

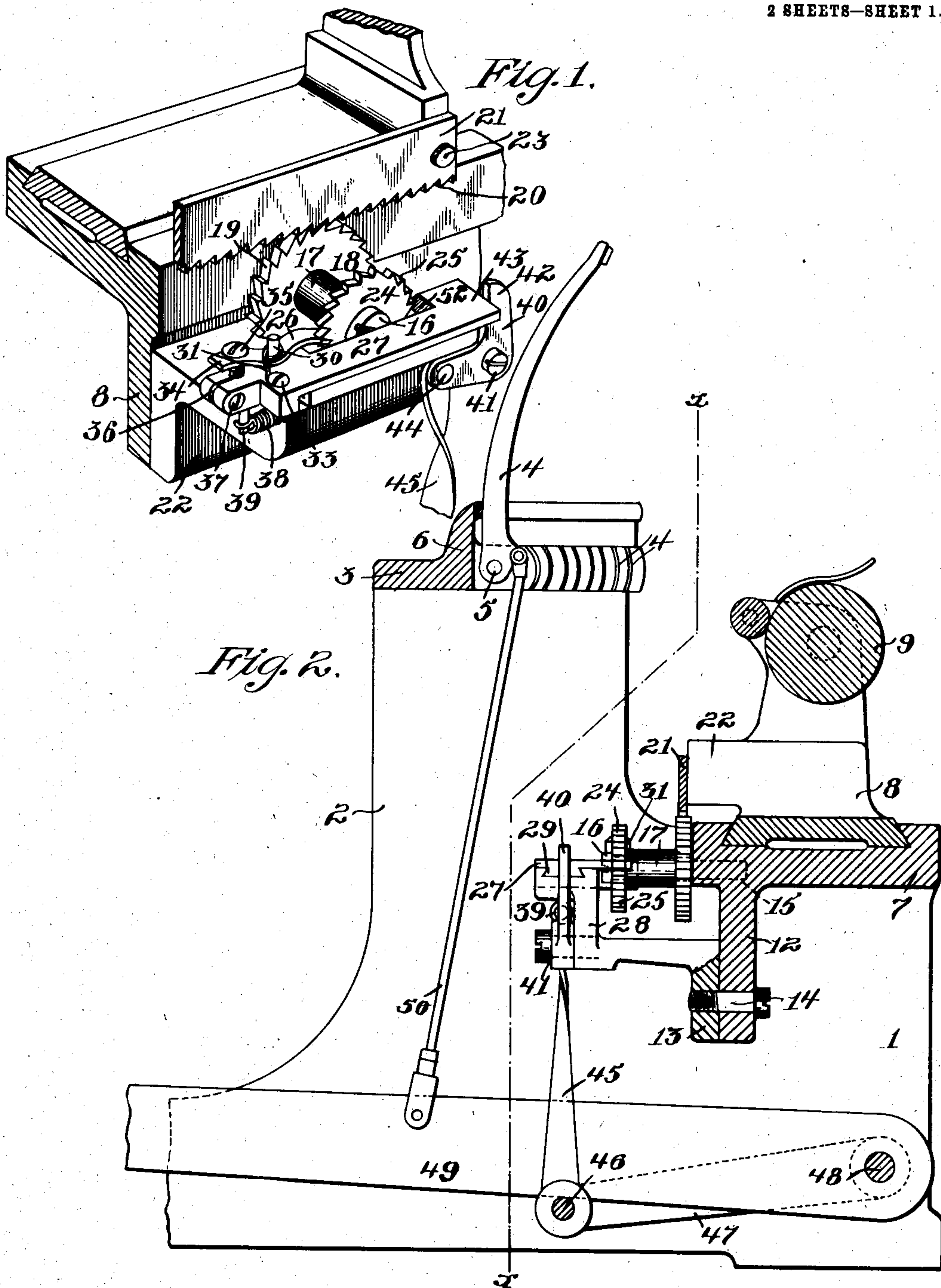
No. 833,971.

PATENTED OCT. 23, 1906.

C. J. PAULSON.
ESCAPEMENT MECHANISM FOR TYPE WRITERS.

APPLICATION FILED MAY 5, 1904.

2 SHEETS—SHEET 1.



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Inventor:
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By his Attorney,
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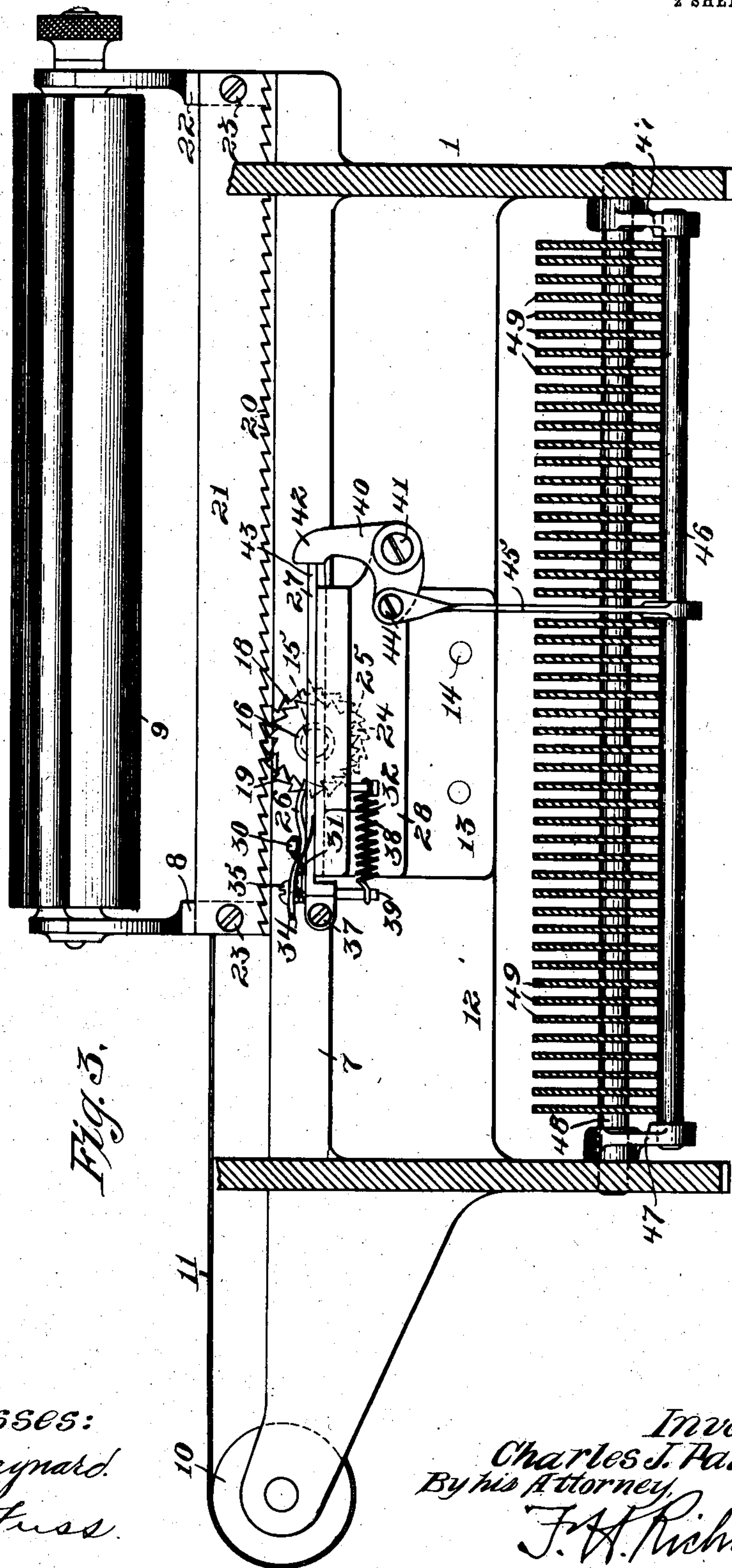


Fig. 3.

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UNITED STATES PATENT OFFICE.

CHARLES J. PAULSON, OF BROOKLYN, NEW YORK.

ESCAPEMENT MECHANISM FOR TYPE-WRITERS.

No. 833,971.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed May 5, 1904. Serial No. 206,464.

To all whom it may concern:

Be it known that I, CHARLES J. PAULSON, a subject of the King of Sweden and Norway, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Escapement Mechanism for Type-Writers, of which the following is a specification.

This invention has reference to means whereby the movement or travel of a work-carrying member, such as a type-writer carriage, may be accomplished intermittently or step by step by a simplified, efficient, and durable mechanism which may preferably be controlled and actuated by a key mechanism.

The invention, as is obvious, is applicable to any such character of devices as may require means for intermittently moving an element or carrier, and in its present form such invention is embodied in a type-writer.

It is an object of the present invention to simplify the method of causing a type-writer carriage or other work-carrying means to escape from one working position to another, and to do so by a simple, efficient, durable, and economical construction.

I further make a highly-sensitive or responsive escapement mechanism such as will be highly efficient and exact in operation when the same is subjected to a high rate of speed by an operator, and I still further effect a simplified adjustment whereby the escapement mechanism may be suitably regulated for different speeds.

An embodiment of the invention is illustrated in the hereunto-annexed sheets of drawings, upon which—

Figure 1 illustrates in perspective and also in detail the escapement mechanism. Fig. 2 is a transverse sectional elevation of a type-writer, partially broken away, and which shows the connection between the key-bar and the escapement mechanism, together with other details of construction; and Fig. 3 is a section looking from the rear of a type-writer on line *x x* of Fig. 2 and partially broken away.

Similar characters of reference indicate like parts throughout all the figures.

The escapement mechanism is applicable to any suitable form of type-writer—such, for instance, as one comprising a frame 1, having a vertical extension 2, at or near the upper end of which is mounted a frame 3, having a plurality of type-bars, 4 which are movably

mounted on suitable bearings 5 within said housing 6.

Movably mounted in a suitably-formed bed 7 is a carriage 8, bearing a platen 9, and which carriage, in the present instance may be drawn along its path of movement when intermittently released by a spring 10, coupled with said carriage 8 by a strap 11, Fig. 3.

Suitably secured to or carried by a downwardly-extending portion 12 of the bed 7 is a bracket 13, which in the present instance is secured to said portion 12 by a set-screw 14, Fig. 2, and upon which bracket is mounted suitable mechanism hereinafter to be described, and which constitutes in part the escapement mechanism.

Suitably connected to or carried by the bed portion 7 is a shaft 15, which in its present form and preferably so comprises an elongated screw having a head 16 with a certain portion of its length suitably formed to constitute a shaft, upon which may rotate a collar or sleeve 17. Carried by this rotatably-mounted sleeve is a pinion or ratchet-wheel 18, having teeth 19, which are adapted to mesh with a row of teeth 20, carried by a rack 21, mounted upon or secured to an extended portion 22 of the movable carriage 8 and secured thereto, preferably, by screws or bolts 23. Also mounted upon said sleeve 17 is a secondary ratchet-wheel 24, having teeth 25 opposed to the teeth 19 of the ratchet-wheel 18. These teeth 25 are adapted to engage a working pawl or finger 26 of substantially ogee shape, mounted upon an oscillatory member 27, movably mounted upon an upwardly-extending portion 28 of the bracket 13, which is preferably mounted thereon by having a dovetailed slide 29 on the under side of said movable member 27, and which occupies an undercut groove in the upwardly-extended portion 28 of the bracket 13. The pawl 26 is preferably so formed or bent as to preferably be able to rock upon the member 27 and takes over a stud 30, as seen in Fig. 1. A spring 31 takes around said stud 30 and over the pawl 26, thence is bowed upwardly at 32, and its free end is fastened to the member 27 by a set-screw 33. This spring surrounds the stud or post 30 and so bears on the pawl 26 as to cause its pressure to favor that side of the pawl 26 farthest away from the extremity thereof, which engages the teeth 25 of the wheel

24, so that, as will be later on explained, when the pawl is released from the tooth 25 the tendency of said spring will be to cause the end 34 of the pawl 26 to be forced down, while the tooth-engaging portion of said pawl will rise to engage with the next succeeding tooth, and for the purpose of limiting or determining the extent of movement which said pawl 26 shall have I provide a set or adjustment screw 35, which coöperates with a screw-threaded portion in a member 27, and which screw-threaded portion is suitably split at 36, so that the body of the screw 34 may be clamped tightly in place, preferably by a set-screw 37, passing through the member 27 transversely to the plane of the stud 30. For the purpose of maintaining the slidable member 27 in proper location upon the bracket 28 I provide a resilient member 38, such as a spring, which is suitably hitched to the bracket 28 and to a stud 39 on the member 27. In this way the member is urged normally toward the wheel 24, so that the tooth-engaging end of the pawl 26 may be in constant engagement with one of the teeth 25 of said wheel 24. Also suitably mounted on said bracket 28 is a bell-crank 40, suitably pivoted at 41, and one of whose arms, as 42, engages with the end 43 of the member 27. Suitably pivoted to the other arm of the bell-crank, as at 44, is a link 45, which is carried by a shaft 46, from whence proceed arms 47, leading to a main shaft 48, to which is secured a plurality of key-bars 49, connected to the type-bars 4 through links 50. A pressure upon any one of these key-bars 49 will cause the movement of the shaft 48 and the consequent downward movement of the shaft 46 through the connection 47, whereupon the link 45 will cause the bell-crank 40 to move upon its pivotal point 41, whereby to urge the member 27 in a position opposite to its normal position, causing at the same time the spring 38 to expand. At the instant of such operation, as will be obvious, the tooth-engaging point of the pawl 26 will release one of the teeth 25, whereupon through the instrumentality of the spring for operating on the carriage 8 the rack-bar 21 will urge the wheel 18 to rotation, thus also causing the wheel 24 to rotate until one of the teeth 25 is engaged by a tooth 52, mounted on said member 27, when the further movement of the wheels 24 18 and the carriage 8 will be arrested. During this minor portion of the release of the escapement by the pawl 26 and the rearrest of the same by the tooth 52, said pawl 26, through the instrumentality of the spring 31 herein-after mentioned, will be so elevated at its tooth-engaging extremity by the action of the spring 31 as to cause it to be ready to take into the next succeeding tooth of the wheel 24 as soon as said wheel is released by said tooth 52, when the spring 38 is per-

mitted to assert itself to return the member 27 to its normal position, it being understood that during the first part of such movement the carriage will have been partially progressed and during the latter part of said movement the carriage will have completed a movement equal to one step or one letter-space. Thus it will be seen that I have provided an inexpensive, durable, and efficient structure positive and accurate in its action and which is designed to be highly responsive to quick actions of the machine.

I do not confine myself to the detailed construction of the device as described in this application, it being before remarked that such an application of the invention as here shown is for the purpose of illustration only and that within the purview of the invention I may resort to other constructions or arrangements of parts so long as I adhere to the principle involved.

Having thus described my invention, I claim.—

1. In an escapement device, the combination of a ratchet-wheel, a slidable carrier, a dog stationary on the carrier, a spring arranged to retain the carrier normally with such dog out of engagement with the ratchet-wheel, a second dog mounted on the carrier and comprising a strip fulcrumed at an intermediate part thereof on the carrier and arranged to normally engage the ratchet-wheel by one end, a spring on the carrier to engage the latter dog and tending to move it in a direction the opposite to that in which moved by the ratchet-wheel from the carriage-tension, and an adjustable stop on the carrier engaging the other end of the second dog and arranged to limit the movement of the dog by the ratchet-wheel.

2. In an escapement device, the combination of a ratchet-wheel, a slidable carrier having a dog stationary thereon, a spring arranged to retain the carrier with said dog normally out of engagement with the ratchet-wheel, a second dog consisting of a strip of a substantially ogee form, and having an aperture at an intermediate portion, and also an aperture at one end portion, a pin on the carrier, the second dog being inserted on the pin at its intermediate apertured portion, and thereby arranged to have one end in position to normally engage the ratchet-wheel, a spring on the carrier engaging the second dog and arranged to move it in a direction the opposite to which moved by the ratchet-wheel, and a screw passing through the apertured end of the second dog for limiting its movement by the ratchet-wheel.

3. In an escapement device, the combination of a ratchet-wheel, a slidable carrier, a dog stationary on the carrier, means for retaining the carrier normally with such dog out of engagement with the ratchet-wheel, a second dog mounted on the carrier and com-

prising a strip fulcrumed at an intermediate part thereof on the carrier and arranged to normally engage the ratchet-wheel by one end, a spring on the carrier to engage the latter dog and tending to move it in a direction the opposite to that in which moved by the ratchet-wheel from the carriage-tension, and an adjustable stop on the carrier engaging the other end of the second dog and arranged to limit the movement of the dog by the ratchet-wheel.

4. In an escapement device, the combination of a ratchet-wheel, a slidable carrier having a dog stationary thereon, means for retaining the carrier with said dog normally out of engagement with the ratchet-wheel, a second dog consisting of a strip of a substantially ogee form, and having an aperture at

an intermediate portion, and also an aperture at one end portion, a pin on the carrier, the second dog being inserted on the pin at its intermediate apertured portion, and thereby arranged to have one end in position to normally engage the ratchet-wheel, a spring on the carrier engaging the second dog and arranged to move it in a direction the opposite to which moved by the ratchet-wheel, and a screw passing through the apertured end of the second dog for limiting its movement by the ratchet-wheel.

Signed at Nos. 9 to 15 Murray street, New York, N. Y., this 3d day of May, 1904.

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Witnesses:

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