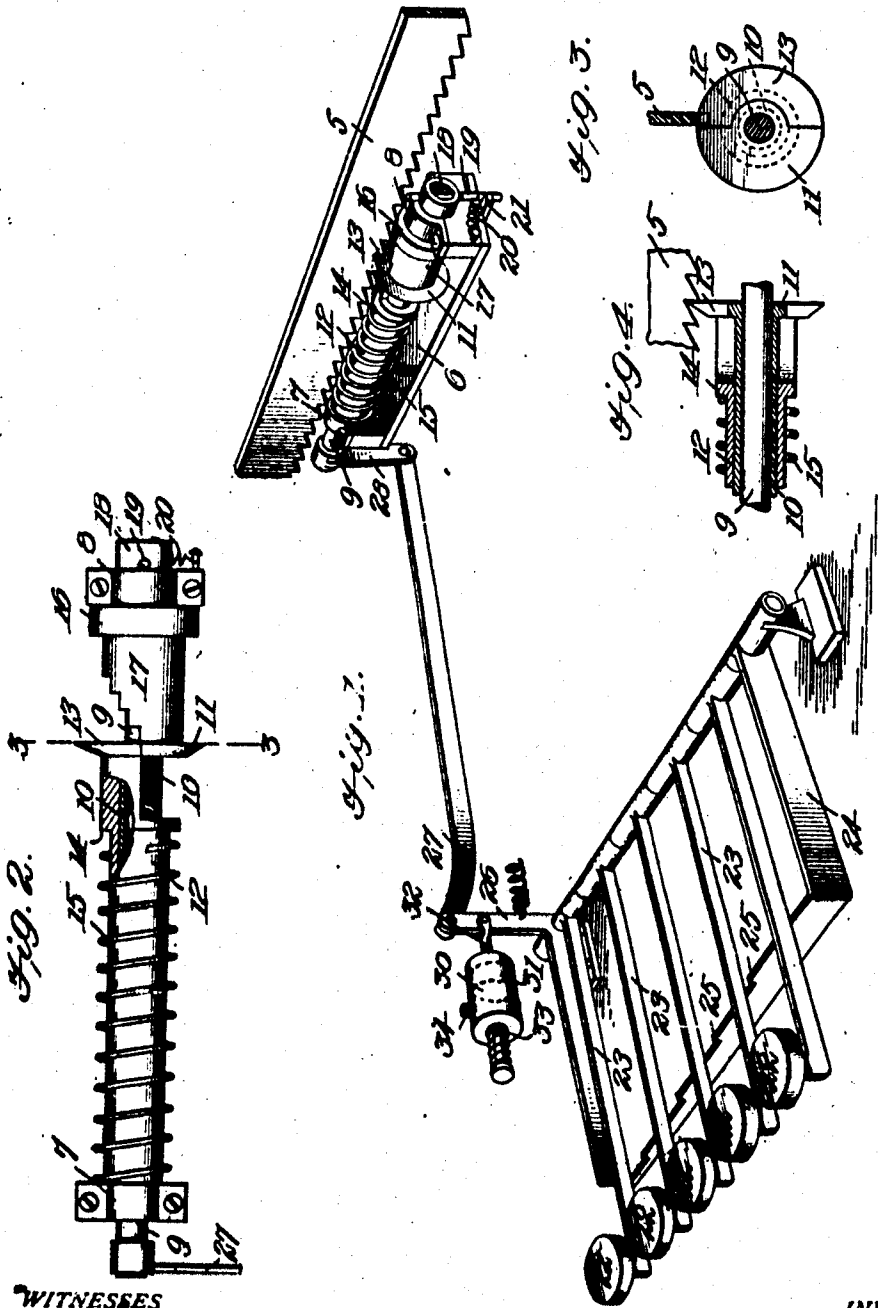


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 ESCAPEMENT MECHANISM.  
 APPLICATION FILED MAR. 16, 1911.

1,007,220.

Patented Oct. 31, 1911.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## ESCAPEMENT MECHANISM.

1,007,220.

Specification of Letters Patent.

Patented Oct. 31, 1911.

Application filed March 18, 1911. Serial No. 614,827.

To all whom it may concern:

Be it known that I, OWEN McCANN, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Escapement Mechanism, of which the following is a specification.

The escapement mechanism which is the subject of the present invention is designed more particularly for controlling the movement of the carriage of typewriters and other machines, and it has for its object to provide an improved mechanism of this kind whereby a variable feed of the carriage may be obtained.

In the accompanying drawing forming a part of this specification—Figure 1 is a perspective view showing the application of the invention. Fig. 2 is a plan view, partly in section, of a portion of the mechanism. Fig. 3 is a cross section on the line 3—3 of Fig. 2. Fig. 4 is a sectional detail.

Referring specifically to the drawing, 5 denotes the feed rack of a carriage (not shown). The carriage is fed forwardly by any suitable means, its movement being controlled by the escapement mechanism co-operating with the feed rack.

Beneath the feed rack 5, in close proximity thereto, is located a bracket 6 made fast in any suitable manner to the frame of the machine. At the ends of this bracket are bearings 7 and 8 which support a shaft 9 extending parallel to the feed rack. On this shaft is made fast a sleeve 10 which is formed at one of its ends with an outstanding semi-circular flange 11 having a beveled edge, said flange forming one of the teeth of the escapement mechanism. On the sleeve 10 is loosely mounted a sleeve 12 having at one of its ends an outstanding semi-circular flange 13 which also has a beveled edge and forms the other tooth of the escapement mechanism. A short distance behind the flange 13 the sleeve 12 is enlarged to form a shoulder 14 between which and the bearing 7 a spring 15 is coiled around said sleeve. The flanges 11 and 13 are normally side by side in alinement, and in contact with each other, in which position they form a circular flange. The sleeve

10 rotates with the shaft 9 as it is made fast thereto, and as the flange 11 is integral with said sleeve it rotates therewith. Rotation of the flange 11 also rotates the flange 13 when it is in contact therewith, this being its normal position as already described. Between the flanges 11 and 13, and the bearing 8, the shaft 9 carries a collar 16 having at its end which is opposite the flange 13 a stepped piece 17. At the other end of the collar is a sleeve 18 which is supported in the bearing 8. The sleeve 18 projects a short distance from the bearing 8, and carries a cross pin 19 to one end of which is attached a coiled spring 20 made fast to the bearing 8, said spring normally holding the pin 19 against a stop 21, which determines the normal position of the stepped member.

At 22 are indicated several spacing keys which are carried by levers 23 fulcrumed to a fixed part of the machine. Beneath these levers is located a yoke 24 also fulcrumed to some fixed part of the machine. The front bar of the yoke has a series of steps 25 corresponding in number to the number of levers 23, these steps being directly beneath the respective levers. Inasmuch as the yoke is not actuated until it is engaged by the levers, it will be seen that the extent of the swing of the yoke is variable. The key which is above the lowest step imparts a minimum swing to the yoke, and the key which is above the highest step imparts a maximum swing to the yoke. The number of keys corresponds to the number of steps on the member 17.

One of the side pieces of the yoke 24 has an angular extension 26 which is connected by a pitman 27 to a crank 28 fastened to one end of the shaft 9, whereby said shaft is rocked when the yoke is depressed by the engagement of any one of the key levers 23 therewith. A suitable restoring spring, for returning the parts to their normal position when the key levers are released, is provided.

The operation of the escapement is as follows: The tooth 13 is normally in engagement with the feed rack 5. To feed the carriage, one of the key levers 23, according to the number of spaces it is desired that

the carriage move, is depressed, whereupon, through the yoke 24 and the connection thereof with the shaft 9, the latter is rocked. The teeth 11 and 13 partake of this movement of the shaft which is in a direction to disengage the tooth 13 from the feed rack and to engage the tooth 11 therewith. The tooth 13 now being free, it is shot forwardly by the spring 15 until it is stopped by one of the steps of the member 17, said member remaining stationary during the herein described rocking movement of the shaft 9. The key lever is now released and the restoring spring returns the parts to their normal position. During this movement the shaft 9 is rocked in the opposite direction from that first described, whereupon the tooth 11 is disengaged from the feed rack and the tooth 13 is again engaged therewith. The carriage is now pulled forwardly by a weight, spring, or other actuating means, the tooth 13 being carried along by the feed rack and stopping the carriage when it comes back to its normal position beside the tooth 11. The tooth is stopped in the last described position by the engagement of the end of the sleeve 12 with the bearing 7. The carriage thus travels forwardly the distance the tooth 13 was placed ahead of the tooth 11. The stepped member 17 determines this distance, the particular step which the tooth 13 engages depending on the extent of the rotary movement of the shaft 9, which in turn is controlled by the key levers and the stepped yoke. The key lever selected therefore determines the number of spaces the carriage is moved forwardly. Thus, if the key lever which imparts a maximum swing to the yoke is selected, the shaft is rotated a distance to place the sliding tooth 13 in alignment with the step of the member 17 which is farthest from the tooth 11. By thus selecting the key levers a variable feed of the carriage is effected. The movement of the teeth is transversely of the feed rack, and one tooth does not leave the feed rack until the other tooth engages the same, so that the carriage is always under control. When the tooth 13 slides away from the member 17 back to its normal position beside the tooth 11, it slips down the steps causing the member to turn on the shaft 9 against the tension of the spring 20, and when the tooth clears the member, the latter is restored to its normal position against the stop 21 by said spring.

In order to prevent the momentum of the key levers from carrying the shaft 9 and the parts mounted thereon too far, a dashpot 30 is provided in which works a plunger 31 having its stem 32 connected to the extension 26 of the yoke 24. The dashpot has a valve 33 to allow air to enter freely when the plunger is being drawn outwardly,

and also an adjustable vent 34 to allow escape of the air when the plunger is moving inwardly.

I claim:

1. In an escapement mechanism, a feed rack, holding members alternately engageable with the rack, one of said members normally engaging the rack, and being slidable in the direction of the length thereof when disengaged therefrom and in the opposite direction upon again engaging the same, steps to limit the sliding movement of the holding member, one of said stops having portions which are spaced different distances from the other stop to determine the extent of the first-mentioned movement of the sliding member, and means for imparting a variable rotary movement to the sliding member to place the same in alignment with a selected spaced portion of the stop.

2. In an escapement mechanism, a feed rack, a rotatable shaft extending parallel to the rack, a sleeve mounted on the shaft and rotatable therewith, said sleeve having a tooth adapted to engage the rack, a sleeve slidably mounted on the first-mentioned sleeve and rotatable therewith, said second-mentioned sleeve having a tooth normally engaging the rack, a stop member having portions which are spaced different distances from the second-mentioned tooth, and means for imparting a variable rotary movement to the shaft to alternately engage the teeth with and to disengage the same from the rack, the disengagement of the second-mentioned tooth from the rack being accompanied by the alignment of said tooth with a selected portion of the stop.

3. In an escapement mechanism, a feed rack, holding members alternately engageable with the rack, one of said members normally engaging the rack, and being slidable in the direction of the length thereof when disengaged therefrom and in the opposite direction upon again engaging the same, stops to limit the sliding movement of the holding member, one of said stops having portions which are spaced different distances from the other stop to determine the extent of the first-mentioned movement of the sliding member, and means for imparting a variable rotary movement to the sliding member to place the same in alignment with a selected spaced portion of the stop, said means including a pivoted member having a stepped portion, and key levers located above the steps of said pivoted member.

4. In an escapement mechanism, a feed rack, a rotatable shaft extending parallel to the rack, a sleeve mounted on the shaft and rotatable therewith, said sleeve having a tooth adapted to engage the rack, a sleeve slidably mounted on the first-mentioned sleeve and rotatable therewith, said second-mentioned sleeve having a tooth normally

engaging the rack, a stop member having portions which are spaced different distances from the second-mentioned tooth, means for imparting a variable rotary movement to the shaft to alternately engage the teeth with and to disengage the same from the rack, the disengagement of the second-mentioned tooth from the rack being accompanied by the alinement of said tooth with a selected portion of the stop, said means

comprising a pivoted member operatively connected to the shaft and having a stepped portion, and key levers located above the steps of said pivoted member.

In testimony whereof I affix my signature 15  
in presence of two witnesses.

OWEN McCANN.

Witnesses:

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J. W. WAYNE.