

C. WALES.  
 ADDING MACHINE.  
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974,937.

Patented Nov. 8, 1910.

Fig. 1.

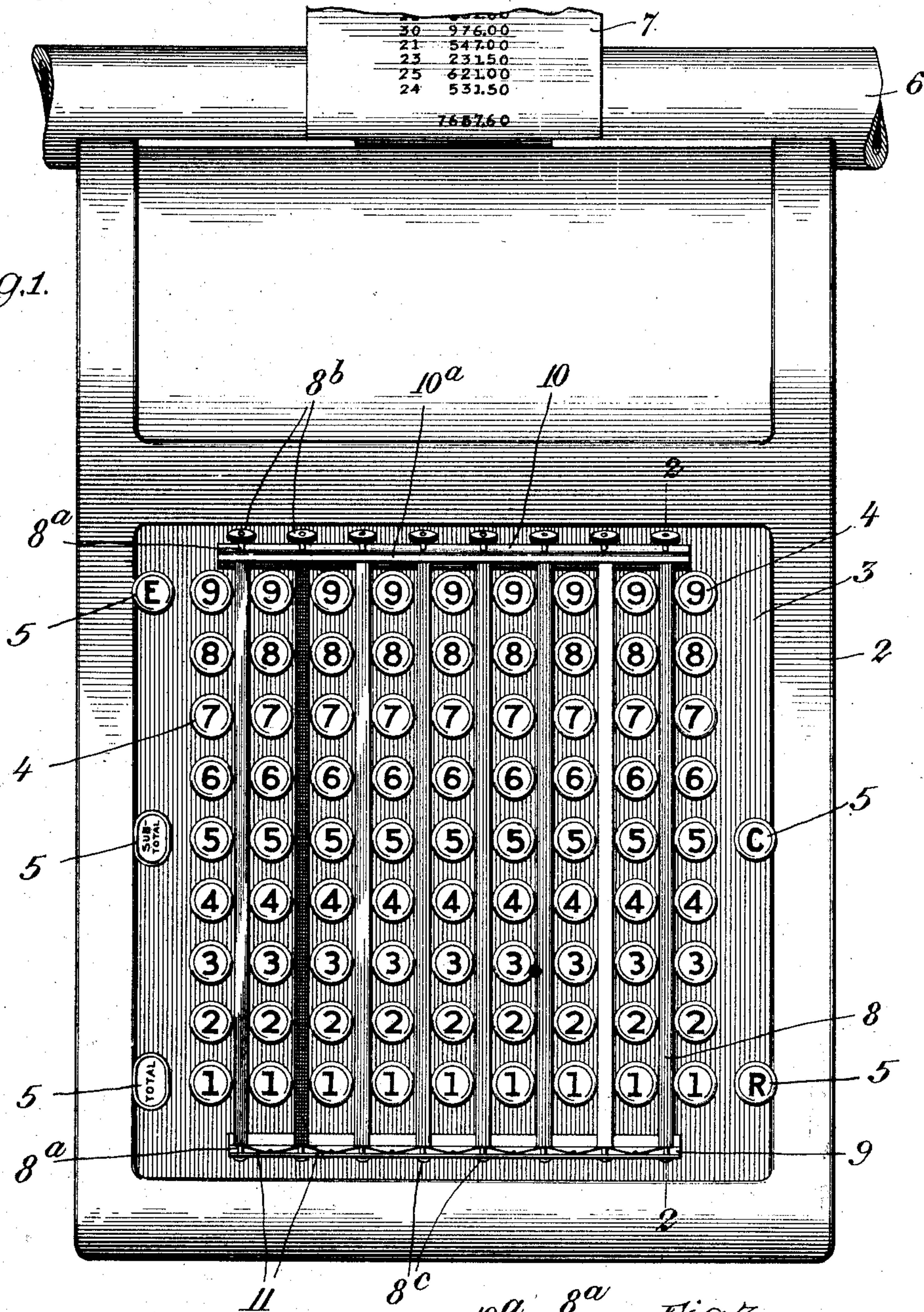


Fig. 2.

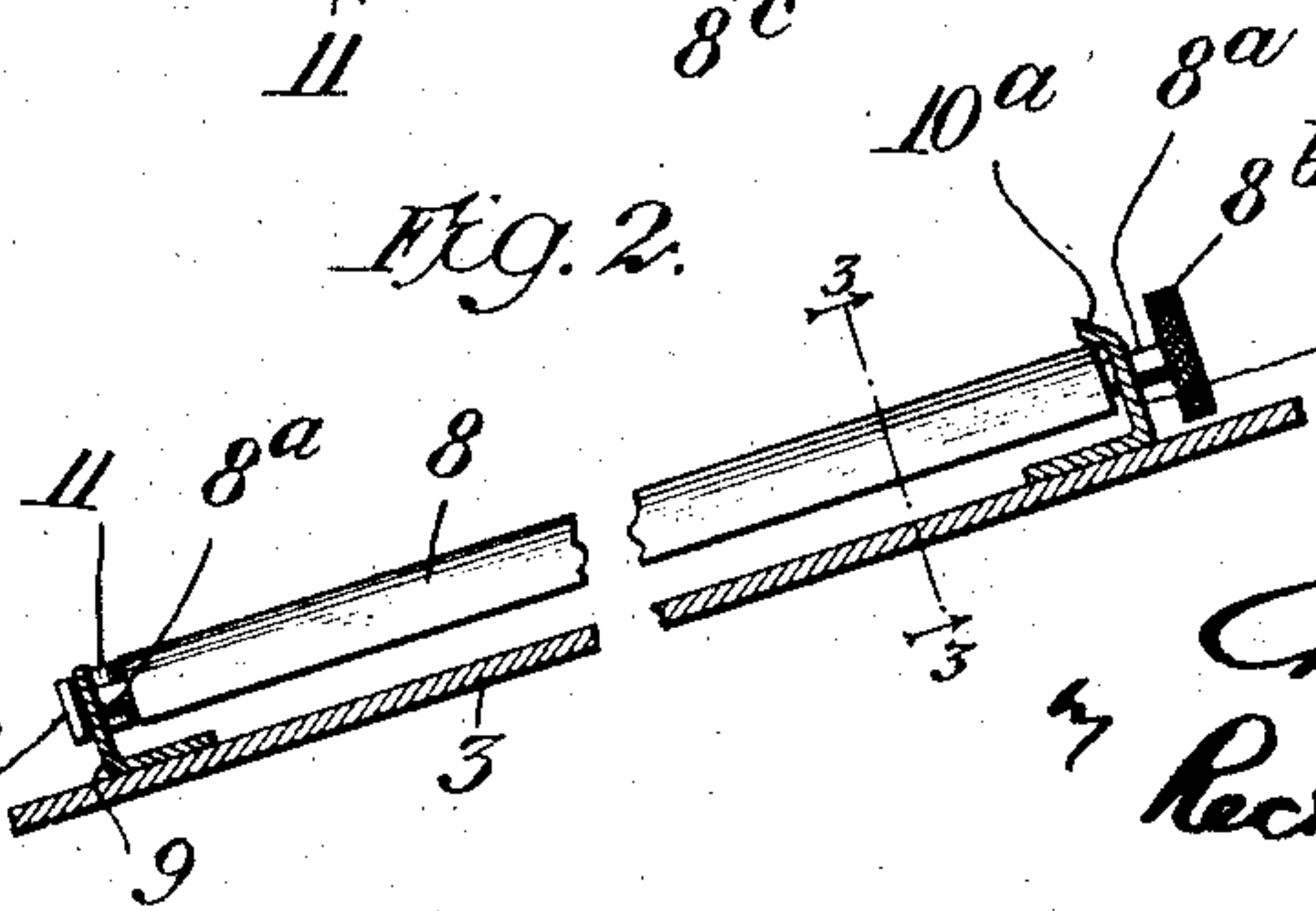
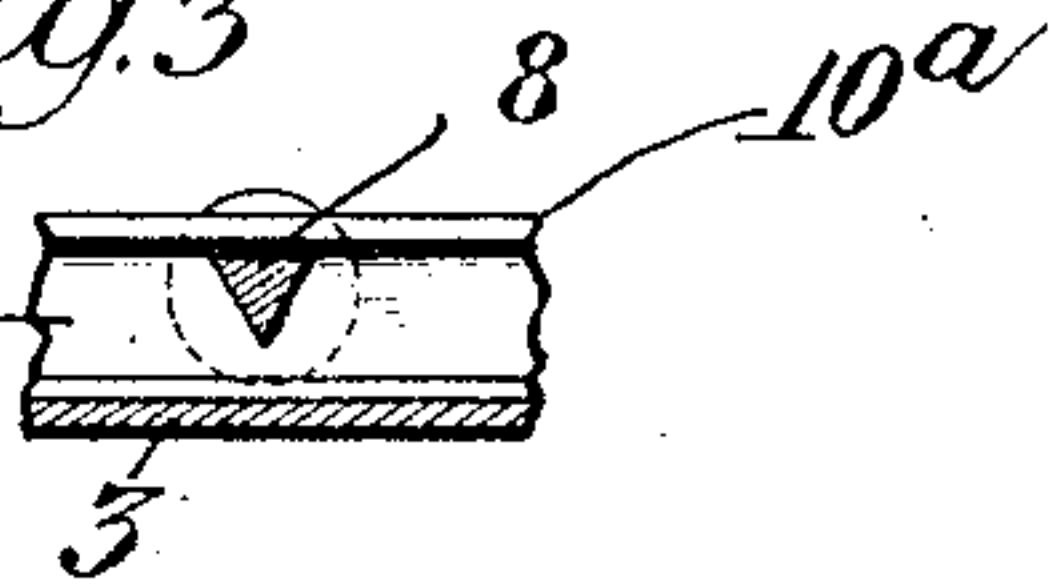


Fig. 3.



Witnesses:  
 E. B. Smith  
 J. B. Quinn

Inventor  
 Charles Wales  
 By Hector H. H. Davis  
 His Atty's.



# UNITED STATES PATENT OFFICE.

CHARLES WALES, OF DETROIT, MICHIGAN, ASSIGNOR TO BURROUGHS ADDING MACHINE COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

## ADDING-MACHINE.

974,937.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed February 6, 1909. Serial No. 476,491.

*To all whom it may concern:*

Be it known that I, CHARLES WALES, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Adding-Machines, of which the following is a specification.

One object of the present invention is to provide a simple and efficient arrangement for indicating the point or points of subdivision in machines equipped for listing simultaneously in two or more columns at will instead of in one solid column. Machines of this character are commonly termed "split and normal" and recent developments of such machines provide for "splitting" or subdividing between any two denominational series of keys and establishing more than one so-called "split" at the same time. It is desirable that the user should always have plainly indicated to him just the point or points at which the machine has been so subdivided so that in manipulating the keyboard he will be sure to observe the lines of subdivision. It is also the aim to provide for varying denominational or decimal indexing subdivision of the keyboard as a guide in calculation or accounting.

With the above-stated objects in view the invention consists in certain novel features of construction and combinations of parts, the essential elements whereof are recited in the appended claims and a preferred form of embodiment of which is described in detail hereinafter and fully illustrated in the accompanying drawings forming a part of this specification.

Of said drawings Figure 1 represents in plan view an adding and listing machine of the well-known Burroughs type with the present improvement applied thereto; Fig. 2 represents a sectional detail broken away, the section line being from front to rear or substantially that indicated by the numerals 2, 2 in Fig. 1; and Fig. 3 is a detail section on the line 3-3 of Fig. 2.

The invention is applicable to various types of adding and listing machines and the illustration in Fig. 1 of a machine of the Burroughs type is to be taken in no sense as a limitation of the scope of the invention. For a full understanding of the present invention no description will be necessary of the details of the adding and listing ma-

chine. Suffice it to state that in Fig. 1 the reference numeral 2 designates the outside casing of the machine; 3 the upper keyboard plate in a panel of such casing; 4 parallel rows of depressible amount keys, each row inscribed from 1 to 9 and extending from front to rear; 5 various special keys to the right and left of the rectangular group of amount keys; 6 a roller platen extending across the back of the machine; and 7 a strip of paper lying over such platen.

For details of construction of the adding and listing mechanism reference may be had to prior patents as follows: Burroughs United States Patents 504,963 and 505,078, issued September 12, 1893; Pike United States Patent 595,864, issued December 21, 1897; Macauley United States Patent 823,474, issued June 12, 1906; Gooch United States Patent 825,205, issued July 3, 1906; and Vincent United States Patents 908,173 and 908,430, issued December 29, 1908; also British Patent 27,269 of 1907. The latter and the Gooch and Vincent patents contain full disclosures of various "split and normal" constructions and Vincent Patent 908,173 shows a form of means for assisting the user in keeping in mind the location of the split. However, this is merely a permanent form of means without provisions to effect adjustments of indicating means between the rows of keys so as to mark the line or lines of subdivision as distinguished from points or places where there is no subdivision so that the user will be constantly informed concerning the split adjustment of the machine and not required to refer to the manipulating means whereby the split condition is established.

In the form of embodiment here shown there extends between each adjacent pair of rows of keys 4 a strip or bar 8 triangular in cross section (see Fig. 3) and extending the entire length of the rows. Each such strip or bar has at each end a reduced portion constituting a journal or trunnion 8<sup>a</sup> and there is mounted upon the keyboard plate 3 a bracket or piece of angle metal 9 extending transversely in front of the group of amount keys, and a somewhat similar bracket or piece of angle metal 10 extending transversely in rear of the group of amount keys. The trunnions 8<sup>a</sup> journal in these brackets respectively and the strips or



bars 8 are thus mounted to rotate. They are also permitted slight longitudinal movement, suitable spacing being allowed between the upstanding portions of the brackets 9 and 10 and the shoulders of the strips from which the trunnions project. Knurled buttons or knobs 8<sup>b</sup> are secured to the upper or rear trunnions with suitable spacing from the bracket 10 and suitable heads 8<sup>c</sup> are secured to the ends of the lower or forward trunnions. Flat or leaf springs 11 secured to the bracket 9 engage the end surfaces of the strips or bars adjacent the lower or forward trunnions, tending to thrust the strips or bars rearward. The bracket 10 has a forwardly-inclined flange 10<sup>a</sup> extending along the top of its upstanding portion and the springs 11 press the upper or rear ends of the strips or bars into contact with the under surface of this inclined flange. As before stated the strips or bars are triangular in cross section from which it follows that the effect of the springs 11 pressing the strips or bars into contact with the said inclined flange will be to yieldingly hold the strips or bars with one flat side uppermost as illustrated in Fig. 3. Turning of a strip or bar by its knob 8<sup>b</sup> in rotating a corner at the upper end against such inclined flange will force the strip or bar slightly forward against the stress of the spring 11 and when such corner has been turned past the center the spring pressure will tend to further turn the strip or bar by reason of the cam action of the inclined flange, and bring the strip or bar to a position with one of its sides uppermost. Now the different sides of each strip or bar have their surfaces differently characterized as by being differently colored. Thus when turned to one position a strip by the color of its exposed side will indicate that a split exists between the rows of keys on opposite sides of the strip. In Fig. 1 the second strip or bar from the left is represented as so indicating. Of course if the machine is split or subdivided at more than one point then one or more other strips or bars will be similarly adjusted. Other sides of the strips or bars will be colored or of such character as to harmonize with the keyboard plate 3 so that there will be an absence of indication or a normal condition. The remaining sides of the strips are still differently characterized, *i. e.* differently from both the other two sides so as to provide for denominational or decimal indications such as that between dollars and cents, (see the second strip from the right in Fig. 1). Or the third and sixth bars may be caused to subdivide the keyboard into groups of rows of three each to assist in calculation.

It will be seen that the above-described construction is well adapted to accomplish the objects primarily stated, though of course it is to be understood that the inven-

tion is not necessarily limited to this particular form of embodiment.

What I claim is:

1. In a machine of the character described, the combination with parallel rows of denominational keys; of indicators located between rows and adjustable singly to indicate subdivision. 70
2. In a machine of the character described, the combination with parallel rows of denominational keys; of strips extending between rows and adjustable singly to indicate subdivision. 75
3. In a machine of the character described, the combination with parallel rows of amount keys; of a strip extending between rows and having differently characterized sides separately exposable. 80
4. In a machine of the character described, the combination with parallel rows of denominational keys; of an indicating strip extending between rows and rotatably mounted. 85
5. In a machine of the character described, the combination with parallel rows of denominational keys; of an indicating strip extending between rows and rotatably mounted and having a different surface characteristic on one side from another. 90
6. In a machine of the character described, the combination with parallel rows of denominational keys; of a strip or strips extending between rows and having differently characterized sides and adjustable to indicate subdivision, and means for holding such strip or strips in different positions. 95 100
7. In a machine of the character described, the combination with parallel rows of amount keys; of an indicating strip extending between rows and rotatably mounted, and means for holding such strip in different positions. 105
8. In a machine of the character described, the combination with parallel rows of denominational keys; of an indicating strip extending between rows and rotatably mounted, and means of a yielding nature for holding the strip in different positions. 110
9. In a machine of the character described, the combination with parallel rows of denominational keys; of an indicating strip extending between rows and triangular in cross section, brackets in which such strip is journaled at opposite ends with provisions for longitudinal movement, one of such brackets having a flange engaging end edges of the strip, and a spring thrusting the strip toward such flange. 115 120
10. In a machine of the character described, the combination with parallel rows of amount keys; of means extending between rows and adjustable to cause an absence of indication and two different indications. 125
11. In a machine of the character de- 130



scribed, the combination with parallel rows of amount keys; of a strip extending between rows and adjustable to expose any one of three differently characterized sides.

5 12. In a machine of the character described, the combination with parallel rows of amount keys; of a rotatable strip extending between rows and differently characterized on three different sides.

10 13. In a machine of the character described, the combination with parallel rows of amount keys; of a three-sided strip extending between rows and differently char-

acterized on different sides and adjustable to expose any one of such sides.

14. In a machine of the character described, the combination with parallel rows of amount keys of a rotatable three-sided strip extending between rows and differently characterized on different sides and adjustable to expose any one of such sides. 15 20

CHARLES WALES.

Witnesses:

R. S. MIELERT,  
ARTHUR W. FRENZEL.