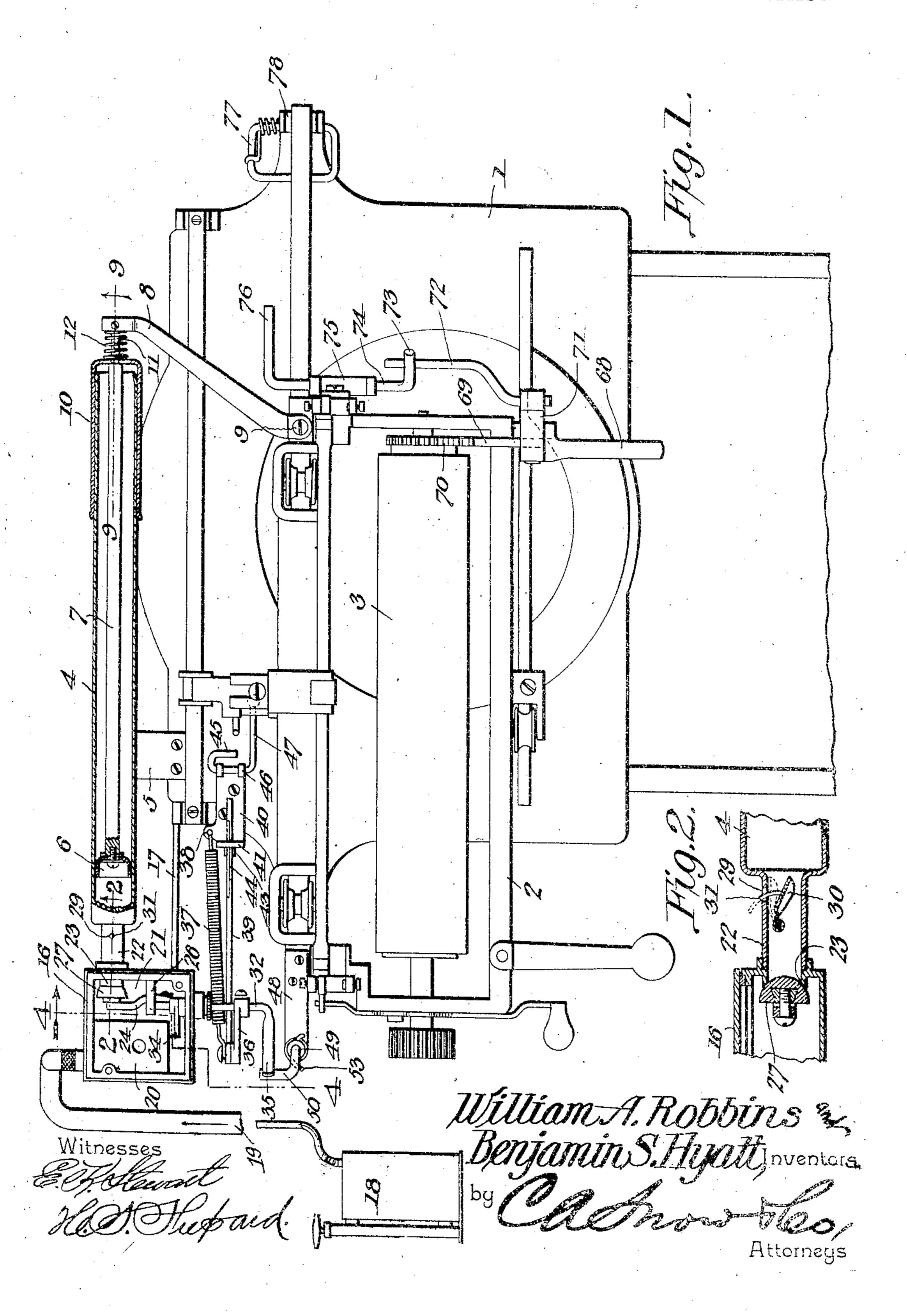
W. A. ROBBINS & B. S. HYATT.

TYPE WRITING MACHINE.

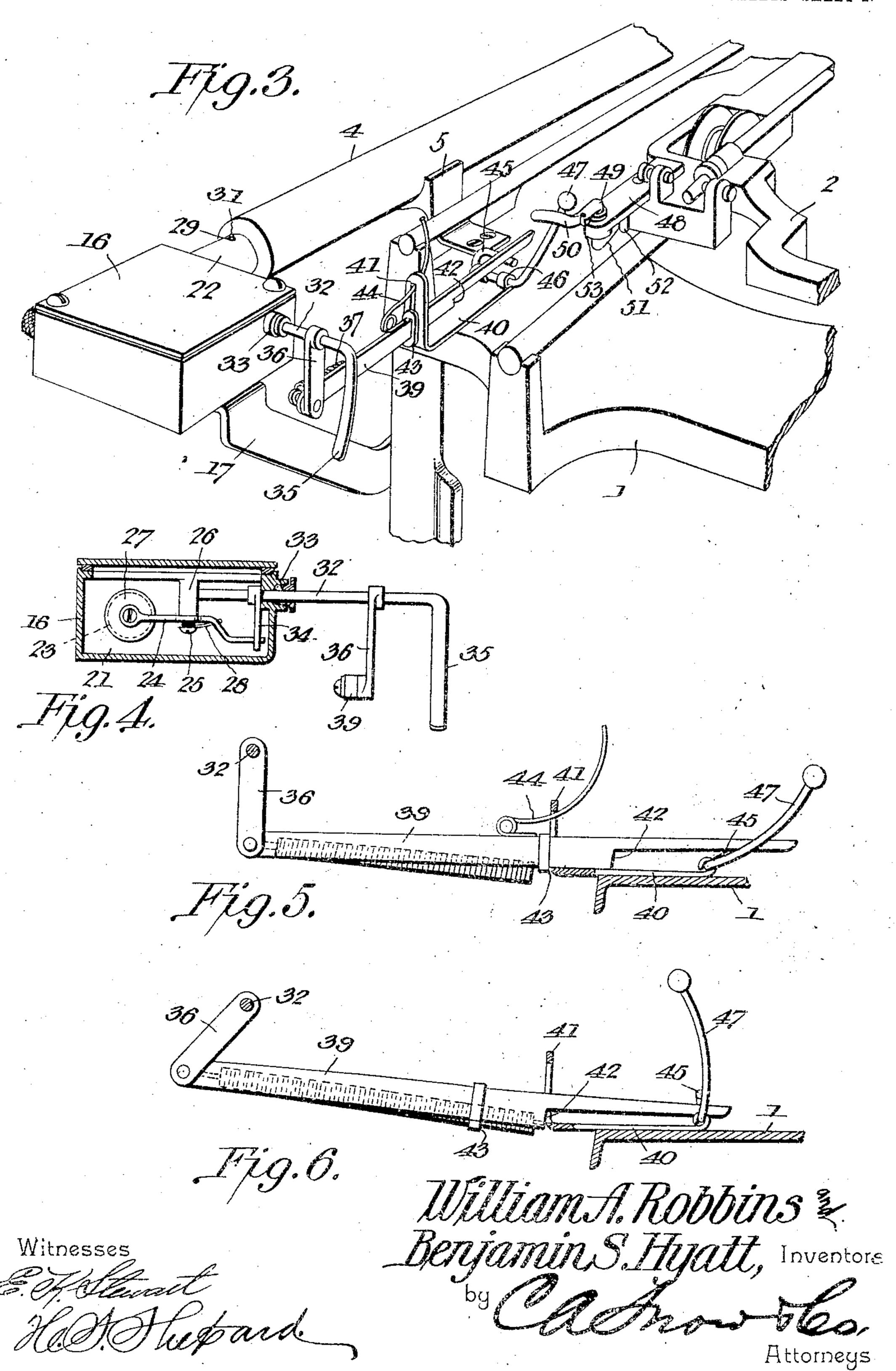
APPLICATION FILED SEPT. 27, 1904.

3 SHEETS-SHEET 1.



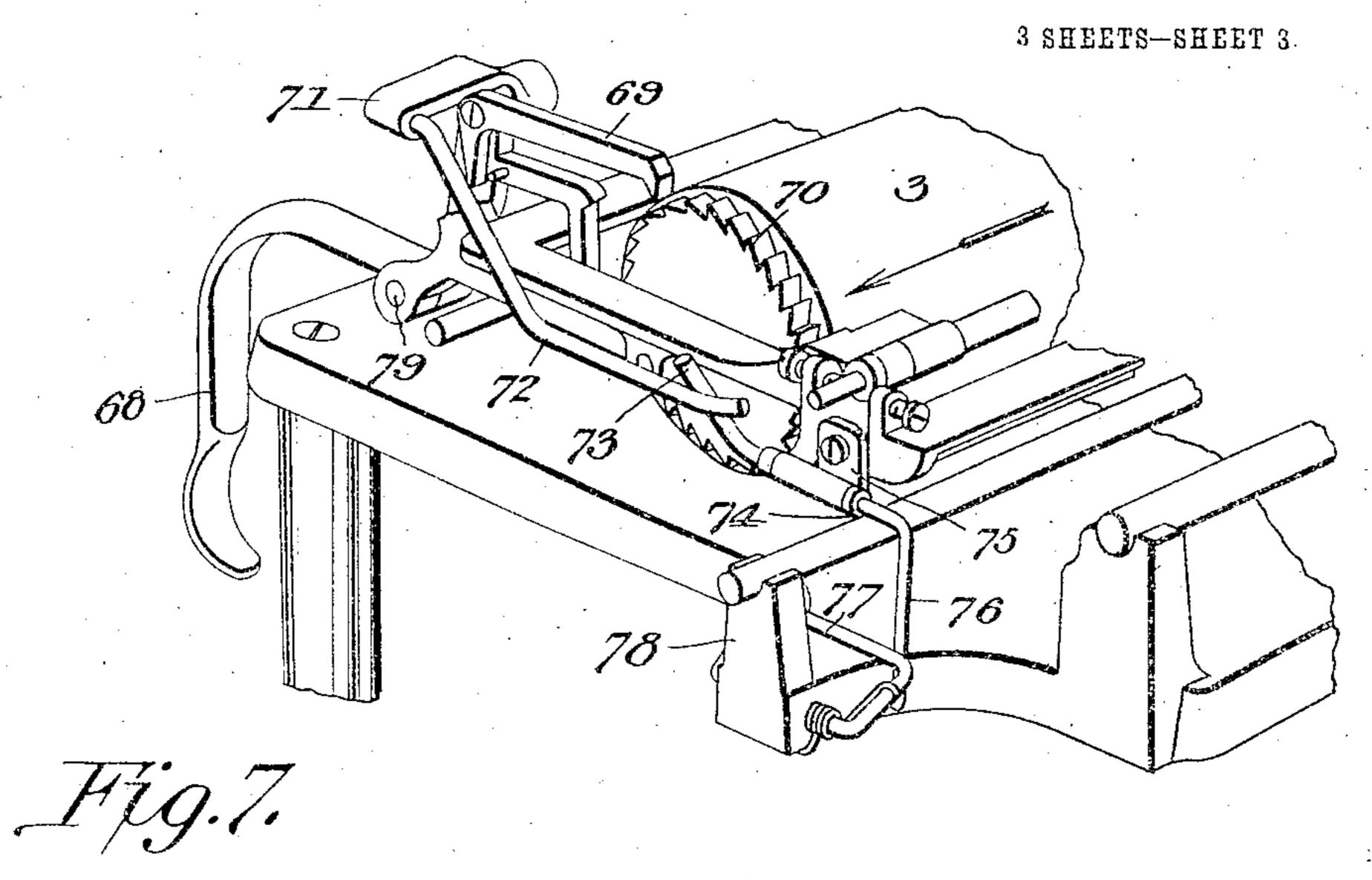
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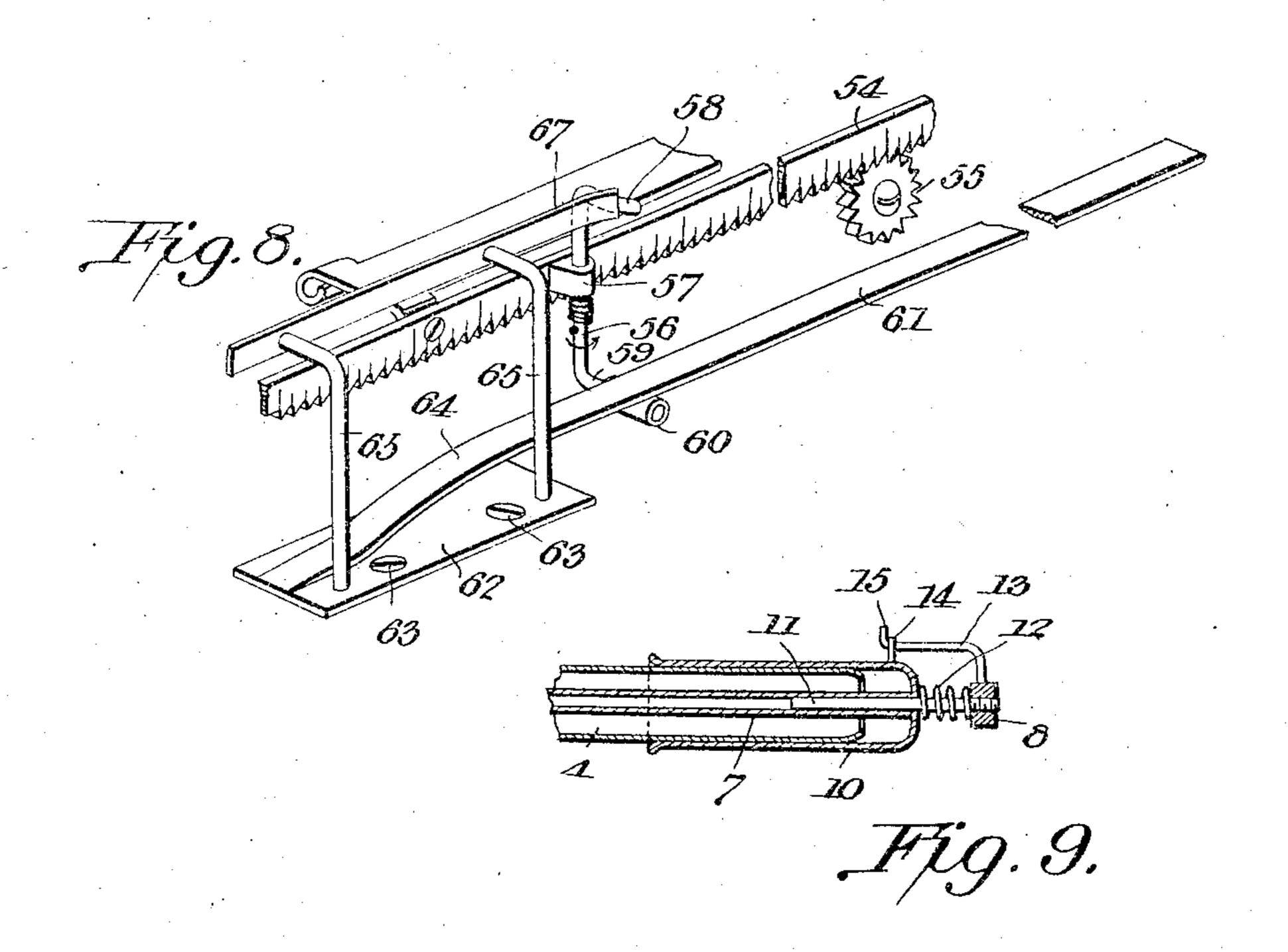
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W. A. ROBBINS & B. S. HYATT. TYPE WRITING MACHINE.

APPLICATION FILED SEPT. 27, 1904.





Witnesses
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Mathematical

Mathematical

William A. Robbins?

Benjamin S. Hyatt Inventors.

by Calmon Heleo,

UNITED STATES PATENT OFFICE.

WILLIAM A. ROBBINS AND BENJAMIN S. HYATT, OF VINITA, INDIAN TERRITORY.

TYPE-WRITING MACHINE.

No. 814,623.

Specification of Letters Patent.

Patented March 6, 1806.

Application filed September 27, 1904. Serial No. 226,181.

To all whom it may concern:

Be it known that we, William A. Robbins and Benjamin S. Hyatt, citizens of the United States, residing at Vinita, Cherokee 5 Nation, Indian Territory, have invented a new and useful Type-Writing Machine, of which the following is a specification.

This invention relates to type-writing machines, and has for its object to effect an automatic return of the carriage at the completion of its forward movement, thereby to obviate the manual return of the carriage and to make possible increased speed in the manipulation of the machine. In this connection it is proposed to employ pneumatic pressure for returning the carriage and to effect an automatic tripping of the controlling-valve at the forward limit of the carriage, so as to set the pneumatic return mechanism in operation, independent of any manual controlling thereof.

While the invention is capable of use in connection with any of the type-writing machines now in general use, it has been especially designed for application to the Remington machine and is also designed to provide for raising the escapement rack-bar from the escapement-wheel during the return movement of the carriage, so as to avoid friction between and breakage of said parts.

A still further object of the invention is to provide for automatically feeding or rotating the platen at the completion of the return movement of the carriage, wherefore it will be understood that the carriage and platen need no attention whatsoever, as they are automatically controlled in order that the hands of the operator may be entirely free for manipulation of the keys only.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a plan view of a Remington type-writing machine equipped with the controlling mechan-

ism of the present invention, the top of the pressure-chamber being removed to disclose 55 the controlling-valve of the pneumatic apparatus. Fig. 2 is a detail sectional view on the line 2 2 of Fig. 1. Fig. 3 is a fragmentary perspective view looking at one end of the type-writing machine with the carriage at 60 its rear limit. Fig. 4 is an enlarged detail sectional view on the line 4 4 of Fig. 1. Figs. 5 and 6 are detail elevations of the device for limiting the movement of the valve-actuating means. Fig. 7 is a fragmentary perspec- 65 tive view illustrating the means for automatically feeding the platen. Fig. 8 is a detail perspective view illustrating the means for automatically disengaging the escapement rackbar from the escapement-wheel. Fig. 9 is a 70 detail sectional view on the line 9 9 of Fig. 1.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

As hereinbefore indicated, the present invention is applicable to various forms of type-writing machines, the present disclosure being in connection with a Remington machine, a portion of the frame of which has been indicated at 1 in the accompanying 80 drawings, while 2 designates the ordinary form of carriage mounted to travel back and forth across the top of the frame and having the platen-roller 3, all of which parts, together with others shown, but not described, 85 are common and well known and form no part of the present impresent in the second seco

part of the present improvements. In carrying out the present invention a cylinder 4 is supported in rear and parallel with the top of the frame of the machine by means 90 of one or more brackets, one of which has been shown at 5. Within this cylinder there is a piston 6, having a piston-rod 7, projected at what will be termed the "rear" end of the cylinder, which is adjacent the right-handend 95 of the machine. The outer or rear end of the pisten-rod is provided with a bracket-arm 8, which is rigidly connected to the rear end of the carriage, as indicated at 9, whereby the piston and its rod are carried by and moved 100 with the carriage. The piston-rod 7 is tubular and carries upon its rear projected end a cap or sleeve 10, which is open at its forward end, so as to receive and telescope upon the rear end of the cylinder 4. The bracket 8 is 105 provided with a guide-pin 11, which enters

the rear open end of the piston-rod, and a helical spring 12 embraces this pin and bears in opposite directions against the bracket-arm 8 and the back of the sleeve 10. A limiting 5 arm or rod 13 rises from the outer end of the bracket 8 and extends forwardly, so as to overlap the sleeve 10, with its forward end passing loosely through a guide-loop 14 and having its forward end projected laterally to oro form a stop-shoulder 15, against which the guide 14 is designed to engage and limit the forward movement of the sleeve 10 under the pressure of the spring 12. The purpose of the spring 12 is to take up the jar upon the 15 piston when the carriage stops at the limit of

its rearward movement.

At the front of the cylinder 4 is a pressurechamber 16, supported upon a suitable adjacent portion of the frame of the machine by 20 means of a bracket 17 and in communication with a reservoir or supply-tank 18 by means of a suitable pipe connection 19. The interior of the pressure-chamber is divided into two compartments, (indicated at 20 and 21,) 35 the compartment 20 containing a suitable regulating-valve to maintain a constant pressure within the chamber 21 less than that contained within the reservoir or supplytank. The compartment 21 of the pressure-30 chamber 16 is in communication with the front end of the cylinder 4 by means of a pipe or passage 22 and has a valve-seat or port 23 within the compartment and at the forward end of the passage 22. Within the compart-35 ment 21 is a substantially horizontal lever 24, fulcrumed intermediate of its ends, as at 25, upon a bracket 26, projected from one of the walls of the compartment, with its outer end provided with a substantially semispher-40 ical valve 27, normally closing the port or valve-seat 23, there being a suitable spring 28 to yieldably maintain the valve closed. In the passage 22 there is a vent port or opening 29, which is controlled by a flap-valve 30, 15 having a guide projection 31 working through the port. This valve is arranged to open when the piston is moved forwardly with the carriage, so as to permit of the escape of air from the cylinder, and thereby not interfere 50 with the brward movement of the piston and the carriage; but said valve is closed under the action of the air entering from the pressure-chamber 16 into the cylinder in order that all of the force of the compressed air 55 may be directed against the piston.

For controlling the pivotal valve-stem 24 there is provided a substantially horizontal controlling-shaft 32, which pierces the pres-' sure-compartment 21 above and in substanso tial parallelism with the valve-stem 24, the inner end of the shaft being journaled in the bracket 26 with its intermediate portion passing through a suitable stuffing-box 33 in the wall of the chamber. A tappet crank-arm 34. 65 is carried by the shaft 32 within the pressure-

chamber and in front of the free end of the valve-stem 24 and capable of engagement therewith to swing the valve 27 away from its seat, and thereby establish communication from the pressure-chamber to the cylinder. 70 At the outer end of the shaft 32 there is a pendent crank-arm 35, and between the arm 35 and the pressure-chamber is another crank-arm 36, depending from the shaft, with a spring 37 connected to the lower end of the 75 arm and to a fixed portion of the frame of the machine, as indicated at 38, thereby to yieldably hold the crank trip-arm 35 of the shaft at one limit with the tappet-arm 34 close to or in engagement with the swinging valve- 80 stem 24. The spring-actuated movement of the shaft 32 is limited by means of a plungerrod 39, pivotally connected at the lower end of the crank-arm 36 and extending forwardly therefrom and working across the ad- 85 jacent top portion of the frame of the machine, as clearly indicated in Figs. 3, 5, and 6 of the drawings. A bracket 40 is rigidly secured upon the top of the frame and is projected in advance thereof, with its projected co end provided with an upstanding slotted projection or post 41, through which the rod 39 is designed to work. The under side of this rod is provided with a pair of stop-shoulders 42 and 43, designed for alternate engagement 95 with the bracket 40 to limit the spring-actuated movement of the shaft 32. A bowed spring 44 is carried by the top of the rod and works through the slot of the post 41, so as to bear against the upper end wall of the slot, roc thereby to yieldably hold the bar down against the bracket, so as to insure the engagement of one or the other of the shoulders. 42 and 43 with the bracket. To maintain the bar 39 in position for one or the other of 105 the shoulders 42 and 43 to engage the bracket, there is a slotted or link-shaped keeper 45 disposed transversely across the rear end of the bracket 40 and pivoted, as at 46, thereon to swing vertically in the direction of 110 movement of the bar and provided at one end with a lever 47, directed upwardly above the carriage of the machine, whereby the keeper. 45 may be swung from one limit to the opposite limit. In the position of the keeper as 115 shown in Fig. 5, with the bar 39 working. across the top thereof, the bar is free to move vertically against the resistance of the spring 44, thereby to permit of the shoulder 42 passing the front of the bracket 40 until the bar 120 is stopped by the shoulder 43 engaging the bracket, whereby the bar 39 has its greatest spring-actuating movement. By manual manipulation of the crank-arm 35 of the shaft 32 the bar 39 may be drawn forwardly 125 until its free end passes the keeper 45, whereupon the handle 47 may be swung forwardly, so as to elevate the slotted keeper for the reception of the free end of the bar, whereby said free end will be held down and the other 130

shoulder 42 will engage the bracket, and thereby limit the spring-actuating movement of the bar 39 and the shaft 32.

To provide for automatically opening the 5 valve 27 by the carriage of the machine, there is provided a trip device, as best shown in Fig. 3 of the drawings, comprising a bracket 48, rigidly connected to the left-hand end of the carriage, at the back thereof, and carryro ing an upright rocking pin or shaft 49, having a crank-arm 50 upon its upper end and a crank-arm 51 upon its lower end, the arm 50 being extended rearwardly and in position to engage the crank-arm 35 of the shaft 32 and 15 pass beneath the latter, as shown in Fig. 1 of the drawings, so as to rock the shaft against the influence of the spring 37, and thereby swing the tappet-arm 34 away from the swinging valve-stem 24 until the trip-arm 50 20 escapes from the free end of the crank-arm 35, whereupon the spring 37 will operate to return the shaft 32 to its normal position, which will result in the tappet-arm 34 striking the swinging valve-stem 24 to open the valve 27, and thereby admit air under pressure into the cylinder 4 against the plunger 6 to automatically return the carriage to its righthand limit by reason of the movement of the plunger. When the trip-arm 50 engages the 30 crank-arm 35, it is held against displacement by means of a stop projection 52, pendent from the bracket 48 and engaging the lower crank-arm 51. After the arm 50 disengages the arm 35 and reengages the same upon its 35 opposite side during the return movement of the carriage the arm 50 will wipe past the crank 35 and when disengaged therefrom will be returned to its normal position under the influence of the spring 53, which is coiled

40 about the pivoted portion 49 of the trip. It will here be explained that the bar 39 is originally set to have its front shoulder 42 contact with the stop 40, and after the apparatus has been in use for some time and the 45 pressure in the tank 18 reduced the bar 39 is set to have its shoulder 43 engage the stop 40, so as to obtain a greater movement of the rod 39 and a comparatively greater movement for the tappet-arm 34, whereby said arm 50 strikes the pivotal valve-stem 24 with greater momentum, which opens the port between the case 16 and the cylinder 4 to a greater extent and for a greater length of time in order that the pressure upon the piston 6 may

increased, so as to make up for the reducof pressure in the supply-tank 18.

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the carriage out of operation during the return | the right of the lever, with an arm 72 carried movement of the carriage under the influence by the bracket and extended rearwardly 60 of the pneumatic carriage-operating mechanism, and this feature is carried out as illustrated in Figs. 8 and 9 of the drawings, wherein the reference character 54 designates the vertically-shiftable escapement rack-bar normally | 75, secured to the rear portion of the rightin engagement with the upper peripheral por- hand end of the frame of the machine. A 130

tion of the idle escapement ratchet-wheel 55. Ordinarily the escapement-bar 54 is manually shifted out of engagement with the escapement-wheel, and in providing for the automatic disengagement of the bar a trip de- 70 vice is mounted upon the bar, consisting of an upright spring-pressed post or pin 56, mounted in a suitable bearing 57 upon the front side of the rack-bar with its upper end terminating in a crank-arm 58, projected forwardly, and 75 its lower end terminating in a forwardly-projected crank-arm 59, provided with an antifriction-roller 60. In front of and below the rack-bar 54 there is provided a shift rail or track 61, terminally supported at its left-hand 80 end upon a suitable base-plate or bracket 62, which is rigidly secured to the top of the frame of the machine by fastenings 63, the left-hand end of the track being inclined downwardly and secured to the top of the bracket in any 85 suitable manner. Inverted substantially L-. shaped posts 65 rise from the bracket 62 in front of the track 61 and support a trip-bar 67, disposed in front and also above the rack 54 and in the path of the trip-arm 58 in the 90 forward movement of the carriage. When the carriage is at its rear or right-hand limit, the foot 59 of the trip device travels beneath the track 61 until the trip-arm 58 engages with the trip-bar 67, whereupon the arm 58 will 95 swing rearwardly, and thereby throw the foot from beneath the track until the trip device disengages the bar 67, when the spring-actu-ated trip device will return to its normal position under the influence of its spring and 100 the foot 59 will engage the upper side of the inclined portion 64 of the track, thereby to elevate the rack-bar 54 out of engagement with the escapement-wheel 55 during the return movement of the carriage. At the rear 105 limit of the carriage the foot 59 runs off of the unobstructed rear end of the track 61, thereby permitting the rack-bar 54 to gravitate into engagement with the escapement-wheel. This tripping of the escapement device is of 110 course automatic and requires no manual manipulation whatsoever.

In addition to tripping the escapement of the carriage it is also designed to automatically feed or rotate the platen 3, the mechan- 115 ism for carrying out this feature being shown in Figs. 1 and 7, wherein has been shown the usual hand-lever 68, provided with the dog or pawl 69, cooperating with the ratchet 70 at the right-hand end of the platen 3. Upon 120 the upper and inner portion of the lever 68 It is proposed to throw the escapement of there is provided a bracket 71, projected at across the adjacent end of the carriage into 125 the path of the downward movement of a crank-arm.73 upon a substantially horizontal shaft 74, mounted in a bearing-bracket

pendent crank-arm 76 is provided upon the rear end of the shaft 74 in position to engage a spring-pressed vertically-swinging trip-link 77, mounted upon the top of the frame of the 5 machine. During the latter part of the return movement of the carriage the crank-. arm 76 engages the link 77 and throws the latter upwardly and rearwardly against the post 78, when the link becomes fixed and the 10 arm 76 is swung backwardly, thereby swinging the crank-arm 73 downwardly against the arm 72, which tilts the lever 68 upon its fulcrum 79 and moves the dog 69 forwardly, so as to rotate the platen 3 one or more notches, 15 according to the relation of the several parts of the trip mechanism. When the carriage moves forwardly, the trip mechanism gravitates to its normal position, whereby the parts are again in position for actuation by 20 contact of the arm 76 with the trip-link 77 upon the return movement of the carriage.

Having fully described the invention, what

is claimed is---

1. In a type-writing machine, the combi-25 nation with the frame and the carriage thereof, of automatic carriage-return mechanism comprising a cylinder, a piston, a piston-rod, a connection between the piston-rod and the carriage, a pressure-chamber, a valved com-30 munication between the chamber and the cylinder, valve-controlling means including a crank-shaft projected externally of the chamber, and a trip mounted upon the carriage to engage the crank of the crank-shaft at the 35 forward limit of the carriage movement and thereby trip the valve.

2. In a type-writing machine, the combination with the carriage thereof, of pneumatic carriage-return mechanism including a 40 normally closed valve having a pivotal stem, a spring-actuated crank-shaft having a tappet-arm for engagement with the valve-stem to swing the latter upon its pivot, and a trip mounted upon the carriage with the crank of 45 the crank-shaft disposed in the path of the forward movement of the trip for actuation thereby to trip the valve at the forward limit

of the carriage. 3. The combination with the frame of a 50 type-writing machine and the carriage thereof, of automatic carriage-return mechanism including a valve, a movable valve-controlling device, a spring extending between the controlling device and the frame of the ma-55 chine, means to limit the movement of the controlling device under the influence of the spring, and a trip mounted upon the carriage for engagement with the valve-controlling device to trip the same against the influence of

4. The combination with the frame of a 60 the spring. type-writing machine and the carriage thereof, of pneumatic carriage-return mechanism 65 ling device, a spring to yieldably maintain justably limit the spring-actuated move-

the controlling device at one limit, movable means connected to the controlling device to limit the movement of the same under the in-. fluence of the spring, and a trip mounted upon the carriage to trip the valve-control- 70 ling device against the influence of the spring.

5. In a type-writing machine, the combination with the carriage thereof, of pneumatic carriage-return mechanism including a normally closed valve, a controlling crank- 75 shaft therefor, a spring connected to the crank-shaft, a movable limiting device connected to the shaft, a stop carried by the frame of the machine with the limiting device normally engaging the stop, and a trip 80 mounted upon the carriage in position to engage the crank of the shaft and trip the same against the action of the spring at the forward limit of the carriage to open the valve.

6. The combination with the frame of a 55 type-writing machine and the carriage thereof, of pneumatic carriage-return mechanism including a valve having a controlling crankshaft, an arm upon the shaft, a spring extending between the arm and the frame of the 90 machine, a slotted stop upon the frame, a limiting-bar connected to the arm with a portion working through the slot of the stop and provided with a shoulder normally engaged with said stop, and a trip mounted 95 upon the carriage and located to engage the crank of the crank-shaft and trip the latter at the forward limit of the carriage to open the valve.

7. The combination with the frame of a 100 type-writing machine and the carriage thereof, of pneumatic carriage-return mechanism including a valve having a controlling crankshaft, an arm upon the shaft, a spring connected to the arm and to the frame of the 105 machine, a slotted stop upon the frame, a limiting-bar pivoted to the arm and working through the slot of the stop, the bar being provided with a succession of shoulders for individual engagement with the stop to limit 110 the forward movement of the bar, a spring to yieldably maintain the bar at one limit of the slot, means to adjustably guide the bar for contact of any of its shoulders with the stop, and a trip mounted upon the carriage for 715, engagement with the crank of the shaft to trip the same and open the valve at the forward limit of the carriage.

8. The combination with the frame of a type-writing machine and the carriage there- 120 of, of pneumatic carriage-return mechanism. including a valve having a controlling crankshaft, an arm carried by the shaft, a spring connected to the arm and the frame of the machine, a slotted stop upon the frame, a 135 limiting-bar pivotally connected to the arm and working in the slot, one edge of the bar being provided with stepped shoulders for individual engagement with the stop to adment of the shaft, a bowed spring carried by the bar and working in one end of the slot, means to adjustably guide the bar for individual engagement of the shoulders thereof with the stop, and a trip mounted upon the carriage for engagement with the crank of the crank-shaft to trip the same against the influence of the spring

9. The combination with the frame of a type-writing machine and the carriage thereof, of pneumatic carriage-return mechanism including a valve, a spring-actuated valve-controlling device, a limiting-bar pivotally connected to the controlling device and pro-

vided with a succession of stop-shoulders, a stop carried by the frame in coöperative relation with the limiting-bar, means to adjustably guide the bar for individual engagement of its shoulders with the stop comprising a rocking link mounted upon the frame to alternately receive and lie beneath the bar,

a handle for controlling the link, and a trip mounted upon the carriage for engagement with the valve-controlling device to trip the same against the influence of the spring at

the forward limit of the carriage.

10. The combination with the frame of a type-writing machine and the carriage thereof, of pneumatic carriage-return mechanism of including a valve having a controlling crankshaft, a spring to maintain the shaft at one limit, an arm carried by the shaft, an upstanding slotted stop upon the frame, a limiting-bar pivoted to the arm and working in the lower portion of the slot with its under side provided with stepped shoulders for individual engagement with the stop, a spring carried by the bar and working through the slot in engagement with the upper end theresto of, a vertically-tiltable link mounted upon

the frame to alternately receive and lie beneath the free forward end of the bar and provided with a handle for manual adjustment thereof, and a trip upon the carriage to engage the crank of the shaft and trip the same against the influence of the spring at the forward limit of the carriage.

type-writing machine, of carriage-return shaft, a pivotal trip device mounted upon the carriage for engagement with the crank of the controlling device, means to prevent yielding of the trip when in contact with the the carriage, said trip device capable of wiping past the crank-arm during the forward movement of the carriage, said trip device capable of wiping past the crank-arm during the return movement of the carriage, and means to return the trip device to its normal position of after repassing the crank.

12. The combination with the carriage of a type - writing machine, of carriage - return mechanism including a controlling - crank, and a trip device comprising an upstanding for the carriage of a mechanism including a controlling - crank, and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage of a mechanism including a controlling - crank, and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage - return and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage - return and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage - return and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage - return and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage - return and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage - return and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage - return and a trip device comprising an upstanding for the carriage of a type - writing machine, of carriage - return and a trip device comprising an upstanding for the carriage - return and a trip device comprising an upstanding for the carriage - return and a trip device comprising an upstanding for the carriage - return and a trip device comprising an upstanding for the carriage - return and a trip device comprising an upstanding for the carriage - return and a trip device comprising an upstanding for the carriage - return and a trip device comprising an upstanding for the carriage - return and a trip device comprising an upstanding for the carriage - return and a trip device - return a t

and provided with upper and lower substantially horizontal crank-arms, one of the arms being located to engage the controlling-crank, a stop for engagement by the other arm of the trip device to prevent yielding of 70 the first-mentioned arm when engaged with the controlling-crank, said trip device capable of wiping past the crank during the return movement of the carriage, and a spring to automatically return the trip device to its 75 normal position after repassing the crank.

13. The combination with the carriage of a type - writing machine, of carriage - return mechanism including a cylinder, a piston, a piston-rod projected at one end of the cylin- 80 der, a bracket carried by the carriage, a slidable connection between the piston-rod and the bracket, and a spring-buffer to cushion the slidable movement of the plunger-rod upon the bracket at the rear limit of the car- 85

14. The combination with the carriage of a type - writing machine, of carriage - return mechanism including a cylinder, a piston, a piston-rod projected at one end of the cylin- 90 der, a bracket carried by the carriage, a slidable connection between the piston-rod and the bracket, a sleeve carried by the projected end of the piston-rod and telescopically embracing the cylinder, and a spring- 95 buffer interposed between the sleeve and the

15. The combination with the carriage of a type-writing machine, of carriage-return mechanism including a cylinder, a piston, a 100 piston-rod projected at one end of the cylinder with its projected end provided with a longitudinal socket, a bracket carried by the carriage and provided with a pin telescoping in the socket of the piston-rod, a sleeve carried by the piston-rod and telescopically embracing the cylinder, and a helical spring embracing the pin and bearing against the sleeve and the bracket to cushion the plunger.

16. The combination with the carriage of a 110 type-writing machine, of carriage-return mechanism including a cylinder, a piston, a piston-rod projected at one end of the cylinder, a bracket carried by the carriage, the piston-rod having a slidable connection with 115 the bracket, a spring engaging the bracket and the piston-rod to yieldably force the latter away from the bracket, and means extending between the bracket and the piston-rod to limit the spring-pressed movement 120 thereof.

17. The combination with the carriage of a type-writing machine, of carriage-return mechanism including a cylinder, a piston, a piston-rod projected at one end of the cylin-125 der, a bracket carried by the carriage, the piston-rod having a slidable connection with the bracket, a sleeve carried by the piston-rod and telescopically embracing the cylinder, a spring bearing in opposite directions 130

against the piston-rod and the bracket, an arm carried by the bracket and overlapping the sleeve, a guide estried by the sleeve and telescopically receiving the arm, and a shoul-5 der upon the arm in front of the guide to limit the spring-pressed movement of the pis-

ton-rod. 18. In a type-writing machine, the combination with a shiftable escapement - rack, to means for automatically shifting the rackbar consisting of a track, a shifting device carried by the rack-bar and having a portion traveling against one side of the track in the forward movement of the carriage and 15 against the opposite side of the track in the reverse movement of the carriage to maintain the rack-bar in an inoperative position, a trip located in the path of the shifting device to move the same out of engagement 20 with the track at the forward limit of the carriage, and means to direct the shifting device to the opposite side of the track upon the return movement of the carriage to shift the rack-bar.

19. In a type-writing machine, the combi-

nation with a shiftable escapement rack-bar, of means for shifting the same into an inoperative position consisting of an upstanding spring-actuated rock-shaft having upper and lower crank-arms, a track supported above 30 the top of the machine and having one end inclined downwardly, the lower crank-arm of the rock-shaft traveling beneath and against the track during the forward movement of the carriage, and a trip-bar located in the 35 path of the forward movement of the upper crank-arm of the rock-shaft whereby the lower crank-arm is swung out of engagement with the track at the forward limit of the carriage, the inclined end of the track operating 40 to elevate the rock-shaft and the rack-bar during the return movement of the carriage.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

WILLIAM A. ROBBINS. BENJAMIN S. HYATT.

and the state of t

Witnesses:

J. L. Quillion, C. B. Muropulos.