

(Model.)

2 Sheets—Sheet 1.

D. M. RUSH.
ADDING MACHINE.

No. 292,256.

Patented Jan. 22, 1884.

Fig. 1.

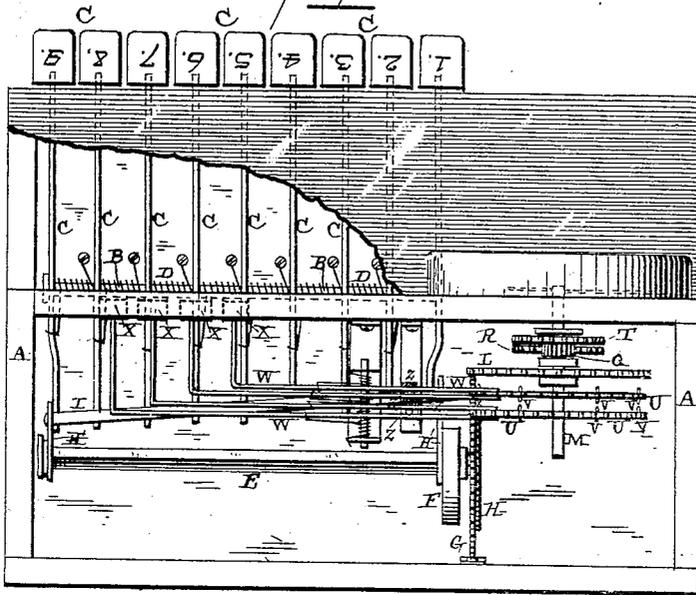
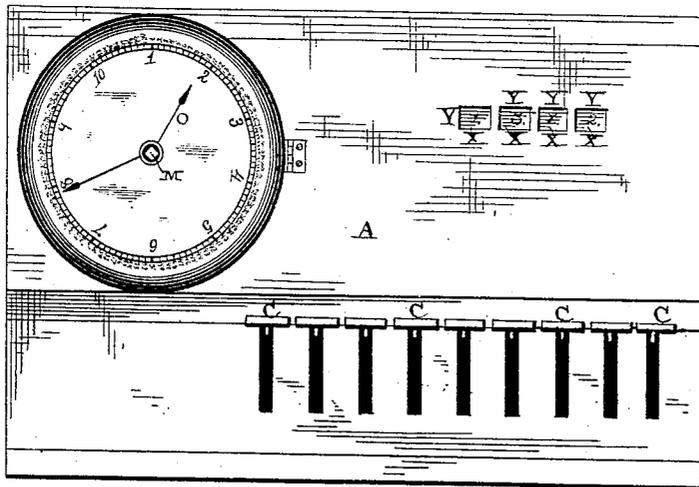


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

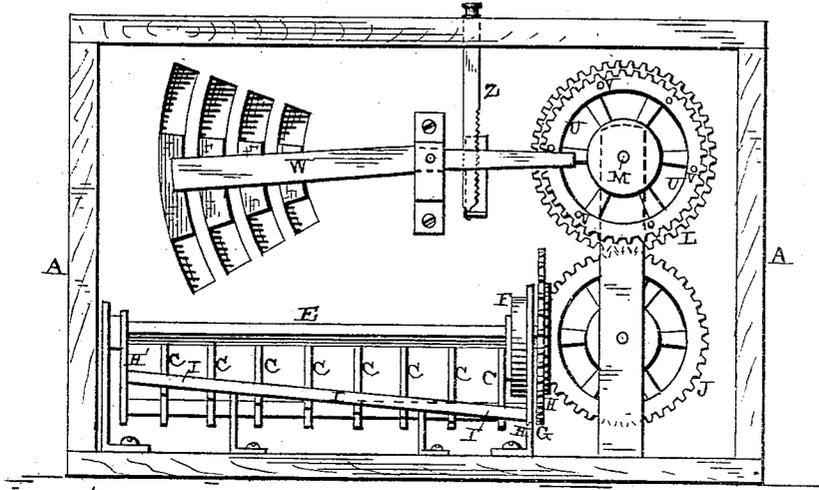


Fig. 4.

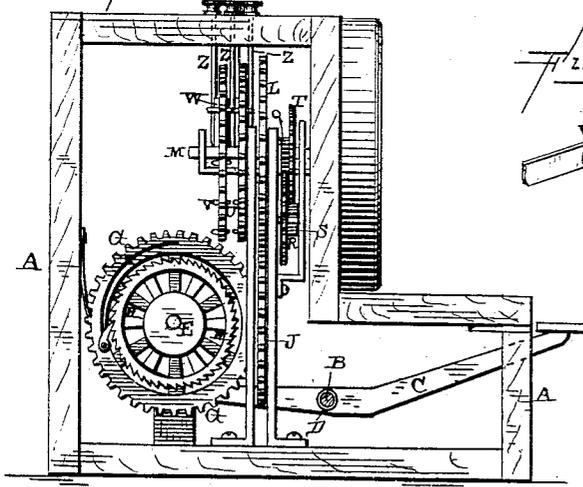


Fig. 5.

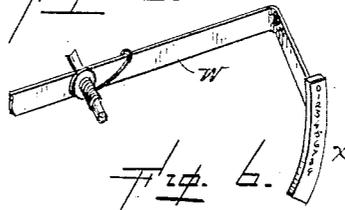
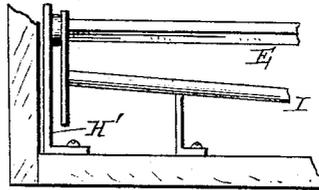


Fig. 6.



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UNITED STATES PATENT OFFICE.

DAVID MARION RUSH, OF LOUISBURG, MISSOURI.

ADDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 292,256, dated January 22, 1884.

Application filed July 25, 1883. (Model.)

To all whom it may concern:

Be it known that I, D. MARION RUSH, of Louisburg, in the county of Dallas and State of Missouri, have invented certain new and useful Improvements in Adding-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in adding-machines; and it consists, first, in the combination of the spring-actuated operating levers or keys, which are pivoted near their centers, the main operating-shaft and a rod which is set at any angle to the shaft, and against which rod the inner ends of the spring-actuated levers are made to bear for the purpose of moving the main shaft; second, in the combination of the shaft connected with the dial-hands, a series of wheels which are placed upon the shaft, each one of which is provided with studs or projections, spring-actuated levers having numbering-blocks secured to their ends, the frame having suitable slots through its side to display the figures, and the notched rods for locking the levers in place; third, in the combination with the shaft which is connected with the dial-hands, a series of wheels placed thereon, the spring-actuated levers having numbering-blocks secured to their inner ends, and the frame having suitable slots through its front side to display the figures on the blocks, all of which will be more fully described hereinafter.

The object of my invention is to provide a counting-machine by means of which figures may be added rapidly and accurately.

Figure 1 is a plan view of a machine embodying my invention, parts of the frame being removed. Fig. 2 is a front elevation of the same. Fig. 3 is a rear view, the frame being removed so as to show the operating parts. Fig. 4 is an end view. Figs. 5 and 6 are detail views.

A represents a suitable frame, in which is secured rigidly the pivotal rod B, upon which the keys or the operating-levers C are arranged. Upon this rod B are secured the springs D,

which bear upon the rods near their inner ends, so as to always return them to position after they have been depressed by the operator. Journalled in suitable bearings in the frame, just beyond the ends of these operating-levers, is the main operating-shaft E, which has the spring F and the wheels G and H secured to one end. The spring returns the shaft and the wheel H back to position after it has been moved by one of the operating-levers, while the wheel G operates the counting mechanism. Secured to this main shaft by means of the arms H' is the rod I, which rod is arranged at an angle to the main shaft, as shown. This rod is arranged at an angle for the purpose of causing the operating-levers, when depressed, to turn the main shaft a greater or less distance, according to the number of the lever that is operated. That end of the rod which is farthest away from the shaft is operated upon by the operating-levers which are shortest, and which indicate the smallest numbers, while that portion which is nearest to the rod is operated upon by the longest levers and those which indicate the largest numbers. When the lever which indicates 1 is depressed, the shaft is turned just far enough to move the indicating mechanism one point, whereas, if the key or lever which represents 9 is depressed, the indicating mechanism is moved nine points. If any of the intermediate levers are depressed, they operate the indicating mechanism a distance corresponding to the number which they represent. The ratchet-wheel H on the end of the shaft E contains one hundred cogs, so as to correspond to the number of teeth on the wheel G.

The wheel G upon the end of the main shaft should contain one hundred cogs, and meshes with the wheel J, which is placed at right angles thereto, and which may contain any suitable number of cogs. This wheel J meshes with the wheel L, which has one hundred cogs, and which is secured directly to the shaft M, upon which the larger indicator-hand is secured. This indicator-hand sweeps around over the face or dial, which is divided on its outer surface into ten points or divisions, and which is subdivided again into ten or any desired number of spaces. Each space being

numbered, a person can see at a glance how many either or both of the hands are indicating, and thus save time and trouble of counting up the number indicated. This division is similar to the division upon the dial-plate of a clock, and for the same purpose. The smaller indicator-hand O indicates the number of hundreds the larger hand has swept around the dial. Secured to the shaft M, just in advance of the wheel L, is the pinion Q, which has any suitable number of cogs, and which meshes with the wheel R below it, having a suitable number of cogs. Upon the same shaft as the wheel R is the pinion S, which has a suitable number of cogs, and which gears with the wheel T, having a suitable number of cogs. This wheel T is secured to a thimble placed upon the shaft M, and through the outer end of this thimble is secured the smaller indicator-hand O. Each time the large indicator-hand sweeps once around the small indicator-hand sweeps through one of the smaller subdivision of the dial and indicates another hundred. Secured upon this shaft M, in the rear of the wheel L, will be any desired number of wheels U, which have a series of studs or projections, V, extending from their faces, for the purpose of operating the spring-actuated levers W. These levers are pivoted upon suitable supports, and have one of their ends to extend out, so as to be operated upon by the studs or projections, while their other ends carry blocks X, upon the faces of which are marked suitable numbers which run in regular order. These blocks move in curved grooves made in the inner side of the frame, and over the slots Y, which are made through the front of the frame for the purpose of showing the figures through them. As the wheels are made to revolve, the studs or projections strike against the ends of the levers for the purpose of depressing those ends of the levers, while the other ends are correspondingly raised, so as to present other figures through the openings. One of these levers will indicate units, another tens, another hundreds, another thousands, and so on to any desired degree. The right-hand figure of each column is always shown upon the small wooden block attached to the end of the corresponding lever. These blocks are marked from 0 to 9, as shown in Fig. 5, and the figures are so adjusted that the block corresponding to the column being added stands at 0 when the long pointer or hand indicates any number ending with 0, and rises from 1 to 9 as the pointer moves on around, and drops back again when any number ending in 0 is reached, thus always keeping the right-hand figure of the column being added visible through the small slot in a part of the box to the right of the dial or face. The studs or projections upon the wheels are arranged just far enough apart to move the inner end of the lever having a block attached thereto from 0 to 9, and when the lever has moved far enough to exhibit the figure 9 through the slot the end of the lever is ready to slip off the projection at the next movement, when the spring attached to the lever instantly returns it to position, where it shows 0 through the slot. Only four of the levers and the wheels provided with studs are here shown; but others, as herein described, will be added. For each one of these levers which are operated by the wheels there projects through the cover of the frame a notched rod, Z, which is moved by means of a thumb nut or head upon its top. These rods being turned one-quarter around, serve to engage with the levers and hold them out of contact with their respective wheels. These rods Z are provided with a series of notches, so that when the rod is turned partially around by hand one of the notches will catch over the top of its rod, in whatever position the rod may be held. The notches upon the rod Z act as cams to spring lever W to one side when the rod is turned out of the path of the pins V. This notched rod Z serves to hold the lever down in position for the purpose of preventing it from being operated again until the whole sum has been added up. For instance, in adding up a number of columns of figures, when the sum of the first column is found the lever which indicates this sum is then locked in place, so as to prevent it from being again moved. Each of the other levers is in turn locked in place until the whole sum is found. If in adding the units-column we obtain, for instance, thirty-seven for a sum, we turn the notched rod to the right one-quarter around, and the register-lever is caught in the ratchet below and held in position, but out of gear with its operating-wheel when the lever denoting tens column and which carries another wooden block just to the left of the one denoting units-column and numbered in the same way, is thrown in gear by means of another notched rod, and operates the same as the one on the right, the right-hand block, or the one denoting units-column, being still held firmly in position, still showing the above figure 7 at the right-hand edge of the slot. If, now, in adding tens-column we obtain forty-eight for a sum, we turn the notched rod which governs the lever corresponding to tens-column to the right one-quarter around and the lever is caught by the ratchet and held in position, the two wooden blocks now indicating the tens and units figures of the sum, or eighty-seven. Other levers and blocks denoting other columns, as hundreds, thousands, &c., are placed each in order just on the left of the two described, and are operated in the same manner. Then by turning thumb-pieces one-quarter around the levers are returned to the starting-point again. Having finished the page or entire column of figures to be added and taken down the entire sum, as shown by means of register and indicators, it is only necessary to refer to the indicator for the left-hand figure

of the last column added, when that column amounts to less than one hundred, or for the two left-hand figures when the last column amounts to more than one hundred and less
 5 one thousand, and are still held out of gear; but when the thumb-pieces, one at a time, are turned one-half way around again the levers are thrown in gear, ready for use.

Having thus described my invention, I
 10 claim—

1. The combination of the spring-actuated operating-levers C, pivoted at B, the operating-shaft E, and the rod I, set at an angle to the shaft, the lever C being made to bear upon
 15 the rod I, in the manner and for the purpose shown.

2. The combination, with the shaft M, having series of wheels provided with studs or projections, of the spring-actuated levers hav-

ing numbered blocks secured to their ends, 20 the frame having suitable slots through its side to display the figures, and the notched rod Z, for locking the levers in place, substantially as described.

3. The combination, with the shaft M, hav- 25 ing a series of wheels which are provided with studs or projections, the spring-actuated levers having the numbered blocks secured to their inner ends, and the frame having suitable slots through its front side to display the 30 figures, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID MARION RUSH.

Witnesses:

THOS. C. OPDYCKE,
 JACOB DRAKE.