O. C. DAVIS.

COUNTING MACHINE.

APPLICATION FILED DEC. 24, 1912.

1,088,971. Patented Mar. 3, 1914.

Fig. 1.

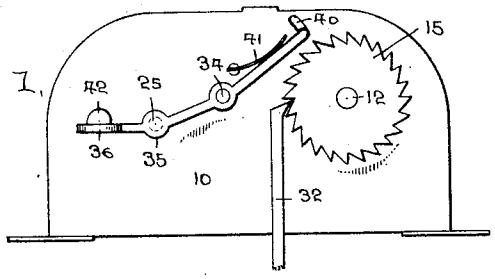


Fig. 4.

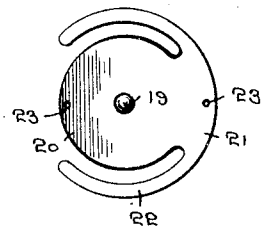


Fig. 3.

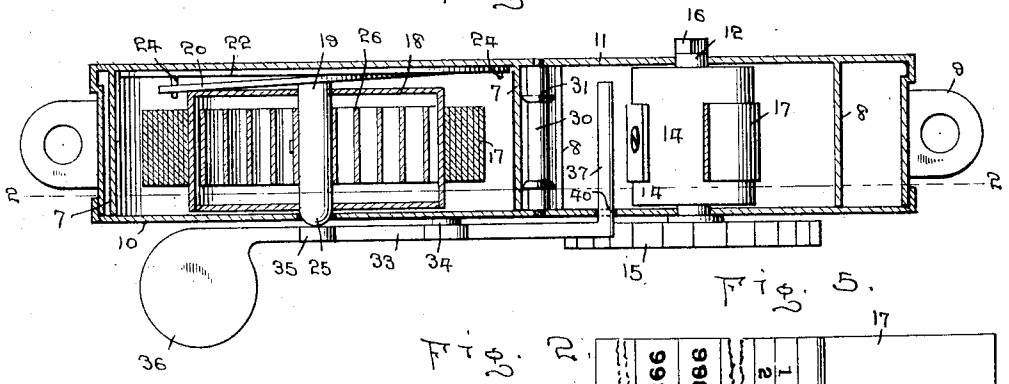
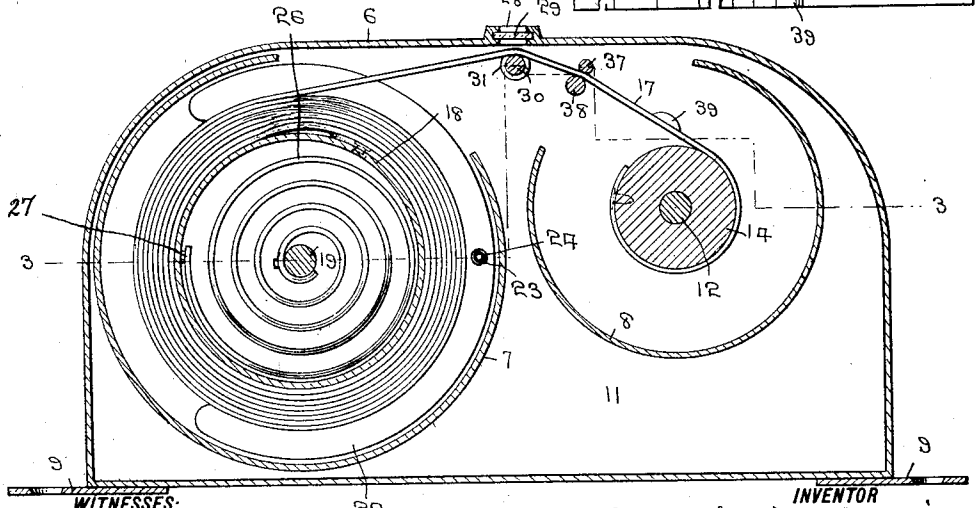


Fig. 5.

Fig. 2.



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COUNTING-MACHINE.

1,088,971. Specification of Letters Patent. **Patented Mar. 3, 1914.**

Application filed December 24, 1912. Serial No. 738,415.

To all whom it may concern:

Be it known that I, OSCAR C. DAVIS, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented certain new and useful Improvements in Counting-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 appertains to make and use the same.

This invention relates to a counting machine, and it more particularly relates to an attachment for typewriters.

An object of the invention is to provide a new and improved machine adapted to be attached to typewriters, for automatically counting the words.

Another object of the invention is to provide a device of this character which is simple in construction and operation, compact, durable, economical to manufacture and maintain, and thoroughly efficient in operation.

Another object is to provide for easily and quickly returning the counting mechanism to the starting position.

Other objects and advantages may be recited hereinafter and in the claims.

In the accompanying drawings, which supplement this specification, Figure 1 is a full sized side elevation view of my improved counting machine. Fig. 2 is an enlarged vertical sectional view on the line 2—2 of Fig. 3. Fig. 3 is an enlarged horizontal sectional view on the line 3—3 of Fig. 2. Fig. 4 is an elevation view of a combined spring and axle member, and, Fig. 5 is a fragmental view of the numbered or graduated tape from which the number of recorded words is read.

In these drawings, in which similar reference characters correspond to similar parts throughout the several views, the main body of the invention comprises a casing 6 having compartments 7 and 8 formed therein and provided with apertured ears 9 for the purpose of securing the casing to a typewriter. The casing has its side walls 10 and 11 apertured, and through certain of these apertures are journaled an axle 12 which extends through a drum 14 and is secured thereto and adapted to rotate therewith. On one end of the axle 12 is secured a ratchet wheel 15, while the other end of the axle is squared at 16, for the reception of a suitable wrench or key (not shown).

A graduated and numbered tape 17, which may be made of steel or other practically non-stretchable material, has one end secured to the drum 14, and is adapted to be wound thereon. The other end of the tape 17 is secured to a hollow drum 18 which is loosely mounted upon a non-rotatable axle or stud 19 which is formed concentrically with a disk 20 of springy material. This disk is provided with an extension 21 on which is formed a pair of oppositely disposed arcuate arms or bearing elements 22, the arc of each arm being concentric with the shaft or axle 19. The arms 22 have their planes at a slight angle to the plane of the disk 20, while the axle 19 stands approximately at right angles to said disk. The disk may be provided with apertures 23, for the reception of studs 24 within the casing, so as to prevent rotation of the disk and axle. The free end 25 of the axle 19 is preferably rounded or hemispherical, and this hemispherical end extends through one of the apertures in the wall 10.

Within the hollow drum 18 is secured a volute spring 26, one end thereof being secured to the drum at 27, and the other end being secured to the shaft 19. The object of this spring is to cause the hollow drum 18 to rotate on the axle 19, so as to rewind the graduated strip of tape 17 upon the drum 18 after it has been unwound therefrom, so as to return the tape into its initial position after it has registered its maximum number. The top of the casing is provided with a view-opening or window 28, in which a plate 29 of glass or other transparent material is seated. Directly under the opening, and adjacent thereto, is a flanged guide or roller 30, the flanges 31 of which are spaced apart sufficiently to receive the tape 17 therebetween and to guide it upon the drums 14 and 18. The object of the spring-disk member (illustrated in Fig. 4) is not only to provide a pivotal support for the drum 18, but also to provide a tensioning means, whereby the drum 18 is held normally in contact with the side wall 10; and also in contact with the disk 20, which latter presses upon the peripheral portion of said drum, as shown in Fig. 3.

The drum 14 is rotated by means of a ratchet wheel 15, which latter is rotated by

means of a pawl 32. This pawl is adapted to be connected to any suitable portion of a typewriter (not shown), which may be in connection with the space-bar or similar element of the typewriter, so that the pawl 32 is reciprocated each time the space-bar is operated, and therefore, at the end of each word, the pawl 32 is moved a distance equal to one of the notches in the ratchet wheel 15, and in doing so, the tape 17 is wound upon the drum 14 a distance equal to one of the graduations of the tape, so as to bring the numbers on the tape successively in front of or under the window 28. It will be seen that as the quantity of tape increases upon the drum 14, the diameter of the tape on the drum increases, and consequently, the tape moves faster and faster, or farther and farther with each stroke as the counting or registering advances. In other words, each movement of the pawl 32 will carry the tape approximately twice the distance toward the last of the operation than it was carried at the beginning, and therefore, the graduations on the tape must gradually increase in length from the smallest to the largest of the numbers on the tape.

After the greatest number on the tape has been registered, and it is desired to return the tape to its initial position, the drum 18 is released from its frictional contact with the wall 10 by depressing the spring 20, through the medium of the axle 19, as follows: The lever 33 is pivoted to the wall 10 at 34, and is provided with a widened portion 35 and a finger-piece 36. Formed upon one end of the lever 33, and extending at right angles thereto, is an arm 37 which extends through one of the apertures in the wall 11, and lies normally upon the tape 17, which at this point travels over a roller 38. By moving the finger-piece 36 downward, the widened portion 35 is forced upon the end of the axle 19, the rounded end of the axle constituting a cam surface by means of which the axle 19 and disk 20 are forced in the direction of the wall 11, so as to release the drum 18 from its frictional contact with the wall 10, thereby allowing the spring 26 to actuate the drum 18, so as to rewind the tape 17 upon the hollow drum. Of course, the pawl 32 must be disengaged from the teeth of the ratchet wheel 15 while the tape 17 is being returned to its initial position. When the initial position has been reached, a lug or lifter member 39, which is secured on the tape 17, moves into contact with the lower side of the arm 37, so as to lift the latter and thereby swing the lever 33 on its pivot so as to release the cam surface 25 from its engagement with the flattened portion or holder 35, whereupon the spring disk 20 again forces the hollow drum into frictional contact with the wall 10. The aperture through which the arm 37 extends constitutes a slot 40 in which said arm has limited movement. I may provide any suitable means for holding the arm 37 normally down against the tape 17, and the spring 41 illustrates a simple and effective means for accomplishing this purpose. A stop lug 42 is provided for limiting the upward movement of the finger-piece 36.

It will be seen that I have provided a machine of this character which is fully capable of attaining the objects ascribed thereto, and in a thoroughly practical and efficient manner.

I do not limit my invention to the exact details of construction, combination and arrangement of parts, as herewith illustrated and described, but my invention may only be limited by a reasonable interpretation of the claims.

I claim:

1. In a device of the class described, a casing, feed and take-up rollers mounted therein, a numbered tape connecting said rollers, spring means for retarding the rotation of said feed roller, and a lever actuable by the tape for moving said spring means into retarding position.

2. In a device of the class described, a casing, a take-up roller mounted therein, a flat disk, an axle extending from the central portion of said disk, spring elements formed on said disk on opposite sides of said axle, a spring actuated feed roller mounted on said axle and carrying a numbered tape connected to said take-up roller, said disk adapted to retard the rotation of said feed roller, means for actuating said take-up roller, and means actuable by the tape for moving said disk into retarding position.

3. In a device of the class described, a casing, a take-up roller mounted therein, a flat disk, an axle extending from the central portion of said disk through said casing, spring elements formed on said disk at opposite sides of said axle, a spring actuated feed roller mounted on said disk and carrying a numbered tape connected to said take-up roller, said disk adapted to retard the rotation of said feed roller, means for actuating said take-up roller, a lever pivoted on said casing and having an arm extending over said tape, and a lug on said tape adapted to actuate said arm for throwing said lever out of engagement with said axle whereby said disk is moved into retarding position.

4. In combination, a casing, a take-up roller mounted in the casing, a spring actuated feed roller mounted in the casing and carrying a numbered tape having connection with the take-up roller, means for retarding the rotation of said feed roller and means actuable by the tape for moving said retarding means feed roller into retarding position.

5. In a registering attachment for a typewriter, a casing adapted to be attached to an ordinary typewriter, an axle journaled in the casing and having a ratchet wheel and a drum fixed thereon, means adapted to be connected to the typewriter for actuating the ratchet wheel and thereby rotating the drum, a numbered tape connected to the drum and adapted to be wound thereon from its initial position to its final position, a second drum in the casing and having an end of the tape secured thereto, means associated with the said second drum for rotating the latter and thereby rewinding the tape thereon, a tensioning element for retarding the motion of the drum and preventing premature rewinding of the tape thereon, a holder member for moving the tensioning element out of operative relation with the drum, and means on the tape for actuating the holder member for allowing the tensioning element to return to its operative position when the tape has returned to its initial position.

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

OSCAR C. DAVIS.

Witnesses:
A. S. JACKSON,
S. T. JACKSON.

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