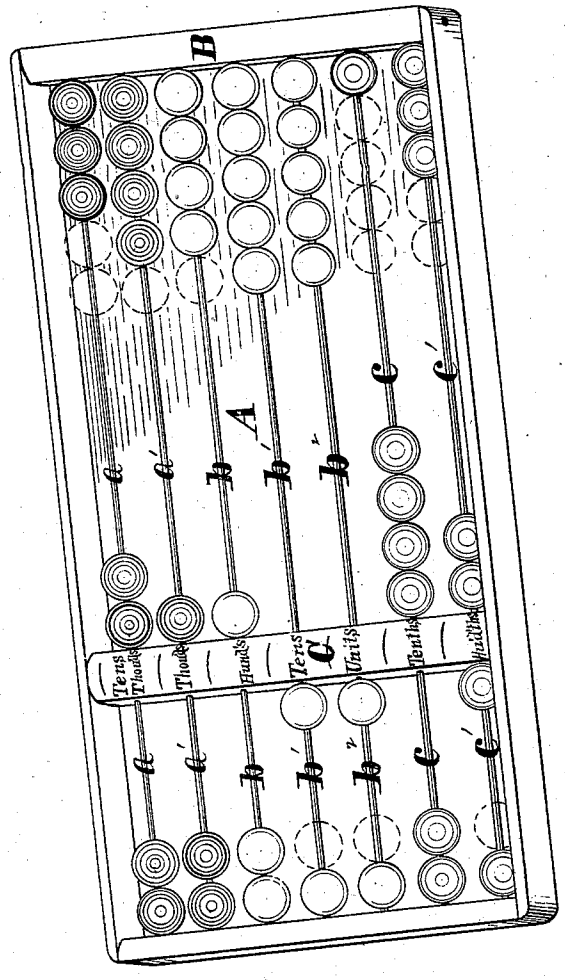
H. FITCH.

Calculators.

No. 232,482. Patented Sept. 21, 1880.



Attest

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HENRY FITCH, OF LAWRENCEBURG, INDIANA.

CALCULATOR.

SPECIFICATION forming part of Letters Patent No. 232,482, dated September 21, 1880.

Application filed January 23, 1880.

To all whom it may concern:

Be it known that I, HENRY FITCH, of Lawrenceburg, in the county of Dearborn and State of Indiana, have invented certain new and useful Improvements in Adding-Machines, of which the following is a specification.

My invention is in the nature of an improvement on the adding or calculating machine known as the "abacus;" and it consists generally in constructing the machine in such a manner that it may be conveniently used in calculations, and specifically in distinctly indicating the periods of numbers by using alternately bright and dark wires, (the bright wires preferably of brass,) and in giving the buttons strung upon the wires distinctly contrasted colors. Thus upon one period of three wires the color would be red, and upon the next period white, and upon the next period blue, and upon the next period light yellow, and in like manner for all succeeding periods.

I also construct the frame containing the parallel wires and the periods of buttons with a back, which forms a rest for the point of a stile or a pencil used in moving the buttons on the wires.

In the ordinary abacus ten buttons of the same or different colors are strung upon each wire, and ten buttons upon one wire equal one button on the next higher wire. In my construction of the machine I divide the length of the wires into two unequal parts by a raised partition or stile, upon which is glued a paper index showing the value of the buttons upon each of the several wires. Each wire is therefore divided into a long length and a short length. Upon the long length of each wire I place five buttons of uniform color, and upon the short length of each wire I place two buttons of the same color as the buttons upon the opposite side of the stile. Each button upon the long length of each wire indicates one of the order denoted by the wire, and each button upon the short length of the wire indicates five of the corresponding order. Thus the two buttons upon the short length of wire and the five buttons upon the corresponding long length of wire denote fifteen of the respective order.

In the accompanying drawing I have shown, in perspective, my improved adding-machine.

B is a light rectangular frame of wood, papier-maché, or other suitable material, to the back of which is attached a plate of paper, wood, or other light material to form a rest for the point of the stile or pencil used in manipulating the buttons.

C is the dividing-stile, which will usually be of the same material as the frame B, and sufficiently broad upon its upper surface to form a seat for a printed or stamped index-plate of metal or paper containing the values of the single buttons upon the long lengths of the corresponding wires.

The wires a a' are of black iron, the wires b b' b^2 are of polished brass, and the wires c c' are of black iron. The buttons upon the wires a a' are preferably colored red, those upon the wires b b' b^2 are colored white, and those upon the wires c c' are colored blue.

The buttons upon the wires b b' b^2 form a full period of numbers from zero (0) to one thousand, while the buttons upon the wires a a' and those upon the wires c c' form but two orders each of periods.

In using the machine it is customary to hold it in the left hand, with the long division of the wires to the right. The buttons to the right of the dividing-stile are pressed over to the right side, and those on the left of the stile to the left side, of the frame.

In manipulating the buttons to denote quantities, the desired number of buttons upon the right of the stile are pressed to the left against the stile, and those to the left are pressed over to the right against the stile, as shown by the position of the buttons in the drawing. Thus the two buttons upon the wire a to the right of the stile denote twenty thousand, (20,000,) the button on the wire a' to the right of the stile denotes one thousand, (1,000,) the button on the wire b to the right of the stile denotes one hundred, (100,) the button on the wire b' to the left of the stile denotes fifty, (50,) the button on the wire b^2 to the left of stile denotes five, (5,) the four buttons on the wire c to the right of the stile denote four-tenths, (.4,) and the button to the left of the stile on the wire c' denotes five-hundredths, (.05,) and the two buttons on the same wire to the right of the stile denote two-hundredths, (.02.)

The reading of the buttons as arranged in

the drawing is 21,155,$\frac{47}{100}$, or twenty-one thousand one hundred and fifty-five dollars and forty-seven cents.

The buttons may be made of celluloid, wood, rubber, or any other suitable material, and colored red, white, and blue for a machine of three full or partial periods, and any other sharply-contrasted colors for additional periods.

Although I have shown but one complete period and two incomplete periods, it is evident that any desired number of periods may be used without departing from the principle of my invention, the requisites of which are that the three wires in each period shall be either bright or dark, and that the three wires in the next period shall be dark or bright, to contrast with the wires of the periods upon either side thereof, the wires of the several periods, taken as a whole, being alternately bright and dark, and that the buttons upon the dark wires shall be correspondingly dark, and the buttons upon the bright wires shall be correspondingly light.

I am aware that an adding-machine consisting of a square or rectangular frame, with a series of equidistant parallel wires, each wire containing ten buttons, is not new, and this I do not claim.

Having described my invention, what I claim is—

An adding-machine consisting of a square or rectangular frame, B, with a back, A, dividing-stile C, with an index-plate secured upon the upper surface thereof to denote the values of the buttons upon the several wires, dark wires *a a'*, bright wires *b b' b²*, dark wires *c c'*, and dark and light colored buttons upon the dark and bright wires, substantially as shown and described.

In testimony whereof I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

HENRY FITCH.

Witnesses:
COLLIN FORD, Jr.,
JOHN W. HILL.