G. J. BARRETT.

AUXILIARY KEYBOARD FOR CALCULATING MACHINES.

APPLICATION FILED OCT. 14, 1912.

1,173,640.

Patented Feb. 29, 1916.

2 SHEETS—SHEET 1.

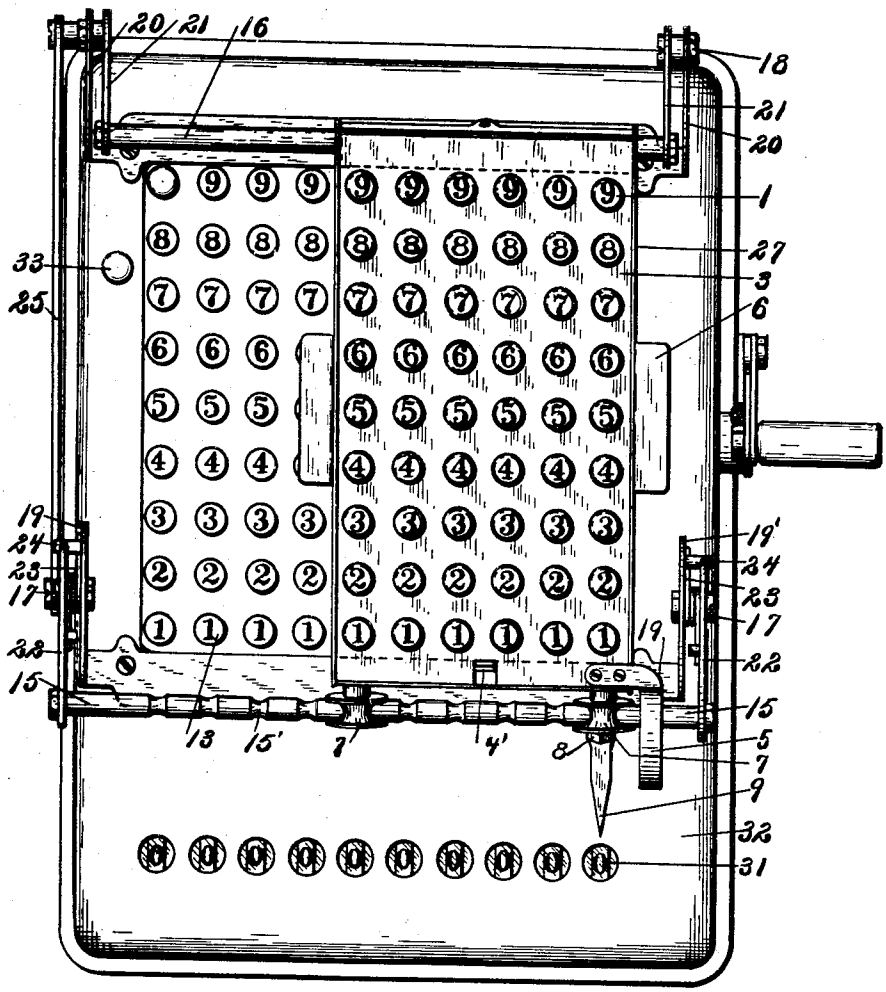


Fig. I.

Witnesses

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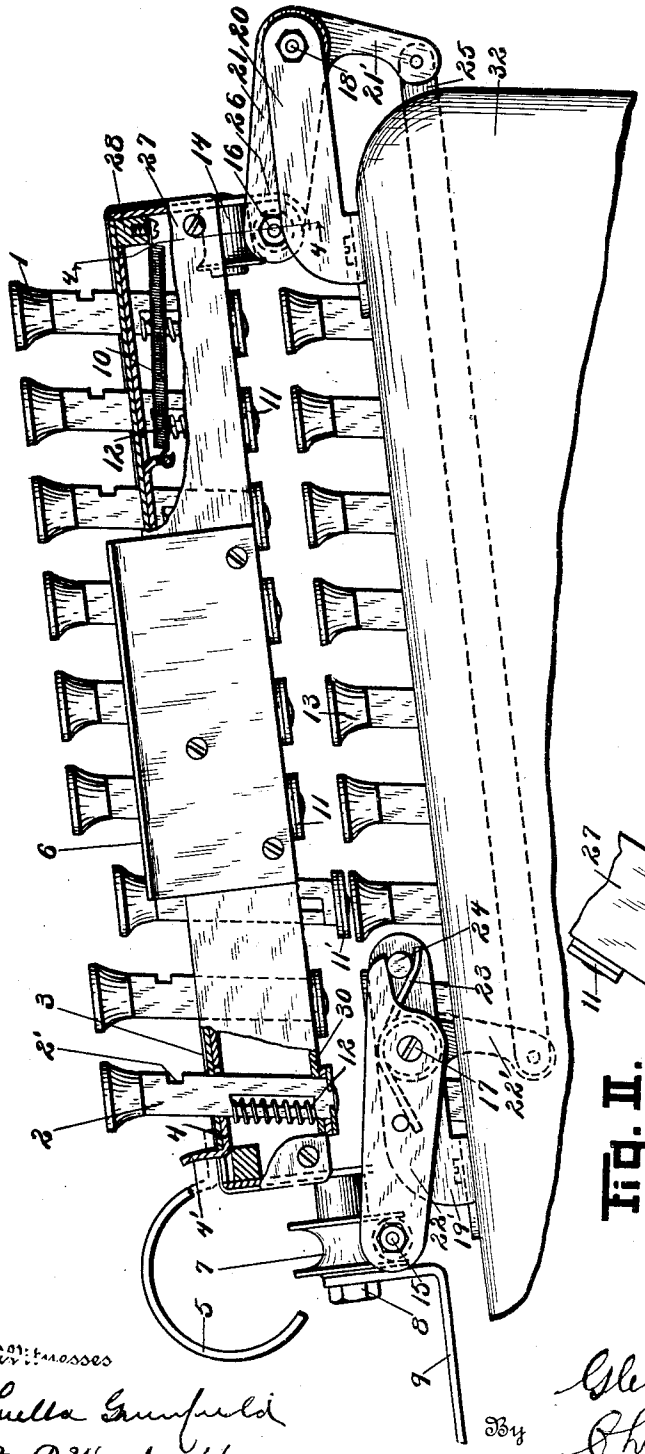


Fig. II.

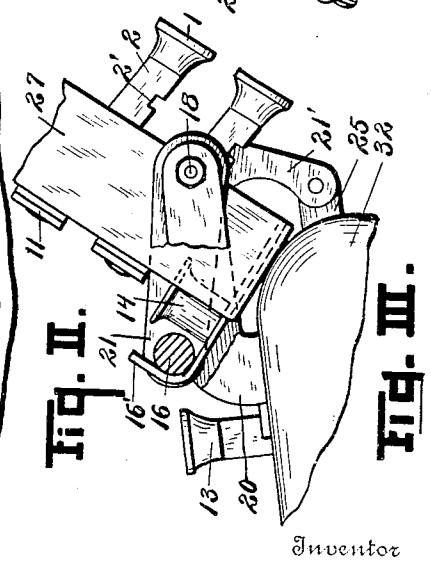


Fig. III.

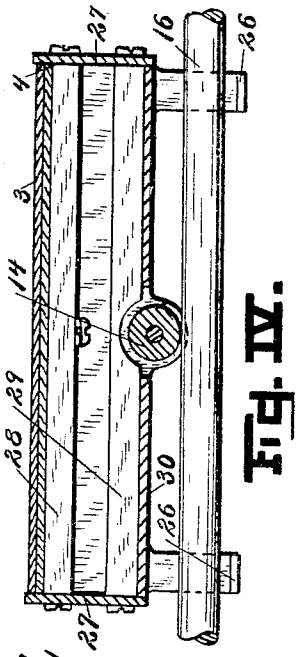


Fig. IV.

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UNITED STATES PATENT OFFICE.

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AUXILIARY KEYBOARD FOR CALCULATING-MACHINES.

1,173,640. Specification of Letters Patent. Patented Feb. 29, 1916.

Application filed October 14, 1912. Serial No. 725,593.

To all whom it may concern:

Be it known that I, GLENN J. BARRETT, a citizen of the United States, residing at the city of Grand Rapids, Michigan, have invented certain new and useful Improvements in Auxiliary Keyboards for Calculating-Machines, of which the following is a specification.

My invention relates to improvements in auxiliary keyboards for calculating machines.

The main objects of this invention are,—First, to provide an auxiliary keyboard which may be readily attached and detached from the main machine. Second, to provide an auxiliary keyboard which may have a transverse vertical movement. Third, to provide an auxiliary keyboard having an improved key latching and releasing means. Fourth, to provide an auxiliary keyboard which may be tilted backwardly without detaching from machine, to expose the regular keyboard of the calculating machine. Fifth, to provide an auxiliary keyboard having depressible ways. Sixth, to provide improved auxiliary means for controlling the set of groups of keys on the keyboard of a key set machine and preserving and repeating the operation indefinitely.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which:

Figure I is a plan view of a calculating machine embodying the features of my invention as applied to such an adding machine as described in my U. S. Patent #976,336, issued Nov. 22, 1910. Fig. II is an enlarged detail elevation of the right side of my improved machine showing a portion of the adding machine. Fig. III is a detail of the parts appearing in Fig. II, showing a portion of the extreme rear hinged portion of my auxiliary keyboard in elevated position as swung back. Fig. IV is a front sectional view of my improved structure on line 4—4 of Fig. II, looking toward the right.

In the drawing similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the numbered parts of the drawing, the body of the auxiliary keyboard consists of the top plate 3 which has slots receiving the keystems 2 of the keys 1. 30 is the lower guide plate for same.

27 are side plates.

6, 6 are lifting handles.

5 is a finger hold.

28 and 29 are cross or frame stay bars.

4 is a releasing sliding plate perforated for each key stem and having a universal coöperating portion adapted to engage the keystem and release the latter when said release is forced forwardly by the finger hold 4′. The spring 10 is connected to the plate 4 and at its rear end to frame bar 28 and holds the plate yieldingly in place.

The notch 2′ in the keystems 2 is adapted to engage the rear portion of the slots in the plate 3 and the spring 12 for each keystem tends to restore same to normal position, and also urges the notch 2′ into locking engagement. 11 are feet upon the keystems 2 adapted to contact with the regular finger keys of the adding machine as shown in Fig. II. The function of the slide plate 4 is to engage by contact the rear edge of each keystem and draw same forwardly releasing them when latched on the plate 3, when they will all quickly return upwardly to normal position because of the springs 12.

14 is a single roller mounted at the central rear portion of my device traveling on transverse guide-way or rod 16 and supported by said guide-way. Hook shaped ears 16′ are secured to the same and pass beneath the rod 16. These ears are of such shape that at a certain point in the elevation of the forward portion of my device, the entire auxiliary keyboard may be moved backwardly by a sliding movement and entirely disconnected from the rails or rods and removed from the machine entirely.

7, 7 are flange wheels at the forward portion of my device traveling on the trans-

verse rail or rod 15 which is parallel to rail 16. The rod or rail 15 contains notches 15′ adapted to position said auxiliary keyboard in the proper column position. See Fig. I. 9 is a pointer adapted to aline with the respective dials 31. The dials 31 show through the case 32 which is of any desired construction, preferably like that of my former patent. Thus it will be readily seen that by grasping the finger piece 5, the auxiliary keyboard may be moved across the machine at will and set at any required column position.

On the case 32 of the adding machine are attached brackets 19 having arms 19′ at forward portion and at rear brackets 20 having arms 20′. Between these arms 20′ is pivotally mounted a frame composed of the arms 21 and cross stay rod 16. The arm 21 at the left side is in form of a bell crank having downwardly extending portion 21′. At front of machine is a frame composed of arms 22 and cross stay rod 15 which is pivotally mounted between the arms 19′. Arm 22 on left side has a downwardly extending portion 22′ to correspond to projection 21′ between which two arms extend the bar 25 on left side of machine. Between arm 22′ and arm 19′ is the spring 23 of sufficient strength to elevate keyboard and hold same normally in upper position. Thus it will be seen that rods 16 and 15 move in synchrony against tension of spring 23 and constitute a parallel ruler action.

By reason of the arms 26 at the rear, when the auxiliary keyboard is depressed at any point, it will have a parallel movement with reference to the plane of the main keyboard of the adding machine. When not in use, the auxiliary keyboard may be tilted back as shown in Fig. III, a hook 16′ engaging under rail 16 and forming a hinge.

The purpose of the auxiliary keyboard is to avoid the necessity of moving the "set" in the keyboard in operations of multiplication or division as is the common custom with calculating machine such as the Barrett illustrated in my patent above referred to and to preserve the set of the machine indefinitely by mechanical means for any purpose. This is accomplished by latching in depressed position, the keys on the auxiliary keyboard, of any desired multiplicand or group. A depression of the entire auxiliary keyboard then depresses like keys in the regular keyboard of the machine beneath it. Then by releasing these keys of the main keyboard and moving the auxiliary keyboard and depressing, the same digits may be set "up" in the regular keyboard but in column of the lower or a higher denomination as hereinafter described.

My auxiliary keyboard is of use in mechanically preserving any particular set of the machine. By tilting the auxiliary keyboard back and using the adding machine regularly, a total of the totals may be preserved. Thus, suppose an operator desires to know the total amount of statements at the first of any month. After ascertaining the sum of the first account added, he lowers his auxiliary keyboard into position shown in Fig. I. Then he depresses on the auxiliary keyboard digits corresponding to those shown on the dials. Then he tilts the auxiliary keyboard backwardly, clears his machine and foots the next set of items. After ascertaining this amount and recording same if desired, he lowers the auxiliary keyboard and forcibly depresses same which operation depresses corresponding keys on the regular keyboard of his adding machine, then by pulling the handle, adds and totals the grand total of the previous amount (recorded on the auxiliary keyboard) and the amount of the last addition. He can then depress in the auxiliary keyboard this last grand total, tilt his auxiliary keyboard back, clear his machine, and proceed as before. At the end of his work he can see at a glance what his grand total is. Such a device makes a duplex machine out of any regular model such as said Barrett, described in said patent #976,336 above referred to.

This auxiliary keyboard is also useful for a further purpose. Oftentimes it is necessary or desirable to foot some sub items and obtain their sum independently of the main total. For instance, in footing a statement, the total of $425.36 is reached, then the operator comes across a set of items which he wishes totaled separately and at the same time this sub total added to total already acquired,—namely, $425.36. He lowers his auxiliary keyboard, copies thereon this sum, elevates the auxiliary keyboard, clears his machine and adds

$21.36
32.50
19.27

$73.13

Then he lowers his keyboard and depresses same, forcibly pulls his handle, and the result is $498.49. He then elevates his auxiliary keyboard and proceeds as before.

The operation of the device in connection with multiplication, is as follows. Suppose we wish to multiply 3921.46 by 125. First place auxiliary keyboard in position shown in Fig. I, the pointer 9 alining with dial of first column. Then depress and latch auxiliary keyboard keys representing the figure 3921.46. Next, either by use of ears 6 or finger piece 5 depress entire auxiliary keyboard which will, of course, cause a "set up" in the regular keyboard of the adding machine of a like

number. Then depress the regular repeat button indicated in Fig. I as 33 and pull the handle five times (equal to units digit of multiplier). Release depressed keys in regular adding machine keyboard and move auxiliary keyboard one column toward the left until pointer alines with tens dial, depress auxiliary keyboard as before and pull handle twice (for the "2" of the multiplier) release keys on adding machine, move auxiliary keyboard another column to left, depress as before, and pull handle once. The result shown on dials is product of 3921.46 multiplied by 125. Thus one of the objects of my device will be understood,—namely, to avoid the necessity of "setting up" the multiplicand 3921.46 in the keyboard more than once. Were it not for such a device, it would have been necessary to "set up" this complete number three times in order to multiply by 125. The same process may be followed in division operation somewhat in a reverse order, as will be understood by those familiar with key setting adding machines.

I have shown my improvement in its preferred form and it appears as an auxiliary keyboard for many purposes. It can be greatly varied and modified. I desire to claim the same specifically as shown and also broadly as indicated by the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In an auxiliary keyboard for calculating machines the combination of depressible latchable key-stems; springs for returning same to normal position; a releasing slide adapted to abut said keystems and unlatch same; a spring for returning said releasing slide to normal position; contact plates carried by said keystems; a suitable tiltable frame comprising stayrod and guide plates for carrying said keystems; suitable mounting for said tiltable frame comprising two flanged wheels at one end and a single wheel at the other; a pointer carried by said tiltable frame; lifting handles attached to said tiltable frame; suitable depressible ways for said mounting wheels comprising two swinging frames, each consisting of a bearing rod and end pieces, one of said rods having positioning notches or grooves; suitable supports for said swinging frames; pivoted parallel ruler connection between said swinging frames and means for maintaining said swinging frames in normal position, substantially as described.

2. In an auxiliary keyboard for calculating machines, the combination of depressible latchable keystems; springs for returning same to normal position; a releasing slide adapted to release said keystems when in latched position; a suitable tiltable frame for carrying said keystems; suitable mountings for said tiltable frame, comprising flanged rollers; a pointer carried by said tiltable frame; suitable depressible ways for said mountings for said tiltable frame, consisting of swinging frames having a synchronous movement; means on one of said swinging frames for laterally positioning said flanged rollers; and a spring for maintaining said swinging frames in normal position, substantially as described.

3. In an auxiliary keyboard for calculating machines, the combination of depressible latchable keystems; means for unlatching said keystems; a tiltable frame for carrying said keystems; a pointer mounted on said tiltable frame; suitable bearings carried by each end of said tiltable frame; depressible ways for said bearings, adapted to move in synchrony; means for pivotally engaging the rear end of said tiltable frame with one of said depressible ways; means for laterally positioning said bearings in said ways; a spring for holding said depressible ways in normal position; and a lift for elevating the forward portion of said tiltable frame, substantially as described.

4. In an auxiliary keyboard for an adding machine, the combination of depressible, latchable keystems; means for unlatching said keystems; a tiltable frame for carrying said keystems; suitable bearings at each end of said tiltable frame; depressible ways for said bearings; pivotal connection between one end of said tiltable frame and one of said depressible ways; a spring for maintaining said depressible ways in normal position; and means for positioning said bearings for said tiltable frame on said ways, substantially as described.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

GLENN J. BARRETT. [L. S.]

Witnesses:
EVERETT E. THAYER,
FRANK W. MOSHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."