F. C. RINSCHE.

RETARDING MECHANISM.

APPLICATION FILED DEC. 11, 1912.

1,273,539. **Patented July 23, 1918.**

Fig. 1.

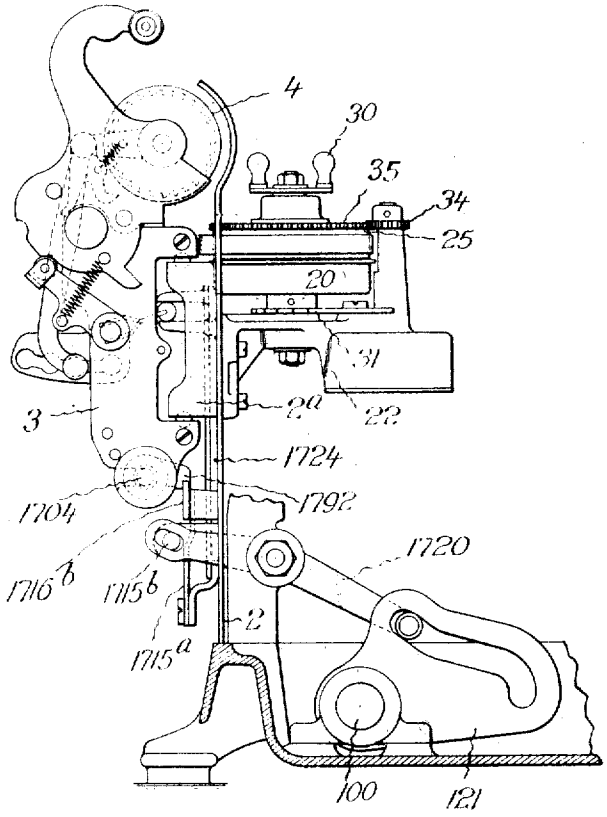


Fig. 2.

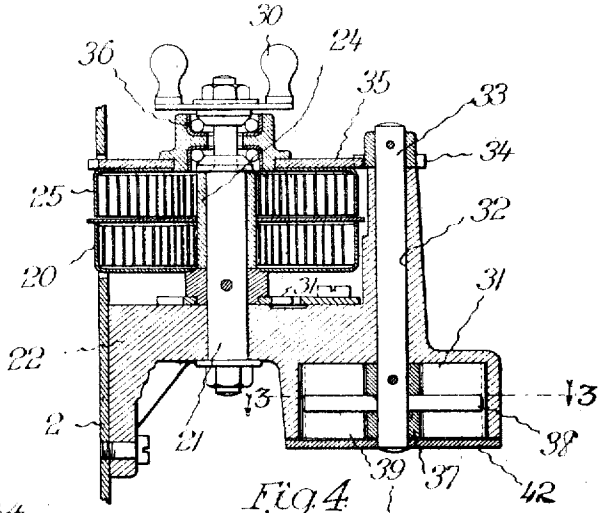


Fig. 3.

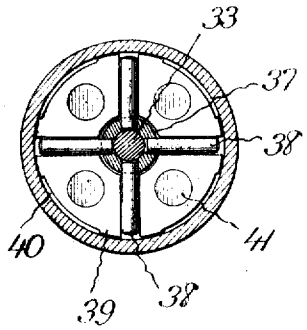
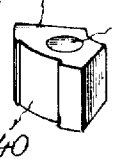


Fig. 4



Witnesses:

E. R. Barrett

Robert Dobberman

Inventor

Frank C. Rinsche

Attys.

UNITED STATES PATENT OFFICE.

FRANK C. RINSCHE, OF DETROIT, MICHIGAN, ASSIGNOR TO BURROUGHS ADDING MACHINE COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

RETARDING MECHANISM.

1,273,539. Specification of Letters Patent. Patented July 23, 1918.

Application filed December 11, 1912. Serial No. 736,109.

To all whom it may concern:

Be it known that I, FRANK C. RINSCHE, 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 Retarding Mechanism, of which the following is a specification.

My invention relates more particularly to that class of machine in which the carriage is drawn or thrown in one direction by a spring provided for the purpose, motion in the other direction against the tension of the spring being effected by hand or by any suitable mechanism. Ordinarily the automatic spring movement of the carriage is effected by a spring drum to the periphery of which is attached one end of a ribbon or tape of steel or other suitable material, the other end of which is secured to the carriage. When the carriage is released after movement against the tension of the spring, it is returned to its initial position under a substantially constant acceleration, so that unless provision is made to the contrary, the speed increases up to the limit of its movement, and since these carriages have considerable weight, the momentum developed is sufficient to jar the machine when it is suddenly brought to rest. It is the purpose of my invention to provide a simple means by which excessive speed in the carriage is prevented without at the same time unnecessarily reducing the rapidity of operation.

My invention is applicable to a variety of machines in which a carriage drawn in one direction by a spring drum is used, and in the present instance, I have shown and described it applied to an adding machine which is particularly adapted for tabulation; but it is to be understood that it is shown in this particular connection for the purpose of illustration only, and while the particular form of the invention disclosed is that preferred by me, it will be apparent that it may be modified in many respects without departing from my invention, which I have endeavored to set forth in such manner as to distinguish it from the prior art in the following claims without, however, dedicating or relinquishng any part thereof.

In the accompanying drawings forming part of this application, I have illustrated the invention in connection with so much only of an adding machine as is necessary for an understanding thereof, the particular machine shown being of that type commonly known as the Burroughs, for further information with reference to which the British Patent No. 16,800 of 1908, granted to the Burroughs Adding Machine Company, and U. S. Patent No. 924,118 of June 8, 1909, granted to the same company as assignee of Vincent and Benner, may be consulted; and in the description of the present invention reference will be particularly made to patent to Barrett, No. 977,582, granted December 6, 1910, as showing a type of the Burroughs machine to which the present invention is particularly adapted, and for a fuller explanation of parts with which the same is closely associated.

In the drawings, Figure 1 is a side elevation of so much of an adding machine as is necessary for an understanding of my invention with the latter applied thereto, the base of the machine being partly shown in section; Fig. 2 is a vertical transverse section of the parts comprising my invention; Fig. 3 is a horizontal section upon the line 3—3 of Fig. 2, looking in the direction of the arrows, and Fig. 4 a perspective of a detail of the mechanism.

Referring more particularly to Fig. 1 of the drawing, a carriage 3 of a common form is shown supported on a stationary track 2^a mounted on the rear panel 2 of the machine, and carrying the platen 4 with its line-spacing mechanism, all as more fully disclosed in the patent to Barrett to which reference has been made above.

The carriage is drawn as usual by a ribbon attached to a spring drum, to be presently described, and carries a horizontal revoluble or oscillatory bar 1704 having a plurality of stop arms 1792, which may be adjusted to successively engage a stop plate 1716^b mounted on the back panel of the adding machine, to interrupt the travel of the carriage under the impulse of the spring drum, and stop the same with the paper carried thereby in position for the printing of the desired numbers in proper columnar positions thereon. After the operation has been completed in any position, the finger or stop that is engaged with the stop plate is thrown out of engagement therewith by a dog 1715^a carried by a vertically reciprocating plate 1724, and which rocks said stop

or finger and the shaft 1704, to release the carriage. In Fig. 1 it may be seen that the plate 1724, which has a further function (unnecessary to be described here), is given a vertical movement by a lever 1720, having a pin-and-slot connection 1715[b] with said plate, and rocked by a box cam 121 upon the shaft 100, found in all Burroughs adding machines. All of this mechanism is fully described in the patent to Barrett, No. 977,582 referred to above, and need not be dwelt upon here.

The spring drum which serves to draw the carriage in one direction, is best shown in Figs. 1 and 2. It is likewise old *per se* in the art, being fully disclosed in the Barrett patent, to which reference has been made, and a very brief description thereof will suffice for the present purposes in view of said patent.

As shown in Fig. 2, the spring drum is mounted upon the bracket 22 secured to the front side of panel 2, which carries a revoluble post 21, provided with a handle 30 for turning the same, and with a releasable escapement mechanism 31 for preventing rotation thereof. The drum is formed in two sections 20, 25, each of which contains a separate coiled or volute spring, that contained in section 20 being connected to the drum at its outer end and to a sleeve 24 loosely mounted upon the post 21, and that contained in the upper drum section 25 being likewise connected to the sleeve 24 and also to its drum 25, but wound in a reverse direction from that of the spring in drum 20, whereby the springs are adapted to act together as one continuous spring of double the length of either. To the periphery of the upper drum is secured one end of the flexible ribbon or strap 27, the other end of which is fastened to the carriage for moving the same, as stated above. This particular form of spring drum and its connection to the carriage are not of my invention but are disclosed in the patent to Barrett, above cited. My invention relates more particularly to a means for braking or controlling the rotation of the spring drum 25 and its connection to the latter, and will now be described.

Within the casting of the bracket 22 is formed a cylindrical chamber or housing 31, with which communicates a cylindrical axial bore 32, containing a rotary spindle 33 projecting into and through the chamber 31. At its upper end the spindle 33 is provided with a pinion 34 in mesh with a gear 35 secured to the top of drum 25 and to a roller bearing 36 surrounding the post 21 referred to above. Upon the lower end of the spindle 33 is pinned or otherwise secured a sleeve 37 provided with a plurality of radial pins 38 which, in the present instance, are four in number, see Fig. 3. Between adjacent pins are loosely confined brake shoes formed as sectors 39 of fiber or other suitable friction material cut away for the major portion of their periphery as at 40, and weighted at 41 with lead or other heavy material. The bottom of the chamber is closed by a disk 42 which may be secured to the spindle 33 in any suitable manner, as by swaging, and directly supports the brake shoes.

It will be seen that by reason of the relative diameters of the gear 35 and pinion 34 respectively, the latter and the spindle to which it is secured are given a speed of rotation many times that of the spring drum. The rotation of the spindle, its pins and the sector blocks, causes the last named to be thrown outward into contact with the cylindrical wall of the chamber with considerable force proportional to the speed of their rotation as well as to their very considerable weight, and their pressure against the wall of the casing, and hence the frictional retardation increases with the speed at which they are rotated. By properly proportioning the gearing and determining the weight and material of the sectors, the limit of speed attainable by the carriage may be fixed.

I claim:

1. In a rotary brake of the character described, a circular chamber, a vertical shaft concentric therewith, a series of radial arms on the shaft within the chamber and a plurality of sector-shaped brake shoes freely movable between said arms and cut away on the curved surface thereof intermediate the ends of said surface.

2. In a friction brake for the purpose described, a vertical shaft, a disk and a series of arms carried thereby, an annular braking surface concentric with the shaft and a series of brake shoes carried by the disk intermediate the arms and adapted to engage the annular friction surface.

3. In a rotary brake of the character described a circular chamber, a vertical shaft concentric therewith, a series of radial arms mounted on the shaft within the chamber, a disk mounted on the shaft below the arms and closing the lower end of the chamber and a series of radially movable braking sector blocks intermediate the arms loosely supported on the disk and adapted to engage the annular wall of the chamber.

FRANK C. RINSCHE.

Witnesses:
R. W. FAIRCHILD,
R. MIELERT.

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

Correction in Letters Patent No. 1,273,539.

It is hereby certified that in Letters Patent No. 1,273,539, granted July 23, 1918, upon the application of Frank C. Rinsche, of Detroit, Michigan, for an improvement in "Retarding Mechanism," an error appears in the printed specification requiring correction as follows: Page 2, strike out lines 94–101, inclusive, comprising claim 2, and insert the following:

2. In a centrifugal brake for the purpose described a revoluble vertical shaft, a friction surface concentric therewith and a disk carried thereby, a series of brake shoes loosely supported upon the disk and adapted to engage the friction surface, and means for transmitting rotary movement from the shaft to the brake shoes.;

and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 26th day of November, A. D., 1918.

[SEAL.]

R. F. WHITEHEAD,

Acting Commissioner of Patents.

Cl 74—45.