J. C. McLAUGHLIN.

TYPE WRITING MACHINE.

APPLICATION FILED NOV. 8, 1907.

910,410.

Patented Jan. 19, 1909.

FIG. 1.

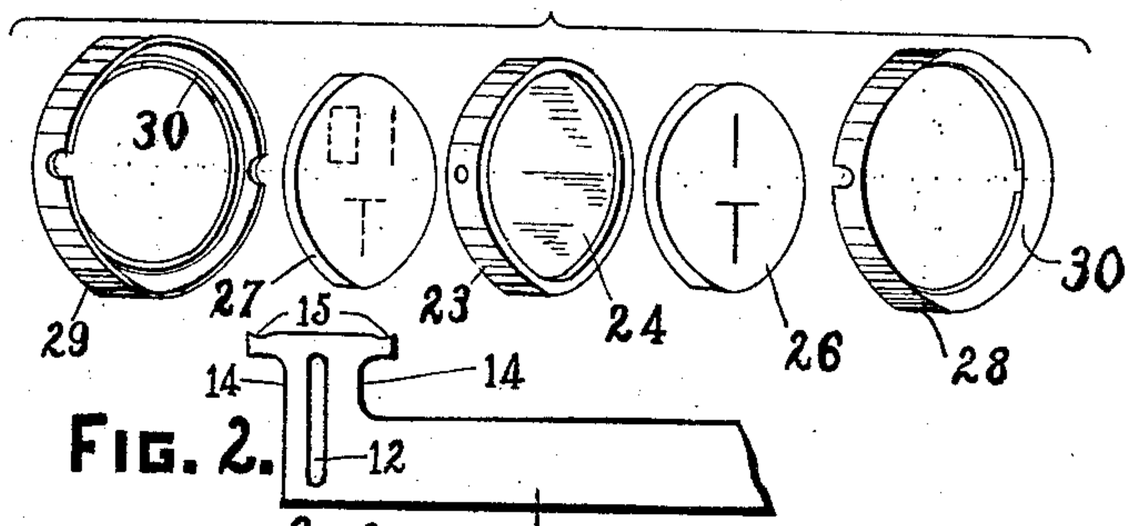


FIG. 2.

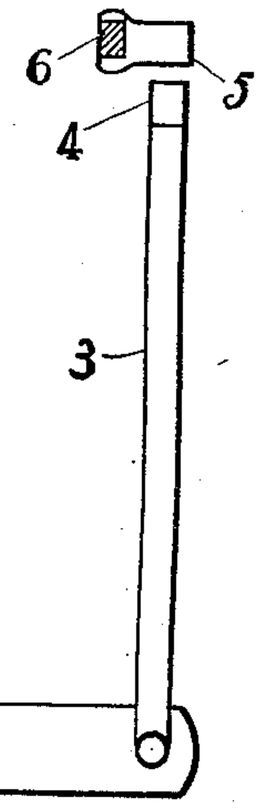
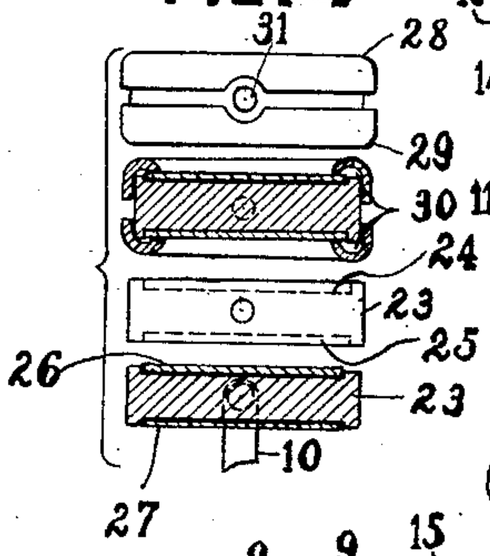


FIG. 3.

FIG. 4



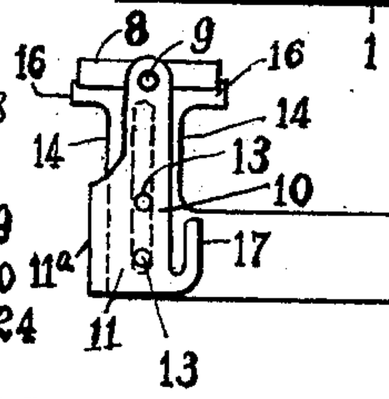


FIG. 5.

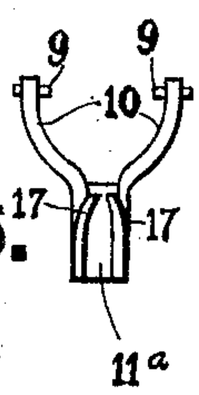


FIG. 6.

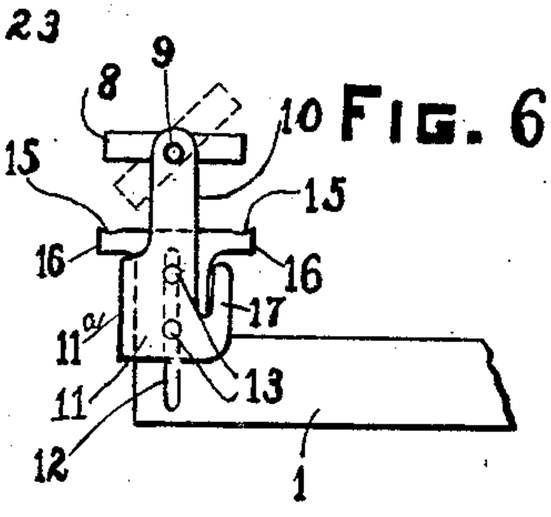


FIG. 7.

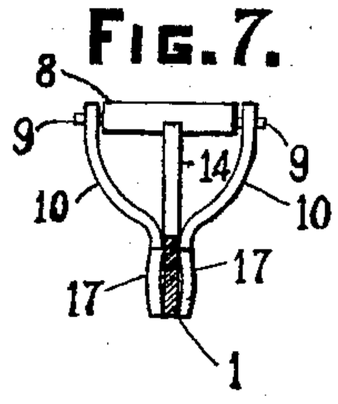


FIG. 8.

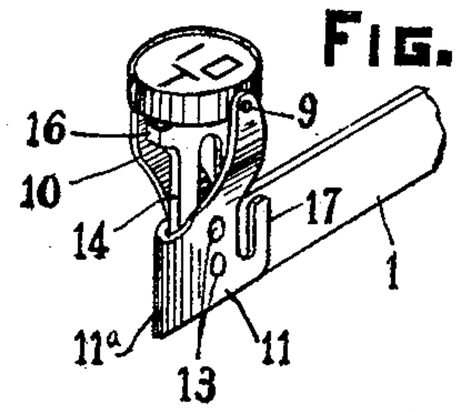
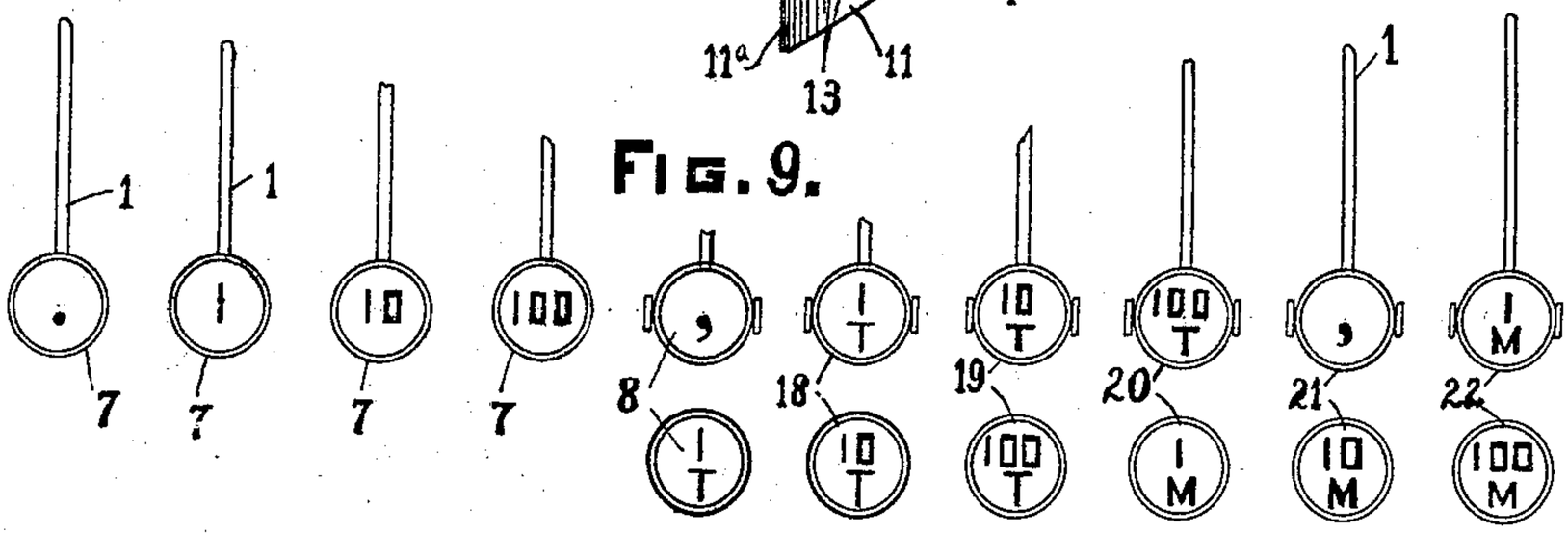


FIG. 9.



WITNESSES:

John C. Seifert.

E. H. Adams.

INVENTOR:

JOHN C. McLAUGHLIN.

By C. C. Tierney

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN C. McLAUGHLIN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TYPE-WRITING MACHINE.

No. 910,410. Specification of Letters Patent. Patented Jan. 19, 1909.

Application filed November 8, 1907. Serial No. 401,197.

To all whom it may concern:

Be it known that I, JOHN C. McLAUGHLIN, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to tabulating mechanisms of the kind known as decimal tabulators, in which separate denomination keys are provided, one for each denomination or punctuation point.

It is usual in typewriting machines provided with decimal tabulating mechanism, to provide a set of denomination keys, one for each denomination, and also including keys for the commas or spaces intervening between the different denominational groups, that is, between hundreds and thousands, and also between hundreds of thousands and millions. This arrangement is found to be suitable for general purposes; but in some cases it is necessary to use larger denominations than the keys are intended for, and it is found impracticable to use the mechanism for that purpose.

One of the main objects of my invention is to render it practicable to employ the usual set of denomination keys and their connected stops for the purpose of securing a greater range of denominations, when desired. By omitting the punctuation marks or spaces between the denominational groups, two or three more figures can be written in their proper places by the use of the denomination keys. There needs to be no change made in the denomination stops in order to get the greater range of operation, but I have contrived to use those stops either for a low range of work in which use is made of the punctuation points, or for a higher range of work in which the punctuation points are omitted.

In carrying out my invention, I employ reversible finger keys for the higher denominations, each key having different characters on its opposite faces or indexes, so that by reversing all the keys, the mechanism may be used for either the short or the long range of denominations. The first four keys are used respectively for decimal point, units, tens and hundreds, under all circumstances, these keys being not reversible. The remaining keys are reversible, the first one having on one face a comma or blank to provide for a punctuation point or space between hundreds and thousands. On its opposite side, this key bears the character for thousands; and so on through the remaining keys. Each of the reversible keys is preferably mounted upon its lever by means of a holder which may be lifted to release the key and permit its rotation, and then depressed to secure the key on its seat on the lever. By this means, it becomes practicable for a manufacturer to furnish a tabulator for either a high or low range of work, as desired, and at any time, by a simple manipulation, the mechanism may be adapted for the other range.

In the accompanying drawings, Figure 1 shows in perspective a group of the parts which make up my improved reversible tabulating key. Fig. 2 is a fragment of the front end of a key bearing lever. Fig. 3 is a diagrammatic elevation of a key bearing lever and a denomination stop operated thereby. Fig. 4 is a group of views illustrating the details of construction of the denomination key. Fig. 5 is a rear view of a strap or clip to fit over the front end of the key lever and having a yoke in which the key is to be swiveled. Fig. 6 illustrates the method of releasing the key to permit it to turn over. Fig. 7 is a sectional view of the front part of the lever and its appurtenances. Fig. 8 is a perspective view of the parts seen at Fig. 7. Fig. 9 is a diagram of a set of key-bearing denomination stop levers, four of the keys being of the ordinary type, and the remaining keys being reversible; the same being shown as adapted for a short range of work. Beneath the reversible keys, I show the respective denominational characters which are provided on their under faces, and it will be understood that by simply turning the keys over, these characters will be brought uppermost, and the mechanism will then be adapted for a greater range of work.

Denomination keys are carried upon the front ends of levers 1 pivoted at 2, and carrying at their rear ends upstanding thrust rods 3, upon the top of each of which is formed a denomination stop 4 to coöperate with a column stop 5 mounted upon the usual bar 6 of a traveling carriage. As my present improvements relate to the keys, it will be understood that any kind of stop

mechanism may be employed; and it is not essential that the keys be mounted upon levers. The first four keys of the group, designated as 7, and bearing the characters from decimal point to "100", inclusive, are ordinary keys and secured in the ordinary manner upon the levers. The next key, designated as 8, is reversible, being for this purpose swiveled by pivots 9 within a yoke 10 extending up from a sheet metal clip 11 folded at 11^a, clasping the front end of a lever 1. In the front part of the latter is provided a vertical slot 12, through which extend rivets 13 from the sides of the clip, whereby the latter is guided in an upward movement to release the key, Fig. 6, the slot 12 extending up into the stem portion 14 of the lever sufficiently high to permit the key to swing over, as shown in dotted lines. When the key has been turned, it is pushed down into a seat 15 formed on front and rear projections 16 on said stem 14, the key being then held firmly down upon said seat by means of a pair of spring fingers 17 formed upon the rear end of the clip to embrace and press against the sides of the lever 1. Thus it will be seen that by a simple operation, the six right hand keys in the top row at Fig. 9, numbered respectively, 8, 18, 19, 20, 21, and 22, may be reversed to bring uppermost the faces shown in the bottom row in said figure, whereby the capacity of the keyboard is changed from 1,000,000 to 100,000,000.

Each of the reversible keys may consist of a disk-like body portion 23 having recesses 24, 25 in its top and bottom faces, in which respectively fit character-bearing celluloid or paper disks 26, 27, which are held in place by annular caps 28, 29 forced over the edges of the body 23, and having internal flanges 30 to retain the disks. On the opposite sides of the body are formed pivot-holes 31 to receive the gudgeons 9, whereby the key is swiveled in the yoke 10.

Having thus described my invention, I claim:

1. The combination with a lever or the like, of a reversible key, which is mounted upon a holder which coöperates with the lever to secure the key, said holder movable away from the lever to release said key from the lever and permit the reversal of the key.

2. The combination with a lever or the like, of a reversible key, which is mounted upon a holder which is movable away from the lever to release said key to permit its reversal, said holder comprising a yoke in which the key is swiveled, and means for retaining the yoke in a position to lock the key to the lever.

3. The combination with a lever or the like, of a reversible tabulating-denomination key, which is mounted upon a holder which is movable away from the lever to release said key to permit its reversal, said holder comprising a yoke in which the key is swiveled and a stem portion mounted to move up and down on the lever, and means for yieldingly retaining the holder in its depressed position, to clip the key to the lever.

4. The combination with a key lever, of a reversible key, a yoke in which the key is swiveled, a strap upon which said yoke is formed, and a key lever embraced by said strap, said key lever having a seat for the key, and means being provided for detaining the strap in its depressed position, with the key resting upon said seat.

5. The combination with a lever, of a strap folded over the end of the lever and having arms to form a yoke, a reversible key swiveled in said yoke, a seat for said key being formed upon said lever, and means to guide the strap in an up and down movement upon said lever to release the key for reversal, and then to reseat the key.

6. The combination with a lever, of a strap folded over the end of the lever and having arms to form a yoke, a reversible key swiveled in said yoke, a seat for said key being formed upon said lever, means to guide the strap in an up and down movement upon said lever to release the key for reversal, and then to reseat the key, and means being provided for detaining the strap in its depressed position.

7. The combination with a lever, of a strap folded over the end of the lever and having arms to form a yoke, a reversible key swiveled in said yoke, a seat for said key being formed upon said lever, and means to guide the strap in an up and down movement upon said lever to release the key for reversal, and then to reseat the key; said guiding means including a vertical slot formed in the end of the key lever below said seat, and means upon the strap to engage said slot.

8. A system of keys for a denomination-selecting mechanism including a series of unchanging keys for denominations up to and including hundreds, and a series of changeable keys for higher denominations; one set of faces or indexes of the changeable keys including punctuation marks or spaces to separate the hundreds from the thousands group and to separate the latter from the millions group, and separating spaces or marks being omitted from the other set of faces or indexes, the latter having a correspondingly greater range of denominations.

9. A reversible key comprising a disk-like body recessed on its top and bottom faces, disks fitting within said recesses and bearing different denominational characters, and annular caps fitting over the top and bottom edges of the body and confining said disks; said body having a pivot or bearing upon which it may turn.

10. The combination with a set of un-

changeable denomination stops, of a set of denomination keys connected to said stops to operate the same, certain of said keys bearing changeable indices or characters to enable each of their connected stops to serve for different denominations, or for alternate punctuation and denomination, and thereby to enable the entire set of keys and stops to serve for alternate systems of tabulation.

JOHN C. McLAUGHLIN.

Witnesses:
JOHN O. SEIFERT,
KITTIE FRANKFORT.