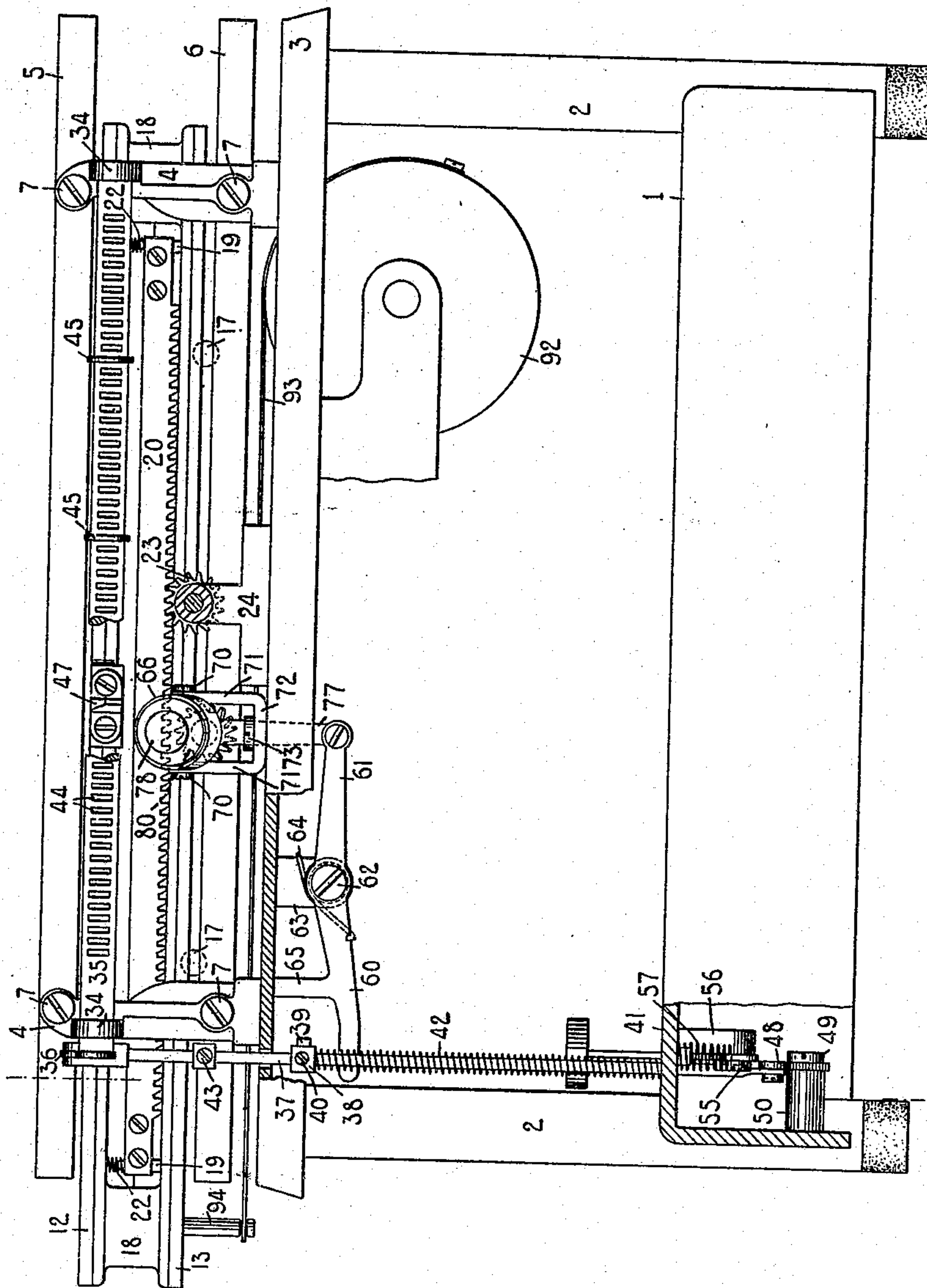


930,571.

H. H. STEELE.
TYPE WRITING MACHINE.
APPLICATION FILED APR. 6, 1906.

Patented Aug. 10, 1909.
3 SHEETS—SHEET 1.

FIG. 1.



WITNESSES:

E. M. Wells.
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INVENTOR.

Herbert H. Steele
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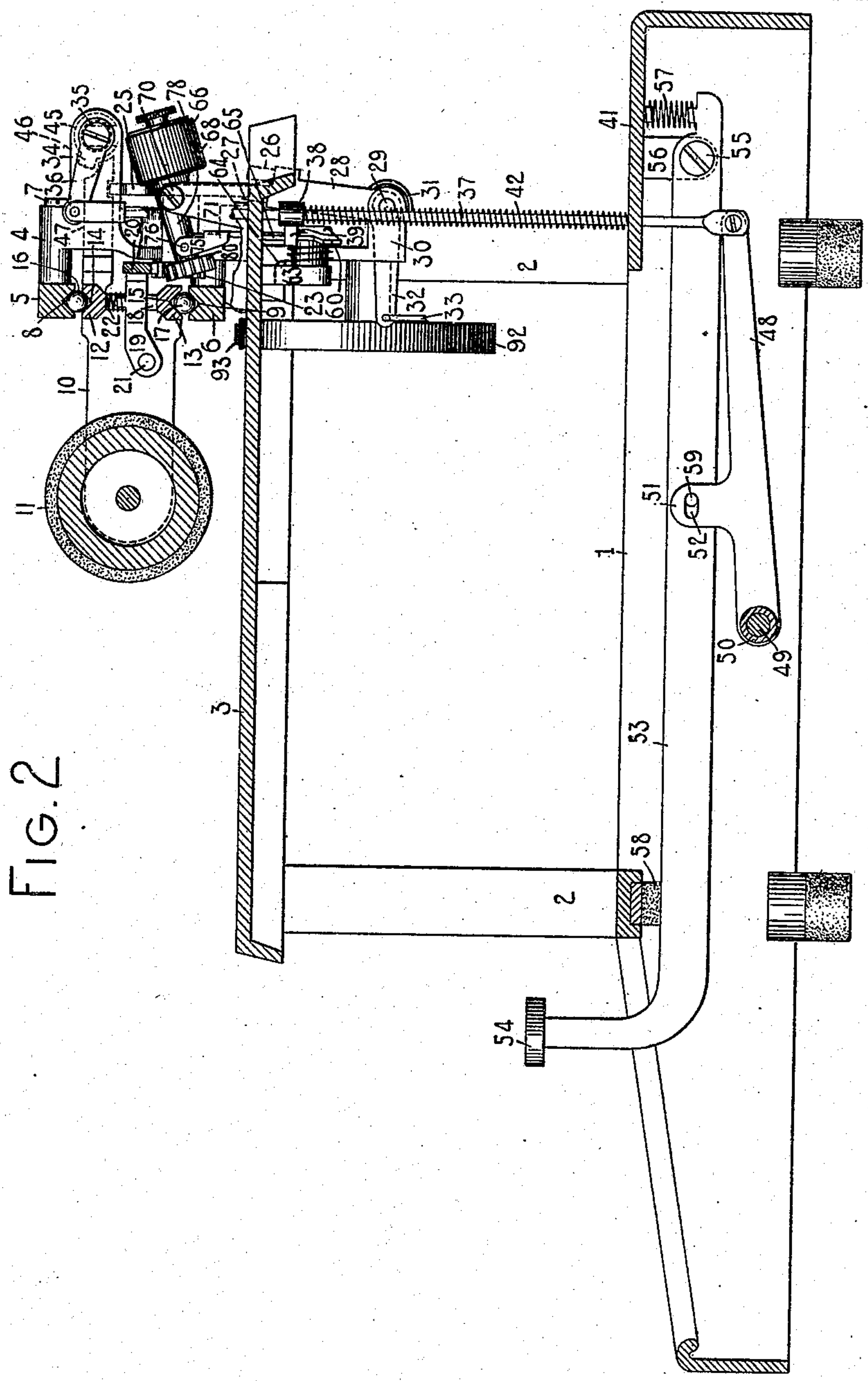


FIG. 2

WITNESSES.

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 D. A. Carpenter.

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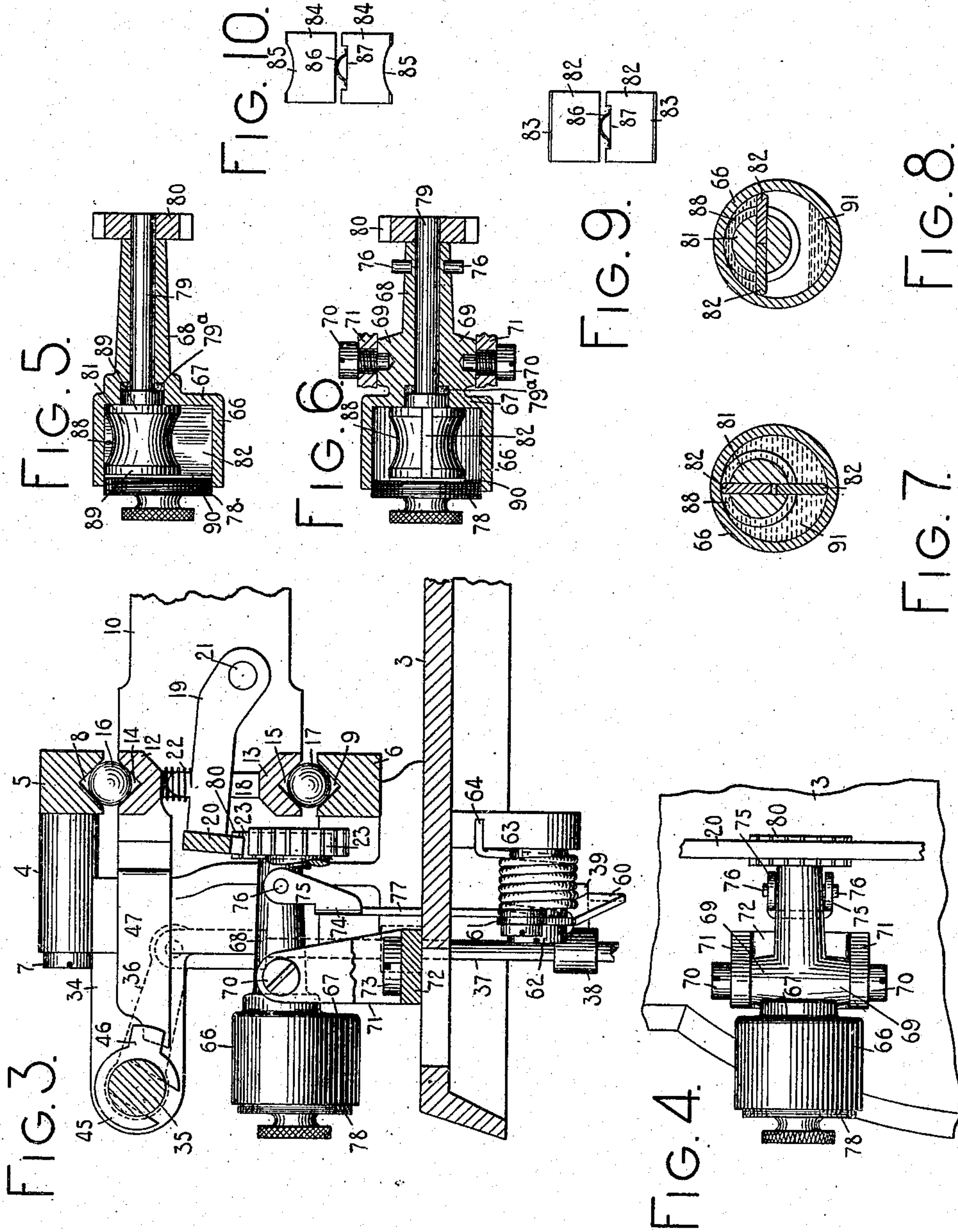
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

HERBERT H. STEELE, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

No. 930,571.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed April 6, 1906. Serial No. 310,374.

To all whom it may concern:

Be it known that I, HERBERT H. STEELE, citizen of the United States, and 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.

This invention relates to improvements in carriage-retarding devices for typewriting machines, and consists of the features of construction and combinations and arrangements of parts which are hereinafter described and specified in the claims.

In the accompanying drawings in which like reference numerals designate like parts in different views, Figure 1 is a rear and sectional elevation of the frame and parts of the mechanism of a Monarch typewriting machine to which carriage-retarding apparatus embodying the invention is applied; Fig. 2, a vertical section, on the plane indicated by the broken line near the left of Fig. 1, of said frame and parts of the mechanism of the machine, the sectional plane being seen from the right side of the machine; Fig. 3, an enlarged vertical section of the upper rear part of the machine, the section being at right angles to the axis of the platen, and the sectional plane being seen from the left side of the machine; Fig. 4, a plan of a fragment of the top-plate and of a hollow device mounted thereon which forms part of the carriage-retarding apparatus; Fig. 5, a vertical longitudinal section of said hollow device and side view of a coöperative rotary device confined therein; Fig. 6, a horizontal longitudinal section of the hollow device and top view of said rotary device; Fig. 7, a cross-section of said devices, the rotary device being in the position in which it is shown in Figs. 5 and 6; Fig. 8, a cross-section of said devices, the rotary device being in another position; Fig. 9, a face view of a pair of wings included in the rotary device; and Fig. 10, a face view of another pair of wings.

Although the drawings illustrate this invention applied to a Monarch machine, it is to be understood that it is also applicable to numerous other machines, including such as are called "under-stroke" machines, as well as "visible-writing" machines.

The carriage-retarding mechanism or apparatus in which the invention is embodied

is attached to the top plate of the machine near its rear edge and on the right, preferably, of a vertical plane containing the axis of the escapement pinion. The frame of the machine is composed of the base 1 and four posts 2, only three of which are shown, and the top plate 3. On the back part of the top-plate are two standards 4, which are fastened to the top-plate and to which upper and lower guide-rails 5 and 6 are attached by screws 7, these guide-rails having in them grooves 8 and 9 extending throughout the length of the rails. The carriage 10, in which is mounted the platen 11, has formed on it grooved guides 12 and 13, which extend from end to end of the carriage, the grooves 14 and 15 of these guides forming with the grooves 8 and 9 of the rails 5 and 6, ball or roller channels in which are shown anti-friction balls 16, 17. The carriage is thus supported by the rails 5 and 6 and is movable on the balls in opposite directions over the top-plate 3. The guides 12 and 13 are connected together by webs 18, and between these guides extend arms 19 which are pivoted to the ends of the carriage and to whose rear ends are affixed the carriage rack 20 which is movable up and down on the pivots 21 of the arms 19. Springs 22, acting on the arms of the rack, tend to keep the rack in the position in which it is shown in Fig. 2, that being its normal position.

The rack 20 normally engages a pinion 23 which is fast on a shaft, having a bearing in a bracket 24 affixed to the top plate 3, and on the rear end of this shaft is an escapement wheel 25, arranged to co-act with the feed-dogs 26 and 27 (shown in dotted lines in Fig. 2) which are mounted on a dog-rocker 28, whose rock-shaft 29 is pivoted at its ends between lugs on a bracket 30 affixed to and extending downward from the top-plate 3. On the rock-shaft 29 is a spring 31 which tends to keep the stepping-dog 27 in engagement with a tooth of the escapement wheel 25. An arm 32, fast on the dog-rocker, extends in front of the rock-shaft 29, and to the front end of this arm is secured a link 33 which extends downward therefrom to the universal bar of the machine. Whenever the universal bar is actuated by depressing a character-key or space-key, the front end of the arm 32 is drawn downward by the link 33, the stepping dog 27 is swung forward free from the

escapement-wheel, and the holding dog 26 is moved into engagement with the escapement-wheel, and when the universal bar rises after the key has been released, the stepping dog 27 reengages with the escapement wheel and the carriage advances a letter-space distance. But if desired a reverse-feed escapement may be used instead of that above described.

To the standards 4 are rigidly attached rearwardly extending arms 34, in which a stop-bar 35 is journaled at its ends. On the right end of this stop-bar, outside of the adjacent bracket 34, is a crank-arm 36 which normally extends both forward and upward from the stop-bar and to which is pivoted at its front end a rod or link 37, which extends downward from the crank-arm, through the top-plate and into the base 1 of the machine. A collar 38, having on it a projection 39, is fastened by a screw 40 to the rod 37, and on the rod 37, between the collar 38 and the part 41 of the base, is a coil-spring 42 which presses upward against the collar, and on the rod 37 above the top-plate 3 is a collar 43 which is fast on the rod. The collar 38 is so attached to the rod 37 that the projection 39 of the collar extends forward from the collar and rod. The stop-bar 35 has cut in it on opposite sides slots or recesses 44 at letter-space distances apart, and on this bar are tabulator-stops 45 which fit in these recesses and which are adjustable on the bar, each tabulator-stop being formed to engage a recess at the back of the bar and another at the front of the bar. Each tabulator-stop has a lug 46 which extends forward and upward from the body of the stop secured to the stop-bar, when the bar is in its normal position, in which it is ordinarily held by the upward pressure of the spring 42 against the collar 38 on the rod 37. A stop 47, which is rigidly attached to the back of the carriage 10 about midway between the ends of the carriage extends backward nearly to the stop-bar 35, its rear end being out of alinement with the lugs 46 of the tabulator-stops when the stop-bar is in its normal position, and then being movable by the carriage past the stops 45 and under the lugs 46.

The rod 37 is pivoted at its lower end to a lever 48, whose fulcrum is a screw 49 passing through its front end and into a boss 50 formed on the frame of the machine. On this lever is an upwardly extending ear 51 in which is a slot 52. A key-lever 53, having on it a tabulator key 54, is pivoted at its rear end by a screw 55 to a lug 56 formed on the under side of the roof 41 of the base and extending downward therefrom, there being behind this lug a coil-spring 57 bearing against the key-lever and the part 41 of the base and tending to keep the key-lever

in its normal position in contact with the pad 58 near its front end. A pin 59 fixed on the key-lever 53 extends through the slot 52 in the ear 51 of the lever 48. The construction is such that when the key 54 is depressed the rear end of the lever 48 is forced downward and the link 37 rocks the bar 35, bringing the lugs 46 into the path of the stop 47.

A lever having arms 60—61 is pivoted by a shouldered screw 62 to a lug 63 on the under side of the top-plate 3, and on the screw 62 is a coil-spring 64 which bears at one of its ends against the lug 63 and at its other end against the lower edge of the arm 60 of the lever, this arm of the lever extending in front of the rod 37 and under the projection 39 of the collar 38, and having on its upper edge a stop 65 which makes contact with the under side of the top-plate when the lever is in its normal position, where the spring 64 tends to keep it. A lever substantially the same as this has been used in the Monarch machine to actuate a rack-lifting device, operative to raise the carriage-rack out of engagement with the escapement-pinion, and thus to release the carriage from the control of the escapement. Since, however, a part of the carriage-retarding mechanism herein shown is operative through the lever 60—61 to lift the carriage-rack from the pinion 23, the lifting device heretofore employed is not necessary in a machine provided with this carriage-retarding mechanism.

The retarding apparatus proper comprises a device arranged to be actuated by the carriage, and a coöperative device, one of said devices being hollow and containing the other, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the first-mentioned device. The non-gaseous matter may be a liquid, or some finely granulated or pulverized substance, or a semi-liquid, of substantially the consistency of vaseline at a moderate temperature. Satisfactory results have been obtained with oil, vaseline and with mercury. The apparatus is preferably constructed and arranged as it is shown herein, although it is apparent that its parts may be modified in various particulars. The device which is arranged to be actuated by the carriage, is shown herein as a rotary device, the other device being shown hollow and containing the rotary device. This hollow device 66 is a cylinder closed at the ends, its front end or head 67 being formed on a tubular shaft-carrier 68 having on it bosses 69. The shaft-carrier is pivoted by shouldered screws 70 to and between the sides 71 of a support whose base 72 rests on the top plate 3 and is attached thereto by a screw 73, the screws 70 extending into the bosses 69, and the shaft-carrier and device 66 being

movable on the axis which coincides with the axes of the screws 70. A yoke 74 between whose branches 75 the shaft carrier 68 extends, is pivoted by pins 76 to the shaft carrier, this yoke being on the upper end of a link 77 which extends through the top plate and is pivoted at its lower end to the arm 61 of the lever 60—61. The rear end or head of the device 66 is a screw-plug 78, which fits in the cylinder and engages with screw threads cut therein. In the shaft-carrier 68 is a shaft 79 which extends through the shaft-carrier, and on the front end of this shaft is a pinion 80 which is fast on the shaft. The shaft bearing is preferably packed at 79^a to prevent leakage. When the lever 60—61 is in its normal position the pinion 80 is below and out of engagement with the carriage-rack 20 which then engages the escapement pinion 23, and the shaft-carrier 68 and device 66 are in the positions shown in Fig. 2, these being their normal positions. They are movable from these positions by the lever 60—61 acting on the shaft-carrier through the link 77 and yoke 74 to the positions shown in Fig. 3, and when they are thus moved the pinion 80 engages with the carriage rack and lifts this rack out of engagement with the escapement-pinion, so that the pinion 80 and shaft 79 may then be rotated by the action of the carriage-rack.

The rotary device is composed of a slotted hub 81, fast on the shaft 79, and a pair of wings fitting in the slot in the hub. Either the wings 82 shown in Fig. 9, these wings having straight edges 83, or the wings 84 having curved edges 85 as shown in Fig. 10, may be used. The pair of wings is movable transversely in the slot in the hub 81, each being pressed from the other by a spring 86 confined between them, its ends being in a recess 87 and in one of the wings. The hub 81 has in it an endless groove 88 extending around the hub, which has on each side of this groove a narrow cylindrical surface 89. The front end of the hub 81 and front edges of the wings fit close to the head 67 of the hollow device 66, and the surfaces 89 of the hub fit close to the interior cylindrical surface of the device 66 and the wings bear against this cylindrical surface. The screw-plug 78 may be adjusted either with its inner end close to the rear end of the hub 81 and rear edges of the wings, or so as to leave a space 90, variable in size, between the screw-plug and rotary device. The hollow device may contain either enough non-gaseous matter 91 to fill it, as indicated in Fig. 7, or a smaller quantity.

The machine contains a spring drum 92 which is connected by a strap 93 with a stud 94 affixed to and extending below the carriage, so that when the escapement is actu-

ated, or the carriage-rack is raised out of engagement with the pinion 23, the carriage will be moved toward the left by the action on it of the spring drum and strap.

When the tabulator key 54 is depressed the stop bar 35 is turned on its axis by the action of the lever 53 on the lever 48 and of the latter lever and the rod 37 on the crank-arm 36, the lugs 46 of the tabulator stops 45 being moved downward into alinement with the stop 47 on the carriage. At the same time the projection 39, on the collar 38 fixed to the rod 37, forces downward the arm 60 of the lever 60—61, and the link 77 is raised by the arm 61 of this lever, so that the shaft-carrier 68 is moved on its pivotal axis to the position in which it is shown in Fig. 3. The carriage rack then engages the pinion 80 and is out of engagement with the escapement-pinion, from which it has been raised by the action of the other pinion on the rack. The rod 37 is drawn downward until the collar 43 meets the top plate 3, and while this collar is held by pressure on the tabulator key in contact with the top plate, the lugs 46 on the stops 45 are kept in the path of the stop 47, and the shaft carrier 68, the device 66, the pinion 80, and the carriage rack are kept in the positions shown in Fig. 3. As soon as the rack 20 is thus disengaged from the escapement-pinion the carriage is drawn toward the left by the spring drum 92, and the pinion 80, shaft 79, and the rotary device contained in the hollow cylinder 66, are turned together on the axis of the shaft by the action of the rack on the pinion 80. The carriage continues to travel and to so actuate said rotary device until the stop 47 meets the lug 46 of one of the tabulator stops 45. Then the tabulator key is released, whereupon the key and the stop bar are restored to their normal positions by the springs 57 and 42, and as the collar 38 on the rod 37 rises, the spring 64 restores the lever 60—61 to its normal position, the front end of the shaft carrier 68 and the pinion 80 being drawn downward by the link 77 to the positions shown in Fig. 1, and the carriage rack descends to the escapement pinion 23 with which it reengages just before the tabulator-stop leaves the stop 47.

It will be seen that the rotary device including the wings 82 divides the interior of the cylinder 66, except the space or passage between the rear end of the rotary device and the screw-plug, into two compartments, and that with the rotation of the rotary device each of the compartments constantly increases or decreases in size, and that as either gets larger the other gets smaller. Obviously, therefore, if the cylinder 66 is filled with liquid or other non-gaseous matter, the filling will be forced by the action on it of the rotary device back and forth

from compartment to compartment, or from side to side of the wings. When the wings 82 are used and the cylinder is filled with liquid, the passage 90 between the rotary device and the screw-plug then being the only space through which the liquid can pass the wings, unless some should leak between the front edges of the wings and the head 67 of the cylinder, or between the edges 83 of the wings and the cylindrical surface with which they make contact, the resistance offered by the liquid to the operation of the apparatus by the carriage then depends largely on the size of the passage 90, and may be varied more or less by turning the screw-plug and thus increasing or decreasing the size of that passage. During each rotation of the rotary device, however, a considerable portion of the liquid is driven between the bottom of the groove 88 in the hub 81 and the surrounding cylindrical surface of the hollow device, and by this means a part of the force exerted by the carriage on the retarding apparatus is consumed. Should the wings 84 be substituted for the wings 82 and the cylinder be filled with liquid, the action of the apparatus would be similar to that above explained, but in this case the passage 90 might be closed, for the liquid could pass from side to side of the wings between their curved edges 85 and the surrounding cylindrical surface of the hollow device. The resistance offered by the apparatus to the movement of the carriage could, nevertheless, be varied by turning the screw-plug. If the wings 82 are used, and the passage 90 is closed, and such a quantity of liquid is put in each compartment as will just fill the compartment when it is smallest, as indicated in Fig. 8, then both a hydraulic and pneumatic, or a hydro-pneumatic, resistance will be applied to the carriage when the retarding apparatus is operated by it. The hydraulic resistance will be produced by the action of the wings in forcing the liquid between the bottom of the groove 88 in the hub 81 and the cylindrical surface of the hollow device, and the compression and expansion of the air, which will leak past the wings from compartment to compartment, will afford a penumatic resistance.

By means of the apparatus described the carriage may be so retarded, whatever distance it may travel, free from the control of the escapement mechanism, as to prevent the machine from being injured and to render the shock and noise slight when the carriage is arrested by the tabulator stops or other similar means.

It is to be understood that the invention claimed herein may be embodied in mechanism differing in details of construction or arrangement of parts from that which has been specifically described above, and that

it may be applied to a machine containing denominational or decimal tabulating mechanism, instead of the particular tabulating mechanism shown herein, or other forms of column-spacing mechanism.

While the rotary device herein shown and described includes a pair of wings, it will be seen that the retarding apparatus would be operative, although its action would be more impulsive if one of these wings should be removed from it, and that a single wing extending through the cylindrical part 81 of the rotary device and bearing at its outer edges against the wall of a chamber containing said device might be substituted for this pair of spring pressed wings.

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

1. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a rotary device arranged to be actuated by the carriage when it is released from the escapement, a device coöperative with said rotary device, one of said devices being hollow and containing the other, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the rotary device, one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

2. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a rotary device arranged to be actuated by the carriage when it is released from the escapement, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the rotary device, one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

3. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a rotary device having wings, said rotary device being arranged to be actuated by the carriage when it is released from the escapement, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the wings of the rotary device, one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

4. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a hollow device, a

quantity of non-gaseous matter confined therein, and a movable device contained in said hollow device, parts of the space in which said non-gaseous matter is confined being connected by a passage, and said movable device being arranged to be actuated by the carriage when it is released from the escapement and being operative to force said matter through said passage, and one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

5. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a hollow cylindrical device, a quantity of non-gaseous matter confined therein, and a rotary device contained in said hollow device, the axis of the rotary device being parallel to that of the other device and said devices forming a passage that extends between the body of the rotary device and the surrounding surface of the hollow device and that connects parts of the open space in which said non-gaseous matter is confined, and said rotary device being arranged to be rotated by the carriage when it is released from the escapement and being operative to force said matter through said passage.

6. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a rotary device arranged to be actuated by the carriage when it is released from the escapement, said rotary device having in it an endless groove, a hollow device containing said rotary device and making contact therewith on both sides of said groove, and a quantity of non-gaseous matter confined in said hollow device, said rotary device being operative to force said matter between the interior surface of the hollow device and the surface of said groove.

7. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a rotary device arranged to be actuated by the carriage when it is released from the escapement, said rotary device having in it an endless groove and including a wing, a hollow device containing said rotary device and making contact therewith on both sides of said groove and along the edges of said wing, and a quantity of non-gaseous matter confined in said hollow device, said rotary device being operative to force said matter by means of said wing between the interior surface of the hollow device and the surface of said groove.

8. In a typewriting machine, the combina-

tion with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a rotary device arranged to be actuated by the carriage when it is released from the escapement, said rotary device having in it an endless groove and including a pair of spring-pressed wings, a hollow device containing said rotary device and making contact therewith on both sides of said groove and along the edges of said wings, and a quantity of non-gaseous matter confined in said hollow device, said rotary device being operative to force said matter by means of said wings between the interior surface of the hollow device and the surface of said groove.

9. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a rotary device including a wing, said rotary device being arranged to be actuated by the carriage when it is released from the escapement, a hollow cylindrical device containing said rotary device, the axis of the hollow device being parallel to that of the rotary device, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the wing of the rotary device, said devices forming a passage which extends between the rotary device and said hollow device and through which said matter may be driven by said wing.

10. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a rotary device including a pair of spring-pressed wings, said rotary device being arranged to be actuated by the carriage when it is released from the escapement, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the wings of the rotary device, said apparatus containing a passage through which said matter may be driven from side to side of said wings.

11. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a rotary device arranged to be actuated by the carriage when it is released from the escapement, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device, said rotary device having an inwardly curved surface between which and the surrounding wall of the hollow device a passage extends that connects spaces larger than said passage, and

said rotary device being operative to force said matter through said passage.

12. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a rotary device arranged to be actuated by the carriage when it is released from the escapement, a hollow cylindrical device containing said rotary device, the axis of said devices being parallel and a quantity of non-gaseous matter confined in the hollow device, parts of the chamber containing the rotary device being connected by a passage which forms with them a space that increases gradually in size on both sides of said passage, and said rotary device being operative to force said matter through said passage.

13. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a rotary device arranged to be actuated by the carriage when it is released from the escapement, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device, said apparatus containing a passage and including means for varying the size of the passage, and said rotary device being operative to force said matter through said passage.

14. In a typewriting machine, the combination with the carriage and escapement mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a rotary device including a wing, said rotary device being arranged to be actuated by the carriage when it is released from the escapement, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the wing of the rotary device, said apparatus containing a passage through which said matter may be driven from one side of said wing to the other, and including means for varying the size of said passage.

15. In a typewriting machine, the combination with the carriage and escapement mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a rotary device including a pair of spring-pressed wings, said rotary device being arranged to be actuated by the carriage when it is released from the escapement, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the wings of the rotary device, said apparatus containing a passage through which said matter may be driven from side to side

of said wings, and including means for varying the size of said passage.

16. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a hollow device, a quantity of non-gaseous matter confined therein, and a rotary device contained in said hollow device and including an imperforate wing that makes contact with the surrounding inner surface of said hollow device, parts of the chamber containing the rotary device being connected by a passage which forms with them a space that increases gradually in size on both sides of said passage, and said rotary device being arranged to be rotated by the carriage when it is released from the escapement, and said wing being operative to force said matter through said passage.

17. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a hollow device, a quantity of non-gaseous matter confined therein, and a rotary device contained in said hollow device and making contact with the surrounding inner surface of said hollow device, parts of the chamber containing the rotary device being connected by a passage which forms with them a space that increases gradually in size on both sides of said passage, and said rotary device being arranged to be rotated by the carriage when it is released from the escapement and being operative to force said matter through said passage.

18. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a hollow device, a quantity of non-gaseous matter confined therein, and a rotary device contained in said hollow device and dividing the interior of said hollow device into compartments, said apparatus containing a passage connecting said compartments, and said rotary device being arranged to be rotated by the carriage when it is released from the escapement and being operative to force said matter through said passage from compartment to compartment, said apparatus including means for varying the size of said passage.

19. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a hollow device, a quantity of non-gaseous matter confined therein, and a rotary device contained in said hollow device and dividing the interior of said hollow device into compart-

ments which change in size when the apparatus is operated, said apparatus containing a passage connecting said compartments, and said rotary device being arranged to be rotated by the carriage when it is released from the escapement and being operative to force said matter through said passage from compartment to compartment, and said apparatus including means for varying the size of said passage.

20. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a hollow device including a screw-plug, a quantity of non-gaseous matter confined in said hollow device, and a rotary device contained in said hollow device and arranged to be rotated by the carriage when it is released from the escapement, said screw-plug being in proximity to said rotary device and affording means for increasing and diminishing the space between them, and said rotary device being operative to force some of said matter through said space during each rotation of the rotary device.

21. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a hollow device, a quantity of non-gaseous matter confined therein, and a rotary device contained in said hollow device, said apparatus containing a passage and including a screw plug for varying the size of said passage, and said rotary device being arranged to be rotated by the carriage when it is released from the escapement and being operative to force some of said matter through said passage during each rotation of the rotary device.

22. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a hollow cylindrical device including a screw plug forming one head thereof, a rotary device contained in said hollow device and arranged to be rotated by the carriage when it is released from the escapement, said screw plug being at one end of said rotary device and being adjustable toward and from the rotary device to vary the space between them, and a quantity of non-gaseous matter confined in said hollow device and extending between the rotary device and said screw plug, said rotary device being operative to move said matter.

23. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-re-

tarding apparatus comprising a hollow cylindrical device including a screw plug forming one head thereof, a rotary device including wings, said rotary device being contained in said hollow device and arranged to be rotated by the carriage when it is released from the escapement, and said screw plug being at one end of said rotary device and being adjustable toward and from the rotary device to vary the space between them, and a quantity of non-gaseous matter confined in said hollow device and extending between the rotary device and said screw plug, said rotary device being operative to move said matter by the action on it of said wings.

24. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a shaft arranged to be rotated by the carriage when it is released from the escapement, a rotary device mounted on said shaft, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the rotary device, one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

25. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a shaft arranged to be rotated by the carriage when it is released from the escapement, a rotary device mounted on said shaft and having wings, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the wings of the rotary device, one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

26. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a hollow cylindrical device having a head at each end, a rotary device contained in said hollow device and arranged to be rotated by the carriage when it is released from the escapement, said rotary device fitting close to one of the heads of said hollow device and said apparatus containing a space between the other head of the hollow device and said rotary device, and a quantity of non-gaseous matter confined in said hollow device, said rotary device being operative to force portions of said matter through said space during each rotation of the rotary device.

27. In a typewriting machine, the combi-

nation with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a hollow cylindrical device having a head at each end, a rotary device contained in said hollow device and arranged to be rotated by the carriage when it is released from the escapement, said rotary device having wings fitting close to one of the heads of said hollow device and being at a distance from the other head of the hollow device, and a quantity of non-gaseous matter confined in said hollow device, said rotary device being operative to force portions of said matter past said wings during each rotation of the rotary device.

28. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a shaft arranged to be rotated by the carriage when it is released from the escapement, a rotary device mounted on said shaft, a hollow cylindrical device having a head at each end and containing said rotary device, the rotary device fitting close to one of the heads of said hollow device and said apparatus containing a space between the other head of the hollow device and said rotary device, and a quantity of non-gaseous matter confined in said hollow device, said rotary device being operative to force portions of said matter through said space during each rotation of the rotary device.

29. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a shaft arranged to be rotated by the carriage when it is released from the escapement, a rotary device mounted on said shaft, a hollow cylindrical device having a head at each end and containing said rotary device, the rotary device having wings fitting close to one of the heads of said hollow device and being at a distance from the other head of said hollow device, and a quantity of non-gaseous matter confined in said hollow device, said rotary device being operative to force portions of said matter past said wings during each rotation of the rotary device.

30. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of a shaft arranged to be rotated by the carriage when it is released from the escapement, a rotary device mounted on said shaft, a hollow device containing said rotary device, and a quantity of non-gaseous matter confined in the hollow device, parts of the chamber contain-

ing the rotary device being connected by a passage, and one of said devices having on it means for varying the size of said passage, and said rotary device being operative to force said matter through said passage.

31. In a typewriting machine, the combination with the carriage and escapement-mechanism and means for releasing the carriage from the escapement, of carriage-retarding apparatus comprising a shaft arranged to be rotated by the carriage when it is released from the escapement, a rotary device mounted on said shaft, a hollow device containing said rotary device and a quantity of non-gaseous matter confined in the hollow device, said apparatus containing a passage and including means for varying the size of the passage, and said rotary device being operative to force said matter through said passage.

32. In a typewriting machine, the combination with the carriage and escapement-mechanism, of a rotary device, a device co-operative with said rotary device, one of said devices being hollow and containing the other, a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the rotary device, and means for connecting said rotary device with the carriage and releasing the carriage from the escapement, one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

33. In a typewriting machine, the combination with the carriage and escapement-mechanism, of a rotary device, a hollow device containing said rotary device, a quantity of non-gaseous matter confined in the hollow device and movable therein by the action on it of the rotary device, and means for connecting said rotary device with the carriage and releasing the carriage from the escapement, one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

34. In a typewriting machine, the combination with the carriage and escapement-mechanism, of a rotary device, a hollow device containing said rotary device, a quantity of non-gaseous matter confined in the hollow device, parts of the chamber containing the rotary device being connected by a passage, and said rotary device being operative to force said matter through said passage, and means for connecting said rotary device with the carriage and releasing the carriage from the escapement, one of said devices including a part adjustable by hand to vary the action of said matter on said rotary device.

35. In a typewriting machine, the combination with the carriage and escapement-mechanism, of carriage-retarding apparatus

comprising a rotary device, a hollow device
containing said rotary device, and a quan-
tity of non-gaseous matter confined in the
hollow device, said apparatus containing a
5 passage and including means for varying
the size of said passage and said rotary de-
vice being operative to force said matter
through said passage; and means for con-
necting said rotary device with the carriage

and releasing the carriage from the escape- 10
ment.

Signed at Syracuse, in the county of
Onondaga, and State of New York, this 3rd
day of April A. D. 1906.

HERBERT H. STEELE.

Witnesses:

H. A. AUMENT,
W. J. LOGAN.