

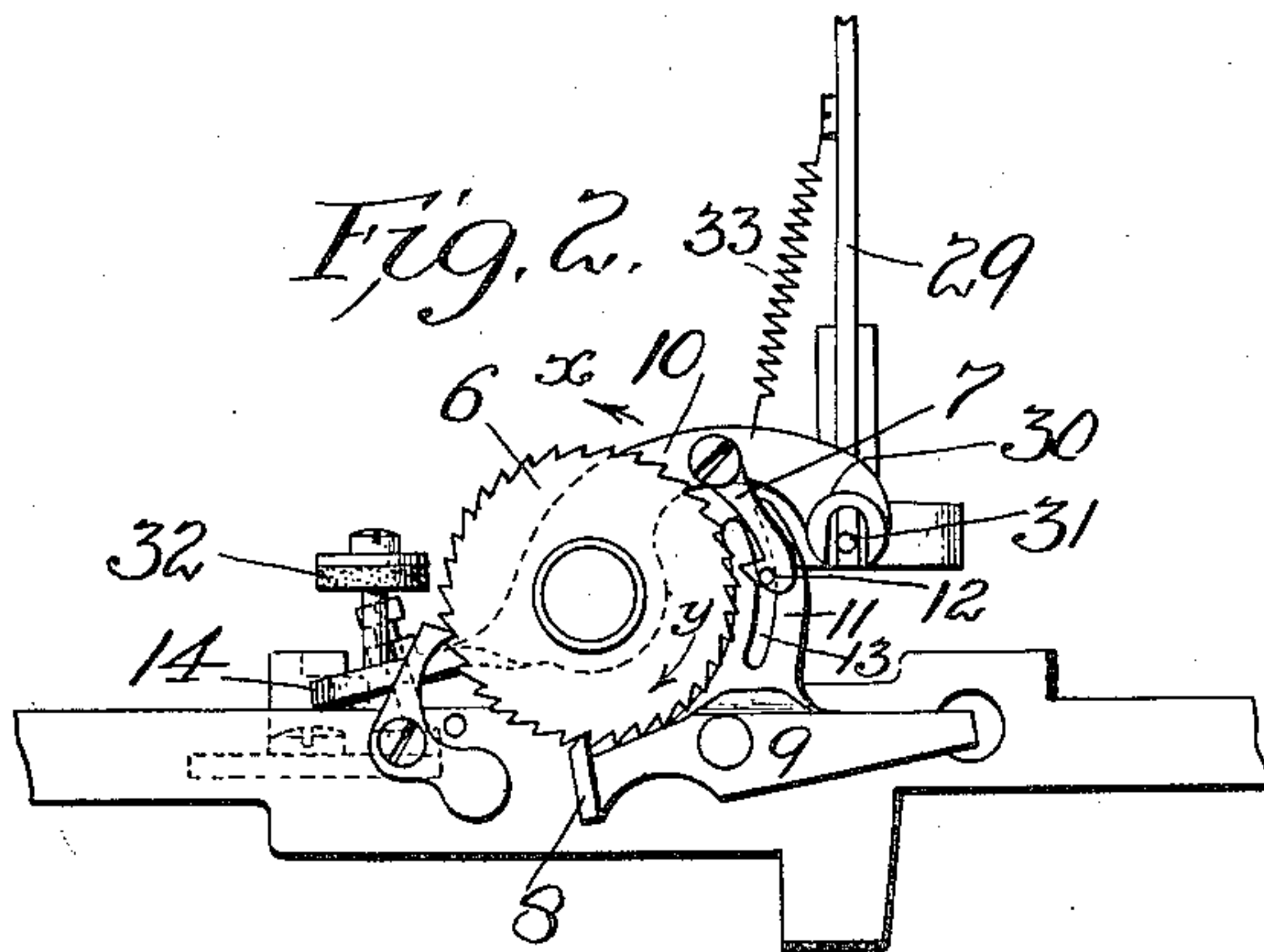
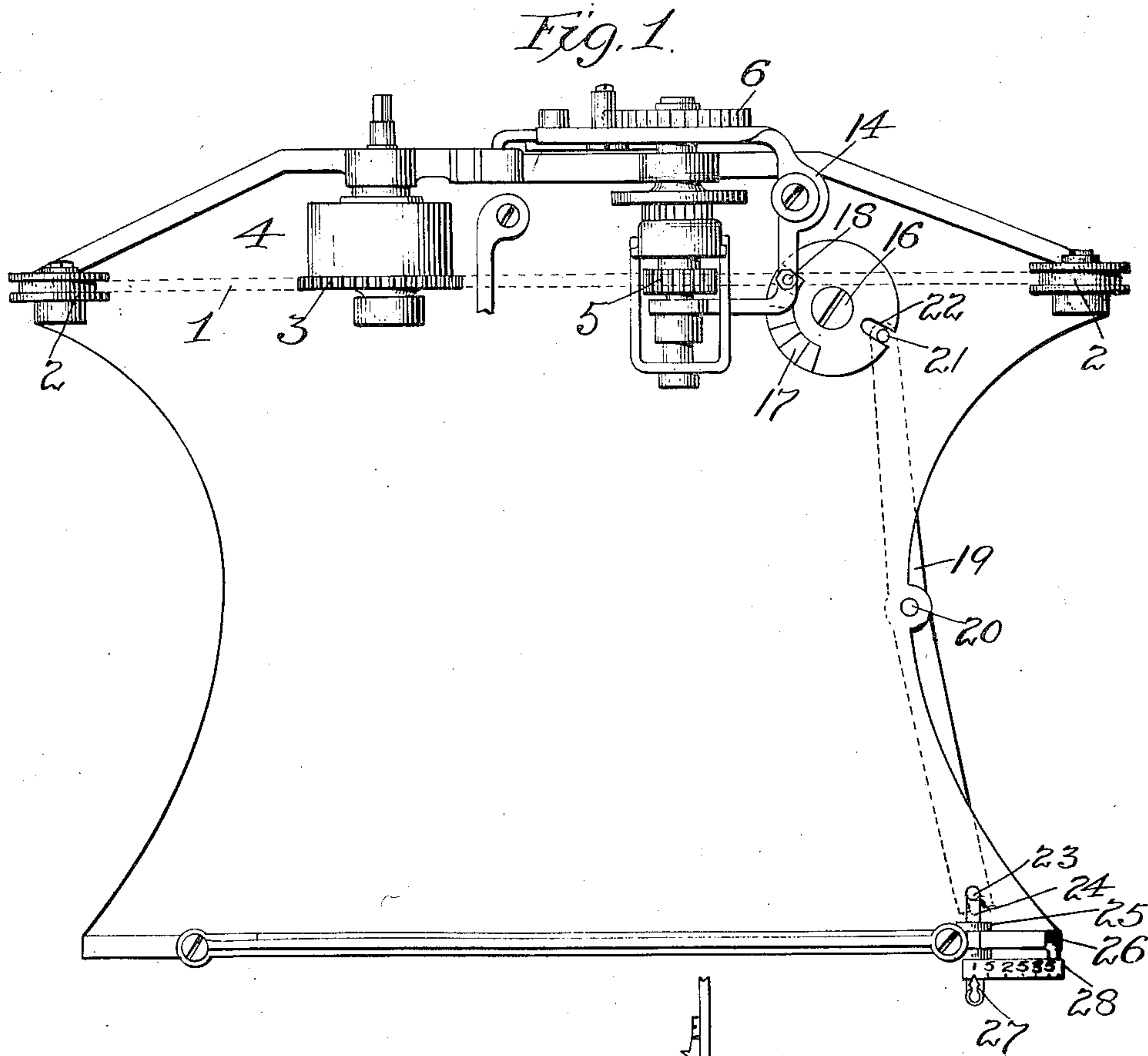
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J. B. HAMMOND.


VARIABLE SPACING MECHANISM FOR TYPE WRITERS.

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UNITED STATES PATENT OFFICE.

JAMES BARTLETT HAMMOND, OF NEW YORK, N. Y.

VARIABLE-SPACING MECHANISM FOR TYPE-WRITERS.

No. 889,227.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed March 10, 1906. Serial No. 305,394.

To all whom it may concern:

Be it known that I, JAMES BARTLETT HAMMOND, a citizen of the United States, residing at New York city, New York State, have invented certain new and useful Improvements in Variable-Spacing Mechanism for Type-Writers, of which the following is a specification.

My invention relates to typewriters of the general class known as the Hammond, and it concerns particularly means for securing variable letter spacing.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings,—Figure 1 is a plan view of so much of a carriage escapement mechanism of the Hammond typewriter as is necessary to a clear understanding of my invention. Fig. 2 is a rear view of the escapement mechanism.

In these drawings, I have shown the main base frame only in outline.

The carriage rack is indicated in dotted lines at 1, being guided in the usual manner by rollers 2 on the base frame and meshing with the gear 3 of the spring drum 4 and with the gear 5 on the shaft of the escapement wheel 6. This escapement wheel is controlled in the usual manner by a pawl 7 engaging therewith and by a detent 8. The detent 8 is on an escapement lever 9 connected with the keys in the well known manner, and the pawl 7 is carried by a hammer lever 10, freely pivoted upon the shaft of the escapement wheel. Heretofore, this lever has been controlled in such a manner as to allow the pawl 7 to have a limited amount of movement circumferentially of the escapement ratchet so as to produce the uniform minimum letter spacing. By my present invention I design to control the movement of this lever so that the escapement movement may be equal to a distance of one letter space, or a larger number of letter spaces, for instance, 2, 3, 4, 5, 6 or more. The pawl 7 is controlled by a forked arm 11 extending from the escapement lever 9, a pin 12 on the said pawl 7 engaging a curved slot 13 in the said arm 11 this slot being curved concentrically to the axis of the escapement ratchet.

In order to vary the retracting movement of the lever 10 with the pawl 7, I provide an adjustable stop to engage the tail piece 14 of

the said lever and limit the movement thereof. This adjustable stop I provide in the form of a disk 15 suitably pivoted to the base and adapted to have a rotary movement about its pivot 16, the said disk having a series of stop shoulders 17 at different elevations so that by shifting this disk circumferentially either one or the other of the said stop shoulders may be brought beneath an adjustable stop pin or screw 18 carried by the tail piece 14 of the said hammer lever. The disk may be set in any desired position by means of a lever 19 pivoted to the base frame at 20 having a pin 21 engaging a radial slot 22 in the disk, the forward end of the said lever being forked at 23 and engaged by an arm or finger 24 carried by a sliding block 25 adjustable in the frame 26, a handle 27 being provided to set the sliding block, and a scale 28 serving to indicate the different positions of the stop according to the position of the said handle in relation to the numbers on the scale.

The hammer for making the impression is of substantially the same form as is well known in the Hammond construction, the arm carrying the same being indicated at 29, and this hammer is connected with the hammer lever 10, but instead of the usual swiveled connection, I employ a loose connection between these parts, consisting of the forked end 30 of the lever 10 into which projects a pin 31 of the hammer, or this loose connection may be provided in other ways, for instance, by simply forming an enlarged opening in the end of the lever 10 to receive the pin 31. When the machine is at rest the pawl 7 is in engagement with the ratchet or escapement wheel 6 and the detent 8 is out of engagement with said escapement wheel.

When the machine is operated the lever 9 is moved, causing the forked arm 11 carried thereby to throw the pawl 7 from engagement with the escapement wheel and the hammer then flying forward makes the impression and the hammer lever moves in the direction of the arrow x , so that the pawl 7 will get in position to reengage the escapement wheel to be carried forward thereby in the direction of the arrow y until the tail piece of the lever 10 strikes the fixed stop 32 in the ordinary manner. When the pawl 7 is thrown out of engagement with the escapement wheel, the detent 8 is thrown into engagement so that upon the return of the lever 9 to its normal position with the detent

8 out of engagement with the escapement wheel the pawl 7 will be thrown into engagement and the tension on the escapement wheel from the carriage spring will cause the escapement wheel to turn in the direction of the arrow y until the tail piece 14 of the hammer lever 10 engages the fixed stop 32, it being understood from the above that the pawl 7 is now in engagement with the escapement wheel.

It will be seen that the movement of the escapement wheel in the direction of the arrow y will depend upon the distance the hammer lever 10 moves in the arrow direction x when the pawl 7 is disengaged from the escapement wheel. The loose connection between the hammer and the hammer lever is provided so that the hammer lever will be free to move in the arrow direction x under the action of the spring 33 when the pawl 7 is released and thus it is only necessary to provide means for arresting the movement of the hammer lever 10 in the arrow direction x at different positions in order to secure a variable spacing action, for instance if the hammer lever 10 moves in the arrow direction x a distance equal to one tooth of the escapement wheel, the ordinary spacing will be performed, but if the lever 10 is moved distances equal to 2, 3, or more escapement teeth spaces, the letter spacing will correspond thereto and it will be seen from the above that the amount of movement in the arrow direction x of the lever 10 will depend upon which stop shoulder is beneath the adjustable stud or screw 18 of the tail piece of the hammer lever. The shoulders 17 may be sufficient in number to enable the operator to readily bring the carriage to different columnar positions for tabulating.

It will be seen by reason of the employment of the curved slot 13 concentric with the axis of the escapement wheel that the pawl 7 will lie in position ready to engage the said teeth at whatever point the hammer lever 10 reaches in its retracting movement, and this is an important feature of my invention. The spring 33 exerts tension on the hammer lever and besides operating it in the arrow direction x when its pawl 7 is released from the escapement wheel, said spring will prevent rebounding movement of the said hammer lever.

I claim as my invention:

1. In combination, a hammer, an escapement ratchet wheel, a pivoted pawl 7, a hammer lever carrying the same, an escapement lever 9 having a detent to engage the ratchet and an arm to operate the pivoted pawl 7 out of and into engagement with said wheel, and a variable stop for the pawl carrying hammer lever, substantially as described.

2. In combination in a typewriter, a hammer, an escapement ratchet wheel, an escape-

ment lever, a hammer lever carrying a pawl to engage the escapement wheel, an adjustable stop to limit the movement of the hammer lever, a detent for the escapement wheel and connections leading from the key board independent of the character keys for setting the said adjustable stop in different positions, substantially as described.

3. In combination in a typewriter, a hammer, an escapement ratchet wheel, a detent, an escapement lever, a hammer lever carrying a pawl to engage the escapement wheel, an adjustable stop to engage the hammer lever, and connections leading from the key board independent of the character keys for setting the said adjustable stop in different positions, said connections including a slide adjacent the key board, substantially as described.

4. In combination in a machine of the class described, a ratchet wheel for the escapement action, a pawl engaging the escapement wheel for letter spacing, a carrier lever for the pawl, a disk, a plurality of shoulders carried by the said disk for stopping the movement of the said carrier lever for variable spacing, means for adjusting the said disk and a detent for the escapement wheel, substantially as described.

5. In combination in a machine of the class described, a ratchet wheel for the escapement, a pawl, a carrier lever for the pawl, a disk having a plurality of shoulders to engage the lever, a lever engaging the disk, a sliding member at or near the key board engaging the said lever, a scale to set the sliding member and a detent for the ratchet wheel, substantially as described.

6. In combination in a machine of the class described, an escapement ratchet, a pawl, a lever carrying the same, a hammer, and a loose connection between the hammer and the said lever to allow movement of the lever independent of the hammer, and means for stopping the carrier lever at various positions and a detent for the escapement ratchet, substantially as described.

7. In combination in a machine of the class described, an escapement wheel, a pawl, a carrier lever therefor, an arm having a curved slot substantially concentric with the axis of the escapement wheel for throwing the pawl into and out of operation, means for stopping the carrier lever at various positions and a detent for the escapement ratchet, substantially as described.

8. In combination in a machine of the class described, an escapement wheel, a pawl, a carrier lever, a hammer, a loose connection between the said hammer and pawl lever, a spring for applying tension to and preventing rebound of the said detent lever, a variable stop for the carrier lever and a detent for the escapement ratchet, substantially as described.

9. In combination a ratchet wheel, a detent and escapement lever therefor, a hammer lever, a pawl carried thereby and movable independently of the hammer lever, an adjustable stop for the hammer lever and a spring for applying tension to the said hammer lever, substantially as described.

10. In combination in a typewriter, a hammer, a carriage escapement mechanism including an escapement wheel, a detent therefor, a pawl, a hammer lever carrying said pawl, a stop to limit the retracting movement of the hammer lever, and means for operating the said stop for securing variable stopping actions comprising an adjustable member at the key board and a scale by which said member may be set for the differ-

ent spacing movements, substantially as described.

11. In combination in a typewriter, an impression hammer, an escapement ratchet wheel, a detent therefor, a hammer lever engaging the hammer, a pawl carried by the hammer lever and arranged to engage the escapement ratchet and an adjustable stop to limit the movement of the hammer lever to secure variable spacing movements of the hammer lever, substantially as described.

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

JAMES BARTLETT HAMMOND.

Witnesses:

J. M. BANCROFT,
F. ECKLIN.