

A. BLOCK.
TYPEWRITER.
APPLICATION FILED NOV. 5, 1919.

1,389,237.

Patented Aug. 30, 1921.

4 SHEETS—SHEET 1.

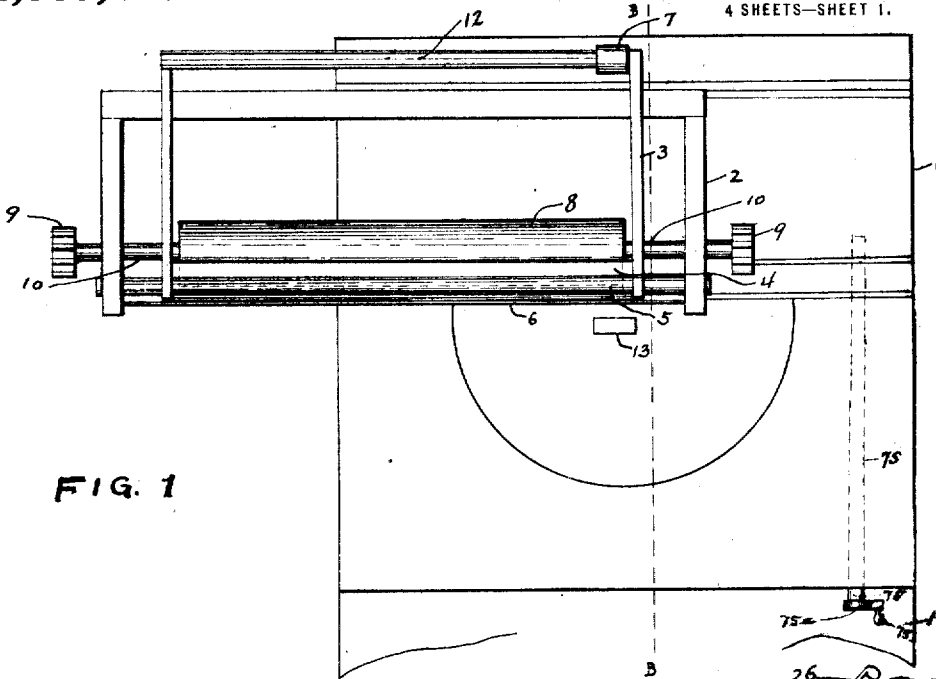


FIG. 1

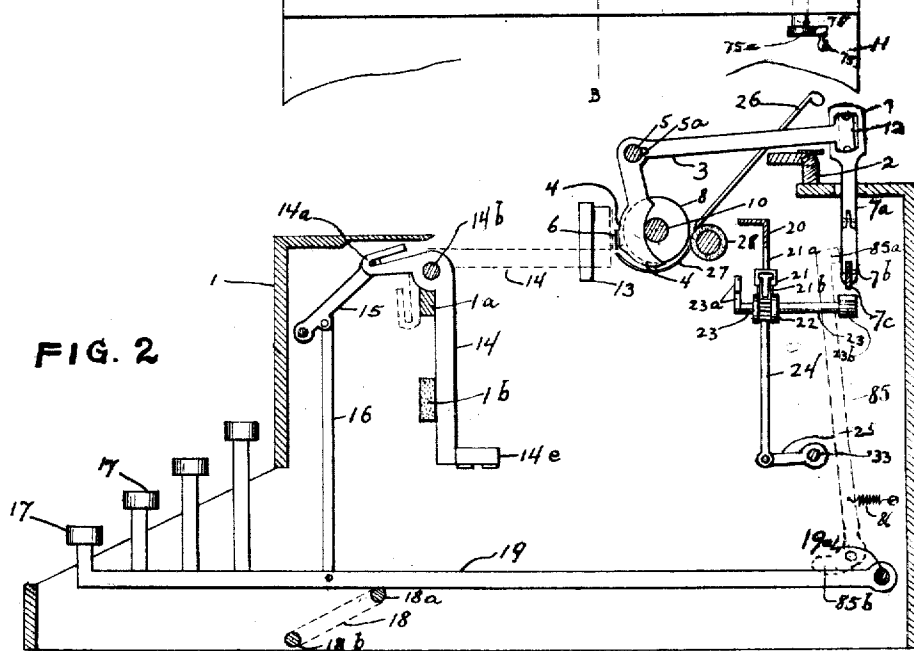


FIG. 2

Witnesses:
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Harry H. Dillon

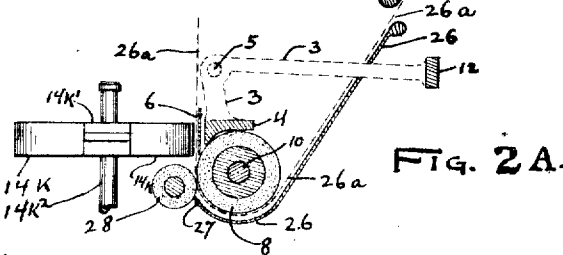
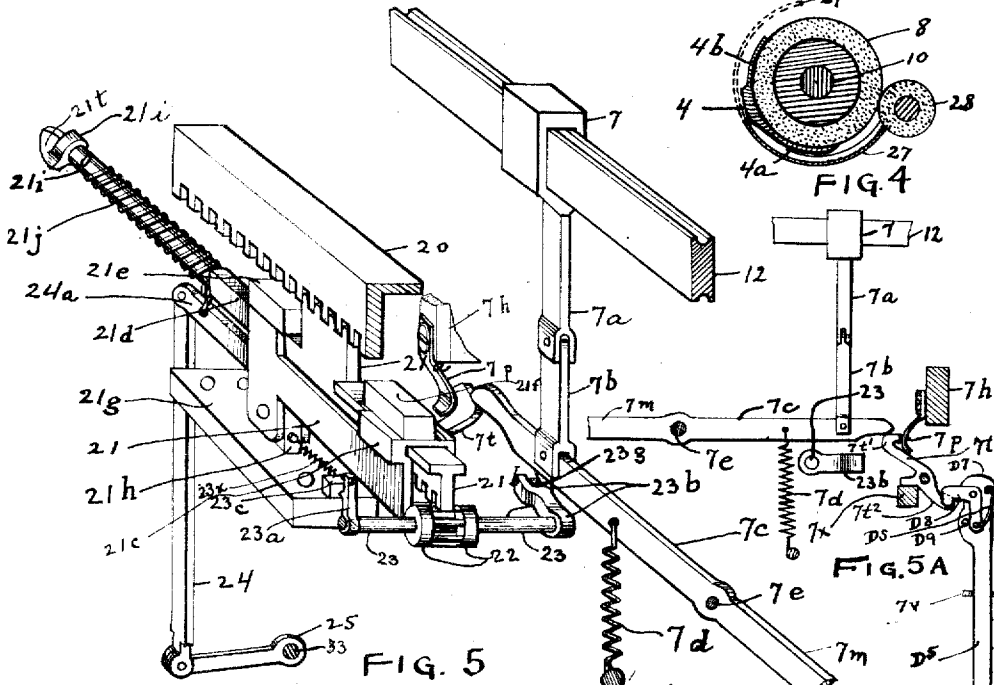
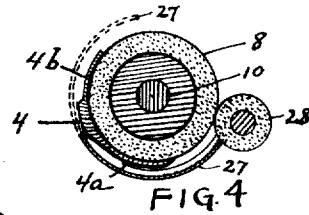
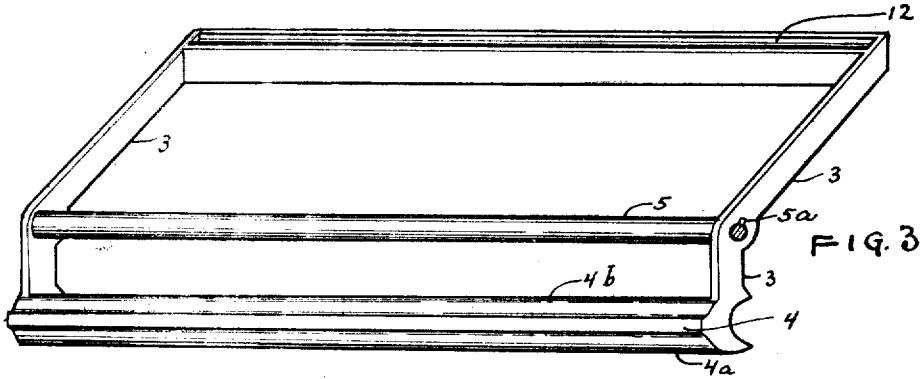
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4 SHEETS—SHEET 2.

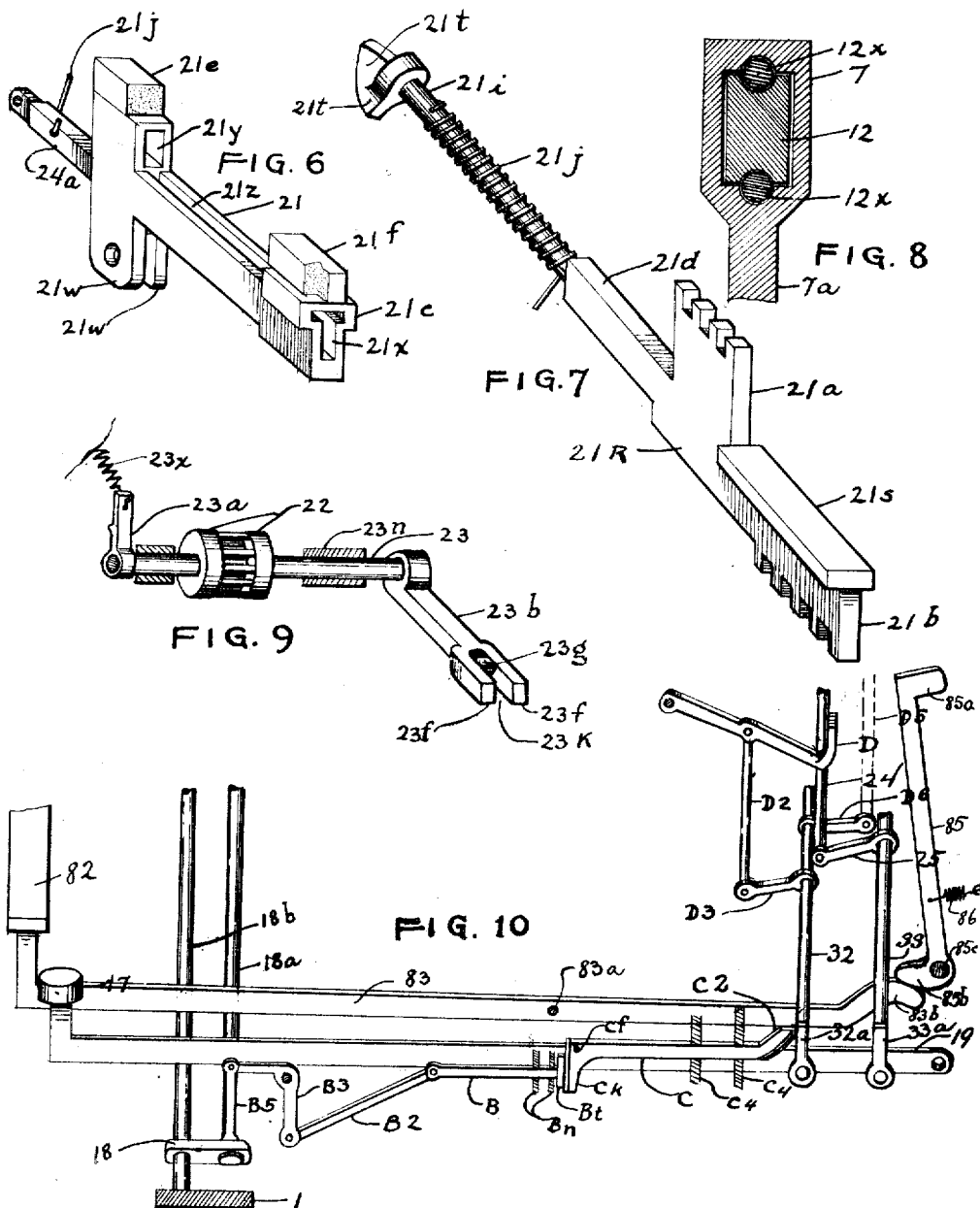


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Patented Aug. 30, 1921.
4 SHEETS—SHEET 3.



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Patented Aug. 30, 1921.

4 SHEETS—SHEET 4.

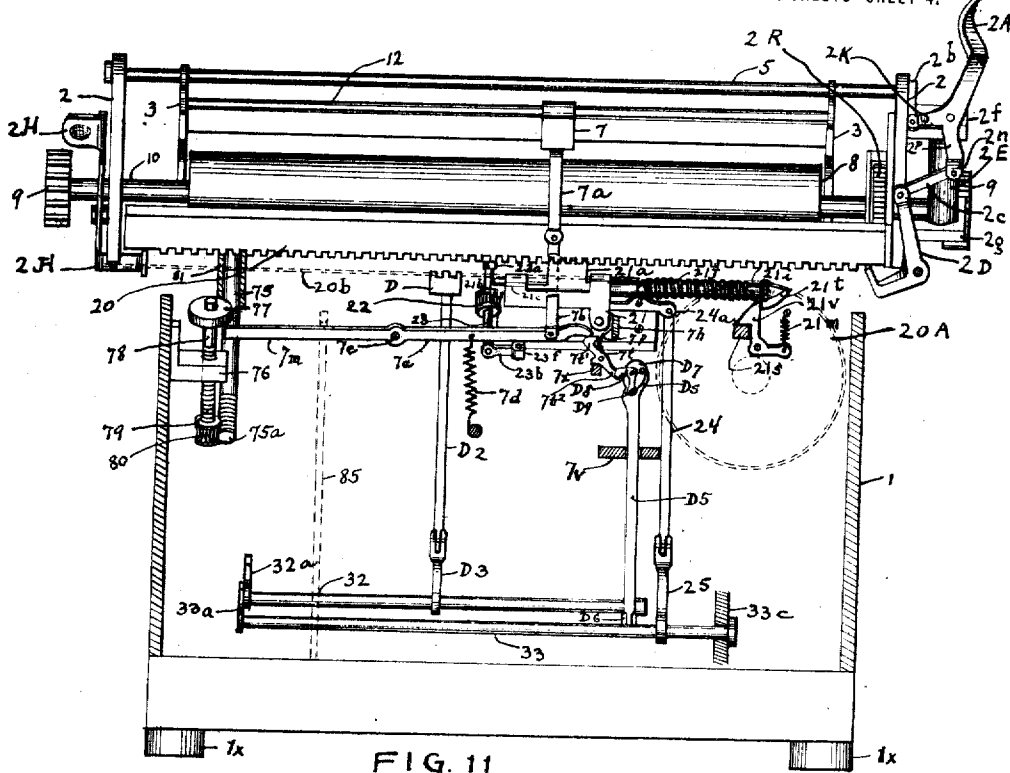


FIG. 11

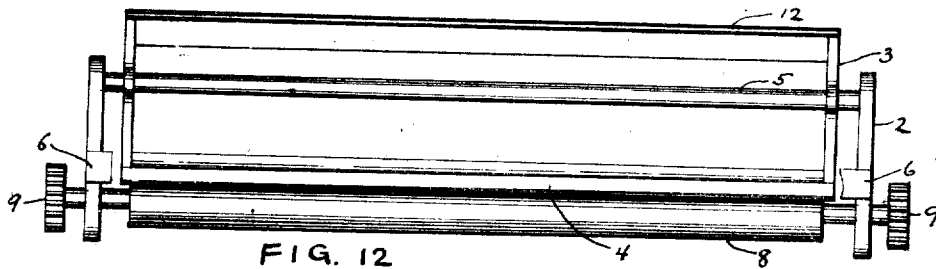


FIG. 12

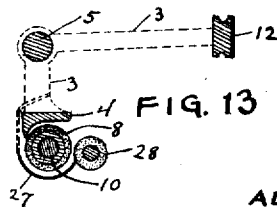


FIG. 13

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UNITED STATES PATENT OFFICE.

ALEXANDER BLOCK, OF NEW YORK, N. Y.

TYPEWRITER.

1,389,237.

Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed November 5, 1919. Serial No. 335,857.

To all whom it may concern:

Be it known that I, ALEXANDER BLOCK, a citizen of the United States, and residing in the city of New York, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Typewriters, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is a typewriter belonging to that class of machines commonly known as visible machines. The object of this invention is, more particularly, to improve the impression mechanism in that class of typewriters wherein types are successively delivered to a common printing position to cooperate with said impression mechanism for performing the printing operation.

Another object is to improve the carriage feed mechanism, and to provide a typewriting machine with a carriage escapement device of simple construction that shall be adapted to cooperate with the impression mechanism for returning said mechanism to normal rest position subsequently to the printing operation.

In machines of this type, such as the Hammond, a hammer cooperates with the types to perform the printing operation. The said hammer is adapted to be driven forward under the impulse of a spring and delivers a jarring noisy blow in performing the printing operation. This is one objectionable feature presented by said impressing device. A further objection is, that its construction prevents the insertion of the paper into the carriage from the rear of the machine, as is the case in typewriting machines of standard make in general use in business offices. An extra cylinder is required in the Hammond type of machine for storing the paper. This renders such machines undesirable for use in business offices, for the reasons that large sheets of paper or paper of extra thickness become folded or creased in said cylindrical receiver. It is therefore rather impracticable to write on such paper or to manifold a number of sheets at a time in the said Hammond type of machine.

Bjorksten of Petrograd had attempted to overcome this drawback by providing a specially constructed hammer arranged to permit of the insertion of the paper from

the rear of the machine and thereby eliminating the cylindrical receiver. But his device is of such clumsy unwieldy construction as to render it more objectionable than the present means.

The objects of my invention are to overcome these drawbacks by eliminating both the cylindrical receiver and the hammer; my invention consisting in providing a machine of that type with an impression bar of the construction illustrated in the appended drawings and fully described herein. The said impression bar obviates the necessity for an extra cylinder and permits of the insertion of the paper in the usual manner employed by machines of standard make. In performing the printing operation, the impression bar exerts a dwelling pressure, and its operations are practically noiseless.

A further object of my invention is to provide changeable means controllable by an operator, adapted to limit the movement of the impression bar in performing the printing operation; the variable position of said bar being arranged to regulate the operative force of the impression bar in performing the printing operation. This changeable device allows of the regulating of the impressing force of the impression bar, variable impressing force being required for varying thicknesses of paper or in manifold- ing several sheets of paper at a time. The said device is controlled by means preferably positioned at the front of the machine.

Another object of my invention is to save power by providing mechanically driven means controllable by an operator, for moving the impression bar to printing position, and further mechanical means independent of the operator for the returning of said impression bar to normal position subsequently to the printing operation.

Other features of the invention will be pointed out and still others will become apparent in the specification, wherein a detailed description is given of the invention taken in conjunction with the accompanying drawings.

I have illustrated different practical embodiments of my invention in the accompanying drawings, but the constructions therein shown are to be understood as illustrative and not as defining the limits of the invention. Furthermore, the invention consists in the various novel features of con-

struction hereinafter described, illustrated in the accompanying drawings, and particularly described in the claims at the end of the specification.

I will now proceed to describe my invention with reference to the accompanying drawings, wherein,—

Figure 1 is a top plan view of the machine embodying my invention with parts omitted and parts broken away. Fig. 2 is a vertical longitudinal section of the machine shown in Fig. 1, along a line B—B. Fig. 2A shows my invention as applied to a machine provided with a type wheel carrying movable types. Fig. 3 is a perspective view of the impression bar and its frame. Fig. 4 is a cross-section of said impression bar and the paper feed rolls. Fig. 5 is a perspective detail of the carriage feed mechanism and the impression bar actuating means, showing the operative connection between them, with some parts omitted and other parts broken away. Fig. 5A shows the impression bar actuating means and its maintaining and releasing devices shown in operative connection with said actuating means. Fig. 6 is a detail of the pivoted frame member of the escapement mechanism. Fig. 7 is a detail of the slidable member of the escapement mechanism. Fig. 8 is a detail cross-section of part of the impression bar frame and the collar in which it is adapted to slide. Fig. 9 is a detail view of the device for returning the impression bar to retracted rest position subsequently to the printing operation. Fig. 10 is a side view seen from above of the system of bars, links and levers operably connecting the impression bar and the carriage feed mechanism with a keyboard. Fig. 11 is a rear view of the machine with parts broken away and other parts omitted. Fig. 12 is a front elevation of the carriage of a modified type of machine embodying my invention. Fig. 13 is a cross-section thereof.

In the accompanying drawings, similar characters of reference designate similar parts throughout the several views.

One type of machine embodying my invention and illustrated in the accompanying drawings, shows the impression bar used in conjunction with pivoted type bars. The said type bars are arranged radially of a segmental support, and are adapted to deliver types successively to a common printing position to cooperate with said impression bar for performing the printing operation. It should be understood, however, that I do not wish to limit myself to that combination—which is to be regarded as illustrative rather than defining the limits of the invention. In another type of machine illustrated in the drawings the impression bar is shown in conjunction with a type wheel carrying movable types. The said impression bar may be adapted for use with type-

writing machines differing in construction from those shown herein.

In the accompanying drawings, the impression bar is further shown in operative connection with improved carriage feed mechanism embodied in my invention. It is understood that it is not my intention to limit the use of the said impression bar to a typewriting machine provided with such improved carriage feed mechanism. The said impression bar may be applied to a machine wherein escapement mechanism of different construction is employed.

Improved escapement mechanism embodied in my invention is shown in operative connection with the impression bar. It must be understood, however, that I do not wish to limit the use of carriage feed mechanism of this type to machines provided with an impression bar. Such carriage feed mechanism as is illustrated in the accompanying drawings and described and claimed herein, may be applied to any other type of typewriting machines.

I will now proceed to describe in detail the machine embodying my invention:—

The frame 1 is of the usual or any suitable construction, comprising vertical corner posts, a keyboard at the front of the machine, a traveling element or carriage at the rear of the machine and supports for various mechanisms. In carriage frame 2 are housed feed rolls 8 and 28, and the impression bar 4 with its frame 3, and the impression bar 4 is mounted for pivotal movement on said carriage frame. A striking strip 6 is or may be attached to the carriage frame in front of said impression bar. Feed roll 8 is mounted on an axle 10 journaled in carriage frame 2; said axle carrying thumb wheels 9 at either end thereof.

The impression bar 4 may differ in construction, as shown in the drawings, and its position with reference to feed roll 8 may differ. In Figs. 3 and 4 the bar is shown embracing flanges 4a and 4b, and in Figs. 2A, 12 and 13 an impression bar without flanges is shown occupying a position above feed roll 8. The impression bar 4 is mounted on a frame comprising rocker arms 3, the rear ends of which are connected by a cross piece 12. Said rocker arms are preferably mounted upon a rocker shaft 5 running transversely across the carriage frame 2 and journaled therein. When the said rocker arms are actuated, shaft 5 is forced to rock in its bearings in frame 2, the impression bar being arranged to move toward and away from the printing position, and to exert an even, unyielding dwelling pressure at all points of said bar.

Cross-piece 12 is grooved on its upper and lower faces and is mounted and adapted for slidable movement in a collar 7, which may be provided with anti-friction wheels 12c. Said collar 7 is mounted on a lever 7a which

is in operative connection with an impression bar control lever 7c pivoted on the machine frame 1 at 7e; said lever 7c preferably embracing two free extremities. Operative connection between said levers 7a and 7c is preferably established by a link 7b, one end of which is pivoted to lever 7a and the other end of which is pivoted to said lever 7c.

A spring 7d tends to move lever 7c away from its normal rest position, and in a direction to actuate said impression bar. A detent or latch 7t is provided for maintaining lever 7c in its normal rest position with said spring 7d under tension. Said detent 7t is held in its retracted position by means of a spring 7p; said detent being adapted to prevent the movement of lever 7c away from its normal rest position and thereby to maintain said lever and the impression bar in retracted rest position. Detent 7t embraces an arm 7t¹ which is spring-pressed, and an arm 7t² which is arranged to be actuated by a device operably connected with a keyboard; said device being arranged to release lever 7c from detent 7t to allow spring 7d to impel lever 7c in a direction to actuate impression bar 4.

The means for actuating detent 7t to release lever 7c, comprises a carrier D⁵ pivoted at its lower end to an arm D⁶ which is operably connected with a keyboard. A guide 7v is provided for guiding lever D⁵ in its movement toward and away from its normal rest position. The upper extremity of said carrier D⁵ preferably comprises a head member upon which a bifurcated bell-crank D⁸ is pivotally attached. One arm of said bell-crank is arranged to overhang arm 7t² of detent 7t and is normally in operative connection therewith by means of a loose joint. The movement of the other arm of said bell-crank D⁸ is preferably restricted in one direction by a stud D⁹ on the head member of said carrier D⁵, and it is movable in the opposite direction against the action of a spring D⁸. To the end that when carrier D⁵ is moved away from its normal rest position by the operation of the mechanisms of the machine as controlled from a keyboard, bell-crank D⁸ causes detent 7t to release operating lever 7c. As carrier D⁵ continues to move in a direction away from its normal rest position, bell-crank D⁸ is caused to move out of operative engagement with arm 7t² of detent 7t, thus allowing said detent to return to normal rest position by the action of its spring 7p. During the returning of said carriage D⁵ from its operative position, bell-crank D⁸ encounters arm 7t² of detent 7t, and is actuated thereby against the action of its spring D⁸, thereby allowing of the further upward movement of said carrier D⁵ and of the delivering of said bell crank into operative position with reference to detent 7t.

When said lever 7c is disengaged from its detent 7t, spring 7d, normally held under tension, impels the lever in a direction to force the impression bar 4 to move into printing position. Changeable means are provided for restricting the movement of said impression bar in its operative direction. Said means are controllable by an operator and arranged to regulate the operative force of the impression bar for performing a variable impression. The changeable means comprise a stop 77 arranged to limit the movement of lever 7c in its operative direction; a rotatable, preferably threaded shaft, 78 upon which said stop 77 is mounted; a support 76 having a threaded recess for affording mounting to said rotatable shaft 78, and a gear wheel 80 upon said shaft. A rotatable shaft 75 preferably running to the front of the machine frame is provided with a crank handle 75b at its outer end, and a worm or threaded member 75a at its inner end meshing with said gear wheel 80 on shaft 78. To the end that when the crank handle 75b is manipulated by the operator, shaft 75 causes shaft 78 to rotate in its support 76 to increase or diminish the distance of stop 77 from arm 7m of lever 7c. The operative force of the impression bar may thus be adjusted by the operator as required.

An improved carriage feed mechanism of simple and efficient construction is provided, which embraces means operably connected with the impression bar actuating means. The said mechanism comprises an escapement lever or pawl D adapted to be engaged with and disengaged from carriage rack 20 by means operably connected with a keyboard, and an escapement mechanism arranged to be engaged with and to be disengaged from said carriage rack by means controlled from a keyboard. The said escapement mechanism comprises a frame member 21, pivotally mounted upon a support 21g on machine frame 1, and a slidable member 21R, mounted in said frame member 21, and adapted for slidable movement therein. Means operably connected with said frame member and controlled from a keyboard are adapted to actuate said frame member for moving said slidable member into and out of engagement with said rack 20.

The frame member is preferably of rectangular construction, comprising vertical lateral standards, a longitudinal groove or slot 21z for housing the slidable member, and slots 21y and 21x for affording slidable mounting to member 21R. A lug 21h on a support 21g affords pivotal attachment to said frame member 21, and a link 24 is pivoted by one end to a projection 24a on frame member 21 and by its other end said link is pivotally attached to an arm 25 mounted

upon rocker bar 33 which is operably connected by means of a cam, links and levers with a keyboard. It is conceivable that said frame member 21 need not necessarily be pivoted on its support to adapt it to move toward and away from the carriage rack 20; therefore I do not wish to limit myself to that means of attachment of said frame member.

Slidable member 21R embraces a spring-bearing member 21L to which is attached one end of a spring 21J, the other end of said spring being attached to said frame member 21. The slidable member is provided with parts 21Z and 21X for slidably mounting said member in slots 21Y and 21Z, respectively, of the frame member 21; and ratchet members 21A and 21B, meshable respectively with carriage rack 20 and with a gear wheel 22 on driven shaft 23. Escapement ratchet 21A is normally held in engagement with carriage rack 20, and ratchet 21B normally holds a position directly over gear wheel 22 with which it is adapted to engage when ratchet 21A is disengaged from rack 20 by key-controlled means. Spring 21J is normally held under tension, and is adapted to be maintained in that condition when the slidable member holds a retracted rest position. Means are provided for placing said spring under tension and for maintaining it in that condition; said means comprising a main spring 20A and a detent 21C. Said spring 20A is arranged to move the carriage intermittently, rack 20 being adapted to return said slidable member 21R to normal rest position during said intermittent movements of the carriage and to place said spring 21J under tension; said detent 21C being adapted to maintain said slidable member in normal rest position and said spring 21J under tension. The frame member 21 is provided with stops 21E and 21F arranged to limit the movement of said slidable member 21R in either direction and thus to allow of the intermittent movement of the carriage, a step at a time subsequently to the printing operations.

The free end of the spring-bearing part 21L of the slidable member 21R is provided with a tooth 21I having a cam rounded surface for cooperating with a spring-pressed detent 21C, which is adapted to maintain said slidable member in its normal rest position against the action of its spring 21J. Said slidable member or escapement bar is arranged to be disengaged from said detent 21C synchronously with its disengagement from the carriage rack 20, to allow of the movement of the escapement bar by the impulse of its released spring 21J, in a direction to operate a device for returning the impression bar to retracted rest position subsequently to the printing operations.

The type of escapement mechanism embodied in the present invention, normally

locks the carriage in either direction. Therefore, means have been provided for releasing the carriage from said escapement mechanism to allow of the manual movement of the carriage in either direction. Said means comprise a thumb lever 21H, mounted on the carriage frame and operably connected with rack 20; said thumb lever being adapted to disengage rack 20 from escapement bar 21R to allow of the manual movement of the carriage independently of the operation of the line spacing mechanism. A line space lever 2A is preferably mounted on axle 10 of feed roll 8, and comprises a thumb member and two arms 2K and 2N projecting therefrom; the said arms being operably connected with the line space wheel 2R and a rocker arm 2D respectively. Said rocker arm 2D is in loose operative connection with the carriage rack 20, and is adapted to move said rack out of engagement with the escapement mechanism when said rocker arm is actuated by means of said thumb member, which simultaneously operates the line space wheel. This allows of the movement of the carriage to the initial printing position and simultaneously feeds the roll.

A device is provided in operable connection with the escapement mechanism which cooperates with control lever 7C for automatically returning said lever and the impression bar 4 to retracted rest position subsequently to the printing operation. The said device comprises a rotatable shaft 23; a gear wheel 22 mounted thereon and adapted to actuate said shaft; an arm 23B mounted on said shaft and arranged to be operated thereby; said arm being preferably provided with a U shaped member for guiding it into engagement with lever 7C which it is adapted to move in a direction for returning said lever and the impression bar to normal rest position. Anti-friction means, 23G, such as rolls, may be provided on said U shaped member of arm 23B. A spring-pressed stop lever 23A is also mounted on said driven shaft 23 and held in normal rest position by a spring 23E; its movement toward the retracted position being limited by a stop 23C. Said stop lever 23A is arranged to return the retracting mechanism to normal rest position subsequently to the retracting operation. As has been described herein, escapement bar 21R comprises a ratchet 21A and a ratchet 21B; ratchet 21A being normally in engagement with the carriage rack, and ratchet 21B being engageable with and normally disengaged from said gear wheel 22 on driven shaft 23. Means are provided for disengaging ratchet 21A from rack 20 and for instantly delivering ratchet 21B into engagement with said driving wheel 22. Spring 21J being normally held under tension, is released upon engagement of said bar

with wheel 22, and moves the escapement bar in a direction to cause wheel 22 to operate said shaft 23, and thereby to move retracting arm 23*b* to move into engagement with lever 7*c* for returning said lever to normal rest position subsequently to the printing operation. Subsequently to the retracting operation and the returning of the escapement bar into engagement with the carriage rack, spring 23*a* actuates lever 23*a* to cause it to return retracting arm 23*b* to normal rest position.

The carriage is provided with paper guides for guiding the paper into proper position with reference to the impression bar; said guides 27 being adapted to maintain the paper in apposition with said bar.

In the preferred type of machine embodying my invention, shown in Fig. 2, types are successively delivered to a common printing position by pivotally mounted type bars 14, arranged radially of a segmental support 1*a* and severally pivoted upon a shaft 14*b* in said segmental support 1*a*. Said type bar 14 comprises a type head 14*e*, and a cam 14*a*, preferably slotted, for affording loose operative connection between said type bar and its actuating means. A lever 15 pivoted at one end on a support attached to the machine frame, is provided at the other end with a stud which is adapted to be taken into the slot of said slotted cam 14*a*, and guides for maintaining said lever in engagement with said slotted cam. A link 16 is pivotally attached by its upper end to lever 15 and by its lower end to key lever 19. Said key lever is pivoted on the machine frame at 19*a*, and is actuated by means of keys 17. A guide 13 is provided for guiding the types into printing position; said guide 13 being further arranged to act as an anvil against which the types abut during the printing operations.

A rocker shaft 18*b* runs transversely across the machine frame and is journaled therein. Arms 18 are mounted on said rocker shaft—one near each end thereof. A universal bar 18*a* connects the free ends of said arms. A bell-crank lever B³ is pivoted on the machine frame. A link B³ is pivoted by one end to an arm of the said bell-crank and by its other end to said universal bar 18*a*. Another link B² is pivoted by one end to the other arm of said bell-crank B³ and by its other end to sliding lever B, which is mounted for slidable movement in guides B*n*, and embraces a push member B*t* in loose operative connection with head member C*k* of lever C, which is spring-pressed. Said lever C mounted for slidable movement in guides C¹, and embraces an inner extremity rounded to form a cam surface C² for actuating during its inward progress, cams 32*a* and 33*a* successively, and through said cams to rock

the rocker shafts 32 and 33 respectively, and thus to release the impression bar to allow it to perform the printing operation and subsequently to actuate the carriage feed mechanism.

Fig. 2A shows a modified form of my invention, wherein a wheel 14*k* carries movable types and delivers said types, one at a time, into the operative position with reference to the impression bar.

A spacing bar 82 is provided at the front of the machine. Its operating lever 83 is pivoted at 83*a* and comprises a free inner extremity 83*b* which is rounded to form a cam surface and is operably connected by means of a loose joint with a cam 85*b* on a lever 85. Said lever 85 is preferably provided with a hook 85*a* adapted to engage with lever 7*c* to prevent lever 7*c* from moving away from its normal position when it is released from its detent during the operation of spacing bar operating lever 83, and thus preventing spring 7*d* from impelling lever 7*c* in a direction to move the impression bar for performing the printing operation. A spring 86 is provided for normally maintaining lever 85 in retracted rest position out of engagement with lever 7*c* when the spacing bar is in inoperative position. When the spacing bar is depressed, the rear end of operating lever 83 ascends and actuates hooked lever 85 against the action of its spring 86, delivering hook 85*a* into engagement with lever 7*c*. This locks the lever 7*c* in its normal rest position and prevents spring 7*d* from actuating said lever 7*c* when detent 7*t* is disengaged therefrom.

The operation is as follows:

When a key is depressed, the initial movement causes the required character to be delivered into the operative position. The types may be delivered into printing position in a variety of ways—two preferred methods being shown in the drawings and described herein. In one type of machine embodying my invention, a plurality of pivoted type bars 14 are adapted to move types successively to a common printing position to cooperate with the impression bar for performing the printing operation. Another type of machine embraces a type wheel carrying movable types which are successively brought to a common printing position. As the key lever 19 descends, it depresses universal bar 18*a*, and thus actuates bell crank B³ through the link B⁵, to in turn actuate lever B through link B², which in turn forces spring-pressed lever C to move inward and to actuate rocker shaft 32 by means of cam 32*a*; thus causing arms D³ and D⁶ mounted on said shaft 32 to simultaneously move in directions respectively to force link D² to move the escapement lever or carriage rack pawl D into engagement with said rack 20, and to cause

lever D⁵ to release impression bar operating lever 7c to allow spring 7d to move said lever 7c in a direction to force the impression bar to perform the printing operation. As lever 5 D⁵ continues to move subsequently to releasing said lever 7c, it moves out of operative engagement with detent 7t and allows said detent to return to normal rest position by the action of its spring 7p.

10 As spring-pressed lever C continues its movement inwardly subsequently to the printing operation, it actuates cam 33a and thereby rocks rocker shaft 33, causing arm 25 to move link 24 in a direction to force the escapement bar 21R to move out of en- 15 gagement with rack 20 and to simultaneously disengage the tooth 21t of said escapement bar from detent 21v; ratchet 21b of said escapement bar immediately mesh- 20 ing with gear wheel 22 mounted on rotatable shaft 23. Spring 21j being released, causes escapement bar 21R to move in a direction to operate retracting arm 23b to cause said arm to return the lever 7c and the 25 impression bar 4 to normal rest position.

When the key is released, spring-pressed lever C first releases cam 33a, thus causing the escapement bar 21R to be disengaged 30 from the retracting mechanism and to re-engage with the carriage rack 20. Next, cam 32a is released by lever C, causing pawl D to move out of engagement with rack 20, and to return lever D⁵ to normal rest position with its bell crank D⁸ delivered into 35 operative position with reference to detent 7t. The type is returned to retracted position, and the carriage is moved a step by main spring 20A, thus forcing the escape- 40 ment bar 21R to return to normal rest position against the action of spring 21j, which spring is now placed again under tension, and normally maintained in that condition by detent 21v.

Having thus fully described the inven- 45 tion, what I claim as new and desire to secure by Letters Patent, is:—

1. In a typewriter, a carriage, an impres- 50 sion bar adapted for movement on said carriage, means for moving said impression bar in a direction to perform the printing operation, manually operable mechanism for controlling the operation of the impression 55 bar, and means for the returning of the impression bar to normal rest position sub-sequently to the printing operations.

2. In a typewriter, a carriage, an impres- 60 sion bar mounted thereon, spring means for moving the impression bar in a direction to perform the printing operation, manually operable mechanism for controlling the operation of the impression bar, 65 means for the returning of the impression bar to its normal rest position after the printing operation.

3. In a typewriter, a carriage, an impres- 70

sion bar mounted thereon and arranged to be moved in a direction away from and toward said carriage, a lever operably connected with said impression bar, mechanical means for impelling said lever in a direc- 70 tion to force the impression bar to perform the printing operation, means cooperating with the lever for maintaining said lever in retracted rest position, manually operable mechanism for releasing the lever to allow 75 of the printing operation, and mechanical means cooperating with the lever for retracting said lever subsequently to the printing operation.

4. In a typewriter, an impression bar nor- 80 mally occupying a retracted rest position, a lever for controlling the operation of said impression bar, mechanical means for im- 85 pelling the lever in a direction to force said impression bar to perform the printing operation, a detent cooperating with said lever for maintaining the lever in retracted rest position, manually operable mechanism for releasing said lever to allow of the print- 90 ing operation, and means for retracting said lever subsequently to the printing operation, said detent being irresponsive to the operations of said retracting manually oper- 95 able mechanism.

5. In a typewriter, an impression bar, an 96 operating lever therefor, mechanical means for actuating said lever to force the bar to perform the printing operation, a detent 100 cooperating with said lever for maintaining the lever and the bar in retracted rest position, means operably connected with a keyboard for actuating said detent to cause said detent to release the operating lever 105 and allow of the printing operations, and means for retracting said operating lever subsequently to the printing operation, said detent actuating means being adapted to release said detent to allow it to return to its normal rest position prior to the opera- 110 tion of the lever retracting means, said detent being rendered irresponsive to the operation of said returning detent actuating means.

6. In a typewriter, an impression bar nor- 115 mally occupying a retracted rest position, a control lever associated with said impres- sion bar, a spring for impelling said control lever in a direction to force the impression bar to perform the printing operation, a 120 detent cooperating with said lever for maintaining the lever in retracted rest position with the spring under tension, key-controlled mechanism for actuating said detent to allow of the releasing of the control lever and thereby to allow of the printing operation 125 under the impulse of said spring, and mechanical means for retracting said operat- ing lever and again placing the spring under tension subsequently to the printing operation, said key controlled mechanism be- 130

ing adapted to release said lever detent prior to the operation of the lever retracting means to allow of the reengagement of said lever with the detent under the pressure of said retracting means, said detent being irresponsive to the operations of said retracting key-controlled mechanism.

7. In a typewriter, an impression bar normally occupying a retracted rest position, a bar control lever operably connected therewith, mechanical means for impelling said lever in a direction to cause the impression bar to perform the printing operation, means cooperating with said control lever for maintaining the lever and the impression bar in the retracted rest position, manually operable means for releasing the control lever to allow of the printing operation, mechanical means cooperating with said lever for retracting the lever subsequently to the printing operation, and means for guiding the retracting means into engagement with said control lever, the lever maintaining mechanism being irresponsive to the retracting operations of said manually operable means.

8. In a typewriter, an impression bar, an operating lever, mechanical means for actuating said lever to force the bar to perform the printing operation, a detent cooperating with said lever for maintaining the lever and the bar in retracted position, a finger key, a carrier operably connected with said finger key, a device on said carrier and movable therewith for actuating said detent to move it out of engagement with said operating lever and thus allow of the printing operation, means for retracting said lever subsequently to the printing operation, said detent actuating means being adapted to release said detent to allow it to return to normal position prior to the operation of the lever retracting means, a spring for returning the detent to normal position subsequently to the release of said detent by its actuating means, said detent being rendered irresponsive to the retracting operations of said device on the carrier.

9. In a typewriter, an impression bar, an operating lever therefor, a spring for actuating said lever to force the impression bar to perform the printing operation, a detent cooperating with said lever for maintaining the lever and the bar in retracted rest position, a finger key, a carrier operably connected with said finger key, a spring-pressed device on said carrier and movable therewith for actuating said detent and releasing said operating lever to allow said spring to impel said lever in a direction to force the impression bar to perform the printing operation, means for retracting the lever subsequently to the printing operation, the detent actuating means being adapted to release said detent prior to the operation of

the lever retracting means to allow of the engagement of said lever said detent being rendered irresponsive to the retracting operations of the said spring-pressed mechanical device.

10. In a typewriter, a carriage adapted for intermittent movement, a frame movably mounted thereon, an impression bar mounted on said frame and arranged to be moved thereby in a direction away from and toward the carriage, a collar, a cross bar on said frame mounted in said collar and adapted for slidable movement therein, an operating lever, means operably connecting said lever with said collar, mechanical means for moving said lever in a direction to actuate said impression bar through said collar and said frame to force the impression bar to perform the printing operation, means cooperating with said lever for maintaining the lever and the impression bar in retracted rest position, means controllable from a keyboard for releasing said lever to allow of the printing operation, and means for retracting said lever and said impression bar subsequently to the printing operation.

11. In a typewriter, a carriage adapted for intermittent movement, a rocker shaft journaled therein, rocker arms mounted on said shaft and arranged to rock said shaft, an impression bar connecting said rocker arms and adapted to be moved by said arms in a direction away from and toward said carriage, a collar, a cross bar joining said rocker arms and mounted in said collar wherein it is arranged to move slidably, a lever attached to said collar, an operating lever, a link pivoted by one end to said collar lever and by the other end to said operating lever, mechanical means for moving said operating lever in a direction to cause the said devices connecting the operating lever with the impression bar to move the said impression bar into printing position, and means for the returning of the impression bar to retracted rest position subsequently to the printing operation.

12. In a typewriter, an impression bar, an operating lever, a spring for impelling said lever in a direction to force the impression bar to move into printing position, a detent cooperating with said operating lever for maintaining the lever in normal rest position with said spring under tension, a finger key, a carrier operably connected therewith, a spring-pressed mechanical device mounted on said carrier and movable therewith for releasing the lever to allow the spring to move said lever in a direction to actuate said impression bar, means for retracting the impression bar, said spring-pressed mechanical device being arranged to move out of operative engagement with and to release said detent prior to the operation of the retracting means, said detent, said lever and said

impression bar being irresponsive to the operations of said mechanical device during the returning of the detent actuating means to normal rest position, means being provided for guiding said mechanical device

into engagement with said detent.

13. In a typewriter, a keyboard, a carriage, means for moving the carriage, escapement means adapted to be moved by said carriage, an impression bar normally occupying a retracted rest position, means for moving the impression bar into printing position, means operably connecting said impression bar with said escapement means, means for maintaining the impression bar in its retracted position, manually operable mechanism for releasing said impression bar to allow of the printing operation, and the said means operably connected with the said escapement means cooperating with the bar actuating means for the returning of the impression bar to normal rest position subsequently to the printing operation.

14. In a typewriter, a keyboard, a carriage adapted for intermittent movement, means for moving said carriage, escapement mechanism adapted to be moved by said carriage, an impression bar normally occupying a retracted rest position, spring means for moving said impression bar into printing position, means operably connecting said impression bar with said escapement mechanism, means for maintaining the impression bar in retracted rest position, manually operable mechanism for releasing said impression bar to allow of the printing operation, and means operably connected with the escapement mechanism and cooperating with the impression bar actuating means for the returning of the said bar actuating means and the impression bar to normal rest position subsequently to the printing operation.

15. In a typewriter, a keyboard, a carriage, a frame movably mounted on said carriage, an impression bar mounted on said movable frame and arranged to be moved by said frame in a direction away from and toward the carriage, a control lever operably connected with said impression bar through said movable frame, a spring for impelling said lever in a direction to cause the bar to move into printing position, means cooperating with said lever for maintaining the lever and said impression bar in retracted rest position, manually operable mechanism for releasing said control lever to allow of the printing operation, means for moving said carriage, an escapement mechanism adapted to be moved by said carriage, means in operative connection with said escapement mechanism and cooperating with said control lever for the returning of said lever to retracted rest position subsequently to the printing operation, means for

guiding said retracting means into engagement with said control lever, means for releasing said lever maintaining mechanism prior to the operation of the lever retracting means, and means for rendering said lever maintaining mechanism irresponsive to the operations of its key-controlled returning actuating means.

16. In a typewriter, a keyboard, a carriage, an impression bar normally occupying a retracted rest position, said impression bar being mounted on a frame which is movably mounted on the carriage, a control lever operably connected with said impression bar through said movable frame, a spring for impelling the lever in a direction to force the impression bar to move into printing position, means cooperating with said lever for maintaining the lever and the impression bar in normal rest position, manually operable mechanism for releasing the lever to allow of the printing operation, carriage escapement means, a rocker shaft operably connected therewith, means mounted on said rocker shaft and actuated thereby, cooperating with said control lever for the returning of the lever to retracted rest position subsequently to the printing operation, means for releasing the lever maintaining mechanism prior to the operation of said lever retracting means, and means for rendering said lever maintaining mechanism irresponsive to the operations of the returning manually operable mechanism for releasing said lever.

17. In a typewriter, an impression bar normally occupying a retracted rest position, a lever operably connected therewith, a spring for impelling the lever in a direction to cause the bar to move into printing position, a detent cooperating with the lever for maintaining said lever and said bar in retracted position, manually operable mechanism for releasing said lever to allow of the printing operation, a keyboard, a carriage, means for moving said carriage, escapement means adapted to be moved by said carriage, a mechanical device in operative connection with said escapement means and cooperating with said lever for retracting the lever subsequently to the printing operation, a key-controlled mechanism for releasing said detent prior to the operation of the retracting means to allow of the re-engagement of said lever with said detent, and means for rendering the detent irresponsive to the operations of its key-controlled returning actuating means.

18. In a typewriter, an impression bar, an operating lever, a spring for impelling said lever in a direction to cause the impression bar to move into printing position, a detent cooperating with said lever for maintaining the lever in retracted position, means for releasing said lever to allow of the printing

operation, a carriage adapted for intermittent movement, an escapement mechanism arranged to be moved by said carriage, a rocker shaft, means on said shaft cooperating with said escapement mechanism for operating said shaft, a mechanical device mounted on said rocker shaft and arranged to be actuated thereby for retracting said operating lever subsequently to the printing operation, means connected with said retracting device for guiding said device into engagement with said lever during the retracting operation, means for releasing said detent to allow it to return to normal rest position prior to the operation of said retracting device, and means for rendering said detent, said lever and said impression bar irresponsive to the operations of the retracting detent actuating means.

19. In a typewriter, an impression bar, an operating lever, mechanical means for actuating said lever to cause said impression bar to move into printing position, means for maintaining said lever in retracted position, means for releasing said lever to allow of the printing operation, a carriage, a keyboard, an escapement mechanism adapted to be moved by said carriage, a rocker shaft, means mounted on said shaft and cooperating with said escapement mechanism for actuating the shaft; means on said shaft adapted to be operated thereby and adapted to cooperate with said operating lever for retracting the lever subsequently to the printing operation, means for guiding said retracting means into engagement with said lever during the retracting operation, means for releasing the lever maintaining means prior to the operation of the lever retracting means, means for rendering said lever and said impression bar irresponsive to the operations of the returning lever releasing means, and means for returning said shaft and said lever retracting means mounted thereon to normal rest position subsequently to the returning of the escapement mechanism to normal rest position.

20. In a typewriter, an impression bar, an operating lever, mechanical means for actuating said lever to cause said impression bar to move into printing position, means for maintaining said lever in retracted rest position, means for releasing said lever to allow of the printing operation, a carriage, a keyboard, an escapement mechanism adapted to be moved by said carriage, a rocker shaft, means associated with said shaft, and cooperating with said escapement mechanism for actuating said shaft, a mechanical device on said rocker shaft adapted to be operated by said shaft and to cooperate with said operating lever for retracting the lever subsequently to the printing operation, means for guiding said retracting means into engagement with said lever during the retracting

operation, means for releasing the lever maintaining means prior to the operation of the lever retracting means, means for rendering said lever and said impression bar irresponsive to the operations of the returning lever releasing means, and a spring-pressed device for returning said lever retracting means to normal rest position and for maintaining it in that condition subsequently to the returning of the escapement mechanism to normal rest position.

21. In a typewriter, printing instrumentalities, a carriage adapted for intermittent movements, a carriage rack, an escapement bar normally held in engagement with said rack, means for operating said printing instrumentalities, means cooperating with said escapement bar for maintaining said bar in normal rest position, manually operable means for releasing said escapement bar to allow the bar to move a distance in a direction opposite to the intermittent movements of the carriage, a spring for impelling said bar in said direction, means for arresting the movement of said bar in said direction, an escapement lever engageable with and normally disengaged from said carriage rack, means for moving said escapement lever into engagement with said rack prior to the disengagement of said escapement bar from said rack, and means for moving said carriage to cause said carriage rack to force said escapement bar to return to retracted rest position against the action of said spring, said escapement bar maintaining means being adapted to lock said bar in said condition.

22. In a typewriter, a keyboard, printing mechanism, means for actuating said printing mechanism to cause said mechanism to perform the printing operation, a carriage, means for moving said carriage, an escapement bar adapted to be moved by said carriage, an escapement lever or pawl engageable with and normally disengaged from the carriage rack, said escapement bar being normally held in engagement with said carriage rack, a mechanical device for moving said escapement bar out of and into engagement with said carriage rack, key-controlled means for moving said pawl into engagement with said carriage rack, and for subsequently disengaging said escapement bar from said rack, a spring for moving said bar a distance in a direction opposite to the intermittent movements of the carriage, a stop for arresting its movement in that direction, said bar being arranged to return to retracted rest position and into engagement with said carriage rack subsequently to the printing operation, the said escapement lever or pawl being adapted to move out of engagement with said rack subsequently to the reengagement of said escapement bar with said rack, the said means for moving the carriage be-

ing adapted to move said carriage in a direction to force the escapement bar to return to normal rest position against the action of said spring, and means for locking the escapement bar in its retracted rest position and placing said spring again under tension.

23. In a typewriter, printing instrumentalities, a carriage, an escapement bar normally held in engagement with said carriage, means for actuating said printing instrumentalities, a spring for impelling the escapement bar in a direction opposite to the intermittent movements of the carriage, a detent cooperating with said escapement bar for maintaining the bar in normal rest position with said spring under tension, means for disengaging said escapement bar from said carriage and for simultaneously moving it out of engagement with said detent to allow the spring to move the escapement bar a step, a stop for restricting the movement of said escapement bar in said direction, an escapement lever or pawl normally disengaged from the carriage rack, means for moving said pawl into engagement with said rack prior to the disengagement of said escapement bar from said rack, retracting means for moving said pawl out of engagement with said rack subsequently to the printing operation, and for returning said escapement bar into engagement with said rack prior to the disengagement of said pawl from said rack, means for moving the carriage to force the escapement bar to return to normal rest position, into engagement with its detent, and for again placing said spring under tension, and a stop for restricting the movement of the escapement bar in its retracting direction.

24. In a typewriter, a carriage, printing instrumentalities, a carriage rack, an escapement bar normally in engagement with said carriage rack, an escapement lever or pawl engageable with and normally disengaged from said carriage rack, a finger key, a key lever actuated thereby, a universal bar arranged to be actuated by said key lever, means operably connected with said universal bar for moving said pawl into engagement with said carriage rack and for subsequently disengaging said escapement bar from said rack, a spring for moving said bar in a direction opposite to the intermittent movements of the carriage, a stop for restricting the movement of the escapement bar in said direction, retracting means for returning said escapement bar into engagement with said rack and for subsequently disengaging said pawl from the rack, a spring for moving the carriage a step in a direction to force the escapement bar to return to retracted rest position, and for placing said bar actuating spring again under tension.

25. In a typewriter, a carriage, a carriage rack, printing instrumentalities, means for causing said printing instrumentalities to perform the printing operation, an escapement lever or pawl engageable with and normally disengaged from said rack, a mechanical device movably mounted on a support on the machine frame, an escapement bar mounted in said mechanical device and adapted for slidable movement therein, said escapement bar being normally held in engagement with said carriage rack, a key-actuated universal bar, means operably connected with said universal bar for moving said escapement lever or pawl into engagement with said carriage rack, and for subsequently actuating said mechanical device to cause said device to move the escapement bar out of engagement with said rack, a detent for maintaining said escapement bar in retracted rest position, the said means for disengaging the escapement bar from the rack being arranged to simultaneously disengage said escapement bar from the detent, a spring for impelling the escapement bar in a direction opposite to the intermittent movements of the carriage, a stop for restricting the movement of said escapement bar in said direction, retracting means for disengaging said escapement lever or pawl from said rack to allow of the intermittent movement of the carriage, and for reengaging the escapement bar with said rack prior to the disengagement of the pawl from said rack, and power means for moving the carriage in a direction to force the escapement bar to return to normal rest position into reengagement with its detent, and for again placing the escapement bar actuating spring under tension.

26. In a typewriter, an impression bar, an operating lever, a spring for impelling said lever in a direction to force the impression bar to perform the printing operation, a detent for maintaining the lever in retracted rest position, means operably connected with a keyboard for releasing said lever to allow of the printing operation, a carriage adapted for intermittent movement, an escapement bar arranged to be moved by said carriage, a mechanical device in operative connection with said escapement bar and cooperating with said operating lever for the returning of said lever to retracted rest position subsequently to the printing operation, an escapement ratchet on said escapement bar normally held in engagement with said carriage rack, another ratchet on said escapement bar being engageable with and normally disengaged from said retracting mechanical device, a finger key, means operably connected with said finger key for disengaging said escapement ratchet from the carriage rack and for instantly delivering said other ratchet into engagement with said lever retracting mechanical device, a detent

coöperating with said escapement bar for maintaining the bar in retracted rest position with a spring under tension, said means for disengaging the escapement bar from the rack being arranged to simultaneously move said bar out of engagement with its detent, a spring for impelling said escapement bar in a direction to operate said lever retracting mechanical device and force the said device to return said operating lever to normal rest position, means for restricting the movement of said bar in its operative direction, a pawl, key-actuated means for moving said pawl into engagement with the carriage rack prior to the disengagement of said escapement bar from said rack, the reverse movement of the mechanisms of the machine as controlled from a keyboard being adapted to return said escapement bar into engagement with said rack and to subsequently disengage the pawl from the rack to allow of the intermittent movement of the carriage, and means for moving the carriage in a direction to cause the escapement bar to return to normal rest position and into engagement with its detent against the action of its spring and placing said spring again under tension.

27. In a typewriter, an impression bar normally occupying a retracted rest position, a lever operably connected therewith, means for impelling the lever in a direction to cause the impression bar to move into printing position, a detent coöperating with said lever for maintaining the lever and said impression bar in normal rest position, manually operable mechanism for releasing the lever to allow of the printing operation, a keyboard, a carriage, means for moving said carriage, an escapement mechanism adapted to be moved by said carriage, said escapement mechanism including a frame member movably mounted on a support on the machine frame, and an escapement bar mounted in said frame member and adapted for slidable movement therein, a mechanical device in operative connection with said escapement mechanism and coöperating with said impression bar operating lever for returning said operating lever and said impression bar to retracted rest position, means on said escapement bar normally in engagement with the carriage rack, other means on said escapement bar engageable but normally out of engagement with said retracting mechanical device, a pawl, key-actuated means for moving said pawl into engagement with said carriage rack, and for subsequently actuating said frame member to cause said member to move said escapement bar out of engagement with said carriage rack, means for automatically moving said escapement bar in a direction to actuate said retracting mechanical device, means allowing said lever detent to return to normal position prior

to the operation of said lever retracting means to allow of the reengagement of said lever with its detent, and means for rendering said lever detent, said lever and said impression bar irresponsive to the operations of the returning key-controlled means for actuating said detent.

28. In a typewriter, an impression bar, means for actuating said impression bar, a keyboard, a carriage, means for moving said carriage, an escapement mechanism adapted to be moved by said carriage and including a movably mounted frame member and an escapement bar mounted in said frame member and adapted for movement therein, an escapement ratchet on said escapement bar normally held in engagement with the carriage rack, means for returning the impression bar actuating means and the bar to retracted rest position, a ratchet on said escapement bar engageable with but normally disengaged from said impression bar retracting means, a pawl, means for moving said pawl into engagement with the carriage rack, and means for subsequently actuating said frame member to cause said escapement bar to move out of engagement with the rack and into instant engagement with the impression bar retracting means, a spring for impelling said escapement bar in a direction to actuate said retracting means, and upon the return of said escapement bar into engagement with said carriage rack and the releasing of said rack from its pawl during the reverse movement of the actuating means as controlled from a keyboard, the said means for moving the carriage acting to return said escapement bar to normal rest position against the action of its spring.

29. In a typewriter, an impression bar, spring means for actuating said impression bar, a keyboard, a carriage, a carriage rack, an escapement lever or pawl in operative connection with a keyboard and adapted to be moved into and out of engagement with said carriage rack, a mechanical device movably mounted on the machine frame, an escapement bar mounted in said mechanical device and adapted for movement therein, an escapement ratchet on said escapement bar normally held in engagement with said carriage rack, a driven shaft, driving means mounted on said shaft, a ratchet on said escapement bar engageable with and normally disengaged from said shaft driving means, key-controlled means for actuating said mechanical device to cause said device to move the escapement bar out of engagement with the rack and into instant engagement with said shaft driving means, a spring for impelling said slidable escapement bar in a direction a step to cause the shaft driving means to drive said shaft, a retracting device on said shaft being driven thereby and arranged to return the impression bar to

normal rest position subsequently to the printing operation, key-actuated means for moving said pawl into engagement with said rack prior to the disengagement of the escapement bar from said rack, said escapement bar being adapted to reengage with said rack and said pawl to subsequently release said rack during the reverse movement of the mechanisms of the machine as controlled from a keyboard, and means for moving the carriage to cause said escapement bar to return to normal rest position against the action of its spring and for placing said spring again under tension.

30. In a typewriter, an impression bar normally in retracted rest position, means for actuating said impression bar, means for limiting its movement in the direction for performing the printing operation, said means being changeable and adapted to adjust the operative force of said impression bar to deliver a variable impression during the printing operations, manually operable mechanisms for controlling the operations of the impression bar, and means for the returning of said bar to its retracted rest position subsequently to the printing operations.

31. In a typewriter, an impression bar, means for moving said impression bar to a printing point, a stop for limiting its movement in the direction of said printing point, said stop being adapted to regulate the operative force of the impression bar to deliver a variable impression during the printing operations, means controlled by an operator for adjusting said stop in varying positions to limit the movement of said impression bar, and means for the returning of said bar to normal rest position subsequently to the printing operations.

32. In a typewriter, an impression bar, mechanical means for actuating said impression bar, a shaft, a stop associated therewith, means controllable by an operator for adjusting the position of the stop, said changeable stop being arranged to adjust the operative force of the impression bar for delivering a variable impression at the will of the operator, manually operable mechanism for controlling the operation of the impression bar, and means for the returning of said bar to normal rest position subsequently to the printing operations.

33. In a typewriter, an impression bar normally occupying a retracted rest position, a lever in operative connection therewith, mechanical means for impelling said lever in a direction to force the impression bar to move to a printing position, a changeable stop cooperating with said lever for restricting the movements of said lever and the impression bar in their operative directions, a device in operative connection with said stop and adapted to change the posi-

tion of said stop with reference to the bar actuating means, means controllable by an operator for actuating said device to adjust the distance of said stop from the bar actuating lever, said changeable stop being adapted to regulate the operative force of the impression bar to deliver a variable impression at the will of the operator.

34. In a typewriter, printing mechanism normally occupying a retracted rest position, means for actuating said printing mechanism to cause the said mechanism to perform the printing operation, changeable means for limiting the movement of said mechanism in its operative direction, said changeable means being adapted to regulate the operative force of said printing mechanism to deliver a variable impression during the printing operations, means controllable by an operator for adjusting said changeable means in varying positions with reference to said printing mechanism actuating means to limit the movement of said printing mechanism in the direction of the printing point, and means for the returning of the printing mechanism to retracted rest position subsequently to the printing operation.

35. In a typewriter, printing mechanism, means for actuating said printing mechanism, a driven shaft, a changeable stop associated with said driven shaft and arranged to restrict the movement of said printing mechanism toward the printing point, means controllable by an operator for causing said driven shaft to move said changeable stop into varying positions with reference to said printing mechanism actuating means, said changeable means being adapted to regulate the operative force of said printing mechanism for delivering a variable impression as required by the operator, and means for the returning of the printing mechanism to normal rest position subsequently to the printing operations.

36. In a typewriter, an impression bar, spring means for actuating said bar, a detent cooperating with the bar actuating means for normally maintaining said impression bar in retracted rest position with said spring under tension, a finger key, means in operative connection with said finger key causing said detent to release said impression bar actuating means and the bar to allow said spring to move the bar into printing position, means for returning the impression bar from its operative to retracted rest position, and means associated with the detent actuating means and movable therewith adapted to release said bar actuating means, and for rendering said detent, said bar actuating means and the bar irresponsive to the operations of the re-setting means subsequently to the return of the impression bar to normal rest position.

37. In a typewriter, an impression bar, a control lever operably connected therewith, a spring for impelling said lever in a direction to force the bar to perform the printing operation, a detent cooperating with said control lever for normally maintaining said lever and the impression bar in retracted rest position with said spring under tension, a finger key, means connecting said finger key with said detent for causing the detent to release said operating lever and to allow said spring to actuate said lever and the bar, mechanical means for returning said lever and the bar to normal rest position, and means associated with said detent actuating means, and movable therewith, for first moving said detent out of engagement with said control lever and for subsequently releasing said detent to allow of the reengagement of said lever with said detent under the impulse of said lever retracting means, said means associated with the detent actuating means being adapted to render said detent, and thus said lever and the bar, irresponsive to the operations of said associated means while said detent actuating mechanism is being returned to normal rest position and into operative connection with said detent.

38. In a typewriter, an impression bar, a control lever operably connected therewith, a spring for actuating said lever to force the impression bar to move into printing position, a detent cooperating with said control lever for normally maintaining the impression bar in normal rest position with said spring under tension, a finger key, means operably connecting said finger key with said detent causing said detent to release said lever to allow said spring to move the impression bar into printing position, a mechanical device associated with said detent actuating means, and movable therewith, for first moving said detent out of engagement with the control lever, and for subsequently releasing said detent, mechanical means for returning said lever and the impression bar to retracted rest position and forcing said lever to reengage with said detent subsequently to the release of the detent by said mechanical device, which is adapted to be itself actuated as it encounters the detent during the reverse movement of said detent actuating means to normal rest position into operative connection with said detent, said mechanical device rendering said detent irresponsive to the operations of the returning detent actuating means.

39. In a typewriter, a carriage adapted for intermittent movement, an impression bar movably mounted on said carriage and arranged to move in directions away from and toward the carriage, types adapted for movement to a common printing position, means for successively moving said types to

said common printing position, mechanical means for impelling said impression bar in the direction of said printing position to cooperate with said types for performing the printing operation, means for re-setting the types and said impression bar to normal rest position subsequently to the printing operations, and means for rendering said bar irresponsive to the operations of its returning actuating means.

40. In a typewriter, a power operated impression bar, means for normally maintaining said impression bar in a restricted position, means for releasing said impression bar to allow of the printing operation, and means for subsequently retracting said bar.

41. In a typewriter, a carriage adapted for intermittent movement, a frame movably mounted on said carriage, an impression bar mounted on said frame and arranged to be moved by said frame away from and toward the carriage, types movable to a common printing position, means for successively moving said types into printing position, spring means causing said frame to reciprocate said impression bar into printing position to cooperate with said types as they are delivered into printing position one at a time, for performing the printing operation, means for normally maintaining said impression bar in retracted rest position with said spring under tension, manually operable means for releasing said bar to allow said bar to cooperate with said types for performing the printing operation, mechanical means for re-setting the impression bar and the types subsequently to the printing operation, and means for controlling the cycles of movements of said types, said impression bar and said carriage in a predetermined relation.

42. In a typewriter, a carriage adapted for intermittent movement, an impression bar movably mounted thereon, a control lever, a spring for impelling said lever in a direction to force the impression bar to perform the printing operation, mechanical means for normally maintaining said control lever in retracted rest position with said spring under tension, manually operable means for releasing said lever to allow of the printing operation, carriage escapement mechanism, a device operably connected with said mechanism and cooperating with said control lever for returning the impression bar to normal rest position subsequently to the printing operation, means for rendering the impression bar irresponsive to the operations of the re-setting means, and means for controlling the cycle of movements of the bar actuating means and the cycle of said carriage actuating means in a predetermined relation.

43. In a typewriter, a traveling element or carriage, a carriage rack, escapement

mechanism adapted to normally restrict the movement of said carriage in either direction, a line space wheel, means for disengaging the carriage rack from said escapement mechanism to allow of the manual movement of said carriage on the machine frame independently of the operation of said line space wheel, and means in operative connection with said line space wheel for moving said carriage rack out of engagement with said escapement mechanism and for simultaneously operating said line space wheel, to allow of the movement of the carriage toward the initial printing position and to simultaneously feed a fresh surface for printing a new line.

44. In a typewriter, a carriage adapted for intermittent movement, an escapement, a line space wheel, a feed roll, a mechanical device movably mounted on said carriage and in operative connection with said carriage rack for moving said rack out of engagement with said escapement bar to allow of the movement of the carriage independently of the operation of said line space wheel, and another mechanical device in operative connection with said carriage rack and with said line space wheel for simultaneously disengaging said rack from said escapement mechanism and for actuating said line space wheel to allow of the movement of the carriage toward the initial printing position and to feed said feed roll a variable distance.

45. In a typewriter, a keyboard provided with a spacing bar, a carriage, means for moving said carriage, an escapement bar adapted to be moved by said carriage, an impression bar, means for actuating said impression bar and including an operating lever, a detent cooperating with said lever for maintaining the lever and said bar in normal rest position, manually operable mechanism for releasing said lever to allow of the printing operation, an escapement lever or pawl engageable with and normally disengaged from the carriage rack, said escapement bar being normally held in engagement with said carriage rack, means for moving said pawl into engagement with said rack and for subsequently disengaging said escapement bar from said rack, a mechanical device for retracting the operating lever subsequently to the printing operation, said device being operably connected with said escapement bar when said bar is disengaged from said carriage rack, means for impelling said bar in a direction to actuate said lever retracting device, and means operated by said spacing bar adapted to be projected into the path of said operating lever for arresting the movement of said lever and the impression bar in a direction away from their normal rest positions and thereby preventing said impression bar from perform-

ing the printing operation during the operation of said spacing bar.

46. In a typewriter, an impression bar, types arranged to move into operative position with reference to said impression bar, means for severally delivering said types into operative position, a detent for maintaining said bar in retracted position, a finger key, means operably connected with said finger key for moving said impression bar into printing position to cooperate with each and any type delivered into operative position for performing the printing operation, retracting means for returning said types to normal rest position, and a device for returning said impression bar to normal rest position subsequently to the printing operation and prior to the returning of the types to normal rest position, means being provided for maintaining the paper in apposition with said impression bar during its operative and retracting movements.

47. In a typewriter, an impression bar, types movable to a common printing position, means for moving said types, one at a time, into said position, a control lever, means cooperating with said lever for maintaining said lever and the impression bar in retracted rest position, a key-actuated universal bar, means operably connected with said universal bar for releasing said lever to allow of the printing operation, said impression bar cooperating with said types as they are successively delivered into printing position for performing the printing operation, said types being adapted to return to normal rest position subsequently to the printing operation, and means for returning said impression bar to retracted position subsequently to the printing operation and prior to the returning of said types to normal rest position, means being provided for maintaining the paper in apposition with said impression bar during its movement toward and away from the printing position and while occupying a normal rest position.

48. In a typewriter, an impression bar, a plurality of type carriers adapted for movement to a common printing position, means for reciprocating said type bars successively into said printing position, means for actuating said impression bar to cause said bar to move toward said printing position to cooperate with said type carriers for performing the printing operation, means for maintaining said impression bar in retracted position, means for releasing said bar to allow of the printing operation, and a device for retracting said impression bar subsequently to the printing operation and prior to the retracting of said type carriers to normal rest position.

49. In a typewriter, an impression bar, a plurality of type carriers arranged radially

of a segmental support, and adapted for movement to a common printing position, a cam associated with each type carrier, a plurality of levers movably mounted on a support on the machine frame, said levers being in loose operative connection with said cams, one lever with each cam, means being provided in connection with said levers for maintaining said levers in engagement with said cams and for guiding the movement of said levers on said cams during the operation of said type carriers, keys, key levers actuated by said keys, links connecting said key levers with said cam actuating levers, means for moving said impression bar into printing position to cooperate with each type carrier as it is delivered into operative position for performing the printing operation, said type carrier being adapted to return to retracted rest position subsequently to the printing operation, and means for returning said impression bar to normal rest position subsequently to the printing operation and prior to the returning of said type carrier to retracted rest position.

50. In a typewriter, an impression bar normally occupying a retracted rest position, means for moving said impression bar into printing position, manually operable mechanism for controlling the operation of said impression bar, and means for the returning of said bar to normal rest position after the printing operations.

51. In a typewriter, an impression bar normally occupying a retracted rest position, spring means for moving said impression bar into the printing position, manually operable mechanism for controlling the operation of said impression bar, and means for the returning of said impression bar to its normal rest position after the printing operation.

In testimony that I claim the foregoing as my invention, I have signed my name to this specification in the presence of two witnesses.

ALEXANDER BLOCK.

Witnesses:

SAMUEL ATTLEY,
HARRY KALISCHER.