

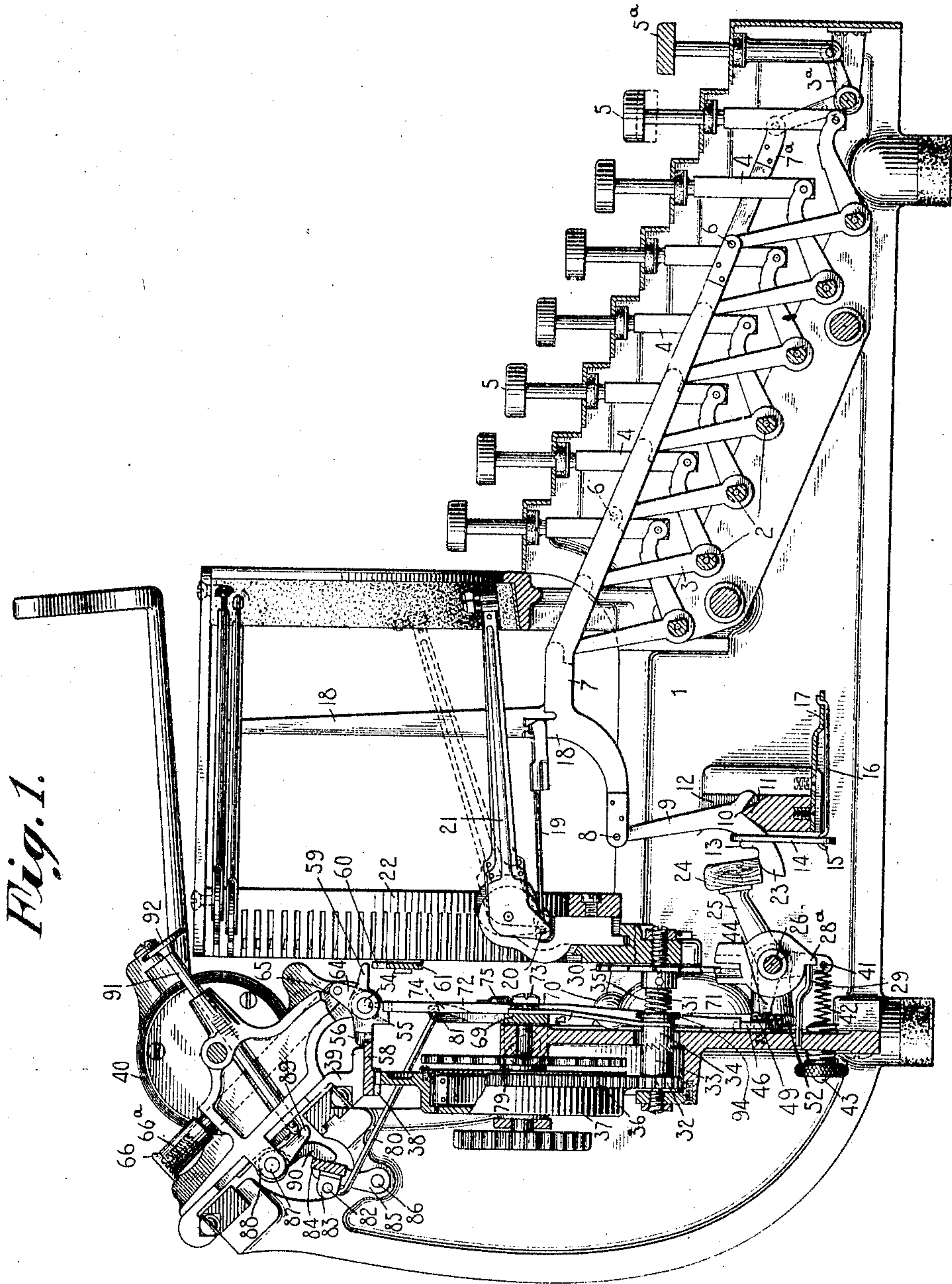
No. 776,495.

PATENTED DEC. 6, 1904.

H. A. CARHART.
TYPE WRITING MACHINE.
APPLICATION FILED JULY 27, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses:
K. V. Donovan.
Charles Smith

Inventor:
Herbert A. Carhart
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His Attorney

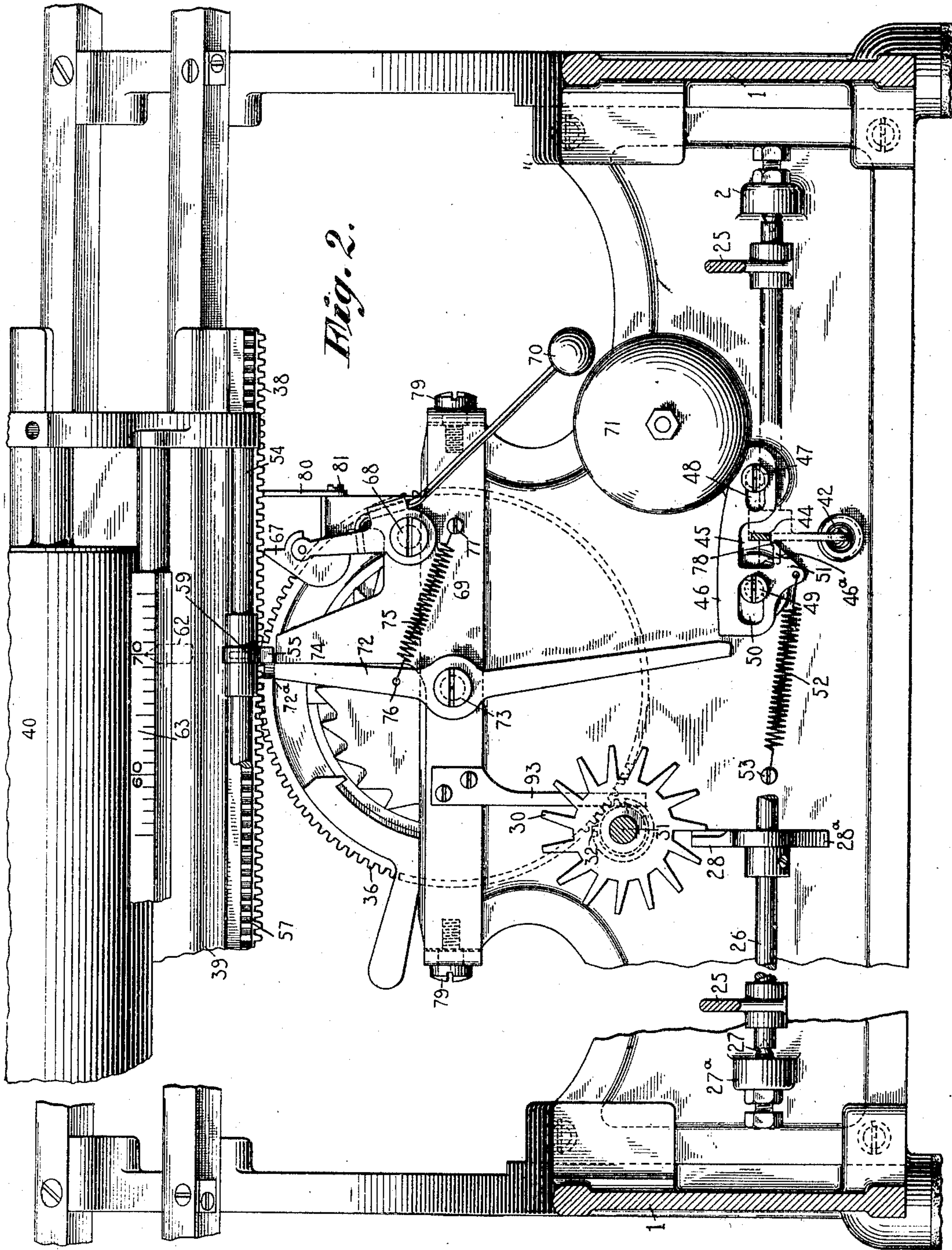
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4 SHEETS—SHEET 2.



Witnesses:

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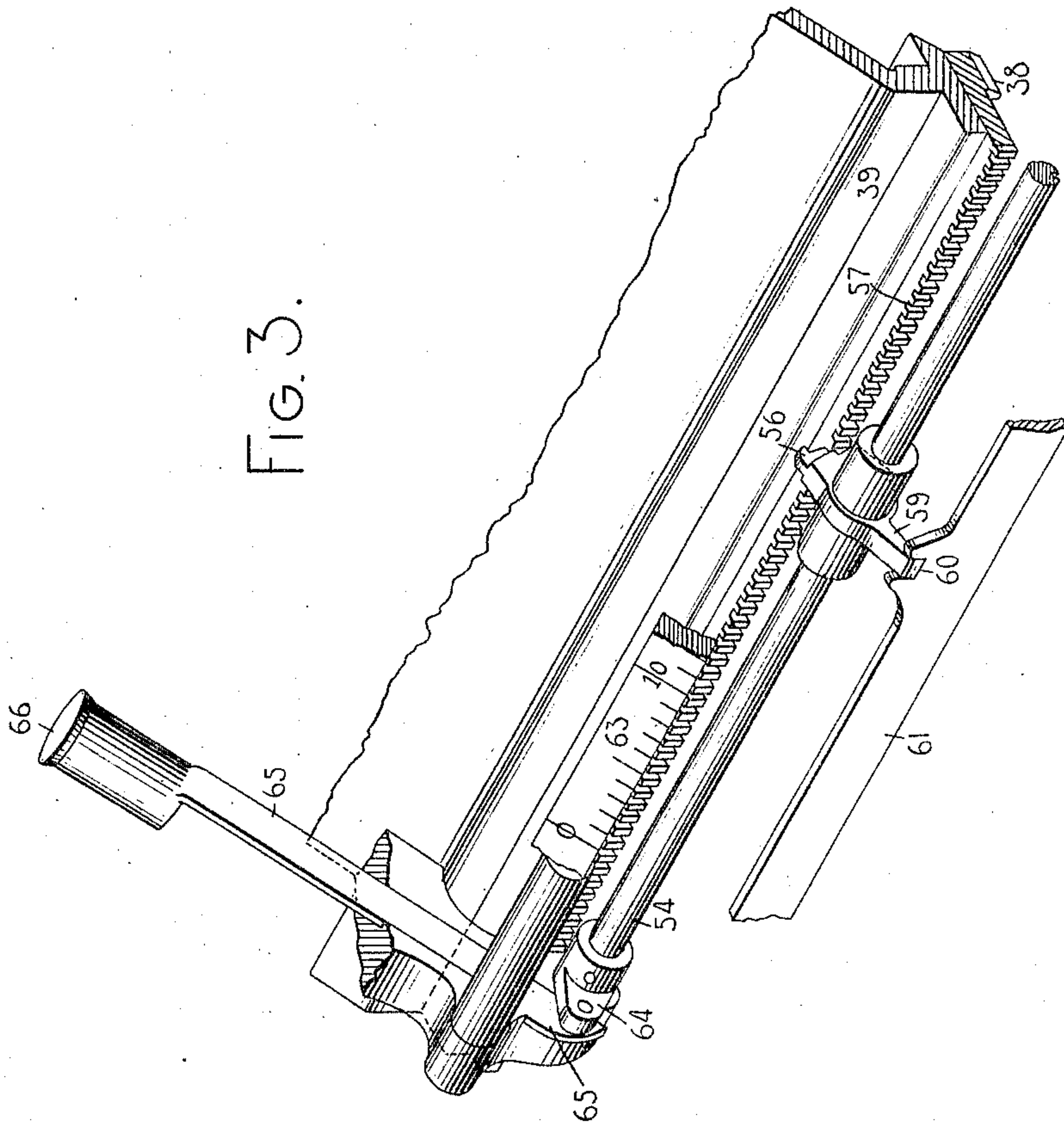
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4 SHEETS—SHEET 3.



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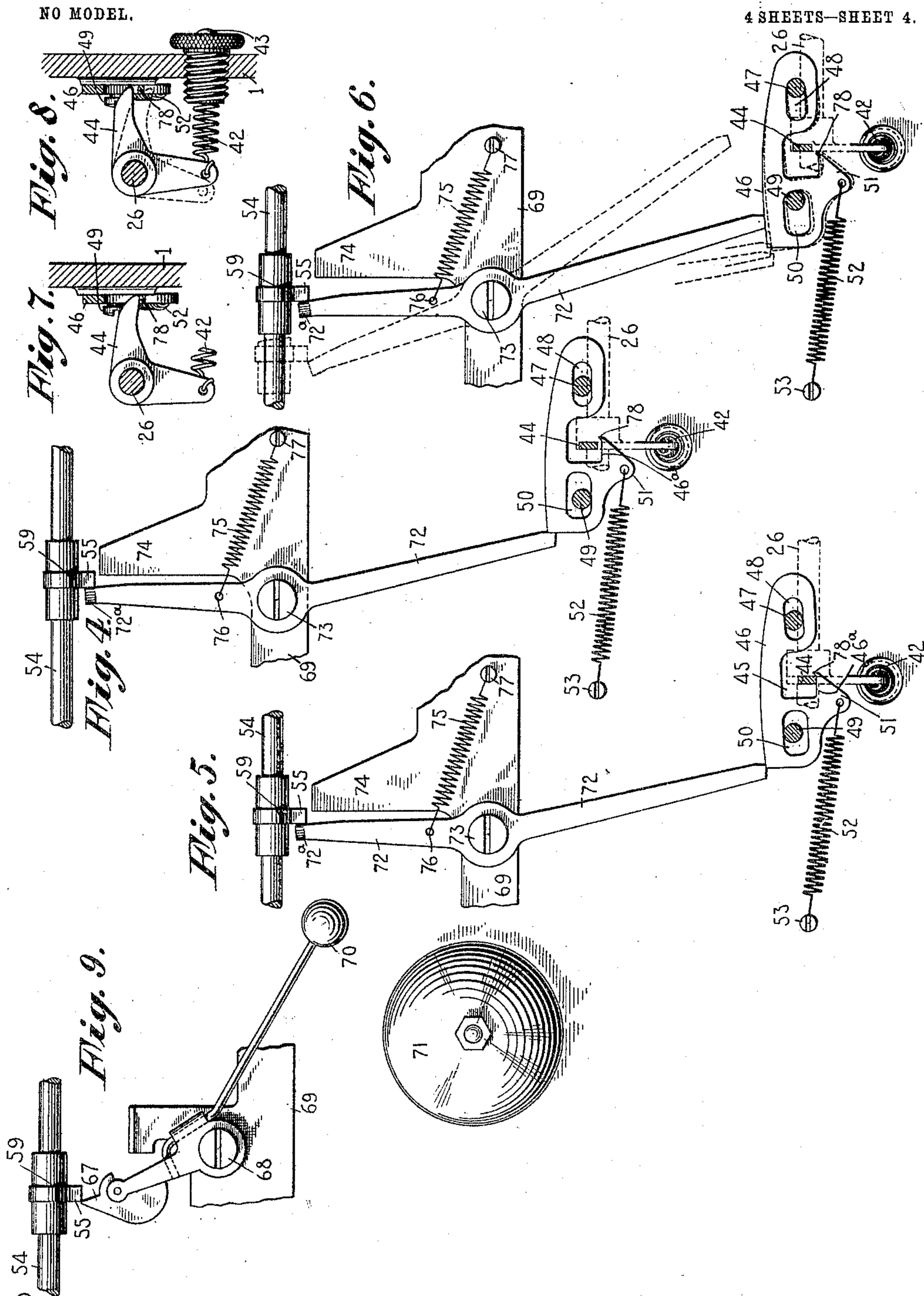
INVENTOR:

Herbert A. Carhart
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

HERBERT A. CARHART, OF SYRACUSE, NEW YORK, ASSIGNOR TO
ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 776,495, dated December 6, 1904.

Application filed July 27, 1903. Serial No. 167,140. (No model.)

To all whom it may concern:

Be it known that I, HERBERT A. CARHART, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to line-lock mechanism for type-writing machines; and the main object is to provide simple and efficient means for automatically actuating the line-lock mechanism when an end of a line is reached and for afterward automatically releasing said locking means, so that the operator may, if desired, continue to write along the same line.

To the above and other ends, which will hereinafter appear, my invention consists in the novel features of construction, arrangements of parts, and combinations of devices to be hereinafter described, and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference characters indicate corresponding parts in the various views, Figure 1 is a central vertical front-to-rear sectional view of one form of type-writing machine embodying my invention. Fig. 2 is a vertical transverse sectional view of the same, taken forward of the escapement-wheel and looking toward the rear of the machine. Fig. 3 is an enlarged detail fragmentary perspective view of a portion of the carriage, showing the line-lock stop carried thereby and the means for effecting an adjustment of said stop. Figs. 4, 5, and 6 are detail front elevations of a line-lock mechanism, the different views illustrating the parts in different positions. Fig. 7 is a detail side sectional elevation of a portion of the line-lock mechanism. Fig. 8 is a like view of the same, but showing the parts in different positions. Fig. 9 is a detail front elevation of the alarm mechanism, the view illustrating the positions of the parts when the alarm is about to be sounded.

While I have illustrated my invention as applied to a front-strike type-writing machine, it should be understood that it is applicable to other kinds or styles of type-writ-

ing machines and that various changes may be made without departing from the spirit of my invention.

The framing 1 of the machine supports a series of transverse horizontal rods 2, on which are pivotally mounted rows of bell-crank levers 3. The forwardly and upwardly extending arms of these levers are connected to key-stems 4, provided with finger-keys 5, and the upwardly and rearwardly extending arms of said bell-crank levers are connected to the forward ends of links 7, that are connected at their rear ends 8 to levers 9. Each of the levers 9 is bifurcated at 10 and fulcrumed on a knife-bearing 11, and said lever vibrates in a slot 12, so as to be guided in its fore-and-aft movement. Each of the levers 9 is likewise provided with a projection 13, that forms, with the rear curved edge of the lever, a recess in which the upper end of a link 14 is seated, the lower end of said link being connected to the hooked end 15 of a restoring-spring 16, connected at its forward end to a plate 17. The knife-bearings 11 and the slotted guides 12, which project therefrom, extend from side to side of the machine and are supported by the frame.

Each of the links 7 has an upwardly-extending arm 18, that is connected to one end of a link 19, the opposite end of which connects at 20 to the heel of a type-bar 21. These type-bars are segmentally arranged and supported in a segment 22, so as to move upwardly and rearwardly to the printing-point.

Each of the levers 9 has a rearwardly-extending portion 23, that bears against a universal bar 24, secured at its ends to forwardly-extending crank-arms 25, projecting from a rock-shaft 26, that is supported by screw-bearings 27, which project through lugs 27^a on the frame of the machine. On the rock-shaft 26 are feed-dogs 28, and a lug or abutment 28^a is formed on the feed-dog carrier to cooperate with a forwardly-projecting pin 29, which limits the movement of the feed-dogs and rock-shaft in one direction. An escapement-wheel 30 cooperates with the feed-dogs and is rigidly connected to a shaft 31, supported in suitable bearings on the frame of

the machine. On this shaft is loosely mounted a pinion 32, from which projects a forwardly-extending sleeve 33, with end ratchet or crown teeth, and said sleeve constitutes one member
 5 of a two-part clutch. The coöperating clutch-section 34 is splined upon the shaft 31 and is adapted to receive a longitudinal movement thereon against the tension of a spring 35, as will hereinafter more clearly appear. The
 10 pinion 32 meshes with a gear 36, that is formed integral with a spring-drum 37 and meshes with a rack, secured to the carriage 39, provided with a platen 40.

It will be understood from the foregoing
 15 description that a depression of any finger-key will produce a forward movement of the associated link 7, thereby moving the type-bar connected thereto to the printing position. Such movement likewise effects a forward
 20 movement of the upper portion of the associated lever 9, thereby elevating the transverse universal bar 24 and effecting a movement of the rock-shaft and feed-dogs. When pressure on the finger-key is released, the
 25 parts will be restored to their normal positions and a movement of the escapement-wheel will take place, which movement enables the pinion 32 and gear 36 under tension of the carriage-driving spring to effect a letter-space
 30 movement of the carriage.

Projecting downwardly from the rock-shaft 26 is an arm 41, to which one end of a contractile spring 42 is connected. The other end of this spring is connected to a suitable
 35 adjusting-screw 43 to vary the tension of the spring. This spring restores the feed-dogs, rock-shaft, and universal bar to their normal positions when pressure on a finger-key is released.

40 An arm or finger 44 projects rearwardly from the rock-shaft 26 and is preferably made integral with the depending arm 41, hereinbefore referred to. The arm or finger 44 projects into an opening 45 in a line-lock latch
 45 or device 46, that is mounted upon the rear cross-plate of the frame of the machine and is adapted to receive a sliding and pivotal movement. Thus a headed screw 47 takes into a threaded opening in the cross-plate of
 50 the frame of the machine, and the stem of said screw projects through an elongated slot or aperture 48 in the latch, said slot being substantially the width of the stem of the screw. A second headed screw 49 projects
 55 through an elongated opening 50 in the line-lock latch. It will be observed, however, that this opening 50 is considerably wider than the stem of the screw, so as to afford a vertical swinging movement to that end of the
 60 latch in which the aperture or opening 50 is situated, the latch vibrating around the stem of the screw 47 as a pivotal center. It will likewise be seen that this construction affords a sliding movement of the latch transversely
 65 of the machine. The latch is provided with

a depending portion 51, to which one end of a contractile spring 52 is connected, the other end of the spring being secured to a screw or pin 53, that projects from the frame of the machine, and by reason of the obliquity of
 70 the spring it tends not only to slide the latch from right to left, but also normally to maintain the lowest wall of the slot or aperture 50 in contact with the coöperating stop 49, as illustrated in Fig. 2, which shows the normal
 75 positions of the parts. It will be observed from an examination of Fig. 2 that the latch 46 offers no obstruction to the downward movement of the finger or arm 44 when the parts are in the normal positions, so that the line-
 80 lock latch normally does not interfere with the printing operation or free depression of a finger-key. This line-lock latch is, however, shifted to the locking position when the carriage or platen reaches the end of a line in a
 85 manner which will now be described.

The carriage 39 is provided at its forward portion with a rock-shaft 54, having a spline or groove therein, and a line-lock stop 55 is carried upon this shaft and has a feather which
 90 takes into the spline or groove, so that the stop may be moved longitudinally on the shaft and may also turn therewith. Extending rearwardly from the line-lock stop 55 is a tooth or projection 56, that is adapted to engage
 95 between the teeth 57 on a forwardly-projecting rack 58, which is carried by the carriage. The stop 55 likewise has a forwardly-projecting tailpiece 59, which is adapted to coöperate with a recess 60 in a bar 61, that extends
 100 transversely of the machine and is secured to the type-bar segment 22. The notched or apertured portion 60 of the bar 61 is centrally located and is coincident with a centrally-located fixed pointer 62, that coöperates with the carriage-scale 63, carried by
 105 the carriage. Projecting from near one end of the rock-shaft 54 is a crank-arm 64, and pivotally connected to this crank-arm is an actuating-arm 65, that slides or moves in a
 110 suitable bearing in an end plate of the carriage and which is provided with a finger-piece 66 for moving the arm 65 longitudinally to rock the shaft 54. A coiled returning-spring 66^a restores all of these parts to normal position
 115 when the pressure of the finger on the key is released. When the line-lock stop is brought opposite the notched portion of the bar 61, a depression of the fingers 66 will cause the teeth 56 on the stop to be disengaged from
 120 the teeth of the rack 58, and this same movement will cause the tail 59 on the stop to be projected into the aperture or depression 60 in the fixed bar 61, so that when the line-lock stop is thus released from the carriage it is
 125 by the same movement brought into engagement with a fixed portion of the machine and the carriage may be adjusted to the position where it is desired to relocate the line-stop—that is to say, if it be desired to adjust the
 130

line-lock stop to block the printing mechanism at, say, "70" on the scale the line-lock stop is disengaged from its rack 58 and engaged with the fixed bar 61, and simultaneously the carriage is released and moved to the point "70" on the carriage-scale, as indicated in Fig. 2. Then the finger-piece 66 is released and will cause a reengagement of the line-lock stop with its rack and a disengagement of it from the fixed bar 61, and the line-lock stop will in this manner be connected to the carriage and located at a point where it will effect an operation of the line-lock mechanism when the carriage arrives at the point "70" on the carriage-scale.

The line-lock stop 55 normally extends into the path of a bell-trip 67, pivoted at 68 to a yoke 69. The bell-trip carries a hammer 70, that is adapted to sound an alarm upon the bell 71, secured to the frame of the machine, before the stop 55 actuates the line-lock mechanism. After the line-lock stop 55 passes the bell-trip and has sounded the alarm it engages the upper end of a lever 72, which is pivoted to the yoke or bracket 69 at 73 and constitutes a cooperating line-lock stop. The lower end of this lever normally extends to the left of and in the path of the line-lock latch 46, (see Fig. 2,) whereas the upper end of the lever bears against an arm or abutment 74, that projects upwardly from the yoke 69 and prevents a movement of the upper end of the line-lock lever toward the right from the normal position. (Illustrated in Fig. 2.) This line-lock lever is restored to and normally maintained in the initial or normal position by a contractile spring 75, connected at one end, 76, to the lever and at its opposite end, 77, to the yoke 69. When the carriage reaches the end of a line, which is determined by the adjustment of the line-lock stop 55, it is brought into contact with the upper end of the lever 72 and causes the lower end thereof to be moved toward the right, thus shifting the line-lock latch from the position shown in Fig. 2 to that indicated in Fig. 4, for instance. It will be noted that at this time the abutment or stop 46^a on the latch is brought beneath the finger 44, which projects from the rock-shaft 26 of the escapement mechanism, and that a depression of any of the printing-keys at this time will cause the latch to receive a pivotal movement around the pin 47, and this movement will continue until the upper wall of the aperture 50 of the latch is brought into contact with the stop or pin 49 and is arrested. It should be understood that the depression of the finger-key mentioned to depress the left-hand end of the latch through the finger 44 is insufficient to complete a printing operation, such movement merely carrying a type-bar to a position corresponding substantially to that indicated in dotted lines in Fig. 1, and that therefore no printing operation can be effected and no complete de-

pression of a key-lever or a letter-feed movement of the carriage can take place after the line-lock latch is brought into the locking position until the latch is again restored to normal position. The operator is therefore notified or made aware of the fact that the end of the line has been reached should an attempt be made to actuate a finger-key after the parts have been locked. The very act, however, of attempting to actuate a subsequent printing-key or space-key is sufficient to automatically unlock the line-lock mechanism. Thus when the line-lock latch has been depressed in the manner described from the position shown in Fig. 4 and the parts assume the positions indicated in Fig. 5 the left-hand end of the line-lock latch is moved out of the path of the lower end of the line-lock lever 72, and the spring 52 would be effective to restore the latch to the normal position (shown in Fig. 2) if it were not for the fact that a slight spur or hook 78 at the terminal of the abutment 46^a engages the finger 44 and will not allow the return of the line-lock latch. When the operator releases the finger-key from pressure, however, the finger 44 will be elevated in the aperture 45 of the latch, thus releasing the spur and enabling the latch to be moved by the spring 52 toward the left to the position indicated in Fig. 6. It will be seen that at this time the lower end of the lever 72 is still maintained clear of the left-hand end of the latch, though it may bear upon the top of it. Nevertheless no obstruction is offered to the free movement of the upper end of the lever or stop 72 toward the left and no obstruction is offered to the feed movement of the carriage, so that it is free to receive a continued step-by-step feed movement to complete a word or insert a hyphen should the operator so desire. Should the line-lock stop 55 pass beyond the upper end of the lever 72, the spring 75 thereof will restore said lever to the normal position, (indicated in Fig. 2,) when the lower end of said lever will again be to the left of the line-lock latch. If, on the other hand, the line-lock stop 55 does not pass beyond the upper end of the lever, but only, say, to the dotted-line position shown in Fig. 6, then a movement of the carriage to the right will withdraw the stop 55 from engagement with the lever and it will be restored by its spring to the normal position. Thus it will be seen that the lever 72 and stop 55 constitute line-lock stops, that the movement of the swinging or movable stop 72 is blocked when the line-lock mechanism is actuated, and that the stop 72 is freed when pressure is exerted upon a finger-key to enable the stops to pass one another.

The yoke 69, hereinbefore referred to, is pivoted to the frame of the machine at 79, so that the yoke and the parts carried thereby may receive a fore-and-aft swinging move-

ment on the screw-pivots 79. The left-hand side of the upper end of the line-lock lever or stop 72 is beveled, as indicated at 72^a, so that in the event of the line-lock stop 55 passing to the left of the upper end of the lever 72 said stop will be brought into contact with the beveled portion of the lever during the return movement of the carriage to the right and will move the lever, with its frame or yoke 69 and the parts carried thereby, around the screw-pivots 79, thus deflecting the lever to one side and permitting a free movement of the carriage toward the right. After the stop has passed the beveled portion of the lever the lever, with its frame, will be restored to the normal position by gravity, the weight of the parts being sufficient to accomplish this purpose.

From an examination of Fig. 1 it will be seen that a link 80 is pivotally connected at its forward end 81 to the yoke or frame 69, whereas the rear end of this link is pivotally connected at 82 to a stud 83, that projects from a bar 84, extending from side to side of the machine and provided at its ends with depending hangers 85, that are pivoted to the frame of the machine at 86. A rock-shaft 87 is adapted to turn in bearings 88 on the carriage-frame, and this rock-shaft has a finger 89 near one end thereof, and located centrally of the machine is a second depending finger, 90, that is adapted to coöperate with the bar 84 at any point in the travel of the carriage. A plunger 91 is adapted to move in a bearing in an end plate of the carriage and is provided with a finger-piece 92, by which it may be actuated. The lower end of this plunger coöperates with the finger 89 to rock the shaft 87, and thus move the bar 84 rearwardly through the contact of the crank-arm or finger 90 therewith. The rearward movement of the bar 84 causes the frame 69 to swing on its pivots 79. An arm 93 projects downwardly from the frame 69 and has a yoke at its lower end which straddles the clutch-section 34 and bears against a flange 94, formed at its forward end, so as to disconnect the clutch-section 34 from its coöperating clutch-section 33 when the finger-piece 92 is depressed, thereby releasing the pinion 32 and the carriage from the escapement devices, so that the carriage is free to be moved in either direction.

From the foregoing description it will be seen that I have provided simple and efficient means for locking the printing instrumentalities against printing movement and the escapement mechanism against actuation when a predetermined end of a line is reached and for then automatically releasing the locking means, so that a continued relative feed movement between the platen and printing instrumentalities may be afforded and so that additional printing may be effected. It will also be seen that after the printing-keys are locked the act of depressing or exerting pressure on any such key with a view to printing will in

itself automatically release the line-lock mechanism, although no printing can be done at this stroke or time; but if the key be again depressed additional letters may be printed along the same line from the point where the parts were locked against actuation.

The "normal" end of a line is that which is determined by the positioning of the stop 55 and at which point the line-lock mechanism is actuated.

Various features herein described, and shown in the accompanying drawings and not specifically claimed herein, form no part of my invention and are not claimed by me, but are the invention of Alexander T. Brown.

It should be understood that any suitable mechanism may be employed for effecting an adjustment of the line-lock stop and that the specific means herein shown and described for effecting such adjustment does not constitute a part of my invention, but is the invention of the said Alexander T. Brown.

I do not wish to be limited to the precise construction or arrangement of means herein shown and described for carrying out my invention, for obviously the same may be greatly varied without departing from the gist of my invention. In different styles or types of machines the invention will necessarily be embodied in different forms of mechanism.

One advantage of my construction over previously-used line-locking mechanisms resides in the fact that there is no special unlocking-key for releasing the line-lock to enable the printing to be continued. In such prior mechanisms the unlocking-key has usually been located on the top plate or some other portion of the framework of the machine and requires the hand of the operator to leave the keyboard to reach and actuate such key. This is not only disconcerting, but it is time-consuming and delays the work. In my machine every printing-key in the keyboard is also a line-lock unlocking-key, and for this reason no movement of the hand away from the particular key desired to be struck is required. For example, if in writing the word "patent" the line should, unknown to the operator, be automatically locked after the printing of the letter "a" and the operator then should strike the key "t" for the purpose of printing that letter he would discover that said key would not go all the way down, and thus be notified that the line had been locked; but in such case instead of removing his hand to reach and actuate a special unlocking-key, as heretofore, he would simply have to repeat the stroke on the "t" key, and at this time the type will reach the paper and leave its impression thereon, for it will be understood that at the first stroke not only was the operator notified that the line had been locked, but by the same stroke the operator had automatically unlocked the mechanism

and prepared the way for printing upon a second depression of the same key. Of course after the line has been locked it may be unlocked by striking any key, and then that or
 5 any other key may be depressed to print any desired character. The space-key 5^a may also be used for unlocking and then for spacing, since said key is connected by a bell-crank 3^a and link 7^a and lever, such as 9, to the uni-
 10 versal bar, the same as the printing-keys.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination with the printing-keys thereof, of line-
 15 lock mechanism releasable by said keys.

2. In a type-writing machine having a line-lock mechanism, means controlled by said printing-keys for releasing the line-lock mechanism.

20 3. In a type-writing machine, the combination of a line-lock mechanism, a printing-key, and unlocking means connected with the printing-key, whereby after the line is locked the first stroke on the printing-key unlocks the
 25 mechanism and the next stroke on said key enables it to cause a type impression.

4. In a type-writing machine, the combination with a line-lock mechanism and a printing-key, of means for locking said key and
 30 means for unlocking said key and operable thereby.

5. In a type-writing machine, the combination of a platen, printing instrumentalities, and means for automatically locking the printing
 35 instrumentalities against printing when an end of a line is reached and for automatically releasing said locking means so that a continued relative feed movement between the platen and printing instrumentalities may be
 40 afforded and so that additional printing may be effected.

6. In a type-writing machine, the combination of a carriage, printing instrumentalities, means for automatically locking the printing
 45 instrumentalities against printing when an end of a line is reached, and means for automatically unlocking said locking means to enable a further feed movement of the carriage after it has been locked.

50 7. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, means for automatically locking the printing instrumentalities against printing when an end of a line is reached, and
 55 means controlled by the finger-keys for automatically unlocking said locking means.

8. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, means for automatically
 60 locking the printing-keys against complete depression when the carriage reaches the end of a line, and means controlled by the printing-keys for automatically releasing the locking means.

65 9. In a type-writing machine, the combina-

tion of a carriage, a line-lock stop carried by the carriage, a second line-lock stop, printing instrumentalities, finger-keys therefor, means for automatically locking the printing instrumentalities against printing when the stops
 70 are brought into contact and for automatically releasing said printing instrumentalities when said finger-keys are actuated.

10. In a type-writing machine, the combination of a carriage, a line-lock stop carried by
 75 the carriage, a second line-lock stop, means for affording a relative adjustment of said stops, printing instrumentalities, finger-keys therefor, means for automatically locking the printing instrumentalities against printing
 80 when the stops are brought into contact and for automatically releasing said printing instrumentalities when finger-keys are actuated.

11. In a type-writing machine, the combination of a carriage, escapement mechanism
 85 therefor, printing instrumentalities, finger-keys therefor, and means for automatically locking the escapement mechanism when an end of a line is reached and for automatically releasing the locked escapement mechanism
 90 when pressure is exerted on a printing-key.

12. In a type-writing machine, the combination of a carriage, a line-lock stop carried thereby, a cooperating line-lock stop, one of
 95 said stops being adjustable, printing instrumentalities, finger-keys therefor, and means cooperating with one of said stops for automatically locking the printing instrumentalities against printing operations when the said
 100 stops are brought into cooperative engagement and for automatically releasing the locked printing instrumentalities when pressure is exerted upon a printing-key.

13. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a line-lock stop, a
 105 cooperating movable line-lock stop, and means cooperating with said movable stop to automatically block its movement when the stops are brought into cooperative engagement and
 110 to automatically free the blocked stop when pressure is exerted upon a finger-key.

14. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a line-lock stop, a
 115 cooperating movable line-lock stop, means cooperating with said movable stop to automatically block its movement when the stops are brought into cooperative engagement and to
 120 automatically free the blocked stop when pressure is exerted upon a finger-key, and means for affording an adjustment of one of said stops to determine at what point in a line of writing the movable stop is to be blocked.

15. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a line-lock stop, a
 125 cooperating movable line-lock stop, means cooperating with said movable stop to automatically block its movement when the stops are
 130

brought into coöperative engagement and to automatically free the blocked stop when pressure is exerted upon a finger-key, and means for automatically locking the printing instrumentalities against printing movement when the movable stop is blocked.

16. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a line-lock stop, a coöperating movable line-lock stop, means coöperating with said movable stop to automatically block its movement when the stops are brought into coöperative engagement and to automatically free the blocked stop when pressure is exerted upon a finger-key, and means for automatically locking the printing instrumentalities against printing movement when the movable stop is blocked and for automatically freeing the printing instrumentalities when pressure is exerted upon a finger-key.

17. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, and a line-lock device that is movable into locking position at a predetermined point in the carriage travel and is releasable by pressure on any of said printing-keys.

18. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, and a line-lock latch that is automatically moved into locking position, to prevent a printing movement of any of said printing instrumentalities, and is automatically removed from such locking position by pressure on any of said printing-keys.

19. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, and a line-lock latch that is moved in one direction by the carriage to lock the printing instrumentalities against printing movement and is moved in another direction by said printing-keys to release the printing instrumentalities.

20. In a type-writing machine, the combination of a carriage, a line-lock stop carried by the carriage, a coöperating line-lock stop that is moved by said carriage-stop and effects a locking of the printing instrumentalities, and means controlled by the said printing-keys for automatically releasing the printing instrumentalities and for enabling a movement of one of said stops past the other.

21. In a type-writing machine, the combination of a carriage, a line-lock stop carried by the carriage, a coöperating line-lock stop that is moved by said carriage-stop and effects a locking of the printing instrumentalities, means for enabling an adjustment of one of said stops to determine at what point in the travel of the carriage said printing instrumentalities shall be locked, and means controlled by the said finger-keys for automatically releasing the printing instrumentalities and for enabling a movement of one of said stops past the other.

22. In a type-writing machine, the combination of a carriage, escapement mechanism for said carriage, printing instrumentalities, finger-keys therefor, and a line-lock latch that is moved into coöperative engagement with the escapement mechanism by the carriage and is released by pressure exerted upon any of said printing-keys.

23. In a type-writing machine, the combination of a carriage, escapement mechanism for said carriage, printing instrumentalities, finger-keys therefor, and a line-lock latch that is automatically moved in one direction and into coöperative engagement with the escapement mechanism by the carriage and is automatically moved in another direction and released by pressure exerted upon any of said printing-keys.

24. In a type-writing machine, the combination of a carriage, escapement mechanism for said carriage, printing instrumentalities, finger-keys therefor, a line-lock latch that is mounted to slide and to swing, means actuated by the carriage for sliding said latch and locking the printing instrumentalities against printing, and means controlled by said finger-keys for effecting a pivotal movement of said latch and for releasing the printing instrumentalities.

25. In a type-writing machine, the combination of a carriage, escapement mechanism for said carriage, printing instrumentalities, finger-keys therefor, an independent spring-restored line-lock latch mounted to slide and to swing on a fixed portion of the machine, means controlled by the carriage for sliding said latch and moving it into operative engagement with said escapement mechanism, and means controlled by said finger-keys for effecting a pivotal movement of the latch and a releasement of the escapement mechanism from said locking engagement.

26. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a rock-shaft, escapement mechanism controlled by said rock-shaft, a latch for locking said rock-shaft, means controlled by the movement of the carriage for moving the latch into locking engagement, and means controlled by the said finger-keys for releasing the latch.

27. In a type-writing machine, the combination of a carriage, a line-lock stop carried thereby, printing instrumentalities, finger-keys therefor, a lever which is actuated by said line-lock stop, a line-lock latch that is moved into locking position by said lever, and means controlled by said finger-keys for releasing said latch.

28. In a type-writing machine, the combination of a carriage, a line-lock stop carried thereby, printing instrumentalities, finger-keys therefor, a lever which is actuated by said line-lock stop, a line-lock latch that is moved into locking position by said lever,

and means controlled by said keys for releasing said latch and enabling a free movement of the line-lock stop past said lever.

29. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, carriage-feed mechanism, a line-lock that coöperates with said carriage-feed mechanism, means controlled by the movement of the carriage for moving the line-lock to operative position, and means controlled by the said finger-keys for automatically releasing the line-lock and enabling a continued feed movement of the carriage.

30. In a type-writing machine, the combination of a carriage, an adjustable line-lock stop carried by the carriage, printing instrumentalities, finger-keys therefor, carriage-feed mechanism, a spring-restored line-lock device that coöperates with said carriage-feed mechanism, spring-restored means controlled by the movement of the carriage for moving the line-lock device to operative position, and means controlled by the said finger-keys for automatically releasing the line-lock device and enabling a continued feed movement of the carriage, whereby after the feed mechanism is locked and pressure is once exerted upon a finger-key the line-lock device will be automatically released and the carriage enabled to continue its feed movement.

31. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, an escapement device, an arm or finger that moves with said escapement device, a line-lock member adapted to be moved into the path of said arm or finger by the movement of the carriage and adapted to be moved by the said printing-keys out of the path of said arm or finger.

32. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a rock-shaft, an escapement device controlled by said rock-shaft, an arm or finger projecting from said rock-shaft, a line-lock member which is moved into the path of said arm or finger by the movement of the carriage, and which is moved out of the path of said arm or finger on the actuation of a printing-key.

33. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a rock-shaft, an escapement device controlled by said rock-shaft, an arm or finger projecting from said rock-shaft, a line-lock member adapted to be automatically moved in one direction into the path of said arm or finger by the movement of the carriage and to be moved in another direction and out of the path of said arm or finger on the actuation of any of said finger-keys.

34. In a type-writing machine, the combination of a carriage, a line-lock stop carried thereby, printing instrumentalities, finger-keys therefor, a rock-shaft, an escapement device controlled by said shaft, a crank arm

or finger projecting from said shaft, a line-lock latch that coöperates with said finger to lock it and the escapement device, a lever that is moved by the carriage and coöperates with the line-lock latch to move it to the operative position, and means for releasing the line-lock latch when pressure is applied to any of said finger-keys.

35. In a type-writing machine, the combination of a carriage, a line-lock stop carried thereby, printing instrumentalities, finger-keys therefor, a rock-shaft, an escapement device carried by said shaft, a crank arm or finger secured to said shaft, a line-lock latch that coöperates with said finger to lock it and the escapement device, a lever that is moved by the carriage and coöperates with the line-lock latch to automatically move it to the operative or locking position, and means for releasing the line-lock latch and enabling a movement of the line-lock stop past said lever when pressure is applied to any of said finger-keys.

36. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a line-lock stop carried by the carriage, a line-locking device, a lever that coöperates at one end with the line-lock stop and at its other end with said locking device to move it in one direction, and means controlled by the said finger-keys for moving the locking device out of the path of said lever.

37. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a line-lock-actuating device that is moved by the carriage, a line-lock device that is moved to the operative position by said line-lock-actuating device, and means controlled by said finger-keys for moving the line-lock device out of the path of its actuating device and enabling it to move to the releasing position.

38. In a type-writing machine, the combination of a carriage, printing instrumentalities, finger-keys therefor, a line-lock-actuating device that is moved by the carriage and is adapted to move into and out of the path of travel of the carriage, a line-lock device that is moved to the operative position by said line-lock-actuating device, and means controlled by said finger-keys for moving the line-lock device out of the path of its actuating device and enabling it to move to the releasing position and also enabling the said actuating device to be moved out of the path of the carriage.

39. In a type-writing machine, the combination with the carriage, the carriage-feeding mechanism and the printing mechanism, of a carriage contact or stop, a lever normally in the path of said contact or stop, a locking device normally in the path of vibration of said lever, and an arm or finger connected with the carriage-feed mechanism and normally out of operative relation to said locking device; the combination and arrangement being such that

when the carriage reaches a predetermined point in the line the said lever is vibrated by the said carriage contact or stop and said locking device is moved by the said lever into a position to prevent the operation of said arm or finger and hence of the carriage-feed mechanism and of the printing mechanism.

40. In a type-writing machine, the combination with the carriage, the carriage-feeding mechanism and the printing mechanism, of a carriage contact or stop, a lever normally in the path of said contact or stop, a sliding and swinging locking device normally in the path of vibration of said lever, and an arm or finger connected with the carriage-feed mechanism and actuable by all of the printing-keys; the combination and arrangement being such that when the carriage arrives at a predetermined point in the line said lever is vibrated, the said locking device is slid into operative relation with said arm or finger, and the said carriage-feed mechanism and printing mechanism are rendered temporarily inoperative; and the said combination and arrangement being also such that when any of the printing-keys is struck said arm or finger causes a swinging movement of said locking device and a release of the said lever, so that thereafter the carriage may continue its feed movement and additional printing may be done upon the line.

41. In a type-writing machine, the combination with the carriage, the carriage-feed mechanism and printing mechanism, of a carriage contact or stop, a lever adapted to be vibrated thereby, a spring for returning said lever, a back-stop for said lever, a slotted latch or locking device adapted both to slide and to swing and having a hook or projection and also a returning-spring, an arm or finger connected with the carriage-feed mechanism and

with the finger-keys of the printing mechanism and adapted to be arrested by the said latch or locking device and also adapted to swing said latch or locking device when any printing-key is actuated so as to release said lever and enable a further movement of said carriage and further printing on the same line.

42. In a type-writing machine and line-lock mechanism, the combination with the carriage, the carriage-feed mechanism and the printing mechanism, of the contact 55, the spring-retained lever 72, the spring-retained latch 46 having slots 48, 50, the hook 46^a and the spur 70, the guide-pins 47 and 49, and the vibratory arm or finger 44 connected with the carriage-feed mechanism and the printing mechanism.

43. In a type-writing machine, the combination with the carriage, the carriage-feed mechanism and the printing mechanism, of a line-lock mechanism adapted to arrest the printing mechanism at the end of a predetermined line, and means operable by any of the printing-keys for releasing the printing mechanism for further printing on the same line.

44. In a type-writing machine, the combination with the carriage, the carriage-feed mechanism and the printing mechanism, of a line-lock mechanism, the usual carriage spacing-key, and means controlled by said spacing-key for releasing the printing mechanism after it has been arrested at the end of a predetermined line.

Signed at Syracuse, in the county of Onondaga and State of New York, this 23d day of July, A. D. 1903.

HERBERT A. CARHART.

Witnesses:

C. E. TOMLINSON,
C. F. PARSONS.