and concealed beneath the marginal strips G and H, the former extending longitudinally and having openings corresponding to the vertical slides, in which are seen the rates of wages per hour, and the other strip H extending vertically and bearing numerals indicating the number of the hours. Other screws F are inserted at intervals in the cover-plate at points of intersection of the lands between the grooves. Some or all the screws may extend into the bottom of the tray and serve in holding the whole together. Buttons or handles C′ D′ on the outer ends of the slides aid in manipulating the latter, and a marginal stop J on two sides of the base-plate limits the outward movement and insures stopping in position to allow the amount in dollars and cents, resulting from the multiplication of the rate per hour by the number of hours produced by the outward movement of one slide of each series, to be read through the openings *d* in a slide D and a corresponding opening *e* in the cover-plate. The mode of operation is in all respects similar to that described in the patent before referred to.

The bed-plate B is preferably of aluminium, and the slides may be of the same material. The grooves B^2, receiving the slides D, are milled to a width and depth only sufficient to allow them to move easily therein. The longitudinal grooves B′ are enough deeper to receive and guide the narrower slides C lying beneath the slides D. The lands or ribs between the grooves may be as narrow as is consistent with strength and contribute greatly to the stiffness of the plate. The bed-plate thus constructed allows the area and thickness of the calculator to be reduced to a minimum, greatly lessens the number of parts and the labor of assembling, and also insures perfect accuracy and uniformity.

Although I have described the invention as applied to an instrument for calculating wages, it will be understood that the instrument may be arranged to serve for various computations—as, for instance, in quickly determining the amount of commission due for sales or the amount of interest on given amounts for given periods.

The sizes and proportions may be varied as required and other materials substituted, as may be found desirable.

I claim—

In a calculator of the character described, a bed-plate in a single piece formed with parallel shallow grooves extending across its face in one direction, and a series of deeper parallel grooves crossing the others at right angles thereto, the stiffening-ribs between the grooves being integral with the bed-plate and extending from side to side and from end to end thereof, combined with a series of slides movable in the deep grooves, a series of independent slides movable in the shallower grooves and above the first series of slides, and having openings through which the numerals on the slides beneath may be read, a cover-plate having openings coincident with the intersections of the slides, the said slides being guided between the ribs to the outer edges of the bed-plate and a marginal strip extending longitudinally and having openings corresponding to the vertical slides and another marginal strip extending transversely and bearing numbers indicating the number of hours, said strips concealing the cover-plate, all substantially as herein shown and described.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

GEORGE ROEGNER.

Witnesses:

JAMES J. MCKENZIE,

CHARLES R. SEARLE.