

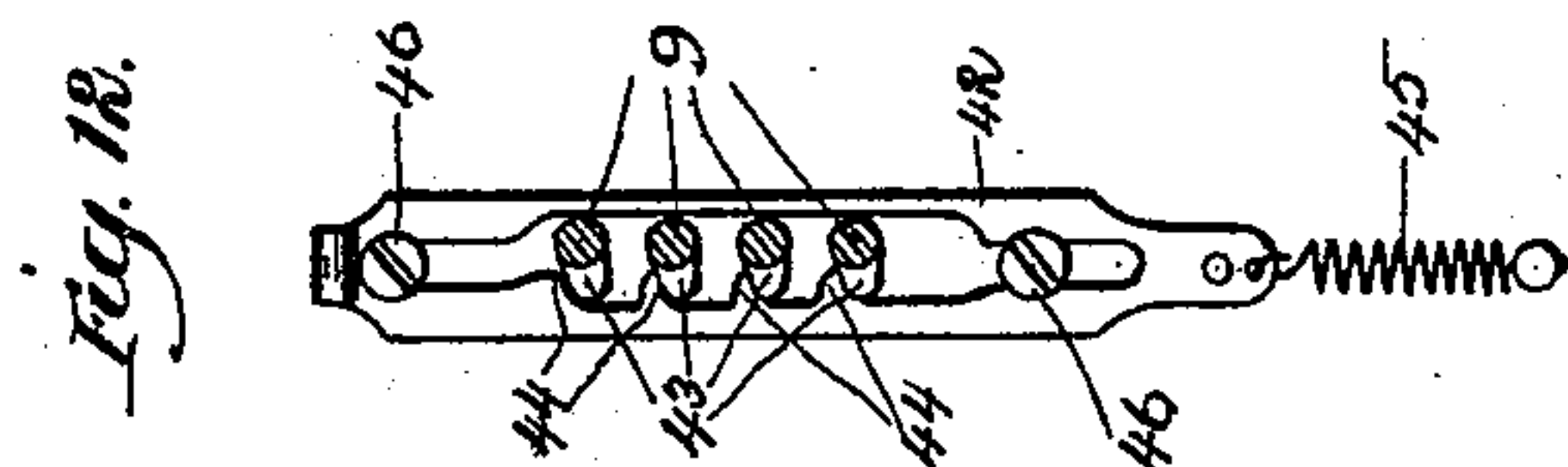
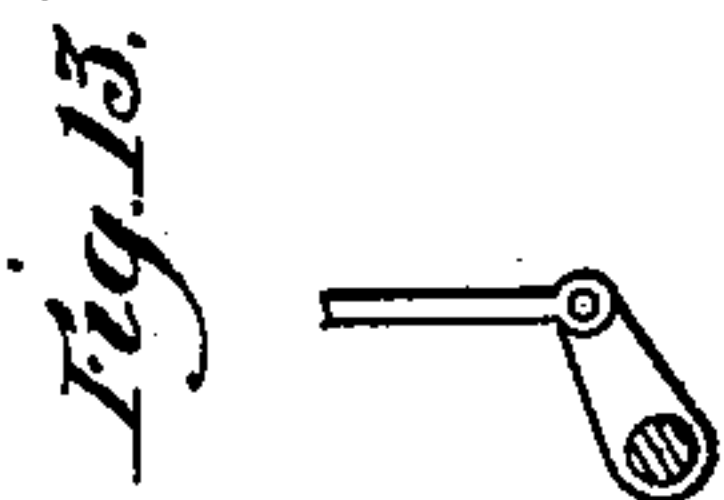
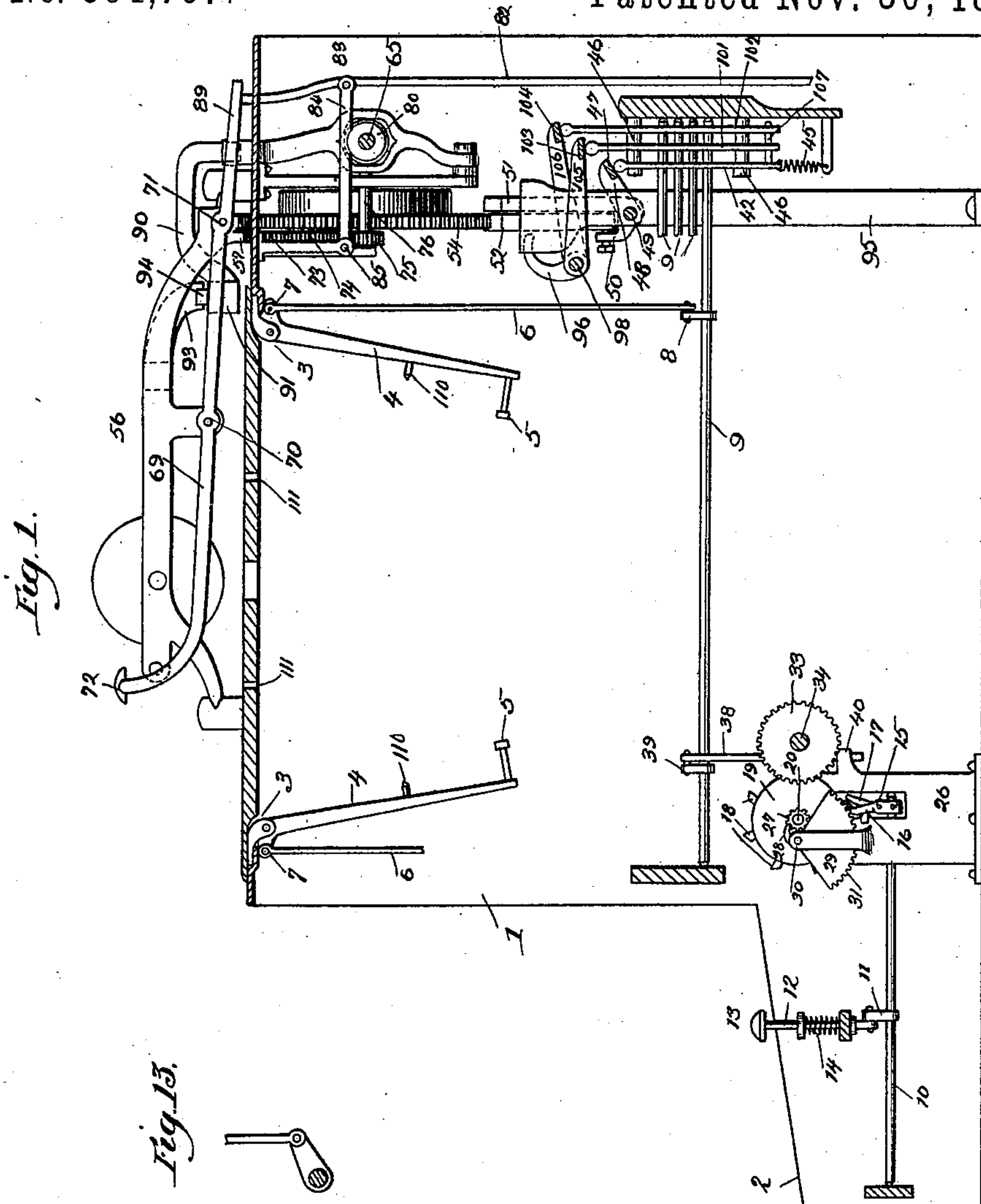
(No Model.,

3 Sheets—Sheet 1.

A. TEMPLETON.
TYPE WRITING MACHINE.

No. 594,767.

Patented Nov. 30, 1897.



Witness:

H. B. Hallock.

A. Williamson

Typewritten

Alison Templeton
by Geo. H. Hotgate
Attorney.

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TYPE WRITING MACHINE.

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Fig. 2.

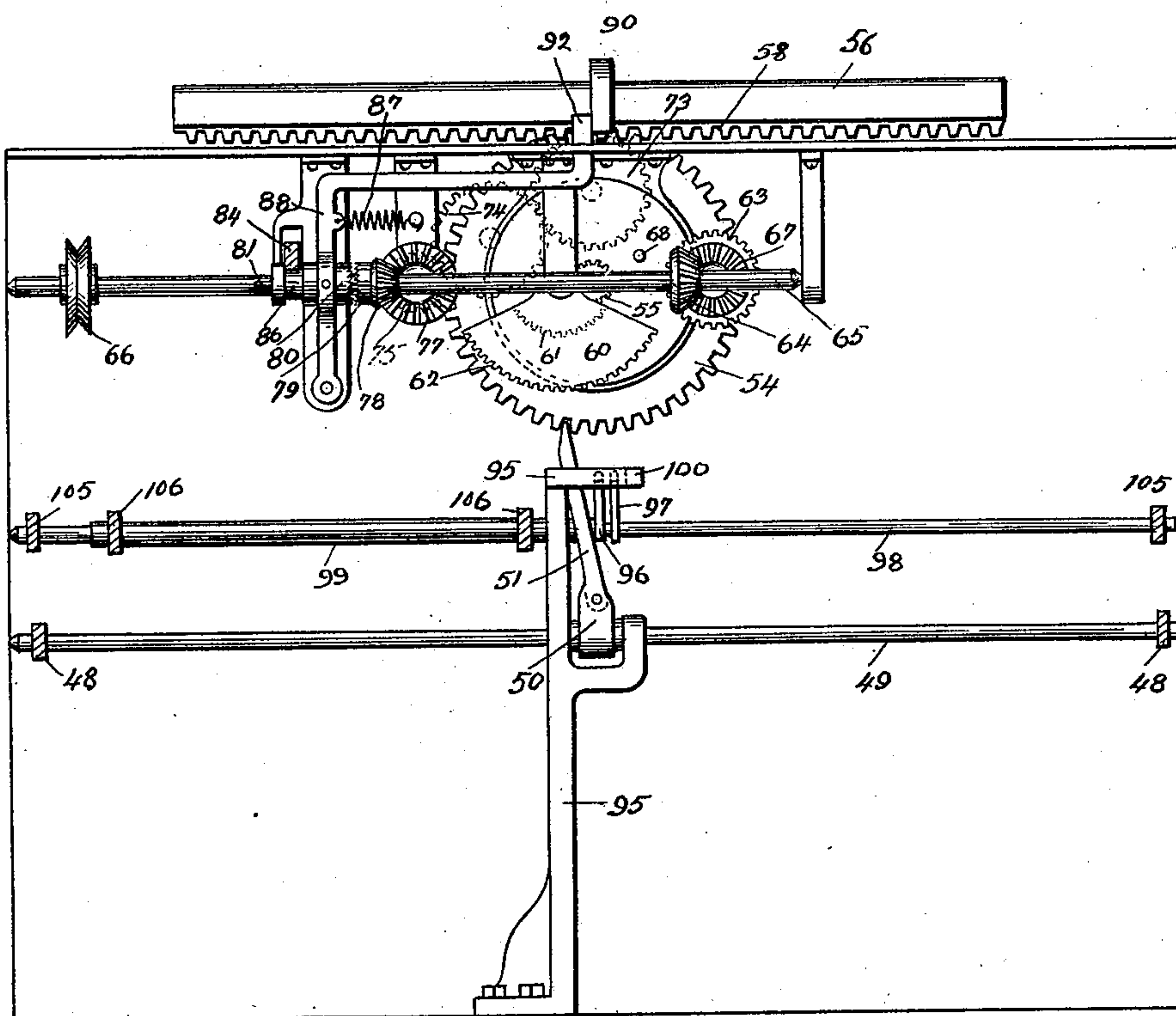


Fig. 10.

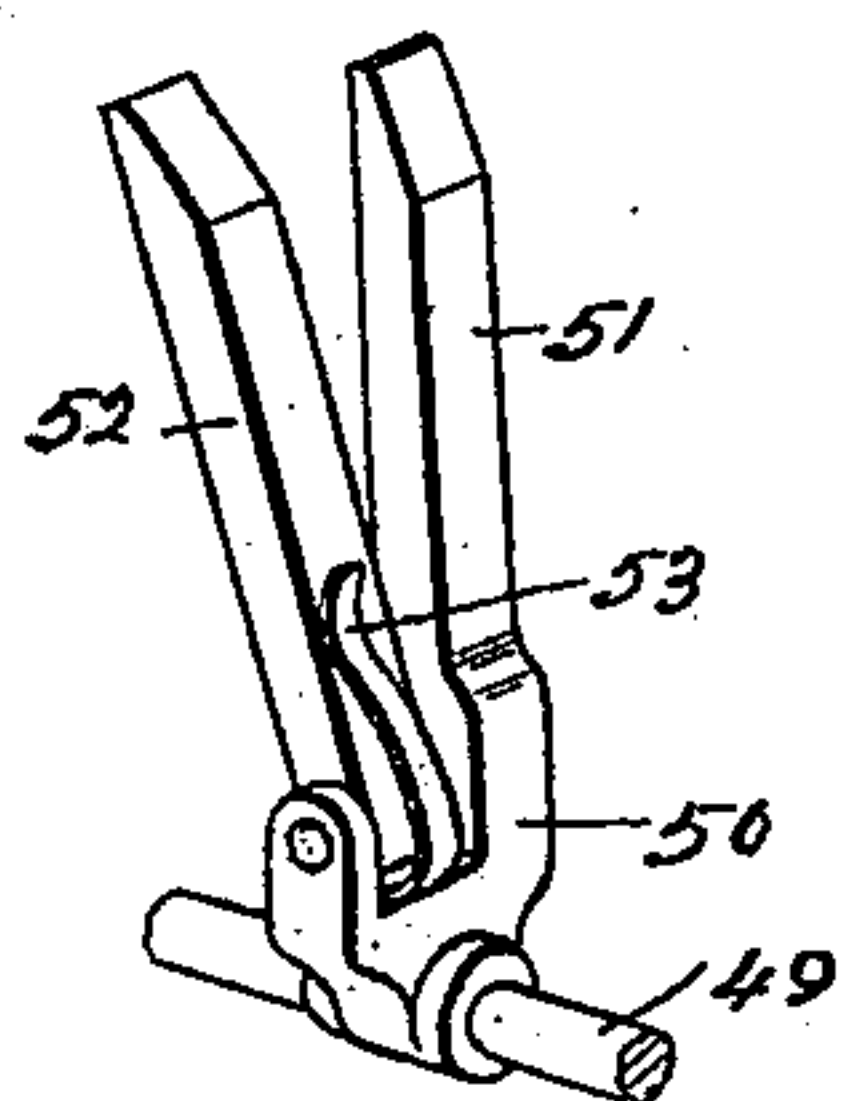
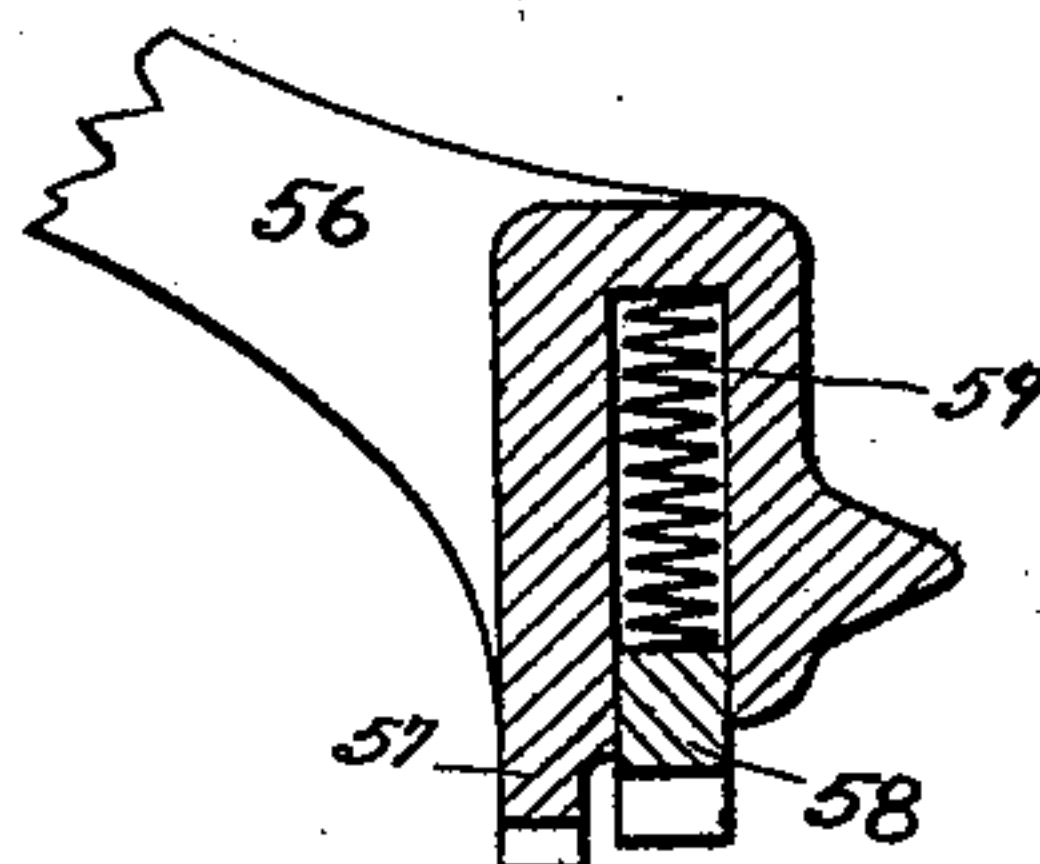


Fig. 11.



Witnesses:

H. B. Hallock.

A. Williamson

Inventor:

Allison Templeton
by Geo. H. Volgate

Attorney.

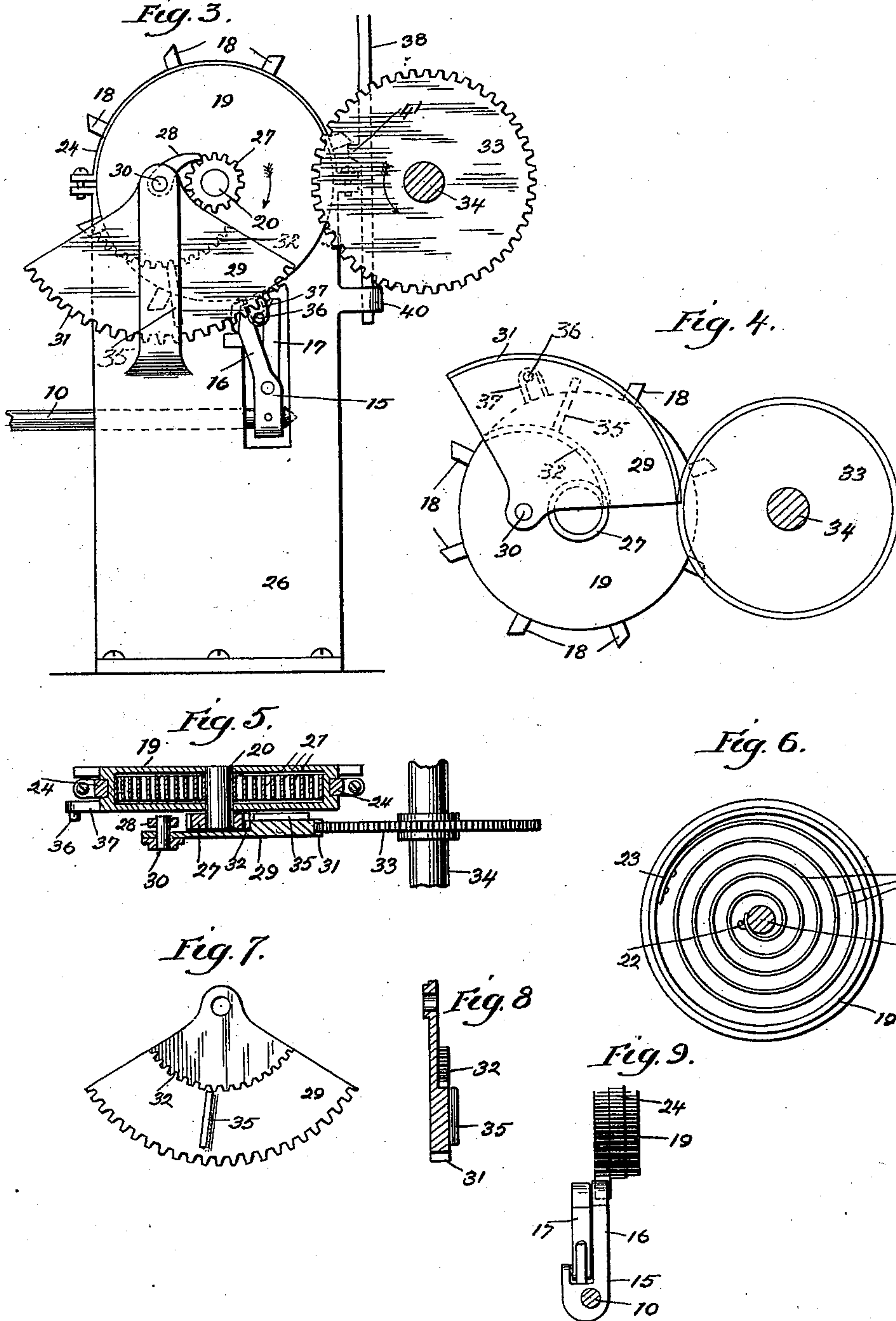
(No Model.)

3 Sheets—Sheet 3.

A. TEMPLETON.
TYPE WRITING MACHINE.

No. 594,767.

Patented Nov. 30, 1897.



Witnesses:
H. B. Hallock
A. Williamson

Inventor:
Allison Templeton
by Geo. H. Holgate
Attorney.

UNITED STATES PATENT OFFICE.

ALLISON TEMPLETON, OF GALVESTON, TEXAS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 594,767, dated November 30, 1897.

Application filed November 27, 1896. Serial No. 613,505. (No model.)

To all whom it may concern:

Be it known that I, ALLISON TEMPLETON, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented a certain new and useful Improvement in Type-Writing Machines, of which the following is a specification.

My invention relates to a new and useful improvement in automatic type-writing machines, and has for its object to so construct a type-writer and organize its interdependent mechanisms as to cause their operations to be brought about automatically and positively by a power outside of the operator, it being only required that said operator lightly manipulate the keys to set the mechanisms in operation, said mechanisms thereafter performing their functions independent of the keys and operator.

In order to make the improvements herein embodied more clearly understood, I have shown in the accompanying drawings certain means for carrying the same into practical effect without, however, intending to limit my invention to the particular construction which for the sake of illustration I have set forth.

In the drawings, Figure 1 is a section of the framework of a type-writing machine embodying my improvements, showing certain portions of the mechanisms, while multiple parts are omitted for the sake of clearness; Fig. 2, a broken-away view showing the spacing and carriage-operating mechanisms in elevation; Fig. 3, an enlarged elevation of the mechanism for operating the type-bars; Fig. 4, a detail view of a portion of this mechanism, the segment being shown in active position; Fig. 5, a central horizontal section of the type-bar escapement-wheel; Fig. 6, a vertical section thereof; Fig. 7, a detail view of the double-gear segment; Fig. 8, an edge view thereof; Fig. 9, an edge view of the escapement-pawls adapted to operate in conjunction with the type-bar escapement-wheel; Fig. 10, a detail perspective thereof; Fig. 11, a cross-section of the double rack supported by the carriage and utilized for transmitting motion to said carriage; Fig. 12, a detail of one of the yokes through which the rock-shafts pass to transmit motion to the spacing-escapement; and

Fig. 13, a cross-section of one of the rock-shafts, showing the arm and connection therewith.

In carrying out this invention as here embodied I utilize any suitable design of frame 1, including the extension 2, which serves as the keyboard, and within the crown 3 are pivoted the type-bars 4, said bars being so arranged that when either thereof is swung upward the type 5 carried thereby will be caused to strike at the proper point. Each of these bars is connected by means of a rod 6, pivoted to the heel thereof at 7 and to an arm 8, with a rock-shaft 9, and for economy of space these shafts are preferably arranged in banks, one above the other, as clearly indicated in Fig. 1, where four banks are shown, the upper ones being broken away. It is therefore only necessary to bring about the proper operations of the type-bars in printing the characters carried thereby upon the paper to oscillate the rock-shafts 9, and these rock-shafts are oscillated by the following mechanism: A series of rock-shafts 10 are journaled within the extension 2, each of which has an arm 11, and with this arm is connected a key-shank 12, carrying at its upper end the key 13. The shanks 12 may be guided in any suitable brackets or bars, and have coiled therearound the springs 14, which tend to return the keys to their normal position after being depressed. To the inner ends of each of the rock-shafts 10 is secured the escapement-pawl 15, consisting of a stationary tang 16 and a pivoted tang 17, the latter having a spring arranged to bear thereagainst to normally hold this tang in sidewise alignment with the first-named tang. These tangs are normally in the field of travel of the teeth 18, projecting from the escapement-wheel 19, which latter is hollow and has loosely journaled therein the shaft 20, and connected therewith upon its interior by the coil-spring 21, one end of which is secured to said shaft at 22, while the opposite end is secured to the wheel at 23. This wheel is mounted in a strap-bearing 24, which latter projects upward from the base of the machine in the shape of a post 26, which arrangement is for the purpose of economizing space sidewise, as there is such a wheel for each of the rock-shafts 9. The shaft 20 carries upon one end

thereof the pinion 27, which also serves as a ratchet for the engagement of the pawl 28; which latter prevents the retrograde movement of the shaft, while permitting its being
 5 revolved in the direction of the arrow marked adjacent thereto. A segment 29 is journaled at 30 to a suitable post and has formed thereon the teeth 31 upon its periphery, and also the
 10 teeth 32, the latter being adapted to mesh with the pinion 27 when being revolved through a certain portion of its circuit, and when these teeth so mesh the teeth 31 will also mesh with a gear-wheel 33. The gear-wheel 33 is secured upon the shaft 34 and is
 15 constantly revolved from any suitable source of power, so that when the teeth 31 pass into mesh with this gear the segment will be revolved in unison therewith, and as the teeth 32 are at the same time in mesh with the pinion 27 it will be seen that said pinion will also
 20 be revolved, thereby winding the spring 21, which will be prevented from reversing the movement of the pinion by the pawl 28, as before described. After the segment has
 25 passed out of engagement with the gear and the pinion it will be free to swing downward to the position shown in Fig. 3, from whence it may be again revolved to the position shown in Fig. 4 for reengagement with the gear and
 30 pinion, as next described.

A rib 35 is formed upon one side of the segment and projects inward in close proximity to the face of the escapement-wheel and is thereby brought into the path of travel of the
 35 pin 36, which is carried by the lug 37, projecting from the periphery of said escapement-wheel, the result being that as the escapement-wheel revolves this pin will enter into contact with the rib and revolve the segment in a like direction with the escapement-wheel until it has been brought, as before
 40 described, into mesh with the gear 33 and the pinion 27.

From the foregoing description it will be
 45 obvious that by the depression of the key 13 the rock-shaft 10 will be oscillated and the double-tanged escapement-pawl 15 so operated as to permit the escapement-wheel 19 to revolve a distance equal to the distance between each of its teeth, and the coil-spring within the escapement-wheel will bring about this movement of the latter, and as there are eight of such teeth projecting from the wheel it follows that for every eight depressions of
 55 the key the wheel will have made one complete revolution, during which time the segment will also have been revolved and brought into mesh with the gear and pinion, as before described, thereby giving the pinion one complete revolution, which will wind up the spring 21 to the same extent that it has been unwound by one revolution of the escapement-wheel, from which it will be seen that when this spring has once been wound it will at all
 65 times retain substantially the same tension, since it will be rewound in like proportion as it is unwound for every eight operations of

the key. Now it is only necessary to transmit this intermittent movement of the escapement-wheel to the rock-shaft 9 to bring about
 70 its proper oscillation for the operation of the type-bar connected thereto, and this is accomplished by pivoting the bar 38 to a short arm 39, carried by the shaft 9, and guiding its lower end in a suitable bracket 40. From the
 75 bar 38 projects a lug 41 within the field of travel of the teeth 18, so that every time one of these teeth comes into contact with this lug the latter will be drawn downward, carrying with it its bar, and consequently imparting a
 80 rocking movement to the shaft 9. As the tooth 18, which is in contact with the lug 41, revolves with the escapement-wheel it will pass out of engagement with said lug at a predetermined point and permit the latter
 85 and its bar to move upward in order that the shaft 9 may resume its normal position, which is brought about by the weight of the type-bar connected thereto, assisted by a spring, as hereinafter set forth. A yoke 42 is pro-
 90 vided for each column of shafts 9 in the banks thereof and embrace said rods, as clearly shown in Fig. 12, and each one of the shafts has projecting therefrom a lug 43, which engages with a corresponding lug 44, formed
 95 upon one wall of the slot in the yoke, so that when either of the shafts 9 is revolved the yoke will be moved upward against the action of the spring 45, and when the actuating power has been released from the shaft 9 this
 100 spring will tend to return the latter to its normal condition in conjunction with the weight of the type-bar, as before specified. Posts 46 are provided for the guidance of the yokes and project through suitable slots
 105 formed therein, and the upper ends of these yokes bear against the under side of the cross-bar 47, which is carried by the arms 48, secured upon the shaft 49, which also has secured thereon the double-tanged pawl 50, one
 110 of said tangs being stationary, as indicated at 51, while the other is pivoted, as indicated at 52, so as to swing into and out of alignment with the first-named tang, and is normally held out of alignment therewith by the
 115 spring 53.

A gear-wheel 54 is loosely mounted upon a shaft upon which is also secured the pinion 55, and a coil-spring similar to that described in connection with the escapement-wheel 19
 120 connects this shaft and gear-wheel in order that when the pinion is revolved the spring may be wound and exert its force to revolve the gear-wheel in the same direction, and the latter is permitted to revolve intermittently
 125 by the escapement-pawl 50, as is well understood.

56 represents a carriage of any convenient construction adapted to travel upon the top of the frame of a machine and has a rack-
 130 bar 57 formed rigid therewith or carried by rigid arms, and also a vertically-moving rack-bar 58 is so arranged as to lie in close proximity to the first-named rack-bar and par-

allel therewith and is held in a normally-lowered position by the coil-spring 59. The last-named rack-bar is adapted to engage with the gear-wheel 54 when in its normal position, as clearly shown in Fig. 2, and when thus engaging it is obvious that the rotations of this wheel must of necessity cause the rack-bar and carriage to which it is attached to travel, and through this medium the spacing between the letters imprinted upon the paper carried by the carriage is brought about, since when a key is depressed the escapement-wheel 19 will actuate one of the shafts 9 through the bar 38, which in turn will actuate the yoke 42, and this again will operate the escapement-pawl 50, thereby permitting the wheel 54 to revolve one step and move the carriage a like distance. In this construction it is essential that the pinion 55 be given a complete revolution for every revolution that the gear-wheel 54 makes to prevent the spring interposed between these two members from becoming unwound, and this is accomplished by providing a segment 60, having the teeth 61, adapted to mesh with the pinion 55, and the teeth 62, adapted to mesh with the gear-wheel 63, the last-named wheel being in constant motion through the operations of the beveled gear 64, carried upon the shaft 65, which receives its motion from any suitable source of power through the pulley 66, the beveled gear 64 meshing with a corresponding gear 67, carried by the gear-wheel 63.

A pin 68 projects from the face of the gear-wheel 54 in such manner that when said gear-wheel is revolved this pin will come into contact with the segment and cause the latter to revolve with said wheel until the teeth 61 and 62 are brought into engagement with the pinion 45 and gear 63, respectively, when motion will be transmitted from said gear to the pinion through the segment, thereby revolving the pinion through one revolution and winding the spring interposed between its shaft and the gear-wheel 54 to the extent which has been unwound by the revolving of the gear-wheel 54 through one revolution. This arrangement is similar in all respects to that described in connection with the type-bar escapement and effects the same result, it of course being understood that the pinion is prevented from a retrograde movement by a suitable pawl. (Here not shown.)

In order that the carriage may be freed from connection with the spacing mechanism when it is desired to move it to and fro independent of said mechanism, a lever 69 is pivoted at 70 and is connected at 71 to the rack-bar 58, and this lever projects forward and terminates in a suitable knob or hand-piece 72, whereby when pressure is brought to bear upon this hand-piece the rear end of the lever will be elevated, carrying upward the rack-bar 58 out of engagement with the gear-wheel 54 and permitting any longitudinal movement of the carriage desired.

In machines of this character it is desirable that the carriage be automatically returned to the right-hand side of the machine from the fact that both time and energy are saved by so doing and also from the fact that it is necessary for the successful operation of such a machine that the spring which actuates the carriage in its forward progression shall have sufficient tension to cause it to respond with alacrity to the remaining movements of the machine, and therefore it would require considerable exertion upon the part of the operator to return the carriage against this spring. To accomplish this result, I provide a gear-wheel 73, which meshes with the rack 57, carried by the carriage, and with this gear meshes the gear 74, which in turn meshes with the gear 75, carried upon the spindle 76. Upon this spindle is also secured the beveled wheel 77, with which meshes the beveled pinion 78, having thereon the clutch-teeth 79. This last-named pinion is loosely mounted upon the shaft 65 and therefore does not revolve therewith, and a clutch 80 is splined to this shaft, as indicated at 81, and has teeth corresponding to the teeth 79, so that when these teeth are brought into engagement the rotations of the shaft 65 will be imparted to the beveled pinion 78 and from thence to the train of gears just described, and finally to the rack 57, causing the carriage to move in a reverse direction to its step-by-step motion. This reverse motion of the carriage, though automatically performed, must be under the control of the operator, so as to be brought about at any stage of the forward progressive movement thereof, and I therefore connect with a suitable key arranged upon the keyboard a rod 82, which is connected at 83 to the lever 84, the latter being pivoted at 85 and so projecting across the shank of the clutch 80 as to engage with the groove formed therein, and when thus engaged the teeth upon said clutch will be held out of engagement with the teeth 79, thus preventing the revolving of the train of gears which actuate the carriage in its reverse direction, but when the rod 82 is forced upward by the depression of its key the lever 84 will pass out of engagement with the clutch-groove and the latter will spring into engagement with the teeth 79 by the action of the spring 87, which is attached to the clutch-lever 88, the latter in turn being connected with the clutch so as to move it longitudinally, and when these movements take place the carriage will be moved in a reverse direction, as before described, and when reaching the limit of its reverse movement the clutch-lever 88 will be actuated so as to disengage the clutch from the teeth 79 and arrest the movement of the train of gears. At the same time the rod 82 elevates the lever 84, which also elevates the extension 89, against the under side of which it bears, and this extension is carried by the lever 69, which follows that the rack-bar 57 will be moved upward out of mesh

with the gear-wheel 54, thus permitting this reverse movement of the carriage without interference with said gear or the mechanism connected therewith. Now when the lever 5 84 is first elevated the inward movement of the clutch 80 will carry the groove 86 out of alinement with said lever, whereby the latter will be held in its elevated position by the shank of said clutch, so that neither this lever nor the rod 82 can return to their normal position until the clutch has again been returned to its normal position, and since the extension 89 rests upon the rod 82 it also will be held in an elevated position, thereby holding the rack-bar 58 out of mesh with the gear-wheel 54 until these parts have been returned to their normal position, as next described.

90 is an arm carried by the bar 91, guided in suitable bearings, and this arm projects 20 over the rack-bars and downward, terminating in the same horizontal plane as the striker 92, which is carried by the clutch-lever 88 and in close proximity thereto, so that when this arm is actuated in the direction of the arrow 25 adjacent thereto it will also actuate the clutch-lever through the striker and return the clutch against the action of its spring 87 to its normal position, and when the groove 86 is thus brought into alinement with the lever 84 the latter will spring into said groove and hold the clutch in this position. By the downward movement of the lever 84, as just described, the rod 82 will also be carried downward, permitting the extension 89 to receive a similar 35 movement, thus returning the rack-bar 58 into mesh with the gear 54. A lug 93 is carried by the carriage in such manner that when the latter reaches the limit of its reverse movement this lug will come into contact with the projection 94, formed upon the bar 91, and give to said bar a slight longitudinal movement, which will be transmitted to the clutch, as just described, with the result of bringing the several parts to a standstill ready for a 45 further step-by-step movement of the carriage through the operations of the keys.

While a machine of this description may successfully operate with a single spacer, as above described, it is preferable that such a 50 machine shall be provided with a variable spacer, in order that letters of varying width may occupy a sufficient amount of space, while those of less width may occupy a corresponding space, and to accomplish this result I have provided a suitable mechanism therefor, which is as follows:

A standard 95 projects upward from the base of the machine and serves as one bearing for the shaft 49 and also provides a stop-housing, as indicated at 95, for the tangs of the escapement-pawl 50, as well as the dogs 96 and 97, the latter of which is secured upon the shaft 98, journaled in suitable bearings, while the former is secured upon the sleeve 55 99, surrounding a portion of said shaft, so as to revolve thereon, and the noses of these dogs

are so located relative to the independent swinging movement of the tang 52 as to limit this movement when the dogs are in their normal position to a distance equal to that between the dog 96 and the shoulder of the housing 95; but when the dog 96 is withdrawn from its normal position, as hereinafter set forth, it will be seen that the distance through which this tang may swing will be increased, and also when the dog 97 is likewise removed from its normal position the swinging movement of this tang will be increased so that its outer limit will be the shoulder 100. Now as the distance between the nose of the dog 96 and the shoulder of the housing 95 is sufficient to permit the wheel 54 to move one notch when the tang 52 is in engagement therewith, and as this movement will be increased to two teeth when the dog 96 is swung out of its normal position, and this distance will likewise be increased three teeth when the dogs 96 and 97 are both swung out of their normal position it is obvious that by the proper manipulation of these dogs the carriage may be caused to move at each intermittent step a distance equal to one, two, or three teeth of the escapement-wheel 54, the object of which is to place each letter in a space corresponding to its width.

The movements of the dogs 96 and 97 are controlled by a series of yokes 101 and 102, which are similar in all respects to the yoke 42 before described, with the exception of the number of lugs 44 formed thereon, and this arrangement permits the operation of either the yoke 42 independently or the yokes 42 and 101 in unison, or the yokes 42 and 101 and 102, as the case may be, it only being necessary to provide a lug similar to the lugs 43 upon each of the rock-shafts 9, which are intended to operate two or more of the yokes, and these lugs are arranged in conjunction with the lugs 44 upon said yokes—as, for instance, the rock-shaft 9, which operates the type “the,” is provided with a lug 43 to operate the yoke 44 and a corresponding lug to operate the yoke 101, as well as a similar lug to operate the yoke 102, so that when this shaft is oscillated the three yokes will be elevated in unison, the first giving the proper rocking movement to the pawl 50, while the second and third will force the dogs 96 and 97 out of their normal position and permit the tang 52 to swing through a distance corresponding to three teeth of the escapement-wheel 54, thereby causing the carriage to move a like distance.

The upper ends of the yokes 101 and 102 bear against the cross-bars 103 and 104, respectively, and these bars are connected by the arms 105 and 106 to the sleeve 99 and the shaft 98. The yokes 101 and 102 are connected to the yoke 42 by a pin 107, which passes through suitable slots in the last two yokes, so that when all of these yokes are operated in unison they will be drawn down-

ward by the spring 45, or, if only the first two yokes be operated, they will likewise be returned to their normal position by this spring without affecting the last yoke, and a similar result will take place if only the first yoke be operated. To insure accuracy in the striking of the type in their proper place upon the paper carried by the carriage-roll, pins 110 project from each of the type-bars in such manner that when said bars are swung upward these pins enter the holes 111 and therefore aline the type before coming in contact with the paper. This same result may also be accomplished by slots formed by downwardly-projecting cones in which the type-bars must swing when moving upward.

The arrangement of the spacing mechanism before described permits of certain of the type-bars carrying two or more letters—as, for instance, “th,” “the,” “tion,” and the like—for the formation of affixes and prefixes by the operation of a single key, as it is obvious that any number of stop-dogs within reasonable limits may be provided.

As before stated, a variety of changes may be made in the instrumentalities here shown for carrying into effect my invention, and I do not wish to be limited to this particular design, since the gist of my invention rests in the broad idea of providing automatic mechanisms for positively operating the type-bars and bringing about the movements of the carriage.

Having thus fully described my invention, what I claim as new and useful is—

1. In a device of the character described, an escapement-pawl, an escapement-wheel engaged thereby, a shaft, a coil-spring connecting the escapement-wheel and shaft, a pinion mounted on the shaft, a pawl to engage the pinion, a pivoted segment having teeth to mesh with the teeth of the pinion, a gear-wheel suitably driven engaging teeth of the segment and means on the escapement-wheel for engaging the segment, as and for the purpose described.

2. In a device of the character described, an escapement-pawl, an escapement-wheel having projecting teeth engaging the pawl, a shaft a coil-spring connecting the escapement-wheel and shaft, a pinion mounted on the shaft, a pawl to engage the pinion, a pivoted segment having teeth to mesh with teeth of the pinion, a gear-wheel suitably driven and engaging teeth of the segment, a pin on the escapement-wheel, a rib on the segment to be engaged thereby to revolve the escapement-wheel and a sliding bar carrying a lug for engagement with the projecting teeth of the escapement-wheel, as and for the purpose described.

3. In a device of the character described, a frame, an escapement-pawl pivoted therein, an escapement-wheel also journaled therein, teeth on the escapement-wheel engaging the

escapement-pawl, a shaft journaled within the escapement-wheel, a coil-spring within the escapement-wheel connecting said wheel with the shaft, a pinion on the shaft, a pawl pivoted to the frame and adapted to engage the pinion to prevent it being turned by the spring, a segment pivoted to the frame and having teeth to engage the teeth of the pinion during part of its revolution, a suitably-driven gear-wheel having teeth to engage teeth of the segment during said part of its revolution, a pin projecting from the escapement-wheel, a rib on the segment to be engaged thereby to revolve the segment with the escapement-wheel and a slidable bar carrying a lug for engagement with the teeth of the escapement-wheel, substantially as described.

4. In an automatic type-writing machine, a suitable framework, a series of keys arranged therein, a series of rock-shafts to which said keys are connected, an escapement-pawl carried by each of said shafts, an escapement-wheel for each of said pawls and with which the latter operates, a spring arranged within the escapement-wheel, a spindle for winding said spring, means for automatically revolving said spindle from a source of power outside of the operator, and means for transmitting motion to the type-bars from the escapement-wheels, as specified.

5. In an automatic type-writing machine, a suitable frame, a series of keys arranged therein, a series of rock-shafts with which said keys are connected and adapted to oscillate, a series of escapement-pawls carried by said shafts, a series of escapement-wheels adapted to be controlled by said pawls, a series of springs arranged within the escapement-wheels for imparting motion thereto, a series of spindles journaled concentric with the escapement-wheels, pinions carried by the spindles, segments having teeth adapted to intermittently mesh with the pinions, means for imparting motion to said segments, and means for transmitting motion from the escapement-wheel to the type-bars of the machine, substantially as and for the purpose set forth.

6. In an automatic type-writing machine, a suitable frame, a series of keys arranged therein, a series of rock-shafts with which said keys are connected and adapted to oscillate, a series of escapement-pawls carried by said shafts, a series of escapement-wheels adapted to be controlled by said pawls, a series of springs arranged within the escapement-wheels for imparting motion thereto, a series of spindles journaled concentric with the escapement-wheels, pinions carried by the spindles, segments having teeth adapted to intermittently mesh with the pinions, means for imparting motion to said segments, a second series of rock-shafts each having a dependent bar adapted to be actuated by one of the escapement-wheels, radially-arranged type-

bars, and means for transmitting motion from the last-named rock-shaft to said bars, substantially as and for the purpose set forth.

7. In an automatic type-writing machine, a suitable frame, an extension formed therewith, a series of keys arranged within said extension, a series of rock-shafts to which said keys are connected, a series of escapement-pawls carried by the shafts each of said pawls having a stationary and a pivoted tang, escapement-wheels having teeth projecting therefrom for engagement with said tangs, springs arranged within the wheels, spindles to which the inner ends of the springs are attached, pinions carried by the spindles, pawls for preventing a retrograde movement of the spindles, segments having teeth thereon adapted to engage with the pinions, a series of constantly-revolving gear-wheels, teeth formed upon the segments for engagement with said gear-wheels for winding the springs, a series of bars adapted to be drawn downward by the teeth of the escapement-wheels, a second series of rock-shafts to which said bars are attached, a series of type-bars connected by rods to the last-named shafts, and means controlled by said shafts for bringing about the movements of the carriage, substantially as and for the purpose set forth.

8. In an automatic type-writing machine, a frame, an extension formed therewith, a series of keys fitted therein, springs for holding said keys in their normally-elevated position, a series of rock-shafts having arms projecting therefrom with which the shanks of the keys connect, a series of escapement-pawls carried by the shafts each of said pawls having a stationary and a pivoted tang, a series of escapement-wheels having teeth projecting from their peripheries adapted to engage with the tangs of the pawls, a circumferential bearing for each of the wheels, springs arranged within said wheels, spindles passed through the wheels, pinions secured to the spindles, pawls for preventing a retrograde movement of the spindles, each of said spindles having one end of a spring attached thereto, segments having gear-teeth adapted to mesh with the pinions, a series of constantly-revolving gear-wheels receiving their motion from a suitable source of power outside of the operator, teeth formed upon the segments for engagement with these gear-wheels, means for automatically bringing about the engagement of the segments with the gear-wheels, dependent bars adapted to be operated by the teeth of the escapement-wheels, arms to which said bars are attached, rock-shafts 9 to which said arms are secured, arms 8 also projecting from said rock-shafts, rods 6 attached to the last-named arms, and type-bars to which the upper ends of said rods are attached, substantially as and for the purpose set forth.

9. In combination with the key mechanism of an automatic type-writing machine, a se-

ries of rock-shafts 9 actuated by said mechanism, a series of yokes embracing said shafts, a series of projections carried by the shafts and adapted to operate the yokes, a cross-bar arranged immediately above the yokes, a shaft 49 to which said bar is attached, an escapement-pawl carried by said shaft, said pawl having a stationary and a pivoted tang, an escapement-wheel with which said pawl engages, a spring arranged to move the wheel in one direction, a spindle and pinion adapted to wind the spring from the opposite end, a segment having teeth which intermittently enter into engagement with the pinion, a gear 63 with which certain teeth of the segment mesh, means for constantly revolving said gear, and a rack-bar carried by the carriage of the machine meshing with the escapement-wheel, substantially as and for the purpose set forth.

10. In an automatic type-writing machine, the combination of a carriage, a stationary and a movable rack-bar carried by said carriage, an escapement-wheel meshing with the movable rack-bar, means for actuating said escapement-wheel, a train of gears meshing with the stationary rack-bar, means for revolving said gears by power outside of the operator, and a key mechanism for controlling the revolving of these gears and also disengaging the movable rack-bar from the escapement-wheel when said gears are revolved, substantially as and for the purpose set forth.

11. The herein-described combination of a frame, a carriage adapted to move thereon, a rigid and a movable rack-bar supported by said carriage, a train of gears meshing with the rigid rack-bar, a constantly-revolving shaft upon which the primary member of the train of gears is loosely mounted, a clutch splined upon said shaft, a spring for moving said clutch into engagement with the primary gear of the train, a lever for holding said clutch out of such engagement, a rod for elevating said lever, an extension for controlling the movement of the movable rack-bar, said extension resting upon the upper end of the rod, and an escapement-wheel meshing with the movable rack-bar, substantially as and for the purpose set forth.

12. In combination with the carriage of a type-writing machine of the character described, a rigid and a movable rack-bar carried thereby, an escapement-wheel meshing with the movable bar, a spring for actuating said escapement-wheel, a spindle to which the inner end of the spring is attached, a pinion carried by said spindle for revolving the same, a segment having teeth adapted to mesh with said pinion, a constantly-revolving gear-wheel with which other teeth upon the segment are adapted to mesh, an escapement-pawl for controlling the movements of the escapement-wheel, a train of gears meshing with the rigid rack-bar, a constantly-re-

volving shaft upon which the primary member of said train is loosely drawn, teeth formed upon said primary member, a clutch splined to the constantly-revolving shaft, a clutch-lever for controlling the clutch, a spring for moving said lever in one direction, a lever for engagement with a groove formed in said clutch, a vertically-movable rod attached to the last-named lever, an extension attached to the movable rack-bar, and means for elevating said extension in unison with the operation of the last-named lever, substantially as and for the purpose set forth.

13. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated, a carriage carrying a rack-bar, an escapement-wheel meshing with said rack-bar, an escapement-pawl for controlling the movements of said wheel, a series of yokes for operating said pawl, said yokes being under the control of the key mechanism, substantially as shown and described.

14. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated, a series of rock-shafts actuated by said mechanism, a series of yokes embracing said shafts, a series of projections carried by the shafts and adapted to operate the yokes, a cross-bar arranged immediately above the yokes, a shaft to which said bar is attached, an escapement-pawl carried by said shaft, said pawl having a stationary and a pivoted tang, an escapement-wheel with which said pawl engages, a spring arranged to move the wheel in one direction, a spindle and pinion adapted to wind the spring from the opposite end, a segment having teeth which intermittently enter into engagement with the pinion, a gear with which certain teeth of the segment mesh, means for constantly revolving said gear, and a rack-bar carried by the carriage of the machine meshing with the escapement-wheel, substantially as and for the purpose set forth.

15. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from

the escapement-wheels to said bars when the keys are operated in combination with a carriage, a stationary and a movable rack-bar carried by said carriage, an escapement-wheel meshing with the movable rack-bar; means for actuating said escapement-wheel, a train of gears meshing with the stationary rack-bar, means for revolving said gears by power outside of the operator, and a key mechanism for controlling the revolving of these gears and also disengaging the movable rack-bar from the escapement-wheel when said gears are revolved, substantially as and for the purpose set forth.

16. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated, a frame, a carriage adapted to move thereon, a rigid and a movable rack-bar supported by said carriage, a train of gears meshing with the rigid rack-bar, a constantly-revolving shaft upon which the primary member of the train of gears is loosely mounted, a clutch splined upon said shaft, a spring for moving said clutch into engagement with the primary gear of the train, a lever for holding said clutch out of such engagement, a rod for elevating said lever, an extension for controlling the movement of the movable rack-bar, said extension resting upon the upper end of the rod, and an escapement-wheel meshing with the movable rack-bar, substantially as and for the purpose set forth.

17. In a type-writing machine of the character described, a series of keys each one of which is connected with an escapement-pawl, an escapement-wheel with which said pawl is adapted to operate, a spring contained within the escapement-wheel, means for maintaining said spring in its wound condition, type-bars, mechanism for transmitting motion from the escapement-wheels to said bars when the keys are operated, a rigid and a movable rack-bar carried thereby, an escapement-wheel meshing with the movable bar, a spring for actuating said escapement-wheel, a spindle to which the inner end of the spring is attached, a pinion carried by said spindle for revolving the same, a segment having teeth adapted to mesh with said pinion, a constantly-revolving gear-wheel with which other teeth upon the segment are adapted to mesh, an escapement-pawl for controlling the movements of the escapement-wheel, a train of gears meshing with the rigid rack-bar, a constantly-revolving shaft upon which the primary member of said train is loosely drawn, teeth formed upon said primary member, a clutch splined to the constantly-revolving shaft, a clutch-lever for controlling the clutch, a spring for moving said

lever in one direction, a lever for engagement
with a groove formed in said clutch, a verti-
cally-movable rod attached to the last-named
lever, an extension attached to the movable
5 rack-bar, and means for elevating said exten-
sion in unison with the operation of the last-
named lever, substantially as and for the pur-
pose set forth.

In testimony whereof I have hereunto af-
fixed my signature in the presence of two sub- 10
scribing witnesses.

ALLISON TEMPLETON.

Witnesses:

W. L. MOODY, Jr.,
THOMAS F. LAWSON.