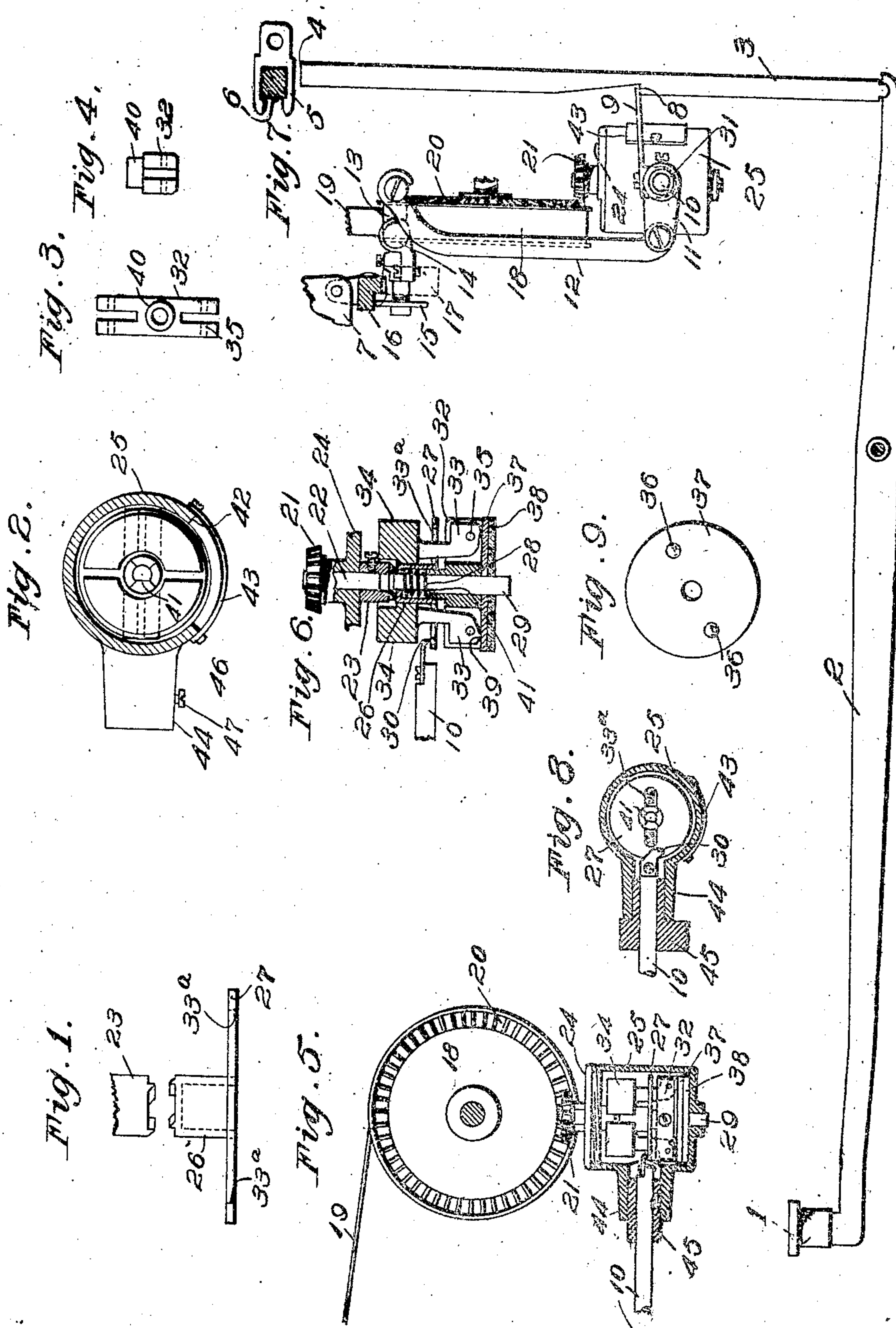


E. L. PFUNDER.  
TYPE WRITING MACHINE.  
APPLICATION FILED APR. 1, 1908.

903,765.

Patented Nov. 10, 1908.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## TYPE-WRITING MACHINE.

No. 903,765.

Specification of Letters Patent.

Patented Nov. 10, 1908.

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To all whom it may concern:

Be it known that I, EMIL L. PFUNDER, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to typewriting and tabulating machines, and particularly to means for braking or controlling the speed of the carriage when the same is released from its letter-spacing mechanism.

This invention is in the nature of an improvement upon the construction shown in the pending application No. 403,891 of John C. McLaughlin, in which a centrifugally operated brake is illustrated in connection with the carriage of the typewriter, to be operated automatically when the carriage is released from its letter-spacing devices, thereby preventing the carriage from exceeding a predetermined limit of speed. In said application, a brake-revolving pinion is shown normally out of mesh with a driving gear which is connected to the carriage; and the tabulator key which releases the carriage is also caused to move the pinion into mesh with the gear, so as to cause the brake to be operated by the released carriage.

One of the principal objects of my present improvements is to avoid the necessity of moving the pinion into mesh with the gear at each release of the carriage; and to this end I mount the pinion permanently in engagement with the gear, and provide a clutch between the pinion and the centrifugal braking arms; this clutch to be operated by the same denomination key (or other key) which releases the carriage.

Other features and advantages will hereinafter appear.

In the accompanying drawings, Figure 1 is an enlarged detail showing two clutch members separated. Fig. 2 is a sectional plan taken through the brake-barrel or case, and showing the weights in normal positions. Fig. 3 is a plan, and Fig. 4 an end elevation of a cross-arm which carries the pivoted weight-arms. Fig. 5 is a sectional elevation showing the interior of the brake-drum, and also illustrating the connection between the brake-pinion and the carriage-

gear. Fig. 6 is a sectional elevation of the braking mechanism. Fig. 7 is a diagrammatic elevation of the tabulating mechanism, including a denomination stop key and means whereby it releases the carriage from the control of its escapement devices. Fig. 8 is a sectional plan taken at a lower point than Fig. 2. Fig. 9 is a plan of a friction disk.

Denomination keys 1, mounted upon levers 2, are operated to elevate rods 3, formed at their upper ends with denomination stops 4, to bring said stops into the path of a column stop 5 mounted upon a bar 6, the latter secured upon a carriage, a portion of which is seen at 7. Each denomination stop-rod 3 is formed with a shoulder 8 to engage a universal arm 9, which is fixed upon and projects back from a rock shaft 10. Said rock shaft also carries a forwardly directed arm 11; and the latter is connected by an upstanding link 12 with a lever 13, pivoted at 14 upon the framework, and carrying an anti-friction roll 15, which lifts a rack 16 out of mesh with an escapement pinion 17. Depression of the key 1 therefore lifts the stop 4 up into the path of the stop 5 to arrest the carriage, and at the same time releases the carriage, so that it may run freely under the tension of the usual spring barrel 18, which is connected to the carriage by a strap 19.

Permanently in mesh with a gear 20, upon said spring barrel, is a pinion 21, which usually revolves idly during the to and fro movements of the carriage. Upon a shaft 22, which carries said pinion, is fixed one member 23 of a clutch. The shaft is pivoted in a cap 24 which closes a box or barrel 25 containing the braking devices; and the clutch 23 is arranged within the box and attached to the lower end of said shaft, at the top of the box. The other member 26 of said clutch, is fixed upon a disk 27, whereby it is controlled through the key-operated rock-shaft 10. A compression spring 28, coiled about a spindle 29 mounted in the lower end of the box and in line with the shaft 22, tends constantly to lift the clutch member 26 into mesh with the companion clutch member 23; but this tendency is opposed by means of a finger 30 fixed upon the end of the rock shaft 10 and caused con-



stantly, by a spring 31, to hold said disk 27 down, and thereby keep said clutch members out of engagement. It will be understood however, that when the key 1 is operated and the arm 9 caused to rock the shaft 10, said finger 30 is lifted from the disk 27, and the spring 28 is permitted to lift the clutch member 26 into mesh with the clutch member 23, thereby causing the spindle 29 to be revolved by the pinion 21, as the carriage travels.

Upon the lower portion of the spindle 29 is fixed a cross-arm 32, having slotted ends in which work arms 33 carrying weights 34; said arms being pivoted at 35 to the ends of the cross-arm, and extending through openings 33<sup>a</sup> in the disk 27, and the weights being placed so as to cause the arms normally to tend towards each other.

The cross-arm 32, when it starts to revolve, engages one or both of pointed pins 36 projecting out from a metal disk 37, which is loose upon the spindle 29 and which rubs upon a fabric or other friction disk 38, the latter rubbing or resting upon the bottom of the box 25.

The weighted arms 33 are formed at their lower ends with shoulders 39, which, when the weights 34 swing outwardly by reason of centrifugal force, bear down the disk 37 with great force against the disk 38, thereby creating sufficient friction to retard the revolution of the pinion 21, and hence of the spring-barrel 18, thereby reducing or controlling the speed of the carriage 7.

The clutch member 26 may be made hollow to slide up and down upon a hub 40 provided upon the cross-arm 32; and the spring 28 may be confined within the member 26, and work between said hub and the top of said member 26. The latter may be splined to the spindle 29 in any suitable way, as for instance by cutting away one side of the upper portion of spindle 29 to form a flat 41, Fig. 2, and forming in the top of the member 26 a hole having corresponding shape, to fit loosely upon the shaft so that said member may slide up and down.

It will be understood that the rock-shaft 10 may continue in motion, if need be, after the full engagement of the clutch members 23, 26, to permit the completion of the movement of the key 1; and in fact the brake may be operatively connected to the carriage before the latter is released from its escapement mechanism.

The box may be provided with a large opening 42, to give access to the parts therein; and said opening may be covered by a closure 43. The barrel 25 may have a boss 44 bored to fit upon a fixed part 45 suitably fixed upon the framework of the machine; and a set-screw 46 may retain the same.

Having thus described my invention, I claim:

1. In a typewriting and tabulating mechanism,

the combination with a carriage rack releasable by a tabulator key, and a spring barrel connected to the carriage and having a gear, of a pinion permanently in mesh with said gear, a rotary braking device, a normally disconnected clutch between the braking device and the pinion, and means controlled by said key to cause said clutch to operate.

2. In a typewriting and tabulating mechanism, the combination with a carriage, a carriage feeding mechanism and a tabulator key having means to release the carriage, of a pinion permanently connected to the carriage to rotate during the carriage travel, a rotary braking device, two clutching members between the braking device and the pinion, a spring tensioned to cause said clutching members to connect, a master spring holding said members apart, and means controlled by said key to release the clutch spring from the control of said master spring.

3. In a typewriting and tabulating mechanism, the combination with a carriage, a carriage feeding mechanism and a tabulator key having means to release the carriage, of a pinion permanently connected to the carriage to rotate during the carriage travel, a clutch member connected to said pinion, a second clutch member, a spring tending to connect said clutch members, a rock shaft having a master spring, and having means rendered effective by said master spring to hold the second clutch member away from the first, a revoluble braking device connected to the second clutch member, and means for enabling said key to turn said rock-shaft to relieve the clutch spring from the opposition of the master spring.

4. In a typewriting and tabulating mechanism, the combination with a carriage, a carriage feeding mechanism and a tabulator key having means to release the carriage, of a pinion permanently connected to the carriage to rotate during the carriage travel, a clutch member secured to said pinion, an independently mounted spindle concentric with the pinion, a second clutch member upon said spindle, a spring tensioned to move the second clutch member into engagement with the first, a disk carried by the second clutch member, a rock shaft having means to engage said disk and caused by a master spring to hold the second clutch member away from the first, means for enabling said key to turn said rock shaft in opposition to said master spring, and a braking device carried by said clutch spindle.

5. The combination with a power-driven carriage and an escapement mechanism therefor, of a pinion permanently in mesh with a gear which is connected to the carriage, a shaft for said pinion, a clutch-member upon said shaft, a cooperating clutch member



splined to a spindle and connected to a disk, a compression spring coiled about the spindle to move the second clutch member into mesh with the first, a spring-actuated member engaging said disk to prevent such meshing of the clutch members, a key having means to release the carriage, and also having means

to release the second clutch-member, and braking devices to which the second clutch member is operatively connected.

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Witnesses:

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