Dec. 27, 1955 W. H. KUPPER 2,728,435

REPEAT OPERATION MECHANISM FOR POWER DRIVEN TYPEWRITERS OR LIKE MACHINES

Filed April 10, 1953

2 Sheets-Sheet 1

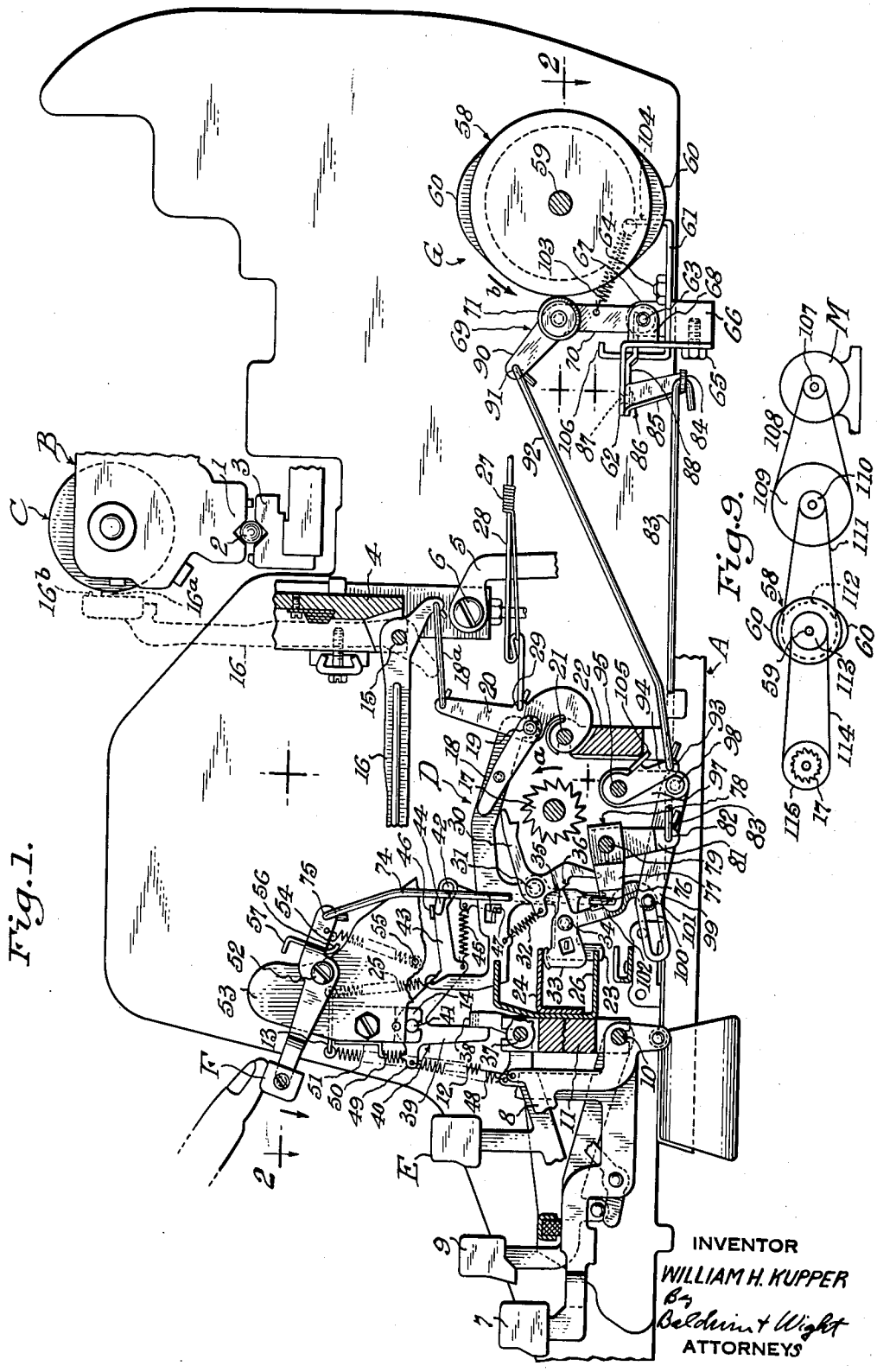


Fig. 1.

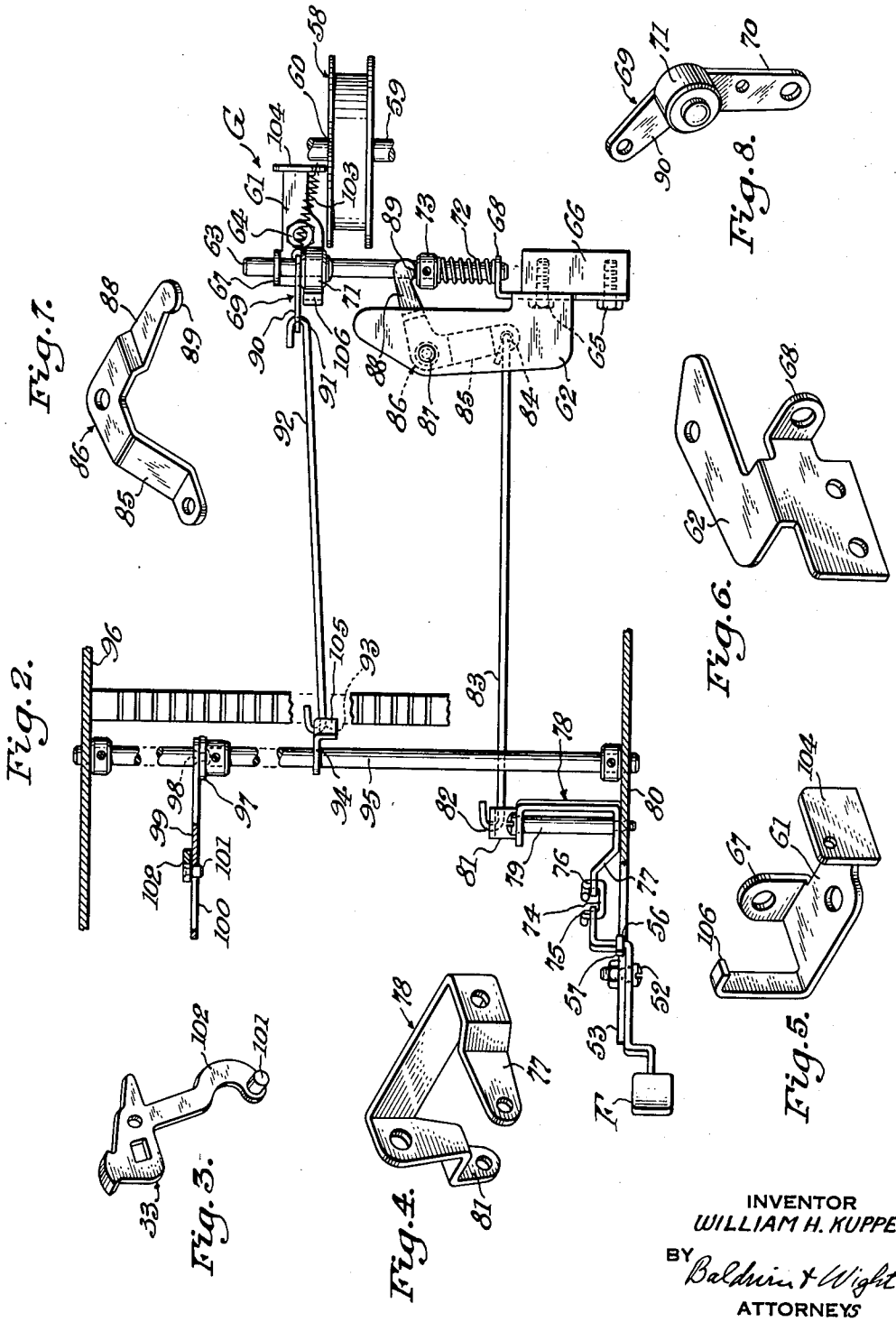
Fig. 2.

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United States Patent Office 2,728,435 Patented Dec. 27, 1955

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REPEAT OPERATION MECHANISM FOR POWER DRIVEN TYPEWRITERS OR LIKE MACHINES

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Application April 10, 1953, Serial No. 348,033

14 Claims. (Cl. 197—17)

This invention relates to repeat operation mechanism for power driven typewriters or like machines, and more particularly to repeat operation mechanism in which a power driven, cyclically operable mechanism is arranged to effect repeated operation of other but cooperatively associated power driven mechanism which operates a typewriter instrumentality, e. g. a typing member. The invention is especially suited for effecting repeat operations of power driven actuating mechanism of the general class in which a continuously operating driver is adapted to operate an actuator through the intermediary of an interponent which normally is disconnected from the driver but which may be moved into transient engagement with the driver for being driven thereby to effect a single operation of the actuator and the instrumentality to be operated. In accordance with the present invention, a cyclically operable means, which itself is power driven and which operates continuously when the typewriter or like machine is in use, is arranged to effect cyclic connection of the actuator to the driver.

An object of the present invention is to provide mechanism of the kind referred to comprising, in a sense, two power driven mechanisms, the first of which includes a driver, an actuator, an interponent for connecting the actuator to the driver transiently so as to cause the actuator and associated typewriter instrumentality to be operated; and the second of which comprises a cyclically operable means, such as a cam, which may be operated under the control of a suitable key or the like for effecting successive or repeated engagements of the interponent with the driver, with consequent repeated operation of the actuator and instrumentality.

A further object of the invention is to provide repeat operation mechanism which is of improved and simple construction and which may easily be adapted to and combined with known or conventional power driven typewriters or like machines with a minimum of changing of the existing machines.

Other objects of the invention will become apparent from a reading of the following description, the appended claims, and the accompanying drawings, in which:

Figure 1 is a fore-and-aft vertical sectional view of a power operated typewriter embodying the invention, some parts being shown in elevation, and certain conventional typewriter parts being omitted for the sake of clarity;

Figure 2 is a fragmentary horizontal sectional view on the irregular line 2—2 of Figure 1, with certain parts omitted;

Figure 3 is a perspective view of a control member or trigger forming part of a type bar actuating mechanism;

Figure 4 is a perspective view of a lever forming part of a train of connections between a repeat key lever and a cyclically operable means which effects repeated operation of mechanism which actuates the type bar;

Figure 5 is a perspective view of one or two brackets for mounting a cam follower shaft;

Figure 6 is a perspective view of the other bracket for mounting the cam follower shaft;

Figure 7 is a perspective view of a bell crank lever forming part of the means for controlling the cyclically operable mechanism;

Figure 8 is a perspective view of a cam follower lever; and

Figure 9 is a schematic or diagrammatic view of driving mechanism for the cyclically operable means and the type bar operating mechanism.

The invention may be embodied in typewriters or like machines of various kinds. For the purposes of illustration, the invention is shown as being embodied in an office type typewriter having, except for the power generating, transmitting and controlling mechanism to be described, many features in common with the well known Royal Standard typewriter. The drawings show only enough of the standard or known typewriter construction to assist in illustrating the manner in which mechanism embodying the invention may be coordinated with other parts of a typewriter construction. The known construction illustrated includes a main frame A on which a carriage B equipped with a platen C is mounted for letter spacing and return movements by means of a top rail 1 secured to and forming part of the carriage, and rolling upon balls 2, which in turn are adapted to roll on a frame-mounted bottom rail or track 3.

The carriage may be driven toward the left, that is, in the letter-spacing direction, by any suitable mechanism, for example, by a spring barrel and draw band (not shown) of known or suitable construction. Carriage returning mechanism may be of the kind disclosed in the United States Patent to Henry J. Hart, No. 2,567,937, issued Sepetmber 18, 1951, or of other suitable kind, preferably power-operated.

A case shift segment 4 is mounted to shift vertically on the frame A by a construction not shown but which may be of a well known form. Mechanism for shifting the segment 4 includes a link 5 which is pivoted as at 6 to the segment 4 and which may be operated by power driven mechanism of the kind disclosed in the United States Patent to William H. Kupper, No. 2,620,056, issued December 2, 1952. As disclosed in this patent, the case shift mechanism may be operated under the control of a left shift key 7, or a right shift key lever 8; and may be maintained in upper case position by a shift lock key 9. The keys 7 and 9, and the key lever 8 are pivoted at 10 on a fixed frame crossbar 11. A spring 12 interposed between the shift key lever 8 and an anchor plate 13 on a frame cross bar 14 yieldably holds the shift key lever 8 and the shift key 7 in normal, raised positions.

The segment 4 is provided with the usual arcuate pivot wire 15 on which the usual complement of typing members, one only of which shown at 16 as a front strike type bar, is pivoted. The type bar 16 has a lower case typing character 16^a and an upper case typing character 16^b which, in the form shown, is an underscoring or underlining character.

In general, the construction described so far is of a known kind and does not in itself constitute the present invention. The invention resides in other parts to be described, and the combinations of such other parts with each other and with the parts described above.

Broadly considered, operation of the type bar 16 is effected by power-driven means, generally designated D, adapted to be made effective by depression of a single-stroke typing control key E, or a repeat stroke typing control key F. The power-driven mechanism D is generally similar to but embodies improvements in mechanism disclosed in the United States Patent to William H. Kupper No. 2,567,945, issued September 18, 1951. It includes a driving element, which operates continuously, and controllable driving connections, which normally are inopera-

tive or ineffective, but which may be conditioned by the operator to effect operative driving connection between the continuously moving driving member and the type bar 16. The driver preferably is constituted by a rotatable continuously driven member, more particularly a toothed snatch roll or bar 17, which may be of known form, and which is adapted to be driven in the direction of the arrow *a* in the Figure 1 by any suitable means, but preferably by an electric motor M (Figure 9).

The means for transmitting drive from the driver 17 to type bar 16 includes an actuator 18 which is pivoted as at 19 to a lever 20 at a point off-set relatively to the pivotal mounting 21 of the lever 20 on a fixed frame cross bar 22. The lever 20 is connected to the type bar 16 by a link 18ª and the actuator 18 has a forwardly extending part 23 projecting under an abutment or guide plate 24 mounted on the frame A to extend parallel to the snatch roll 17. A spring 25, interposed between the front end of the actuator 17 and the anchor plate 13, yieldably urges the actuator to rock clockwise, and thus normally maintains the actuator in the position shown in Figure 1 with its front end part 23 bearing against the abutment or guide plate 24. Another abutment 26 is disposed below the abutment 24, and is slotted to receive and guide the lower extremity of the actuator part 23 for sliding movements. The lever 20 normally is held in its inactive position, shown in Figure 1, by a returning spring 27 interposed between a part (not shown) at the rear of the frame A and a wire link 28 pivoted at 29 to the lever 20.

In order to apply a power impulse to the type bar 16, the actuator 18 is operatively but indirectly connected to the driving member 17, the actuator itself never engaging the driving member. Mechanism for bringing about this operative connection includes an interponent pawl element 30, pivoted as at 31 on the actuator. A spring 32, anchored to the actuator 17 and connected to the pawl 30, biases or urges the latter to rock clockwise so as to move its nose into engagement with the snatch roll 17. Normally, the pawl is maintained disengaged from the snatch roll by the restraining action of a control element or trigger 33 which is pivoted as at 34 on the actuator 18. In the normal position of the control means or trigger, its rear end or nose engages a holding surface 35 on the pawl 30 so as to prevent the spring 32 from rocking the pawl 30 into drive-transmitting engagement with the driving member 17. The pawl 30 is formed with an inclined resetter cam face 36 which is located just below the holding surface 35, and which is acted upon by the trigger nose for rocking the pawl counterclockwise, and thus resetting it in normal, inoperative position.

The mechanism for effecting single operations of the type bar 16 includes the key lever E pivoted at 37 on the fixed part 11 of the frame. An upward extension 38 on the rear end of the key lever E projects behind the depending arm 39 of a lever 40 pivoted at 41 on the frame cross bar 14. Pivoted at 42 on another arm 43 of the lever 40 is a limber dog or flipper 44 urged clockwise by a spring 45 but limited in its clockwise movement by a stop ear 46 on the lever arm 43. The lower end of the flipper 44 is disposed above a contact ear 47 on the type bar actuator 18. A tension spring 48 interposed between the key lever E and an arm 49 on the lever 40, and a compression spring 50 interposed between the lever arm 49 and an anchor plate 51 on the cross bar 14 normally maintain the parts in the positions shown in Figure 1.

In operation, when the single impression character key lever E is depressed the lever 40 is rocked clockwise, causing the flipper 44 to engage the actuator ear 47 and move the actuator 18 downwardly until its associated trigger 33 is rocked to pawl-releasing position by engagement with the lower abutment 26. The pawl or interponent 30, having been thus released, will move into engagement with the snatch roll 17 so as to be driven forwardly together with the actuator 18, thus rocking the lever 20 and actuating the type bar 16 through the link connection 18ª.

When the pawl 30 is cast off from engagement with the snatch roll 17, the spring 25 lifts the actuator 18 to bring the trigger 33 into engagement with the upper, trigger-resetting abutment 24. This causes the trigger 33 to be rocked counterclockwise, so as to move its rear end against the resetting cam face 36 of the pawl 30, thereby restoring the latter to its inactive position. The type bar 16 and its operating connections will then be restored to their normal positions, shown in Figure 1, by the spring 27, previously referred to.

Mechanism is provided for effecting automatically repeated operation of the power operated mechanism D for causing the type bar 16 to perform a succession of typing strokes when the repeat key lever F is depressed and held down. The key lever F is pivoted at 52 on a fixed frame part 53 and is urged clockwise as viewed in Figure 1 by a spring 54 interposed between the rear end portion of the lever F and a stud 55 on the frame part 53. Rocking of the lever F to its normal position under the urge of the spring 54 is limited by engagement of a stop part 56 on the lever with the rear edge of the frame part 53. Counterclockwise rocking of the key F against the urge of the spring 54 for effecting repeated typing operations is limited by engagement of another stop part 57 on the lever with the rear edge of the frame part 53.

The repeat key lever F controls cyclically operable mechanism, generally designated G, for effecting repeated movement of the trigger 33 to its interponent releasing position, which causes the interponent 30 repeatedly to engage the snatch roll 17 so that the actuator 18 and the type bar 16 will be operated successively a selected number of times, according to the length of time the key lever F is held depressed. The cyclically operable mechanism G includes a cam 58 mounted on a shaft 59 and adapted to be rotated continuously when the typewriting machine is in operation. The cam is formed with two lobes 60—60 spaced 180 degrees apart. Spaced brackets 61 and 62 mount a cam follower shaft 63 to extend parallel to the cam shaft 59. The bracket 61 is secured to the base of the typewriter by a screw 64, and the bracket 62 is secured by screws 65, 65 to a fixed frame part 66. Ears 67 and 68 respectively on the brackets 61 and 62 mount the shaft 63 for endwise shifting movement.

A cam follower lever 69 is secured to the shaft 63 and at the upper end of the lower arm 70 of the lever 69 is a cam follower roller 71 adapted to engage the cam 58. The roller 71 normally is positioned in axially offset relation to the cam 58 so as not to be engageable with the cam. For this purpose, a spring 72 is interposed between the ear 68 of the bracket 62 and a collar 73 secured to the cam follower shaft 63, the compressive loading on the spring 72 tending to hold the shaft 63 in the position shown in Figure 2 so that the follower roller 71 will not engage the cam 58.

Depression of the repeat key F is utilized to shift the cam follower lever 69 to position the follower roller 71 for engagement with the cam 58. For accomplishing this, a wire link 74 is pivoted at its upper end at 75 to the rear end of the key lever F, and is pivoted at its lower end at 76 to one arm 77 of a lever 78 which is mounted to rock on a pivot stud 79 fixed to a stationary frame wall 80. Another arm 81 of the lever 78 is pivoted at 82 to the front end of a rearwardly extending wire link 83, the rear end of which is pivoted at 84 to an arm 85 of a bell crank lever 86 pivoted at 87 on the bracket 62. The other arm 88 of the bell crank lever 86 is formed with a round nose 89 which bears against the collar 73 on the cam follower shaft 63.

When the repeat key lever F is depressed, the link 74 is raised, and the lever 78 is rocked clockwise as viewed in Figure 1, thereby pulling forwardly on the link 83 and rocking the bell crank lever 86 clockwise as viewed in Figure 2 so as to move the collar 73 and the follower shaft

63 against the urge of the spring 72. This will place the cam follower roller 71 in the plane of the cam 58 so that the follower roller 71 will be operated by the cam.

Cyclic operation of the cam follower lever 69 is utilized for effecting cyclic movement of the trigger 33 to interponent releasing position and then back to interponent maintaining position. For this purpose, motion transmitting connections are interposed between the lever 69 and the trigger 33. In the form shown, an arm 90 on the follower lever 69 is pivoted at 91 to the rear end of a wire link part 92, the forward end of which is pivoted at 93 to an arm 94 fixed to a shaft 95 which is mounted for rocking movements in the frame part or wall 80 and a similar part or wall 96. Also fixed to the shaft 95 is an arm 97 which is pivoted at 98 to the rear end of a link 99, the forward end of which is formed with a slot 100 which receives a pin 101 on a downwardly extending arm 102 formed integrally with the trigger 33. A spring 103 interposed between the arm 70 of the follower lever 69 and an ear 104 on the bracket 61 urges the cam follower arm 69 to rock clockwise, that is, so as to move the follower roller 71 toward the cam 58. Movement of the follower arm under the urge of the spring 103 is limited by engagement of a stop ear 105 on the lever 94 with the bottom of the frame crossbar 22, as shown in Figure 1. Movement of the follower lever 69 counterclockwise when operated by the cam 58 may be limited by a stop lug 106 on the bracket 61. This prevents overthrowing of the follower lever 69.

As previously indicated, both the snatch roll 17 and the cam 58 rotate continuously when the typewriter is in operation. Preferably, the snatch roll 17 and cam 58 are driven from the same source of power, for example, a single electric motor M. The motor M may be connected to the snatch roll 17 and the cam 58 in any suitable manner, for example, by mechanism of the general class shown in Figure 9 in which the motor M is equipped with a driving pulley 107 which operates a belt 108 trained around a pulley 109. The pulley 109 is fast with a smaller pulley 110 which drives a belt 111 passing around a pulley 112 fast with the shaft 59. Also fast with the shaft 59 is a pulley 113 which drives a belt 114 and a pulley 115 secured to the snatch roll 17.

Operation

When it is desired to effect a single operating stroke of the type bar 16, the typing key E is depressed so as to lower the actuator 18, move the trigger 33 to its releasing position, and thereby enable the interponent 30 to be engaged with the snatch roll 17. The snatch roll 17 will then drive the interponent 30, the actuator 18, the lever 20, the link 18a, and the type bar 16 in a manner now well known in the art. When the interponent 30 has been cast off from engagement with the snatch roll 17, the parts will return to their normal positions, thus completing a single operating cycle. The lost motion connection 100—101 enables the trigger 33 to be operated under control of the key E without being interfered with by the link 99 which remains stationary when single typing operations are being performed by depressing the key E.

When it is desired to effect a succession of operations of the type bar 16, for example for underlining purposes, the shift mechanism may be operated to lower the type bar segment 4 so that printing strokes of the type bar 16 will bring the underscoring character 16b to printing position. The manually manipulatable repeat key lever F is depressed and held down so as to raise the link 74, rock the lever 78 clockwise, pull the link 83 forwardly, rock the lever 86 clockwise as viewed in Figure 2, and move the shaft 63 and cam follower lever 69 so as to place the cam follower roller 71 in the plane of the cam 58. During each rotation of the cam 58 in the direction of the arrow *b*, there will be two movements of the follower lever 69 by the cam lobes 60, causing the lever 69 to rock counterclockwise as viewed in Figure 1 thereby pushing forwardly on the link 92 and rocking the arm 94, the shaft 95, and the arm 97 clockwise. This will thrust the link 99 forwardly, causing the rear end of the slot 100 in the link 99 to push against the pin 101 on the downward extension 102 of the trigger 33, thereby rocking the trigger clockwise about its pivot 34 into its interponent releasing poosition. The spring 32 will then move the interponent into engagement with the snatch roll 17, causing the interponent 30 and the actuator 18 to be driven forwardly by the snatch roll 17 with resultant performance of a typing stroke by the type bar 16. When the typing stroke has been completed, the interponent 30 and the actuator 18 will be returned to their normal positions. When the interponent 30 and actuator 18 are being driven forwardly by the snatch roll 17 the trigger 33 will be moved forwardly to an extent greater than the forward movement of the link 99 which previously moved the trigger 33 to its interponent releasing position. Consequently, the pin 101 on the trigger 33 will move forwardly in the slot 100 in the link 99 without being restrained by the link 99. Thus, the lost motion pin-and-slot connection 100—101 between the link 99 and the trigger 33 enables the trigger to be operated by the cam follower and enables it to be moved by the snatch roll beyond the position to which it has been operated by the cam follower.

After the parts of the power operated driving mechanism D have returned to their normal positions, the cam follower roller 71 will again be engaged by a cam lobe 60, and the cycle of operations described above will be repeated. Any selected number of successive or repeated operations of the type bar 16 may be effected by holding the repeat key lever F depressed for an appropriate time.

The invention has been described in connection with mechanism for operating a printing member instrumentality; but it will be understood that the invention is applicable for use in operating other typewriter mechanisms or instrumentalities in which repeat operations may be desirable, such for example as back spacing mechanism, letter spacing mechanism, and line spacing mechanism.

The mechanism disclosed embodies the invention in a preferred and practical form, but it is intended that the disclosure be illustrative rather than definitive. The invention is defined in the appended claims.

I claim:

1. In a typewriter or like machine, an instrumentality to be operated; a continuously running power operated driver; connections between said instrumentality and said driver including an interponent connected to said instrumentality and normally being disengaged from said driver but being transiently engageable therewith and movable thereby for imparting an operating stroke to said instrumentality; control means normally preventing engagement of said interponent with said driver and comprising a control element operable for effecting transient engagement of said interponent with said driver; a continuously running cam; connections between said cam and said control element including a cam follower normally so positioned relatively to said cam as not to be operable thereby but being adapted to be so positioned relatively to said cam as to be operable thereby; and means for positioning said follower relatively to said cam so as to be operated thereby a selected number of times with consequent repeated engagement of said interponent with said driver and repeated operation of said instrumentality.

2. In a typewriter or like machine, an instrumentality to be operated; a power operated driver; connections between said instrumentality and said driver including an interponent connected to said instrumentality and normally being disengaged from said driver but being transiently engageable therewith and movable thereby for imparting an operating stroke to said instrumentality; control means normally preventing engagement of said interponent with

said driver and comprising a control element operable for effecting transient engagement of said interponent with said driver; a rotatable, power driven cam; connections between said cam and said control element including a cam follower; means mounting said cam follower to enable it to be shifted from a normal position in which it is not engageable with said cam to an operating position in which it is engageable with said cam; and manipulatable means for shifting said cam follower into and holding it in its said operating postion, whereby there will ensue repeated operation of said cam follower and said control element with consequent repeated engagement of said interponent with said driver and repeated operating strokes of said instrumentality.

3. In a typewriter or like machine, an instrumentality to be operated; a power operated driver; connections between said instrumentality and said driver including an interponent connected to said instrumentality and normally being disengaged from said driver but being transiently engageable therewith and movable thereby for imparting an operating stroke to said instrumentality; control means normally preventing engagement of said interponent with said driver and comprising a control element operable for effecting transient engagement of said interponent with said driver; a rotatable power driven cam; connections between said cam and said control element including a cam follower; a shaft on which said cam follower is mounted; means mounting said shaft to move to shift said cam follower from a normal position in which it is not engageable with said cam to an operating position in which said cam follower is engageable with said cam; means yieldably urging said shaft to maintain said cam follower in its said normal position; and manipulatable means for moving said shaft to shift said cam follower into and maintain it in its said operating position, whereby there will ensue repeated operation of said cam follower and said control element with consequent repeated engagement of said interponent with said driver and repeated operating strokes of said instrumentality.

4. In a typewriter or like machine, an instrumentality to be operated; a power operated driver; connections between said instrumentality and said driver including an interponent connected to said instrumentality and normally being disengaged from said driver but being transiently engageable therewith and movable thereby for imparting an operating stroke to said instrumentality; control means normally preventing engagement of said interponent with said driver and comprising a control element operable for effecting transient engagement of said interponent with said driver; a cyclically operable cam; a cam follower normally so positioned relatively to said cam as not to be operable thereby; motion transmitting means including a lost motion connection between said cam follower and said control element; and means for effecting such relative positioning of said cam and cam follower as to cause said cam follower to be operated by said cam a selected number of cycles thereby to effect a corresponding number of successive operations of said control element with consequent repeated engagement of said interponent with said driver and repeated operation of said instrumentality.

5. In a typewriter or like machine, an instrumentality to be operated; a continuously running power operated driver; connections between said instrumentality and said driver including an interponent connected to said instrumentality and normally being disengaged from said driver but being transiently engageable therewith and movable thereby for imparting an operating stroke to said instrumentality; control means normally preventing engagement of said interponent with said driver and comprising a control element operable for effecting transient engagement of said interponent with said driver; a continuously running cam; motion transmitting means between said cam and said control element including a cam follower normally so positioned relatively to said cam as not to be operable thereby but being adapted to be so positioned relatively to said cam as to be operable thereby, a link connected to said cam follower, and a lost motion connection between said link and said control element; and means for positioning said follower relatively to said cam so as to be operated thereby a selected number of times with consequent repeated engagement of said interponent with said driver and repeated operation of said instrumentality.

6. In a typewriter or like machine, an instrumentality to be operated; a power operated driver; connections between said instrumentality and said driver including an interponent connected to said instrumentality and normally being disengaged from said driver but being transiently engageable therewith and movable thereby for imparting an operating stroke to said instrumentality; control means normally preventing engagement of said interponent with said driver and comprising a control element operable for effecting transient engagement of said interponent with said driver; a rotatable, power driven cam; motion transmitting means between said cam and said control element including a cam follower, a link connected to said cam follower, and a pin-and-slot lost motion connection between said link and said control element; means mounting said cam follower to enable it to be shifted from a normal position in which it is not engageable with said cam to an operating position in which it is engageable with said cam; and manipulatable means for shifting said cam follower into and holding it in its said operating position, whereby there will ensue repeated operation of said cam follower and said control element with consequent repeated engagement of said interponent with said driver and repeated operating strokes of said instrumentality.

7. In a typewriter or like machine, a typing member; a power operated driver; connections between said typing member and said driver including an interponent connected to said typing member and normally being disengaged from said driver but being transiently engageable therewith and movable thereby for imparting an operating stroke to said typing member; control means normally preventing engagement of said interponent with said driver and comprising a control element operable for effecting transient engagement of said interponent with said driver; a rotatable, power driven cam; connections between said cam and said control element including a cam follower; means mounting said cam follower to enable it to be shifted from a normal position in which it is not engageable with said cam to an operating position in which it is engageable with said cam; and manipulatable means for shifting said cam follower into and holding it in its said operating position, whereby there will ensue repeated operation of said cam follower and said control element with consequent repeated engagement of said interponent with said driver and repeated operating strokes of said typing member.

8. In power operating mechanism for a typewriter or like machine, an instrumentality to be operated; a power operated driver; an actuator; means connecting said actuator to said instrumentality; an interponent mounted on said actuator for movements into and out of operative engagement with said driver and being biased to move from a normal position in which it is disengaged from said actuator into an operative position in which it engages said actuator; a trigger normally maintaining said interponent in its said normal position but being movable from its interponent maintaining position into an interponent releasing position for enabling the bias on said interponent to move said interponent into transient engagement with said driver thereby to enable said driver to operate said interponent, said actuator, said connecting means, and said instrumentality; means for then returning said interponent, said actuator, said connecting means, said instrumentality and said trigger to their nor-

mal positions; a cyclically operable cam; a cam follower normally so positioned relatively to said cam as not to be operable thereby; connections between said cam follower and said trigger; and means for effecting such relative positioning of said cam and cam follower as to cause said cam follower to be operated by said cam a selected number of cycles thereby to effect a corresponding number of cycles of successive movements of said trigger from its interponent maintaining position to its interponent releasing position and from its interponent releasing position to its interponent maintaining position with consequent repeated engagement of said interponent with said driver and repeated operation of said instrumentality.

9. In power operating mechanism for a typewriter or like machine, an instrumentality to be operated; a power operated driver; an actuator; means connecting said actuator to said instrumentality; an interponent mounted on said actuator for movements into and out of operative engagement with said driver and being biased to move from a normal position in which it is disengaged from said actuator into an operative position in which it engages said actuator; a trigger normally maintaining said interponent in its said normal position but being movable from its interponent maintaining position into an interponent releasing position for enabling the bias on said interponent to move said interponent into transient engagement with said driver thereby to enable said driver to operate said interponent, said actuator, said connecting means, and said instrumentality; means for then returning said interponent, said actuator, said connecting means, said instrumentality and said trigger to their normal positions; a rotatable power driven cam; connections between said cam and said trigger including a cam follower; means mounting said cam follower to enable it to be shifted from a normal position in which it is not engageable with said cam to an operating position in which it is engageable with said cam; and manually operable means for shifting said cam follower into and holding it in its said operating position, whereby there will ensue repeated operation of said cam follower and said trigger, repeated releasing of said interponent for engagement thereof with said driver, and consequent repeated operation of said actuator and said instrumentality.

10. In power operating mechanism for a typewriter or like machine, an instrumentality to be operated; a power operated driver; an actuator; means connecting said actuator to said instrumentality; an interponent mounted on said actuator for movements into and out of operative engagement with said driver and being biased to move from a normal position in which it is disengaged from said actuator into an operative position in which it engages said actuator; a trigger normally maintaining said interponent in its said normal position but being movable from its interponent maintaining position into an interponent releasing position for enabling the bias on said interponent to move said interponent into transient engagement with said driver thereby to enable said driver to operate said interponent, said actuator, said connecting means, and said instrumentality; means for then returning said interponent, said actuator, said connecting means, said instrumentality and said trigger to their normal positions; a rotatable power driven cam; connections between said cam and said trigger including a cam follower; a shaft on which said cam follower is mounted; means mounting said shaft for endwise movement to shift said cam follower from a normal position in which it is not engageable with said cam to an operating position in which said cam follower is engageable with said cam; means yieldably urging said shaft to maintain said cam follower in its said normal position; and manipulatable means for moving said shaft endwise to shift said cam follower into and maintain it in its said operating position, whereby there will ensue repeated operation of said cam follower and said trigger, repeated releasing of said interponent for engagement thereof with said driver, and consequent repeated operation of said actuator and said instrumentality.

11. In power operating mechanism for a typewriter or like machine, an instrumentality to be operated; a power operated driver; an actuator; means connecting said actuator to said instrumentality; an interponent mounted on said actuator for movements into and out of operative engagement with said driver and being biased to move from a normal position in which it is disengaged from said actuator into an operative position in which it engages said actuator; a trigger normally maintaining said interponent in its said normal position but being movable from its interponent maintaining position into an interponent releasing position for enabling the bias on said interponent to move said interponent into transient engagement with said driver thereby to eanble said driver to operate said interponent, said actuator, said connecting means, and said instrumentality; means for then returning said interponent, said actuator, said connecting means, said instrumentality and said trigger to their normal positions; a cyclically operable cam; a cam follower normally so positioned relatively to said cam as not to be operable thereby; motion transmitting means including a lost motion connection between said cam follower and said trigger; and means for effecting such relative positioning of said cam and cam follower as to cause said cam follower to be operated by said cam a selected number of cycles thereby to effect a corresponding number of cycles of successive movements of said trigger from its interponent maintaining position to its interponent releasing position and from its interponent releasing position to its interponent maintaining position with consequent repeated engagement of said interponent with said driver and repeated operation of said instrumentality.

12. In power operating mechanism for a typewriter or like machine, an instrumentality to be operated; a power operated driver; an actuator; means connecting said actuator to said instrumentality; an interponent mounted on said actuator for movements into and out of operative engagement with said driver and being biased to move from a normal position in which it is disengaged from said actuator into an operative position in which it engages said actuator; a trigger mounted on said actuator to move therewith and relatively thereto and normally maintaining said interponent in its said normal position but being movable relatively to said actuator from its interponent maintaining position into an interponent releasing position for enabling the bias on said interponent to move said interponent into transient engagement with said driver thereby to enable said driver to operate said interponent, said actuator, said connecting means, and said instrumentality; means for then returning said interponent, said actuator, said connecting means, said instrumentality and said trigger to their normal positions; a cyclically operable cam; a cam follower normally so positioned relatively to said cam as not to be operable thereby; connections between said cam follower and said trigger; and means for effecting such relative positioning of said cam and cam follower as to cause said cam follower to be operated by said cam a selected number of cycles thereby to effect a corresponding number of cycles of successive movements of said trigger from its interponent maintaining position to its interponent releasing position and from its interponent releasing position to its interponent maintaining position with consequent repeated engagement of said interponent with said driver and repeated operation of said instrumentality.

13. In power operating mechanism for a typewriter or like machine, an instrumentality to be operated; a power operated driver; an actuator; means connecting said actuator to said instrumentality; an interponent mounted on said actuator for movements into and out of operative engagement with said driver and being biased to move from a normal position in which it is disengaged from

said actuator into an operative position in which it engages said actuator; a trigger mounted on said actuator to move therewith and relatively thereto and normally maintaining said interponent in its said normal position but being movable relatively to said actuator from its interponent maintaining position into an interponent releasing position for enabling the bias on said interponent to move said interponent into transient engagement with said driver thereby to enable said driver to operate said interponent, said actuator, said connecting means, and said instrumentality; means for then returning said interponent, said actuator, said connecting means, said instrumentality and said trigger to their normal positions; a cyclically operable cam; a cam follower normally so positioned relatively to said cam as not to be operable thereby; connections between said cam follower and said trigger including a part operable by said cam follower, and a pin-and-slot lost motion connection between said part and said trigger; and means for effecting such relative positioning of said cam and cam follower as to cause said cam follower to be operated by said cam a selected number of cycles thereby to effect a corresponding number of cycles of successive movements of said trigger from its interponent maintaining position to its interponent releasing position and from its interponent releasing position to its interponent maintaining position with consequent repeated engagement of said interponent with said driver and repeated operation of said instrumentality.

14. In power operating mechanism for a typewriter or like machine, a typing member; a power operated driver; an actuator; means connecting said actuator to said typing member; an interponent mounted on said actuator for movements into and out of operative engagement with said driver and being biased to move from a normal position in which it is disengaged from said actuator into an

operative position in which it engages said actuator; a trigger normally maintaining said interponent in its said normal position but being movable from its interponent maintaining position into an interponent releasing position for enabling the bias on said interponent to move said interponent into transient engagement with said driver thereby to enable said driver to operate said interponent, said actuator, said connecting means, and said typing member; means for then returning said interponent, said actuator, said connecting means, said typing member and said trigger to their normal positions; a cyclically operable cam; a cam follower normally so positioned relatively to said cam as not to be operable thereby; connections between said cam follower and said trigger; and means for effecting such relative positioning of said cam and cam follower as to cause said cam follower to be operated by said cam a selected number of cycles thereby to effect a corresponding number of cycles of successive movements of said trigger from its interponent maintaining position to its interponent releasing position and from its interponent releasing position to its interponent maintaining position with consequent repeated engagement of said interponent with said driver and repeated operation of said typing member.

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