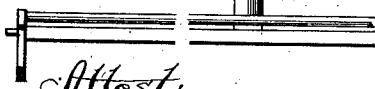
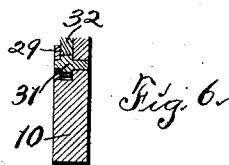
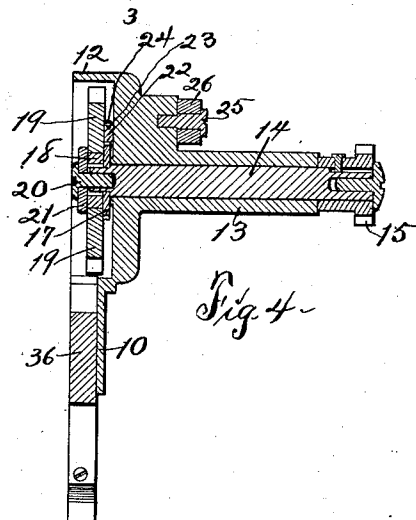
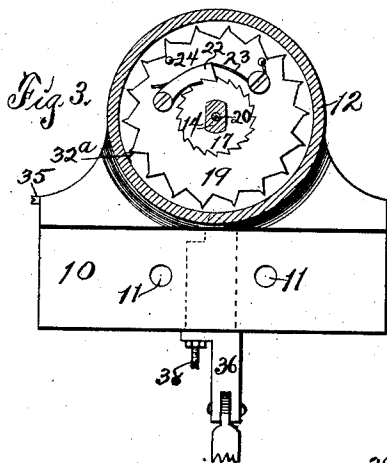
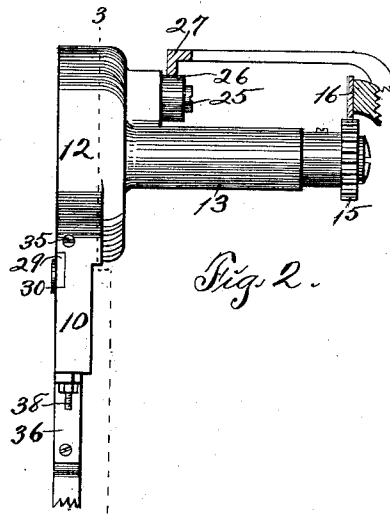
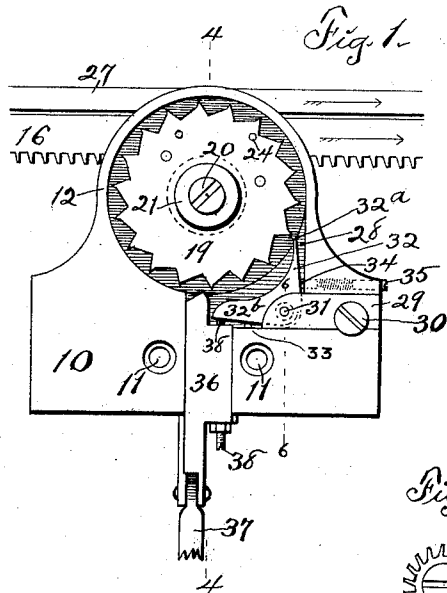


G. W. SINGLETON.

CARRIAGE ESCAPEMENT FOR TYPE WRITING MACHINES.

APPLICATION FILED AUG. 21, 1902.

NO MODEL.



Attest:
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UNITED STATES PATENT OFFICE.

GEORGE W. SINGLETON, OF DES MOINES, IOWA, ASSIGNOR TO JEWETT TYPEWRITER COMPANY, OF DES MOINES, IOWA, A CORPORATION OF IOWA.

CARRIAGE-ESCAPEMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 738,365, dated September 8, 1903.

Application filed August 21, 1902. Serial No. 120,512. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. SINGLETON, a citizen of the United States of America, and a resident of Des Moines, Polk county, Iowa, have invented a new and useful Carriage-Escapement for Type-Writing Machines, of which the following is a specification.

The object of this invention is to provide improved means for controlling, gaging, and determining the step-by-step movement of the carriage across the frame of a type-writing machine.

A further object of this invention is to minimize or obviate friction in an escapement mechanism between the holding-detent and the escapement-wheel and between said wheel and the releasing or feeding dog.

My invention consists in the construction, arrangement, and combination of elements hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a rear elevation illustrating my improved escapement mechanism and portions of the carriage employed therewith. Fig. 2 is an edge elevation of the escapement mechanism shown in Fig. 1, the carriage-bars being shown in cross-section. Fig. 3 is a vertical section and elevation on the indicated line 3 3 of Fig. 2. Fig. 4 is a vertical section on the indicated line 4 4 of Fig. 1. Fig. 5 is a detail of the pinion on the escapement-shaft which engages the feed-rack of the carriage. Fig. 6 is a detail section illustrating the pivot on which the holding-detent is mounted.

In the construction of the devices as shown the numeral 10 designates a bracket formed with screw-holes 11 and shaped and arranged to be mounted on and project upward from the central portion of the rear of a structural frame of a type-writing machine. The bracket 10 is formed with a housing 12 or recessed portion above the frame of the machine, and a shaft-bearing 13 extends forwardly from the central portion of said housing. A shaft 14 is mounted for rotation in the bearing 13 and projects therefrom at each end. A pinion 15 is mounted on or fixed to the forward end portion of the shaft 14 and normally en-

gages the feed-rack 16 of the carriage of a type-writing machine. The feed-rack 16 is formed with its teeth straight on one face and inclined on the other or hooked, as desired, and the pinion 15 has its teeth formed hooked in opposition to the teeth of the feed-rack in order that when the carriage is under a strain, as of a spring pulling in one direction, the strain will not lift the feed-rack out of engagement with the pinion. A ratchet-wheel 17 is mounted rigidly or non-revolvably on the rear portion of the shaft 14 within the housing 12 and is arranged to rotate with said shaft. A sleeve 18 is mounted loosely on the rear end portion of the shaft 14 adjacent the ratchet-wheel 17, and an escapement-wheel 19, toothed on its periphery, is mounted loosely on said sleeve and also is contained within the housing 12. A screw 20 is mounted in the extremity of the shaft 14, and a washer 21 on said screw overlaps and retains the escapement-wheel 19. A pawl 22 is pivoted at one end on the inner face of the escapement-wheel 19 and engages at its other end with the ratchet-wheel 17 and serves as a connection between said wheels, whereby in the movement of the carriage to the right with the rack-bar 16 in engagement with the pinion 15 the shaft 14 and ratchet-wheel may rotate freely without rotating the escapement-wheel, but will be immovable in the opposite direction independent of said escapement-wheel. A spring 23 is mounted on the escapement-wheel 19 and normally engages and presses the pawl 22 into engagement with the ratchet-wheel 17, yielding for the passage of the ratchet-wheel beneath the pawl in one direction. A pin 24 is mounted in the escapement-wheel and serves as a stop to limit the centrifugal movement of the pawl 22 and spring 23. A screw 25 is mounted in and projects forward from the housing 12 above the bearing 13, and a roller 26 is mounted for revolution thereon and arranged to receive and support the rear bar 27 of the carriage in its travel across the frame of the machine. The pinion 15, the ratchet-wheel 17, and escapement-wheel 19 preferably are formed with an equal number of teeth.

A recess 28 is formed in the rear face of the

bracket 10 and housing 12, and a groove is formed in the rear face of said bracket intersecting said recess. A plate 29 is mounted in the groove and held by a screw 30, seated in the bracket, and one end of said plate overlaps the recess 28. A pivot 31 is mounted transversely of the recess 28 and has its end portions reduced in cross-section and pivoted or journaled in seats in the bracket and plate 29, respectively. A holding-detent 32 is of the form of a bell-crank lever fulcrumed at its angle, and one arm 32^a thereof extends approximately vertically from the pivot 31 and engages the face of one or another of the teeth of the escapement-wheel 19. The other arm 32^b of the holding-detent extends approximately horizontally beneath the escapement-wheel and is held against further downward movement by a stud 33 thereon engaging the lower wall of the recess 28. The holding-detent 32 is held normally with its arm 32^a in engagement with the escapement-tooth by the impingement of a spring-held pin 34 against its outer edge. The pin 34 projects into the recess 28 from its seat in a hole in the bracket 10, and the spring backing said pin, dotted lines, Fig. 1, is confined in said hole and adjusted as to tension by a screw 35, seated in said hole and adjustable therein. The engagement of the arm 32^a with a tooth of the escapement-wheel is slight, sufficient only to prevent rotation of said wheel and lock the carriage against movement in one direction, and such engagement is of the flat end of the arm contacting with an inclined face of the tooth, the angle of contact measured between the flat top of the arm and the contiguous side of the tooth of the escapement-wheel with which it is in contact being acute and readily released with a minimum of sliding friction.

A releasing and feeding dog or detent 36 is slidably mounted for vertical rectilinear reciprocation in a groove formed in the rear face of the bracket 10 and intersecting the cavity of the housing 12. The releasing and feeding dog or detent 36 is connected by a pitman 37 or other suitable means with the universal bar of the key mechanism of the type-writing machine in such a manner that any actuation of the universal bar (not shown) will lift the dog. A screw 38 is mounted adjustably longitudinally of the dog 36, and the upper end thereof projects from the dog beneath the extremity of the horizontal arm 32^b of the detent 32. The upper end of the dog 36 is apexed or beveled in opposite directions, and the shorter beveled face thereof constitutes the impact or engaging face of the dog with one or another of the teeth of the escapement-wheel 19. The apexed upper end of the releasing and feeding dog 36 normally rests at a point just outside the orbit of the extremities of the teeth of the escapement-wheel, and the upper end of the screw 38 contacts with the lower edge of the arm 32^b of the detent 32. An actuation of

the universal bar of the machine lifts the detent or dog 36 into the orbit of the teeth of the escapement-wheel 19 and causes the screw 38 to lift the arm 32^b, rotate the detent 32, and move the arm 32^a thereof away from the wheel and out of engagement with its tooth. Thereupon the escapement-wheel released from the detent 32 moves forwardly under the strain of the carriage-spring until a tooth engages the contact-face of the detent or dog 36. There is a clearance between the impact-face of the dog 36 and the next tooth of the escapement-wheel that insures the forward movement of the wheel upon its release from the detent-arm 32^a and before its engagement with the dog 36. Upon the relaxation of the lifting force from the dog 36 said dog will descend from the escapement-wheel and out of contact with its tooth and permit the reengagement of the detent-arm 32^a with the next tooth under the influence of the spring-held pin 34. Upon the release of the dog 36 from the escapement-wheel the detent-arm 32^a already has moved within the orbit of the teeth of said wheel and been positioned to receive the next tooth thereof in the forward movement of the wheel.

I do not limit myself to the construction of mechanisms to which the escapement is applicable, as it may be applied to other and widely-different devices, nor do I feel bound to follow the specific construction shown and described.

What I claim as my invention is—

1. An escapement for type-writing machines, comprising the escapement-shaft, the pinion thereon and arranged for engagement by the feed-rack of a carriage, the escapement-wheel connected with said shaft, a holding-detent normally in engagement with said escapement-wheel and the releasing and feeding detent arranged for the release of the holding-detent from the wheel and engagement with said wheel, which releasing and feeding detent is non-rotatable and mounted for rectilinear reciprocation radially of said escapement-wheel.

2. In a device of the class described, the escapement-shaft, the escapement-wheel on said shaft, the pinion on said shaft and arranged for engagement by a carriage-spring drawn in one direction, a holding-detent formed as a bell-crank lever fulcrumed at its angle and having one arm normally extending into engagement with said escapement-wheel and spring-held in such position and the other arm of said holding-detent extended laterally, a non-rotatable releasing and feeding detent normally out of engagement with the escapement-wheel and arranged for movement rectilinearly into engagement with said wheel and means whereby in the rectilinear movement of the releasing and feeding detent toward said wheel the holding-detent is engaged and released from said escapement-wheel.

3. In a device of the class described, the

bracket formed with a housing, a bearing formed on and extending laterally from the central portion of said housing, the escapement-shaft mounted for rotation in said bearing, a pinion on said shaft and arranged for engagement by the feed-rack of a carriage, a ratchet-wheel mounted on said shaft within the housing, an escapement-wheel mounted loosely on said shaft within the housing, a pawl on said escapement-wheel and engaging said ratchet-wheel, a holding-detent pivoted on said bracket and arranged for normal engagement with the escapement-wheel, a non-rotatable releasing and feeding detent mounted for rectilinear reciprocation in said bracket and arranged to engage said escapement-wheel at times, one arm of the holding-detent extending into the path of travel of and arranged to be engaged by the releasing and feeding detent only in the advance of the latter toward the escapement-wheel and yielding pressure devices acting upon the holding-detent.

4. In a device of the class described, the bracket formed with a housing, a bearing on said housing, a shaft mounted for rotation in the bearing and arranged for rotation by the feed-rack of the carriage, an escapement-wheel loosely mounted on said shaft within the housing, pawl-and-ratchet connections between said escapement-wheel and shaft, a holding-detent of bell-crank form normally spring-held in engagement with the escapement-wheel and independent of the feeding-detent, and a releasing and feeding detent mounted for rectilinear reciprocation in the bracket and arranged for impact with and synchronous release of the holding-detent and engagement with the escapement-wheel.

5. In a device of the class described, the combination of the escapement-wheel, the holding-detent normally engaging said wheel, the flat top of the vertical arm of the detent forming an acute angle with the contiguous side of the tooth of the escapement-wheel with which it is in contact, the releasing and feeding detent arranged for rectilinear reciprocation across the path of one arm of the holding-detent and shaped for impact there-

with, the inner end of the releasing and feeding detent being non-rotatable and shaped for engagement with the escapement-wheel on an obtuse angle.

6. In a device of the class described, an escapement-wheel, a releasing and feeding detent normally out of engagement with said wheel and out of the orbit of the teeth thereon, a holding-detent of bell-crank form mounted independent of the feeding and releasing detent and having one arm normally spring-held in engagement with the escapement-wheel and the other arm arranged for impact by the releasing and feeding detent in the movement of the latter detent into the orbit of the teeth of the escapement-wheel to check rotation of said wheel antecedent to the reengagement of the wheel by the holding-detent.

7. In a device of the class described, the holding-detent, a pivot therefor formed with a hub, on which the detent is loosely mounted, and reduced end portions seated in supports, the escapement-wheel arranged for engagement by said detent and means for releasing said detent from said wheel, said means comprising a releasing and feeding detent mounted for intermittent engagement with the holding-detent.

8. In a device of the class described, the combination of the escapement-wheel, the holding-detent of bell-crank form spring-held with one arm normally in engagement with a tooth of said wheel and the other arm extending laterally, a releasing and feeding detent mounted for rectilinear reciprocation and alternate engagement with and disengagement from the escapement-wheel and an adjustable pin in said releasing and feeding detent and arranged for engagement with the lateral arm of the holding-detent, whereby in the forward movement of the releasing and feeding detent the holding-detent is oscillated out of engagement with the escapement.

Signed by me, at Des Moines, Iowa, this 26th day of May, 1902.

GEORGE W. SINGLETON.

Witnesses:

GEO. A. JEWETT,
S. C. SWEET.