A. SCHNEELOCH.

ESCAPEMENT MECHANISM OF TYPE WRITING MACHINES.

APPLICATION FILED OCT. 9, 1902.

944,697. **Patented Dec. 28, 1909.**

3 SHEETS—SHEET 1.

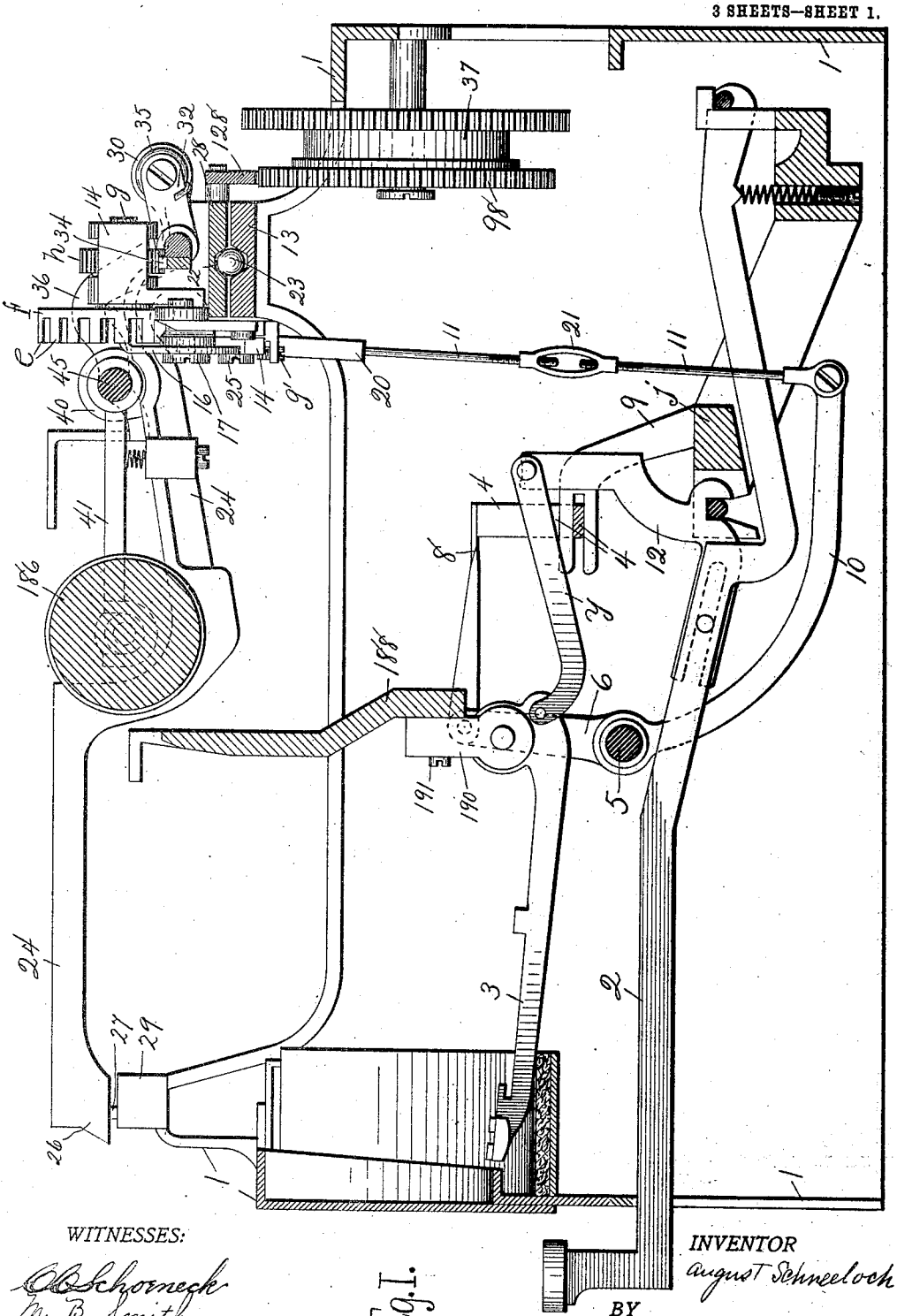

Fig. 1.

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3 SHEETS—SHEET 2.

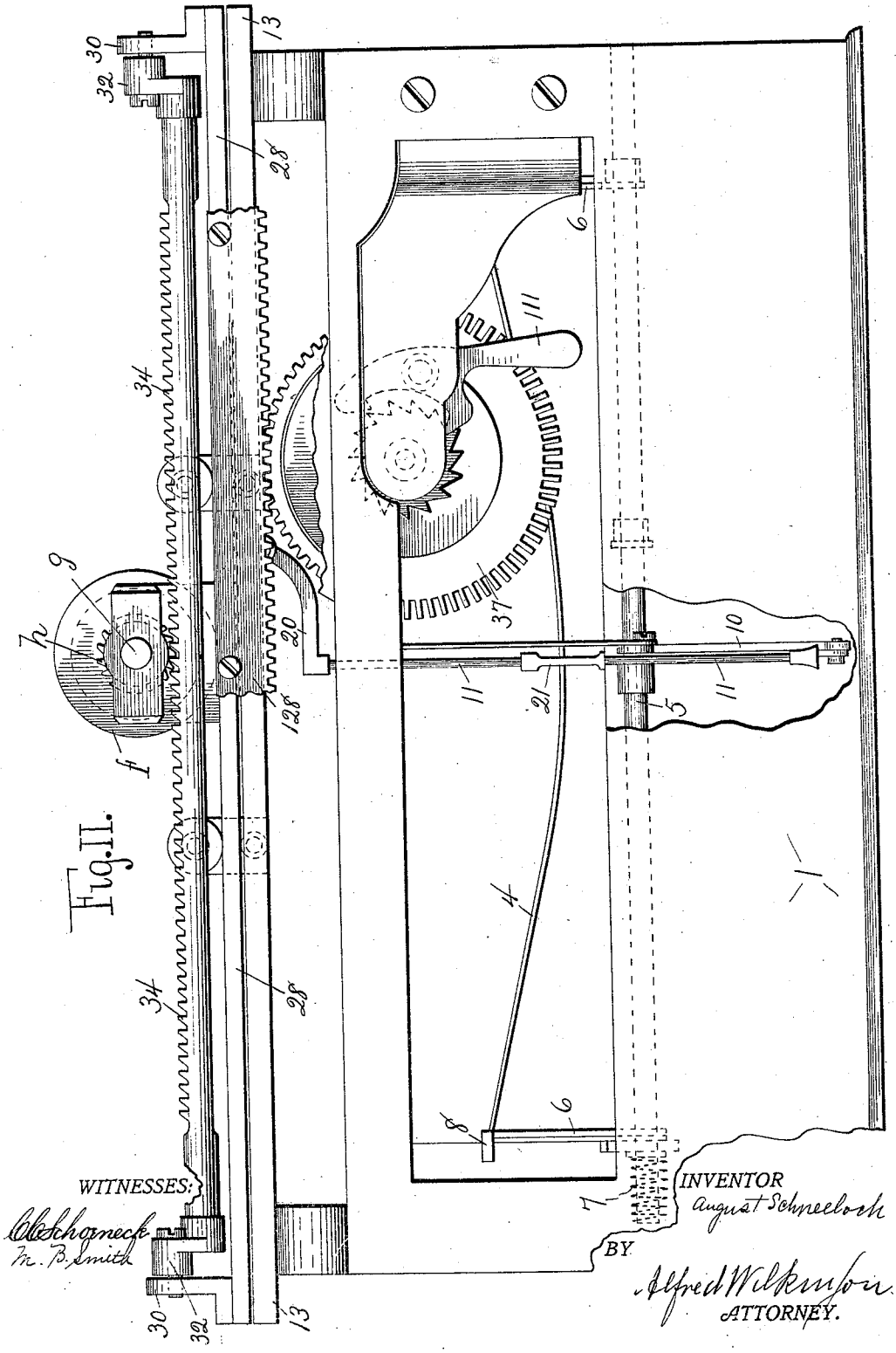

Fig. II.

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3 SHEETS—SHEET 3.

Fig. III.

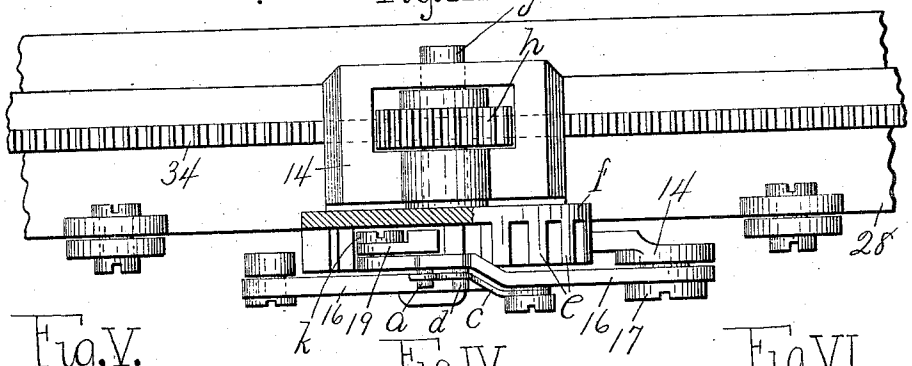


Fig. V.

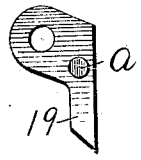


Fig. IV.

Fig. VI.

Fig. VII.

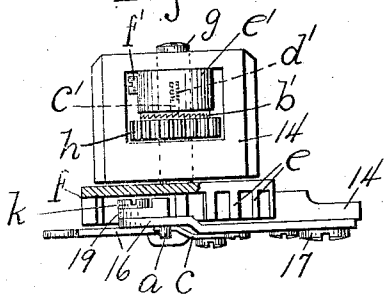
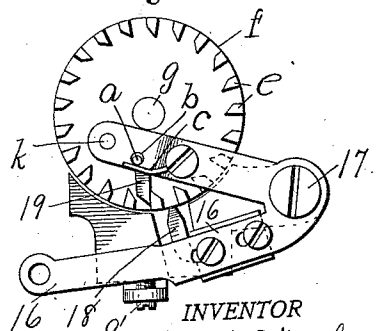


Fig. VIII.



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UNITED STATES PATENT OFFICE.

AUGUST SCHNEELOCH, OF SYRACUSE, NEW YORK, ASSIGNOR TO E. C. STEARNS & CO., OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

ESCAPEMENT MECHANISM OF TYPE-WRITING MACHINES.

944,697. Specification of Letters Patent. **Patented Dec. 28, 1909.**

Original application filed May 9, 1902, Serial No. 106,524. Divided and this application filed October 9, 1902. Serial No. 126,599.

To all whom it may concern:

Be it known that I, AUGUST SCHNEELOCH, citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Escapement Mechanism of Type-Writing 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.

My invention relates to the carriage operating and escapement mechanism of a type-writing machine, and consists in a new construction, arrangement of parts, mode of operation and certain details. It is a division of my application filed May 9th, 1902, Serial No. 106,524.

My invention is fully shown in the drawing herewith, in which the reference letters and numerals of the specification indicate the corresponding parts in all the figures.

Figure I is a vertical section. Fig. II is a rear elevation with the carriage removed and parts broken away. Figs. III and IV are respectively top plan and front elevation of the escapement mechanism enlarged. Figs. V and VI are elevations respectively of the loose dog and of the stationary dog. Figs. VII and VIII are respectively top plan and front elevation of the preferred form of escapement.

In the figures, 1 indicates the main frame of the machine, 29 the front bar carrying rollers 27, 13 the rear grooved run-way for the carriage, 2 one of the key levers, *j* the key lever bracket, 12 the link thereon engaging with universal bar 4, and by intermediate link *y*, connected to the type-bar 3, hung on suitable hanger 190, secured on the segment 188 by screw 191.

24 indicates the carriage side pieces, carrying the carriage front bar 26, and 28 the rear bar of the carriage frame grooved at 22 to engage with balls 23.

186 is the platen.

98 is the pinion on the spring barrel engaging with carriage rack 128.

On universal bar rod 5, journaled at each end in the frame of the machine, are fixed the universal bar arms 6, connected by links 8 attached to their upper ends, to the universal bar 4, retained by spring 7 coiled on rod 5 in its rear position and guided in its forward and backward movement by slotted pieces 9 on key-lever bracket *j*. On said rod 5 is also fixed the lower ratchet arm 10 to the rear end of which is pivotally connected vertical rod 11, provided with turn buckle 21, so that at the depression of each key, the universal bar is moved forward by link 12 and the vertical rod 11 is raised to rock the dog support 16 through link 20 and operate the escapement mechanism. Attached to the rear of the frame of the machine is the said grooved run-way 13, provided with anti-friction balls 23 for the support of the carriage. On this run-way 13 is supported, by suitable screws 15 15, the escapement bracket 14, on which is journaled, at 17, the two armed dog support carrying on its upper arm loose dog 19 and on its lower arm the adjustable stationary dog 18, and having its lower arm connected to vertical rod 11 by link 20. Loose dog 19, hung on pin *k*, has pin *a* fitting curved slot *b*, centered on *k*, in upper arm of dog support, and is held in position by spring *c*, engaging with pin *a* and also bearing on stud *d*.

Journaled in the escapement bracket 14 is shaft *g*, on the front end of which is fixed the escapement wheel *f*, having crown teeth *e* on its front face; on said shaft is also fixed the pinion *h*, engaging with carriage rack 34. In brackets 30 on the rear bar 28 are journaled arms 32 32, carrying the carriage rack 34, maintained in elevated position by spring 35 to engage with escapement pinion *h*, by which the carriage is held from moving toward the left in obedience to spring barrel 37. By lever 36, at the left of the machine, the operator may depress rack 34 out of engagement with pinion *h*. As the key is depressed and vertical rod 11 thereby elevated, loose dog 19 is withdrawn from engagement with escapement teeth and stationary dog 18 advanced into engagement, and as the key is released the dog carrier drops back and the dogs assume their normal position, whereby, in obedience to the spring barrel, the carriage is moved one letter space. By adjustment of stationary dog 18 along the lower arm by means of screws 25 arranged in the slots, this movement may be divided between the up stroke of the stationary dog and the down stroke,

or arranged to take place entirely on the return stroke. For a fast operator, dividing it between the up and down strokes is preferable; for a slow operator, all or mostly on the return. It will, of course, be understood that in point of time the first portion of the whole movement of the carriage in the advancement from one position to the next is made as the type-lever is depressed, that is as the dog carrier and dogs are rocked upwardly.

Spring *c* and slot *b* coöperate to lock dog 19 in position to prevent the movement of the escapement wheel in obedience to the spring barrel, and return this dog into normal position when the key is released, but permit the teeth to force this dog up out of engagement when the carriage is returned to the right. Set screw *g'* limits the movement.

In Figs. VII and VIII I have shown my preferred construction, in which the pinion *h* is journaled and not fixed on the shaft *g*, but is provided with ratchet teeth *b'*, with which engages the dog *c'* pressed out into engagement by a spring *d'*, carried in a collar *o'*, fixed on the shaft by set screw *f'*, whereby during the forward movement the pinion is locked to the escapement wheel, but when the carriage is returned toward the right, the pinion *h* rotates freely, the ratchet teeth slipping over the pawl. In this construction, the slot *b* is made smaller to limit the upward movement of the pin *a* by the spring *c*, permitting the dog to slip over the tooth in the action of the escapement, when the dog support is rocked, but not permitting the movement of the carriage in either direction.

My escapement mechanism is rapid and positive in operation, and may be adjusted as described. I do not limit myself to the mechanism shown as that may be varied in construction and management.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. In the escapement mechanism of a typewriting machine, the combination with a shaft suitably journaled on the machine frame, a pinion on said shaft engaging with the rack, an escapement wheel on said shaft having crown teeth on its front surface, a two armed dog carrier journaled on the frame of the machine adjacent to the escapement wheel, a swinging dog on the upper arm of said carrier, a stationary dog on the lower arm of said carrier, means to adjust the stationary dog along said lower arm to divide the motion of the escapement wheel, and means to rock the dog carrier at the depression of each key.

2. In the escapement mechanism of a typewriting machine, the combination with the carriage, of the escapement wheel shaft suitably journaled on the frame, a pinion on said shaft engaging with the rack, an escapement wheel on the shaft having marginal teeth on its front surface, a two armed dog carrier suitably journaled on the frame of the machine, a loose dog hung on the upper arm of the carrier and having a guide pin engaging in a slot on said arm, a spring on said arm engaging with said guide pin for holding the swinging dog in position, a stationary dog on the lower arm of the carrier, screws fitted to slots in said lower arm to permit the adjustment of the stationary dog along the lower arm and to secure it in position, and means to rock the dog carrier upwardly at the depression of each key.

3. In a typewriting machine, an escapement wheel suitably journaled on the frame, a dog support suitably journaled on the frame and having upper and lower arms arranged at an acute angle to each other extending on one side of the dog support, a link connecting the end of the lower arm to a vertical rod provided with a turn buckle, a stationary dog secured to the lower arm by screws engaging with longitudinal slots in the lower arm, said dog upwardly extending therefrom to engage with the escapement wheel teeth, a loose dog pivotally secured to the upper arm and having a pin engaging in an opening in the upper arm, a spring on the upper arm engaging with said pin, and a pinion connected to the escapement wheel to engage with the carriage rack.

4. In the escapement mechanism of a typewriting machine, the combination with the carriage, of the escapement wheel shaft suitably journaled on the frame, a pinion on said shaft engaging with the carriage rack, an escapement wheel on the shaft having marginal teeth on its front surface, a two armed dog carrier suitably journaled on the frame of the machine, a loose dog hung on the upper arm of the carrier and having a guide pin engaging in a slot on said arm, a spring on said arm engaging with said guide pin for holding the swinging dog in position, a stationary dog on the lower arm of the carrier, and means to rock the dog carrier upwardly at the depression of each key.

5. In the escapement mechanism of a typewriting machine, the combination with the escapement wheel shaft suitably journaled on the machine frame, of a collar fixed on the rear end of said shaft, an escapement wheel fixed on the front end of the shaft having forwardly extending crown teeth around the margin of its front surface, a pinion journaled on the shaft and having ratchet teeth on its rear face, a pawl fitted to an opening in the front face of the collar to engage with said teeth, a spring to hold said pawl in engagement therewith, whereby the pinion in engagement with the carriage rack is connected to the escapement wheel to

rotate step by step therewith as the carriage moves toward the left, but to rotate independently of the escapement wheel when the carriage is moved back toward the right, a dog carrier journaled on the frame adjacent to the escapement wheel and having upper and lower arms, a stationary dog on the lower arm of the carrier, means to adjust the position of said dog along said lower arm, a loose dog hung on the upper carrier arm, a pin on said dog engaging with an enlarged hole or slot in said upper arm, and a spring engaging with said pin to swing said loose dog upwardly.

6. In the escapement mechanism of a typewriting machine, the combination with the machine frame, the carriage and the carriage rack, of an escapement wheel shaft journaled on the frame, an escapement wheel on the shaft, a pinion journaled on the shaft engaging with the rack, a ratchet connection between the pinion and the escapement wheel, whereby they rotate together as the carriage moves from right to left, but the pinion rotates independently of the escapement wheel when the carriage is moved from left to right, of a dog carrier journaled on the frame adjacent to the escapement wheel having an upper and a lower arm, upper and lower dogs on the respective arms, one dog being stationary and arranged to be adjusted longitudinally on the lower arm, and the upper dog hung loosely on the upper arm.

7. In the carriage operating mechanism of a typewriting machine, the combination with the frame, of a universal bar rod journaled thereon, a universal bar arranged parallel thereto, guides for the universal bar, connections between said rod and the universal bar, whereby the forward and back movement of the universal bar rocks the rod and operates the escapement, the key levers and parts connected thereto, said parts being adapted to engage with the universal bar and move it forward when their respective key levers are depressed, the carriage, the rack thereon, means tending to draw the carriage toward one side of the machine, the escapement mechanism engaging with said rack when in its normal position and connections between the universal bar rod and the escapement whereby the escapement is released and permitted to move one space at the depression and release of each key.

8. In a typewriting machine, the combination with the frame and the carriage, of a rack on the carriage, an escapement wheel journaled on the frame, a pinion in constant engagement with the rack and arranged to rotate with the wheel, a dog carrier pivotally supported on the frame, upper and lower dogs on the carrier, said dogs being adapted to be moved oppositely into engagement with the wheel teeth, the lower dog having a tapering tip of less width than the distance between each pair of teeth and connections between each key lever and the carrier, whereby the lower dog is raised into engagement at the depression of each key and the upper dog is depressed into engagement at the release of each key and the first portion of the carriage movement takes place as the lower dog is being raised, said lower dog being adjustable on its carrier with reference to the escapement, and said upper dog being hung to swing freely.

9. In the escapement mechanism of a typewriting machine in combination with the main frame and the carriage, of an escapement ratchet suitably arranged, a two arm dog-carrier, a release dog on one carrier-arm, a retaining dog on the other carrier-arm, said dogs being arranged alternately to engage the escapement ratchet teeth, when rocked, means to rock the carrier to operate the dogs, means to vary the distance between the dogs to divide the motion of the escapement, and a ratchet and pawl connection between the escapement ratchet and the carriage.

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

AUGUST SCHNEELOCH.

Witnesses:

C. C. SCHOENECK.

M. B. SMITH.