

No. 811,247.

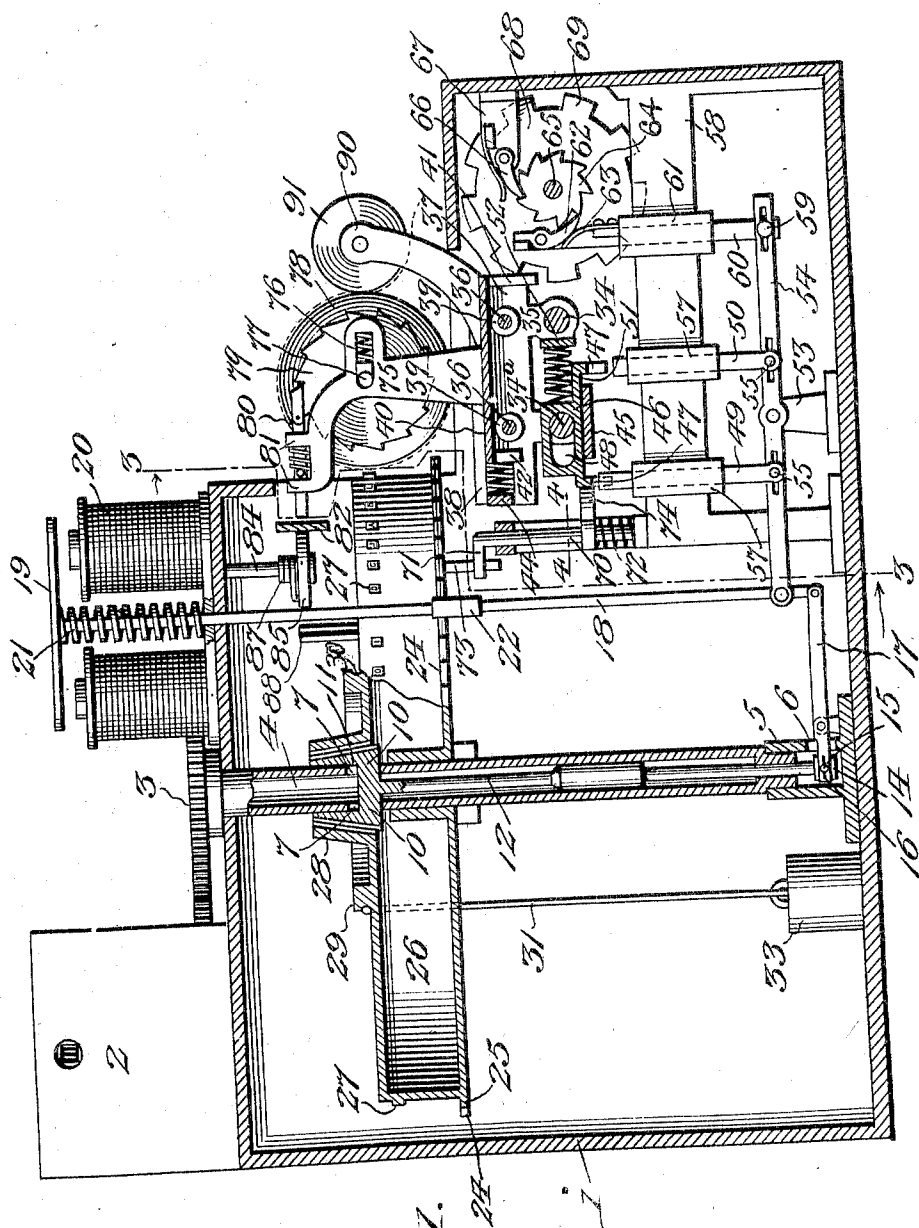
PATENTED JAN. 30, 1906.

W. J. ROUSSEL.

ELECTRICALLY OPERATED TYPE WRITER.

APPLICATION FILED MAR. 28, 1903. RENEWED JULY 29, 1904.

4 SHEETS—SHEET 1.



WITNESSES:

Edwin L. McKee

Arthur D. Lawson

Fig. 1.

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Willis J. Roussel

By

Victor J. Evans

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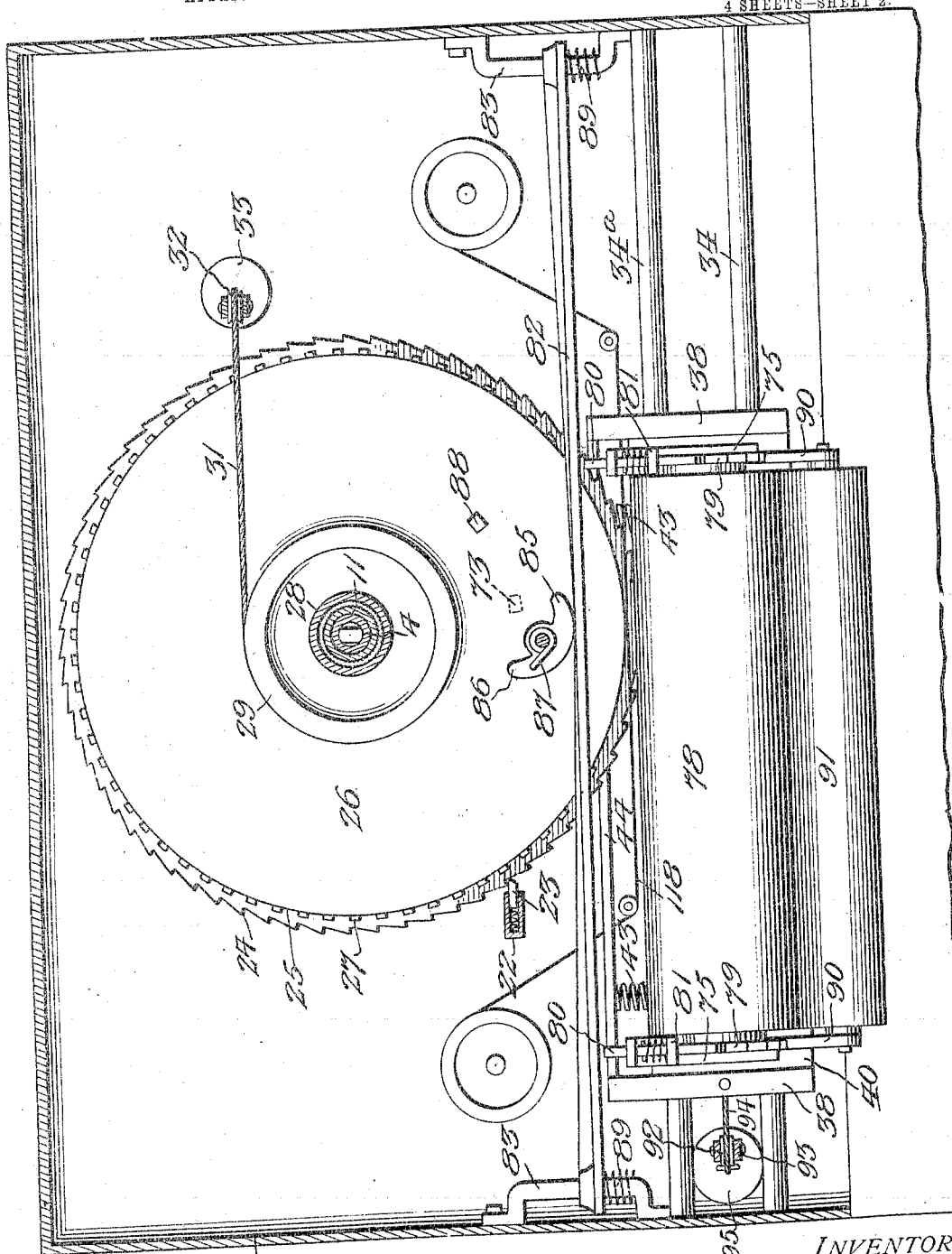
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4 SHEETS—SHEET 2.



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Fig. 2.

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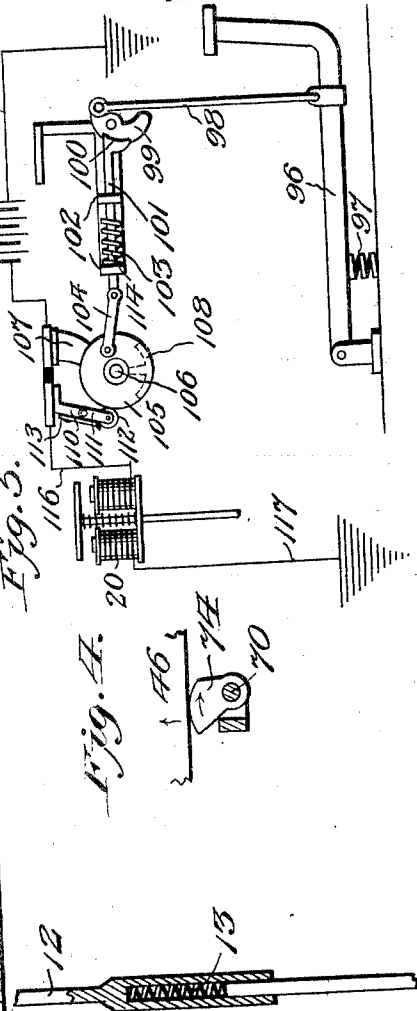
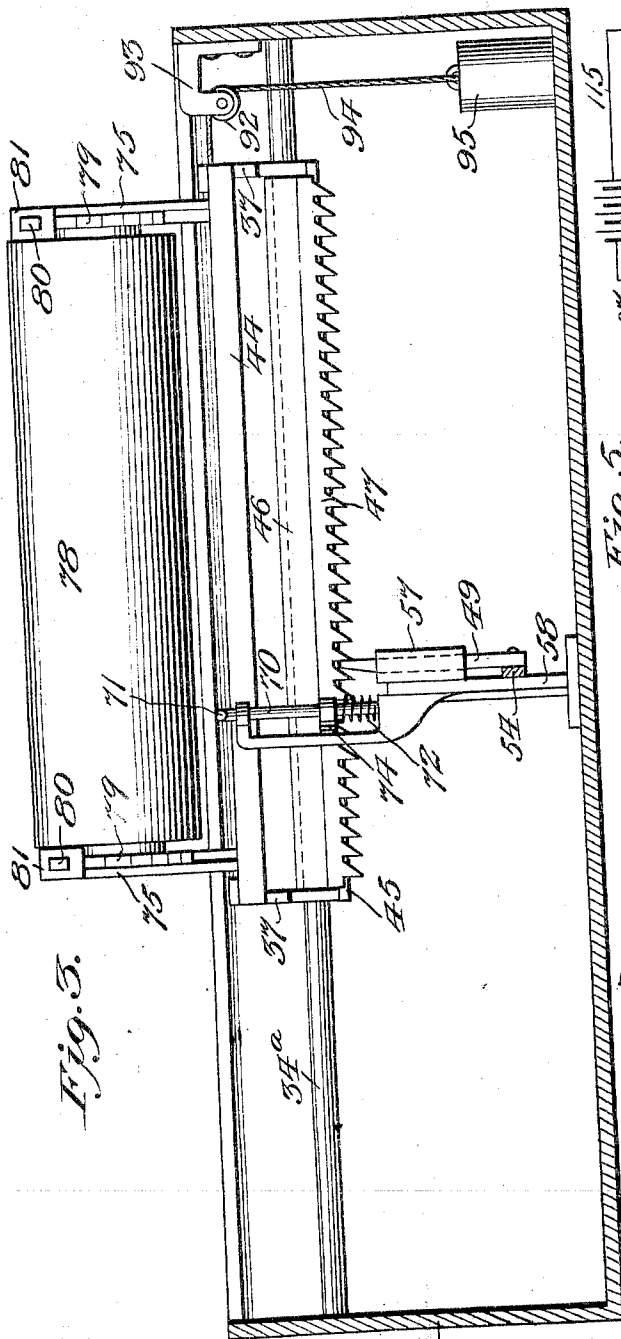
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4 SHEETS—SHEET 3.



Witnesses

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ELECTRICALLY OPERATED TYPE WRITER.

APPLICATION FILED MAR. 28, 1903. RENEWED JULY 29, 1904.

4 SHEETS—SHEET 4.

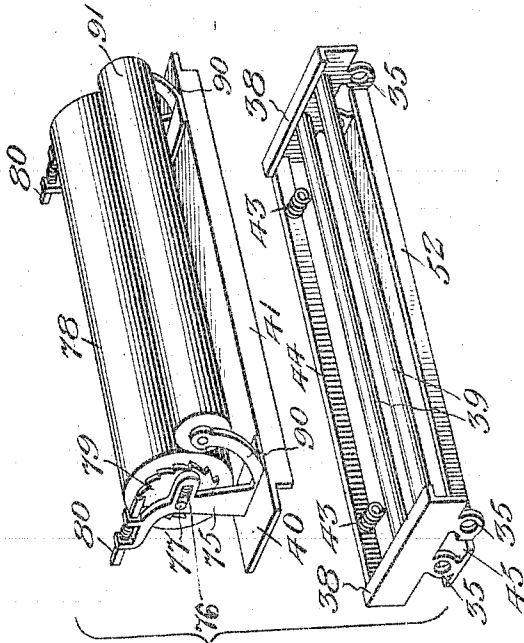


Fig. 8.

Fig. 6.

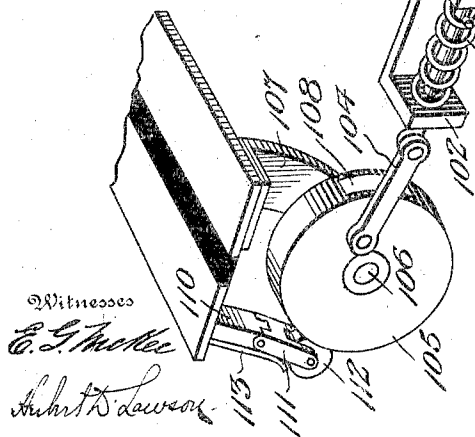
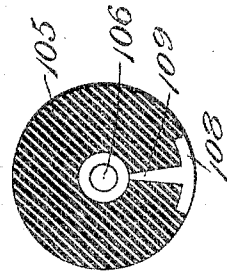
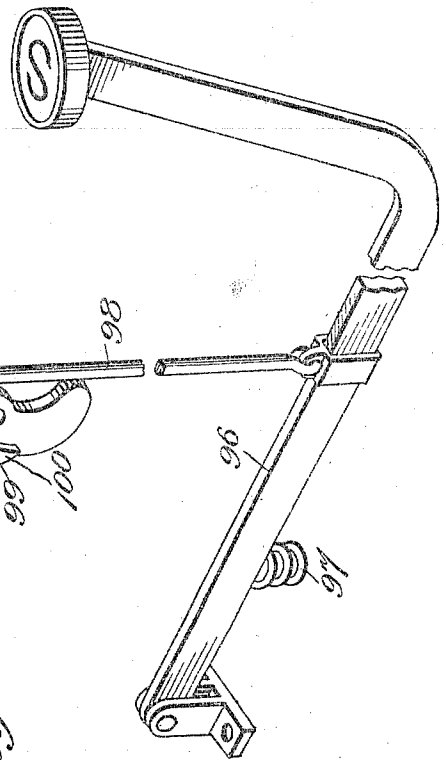


Fig. 9.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIS J. ROUSSEL, OF NEW ORLEANS, LOUISIANA, ASSIGNOR OF
EIGHTH TO ALPHONSE KING, OF CHICAGO, ILLINOIS.

ELECTRICALLY-OPERATED TYPE-WRITER.

No. 811,247.

Specification of Letters Patent.

Patented Jan. 30, 1906.

Application filed March 28, 1903. Renewed July 29, 1904. Serial No. 218,674.

To all whom it may concern:

Be it known that I, WILLIS J. ROUSSEL, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Electrically-Operated Type-Writers, of which the following is a specification.

My invention relates to new and useful improvements in electrically-operated type-writers; and its object is to provide a device of this character which may be operated by a current transmitted through an ordinary telegraph-wire.

A further object is to provide a machine having an operating-board composed of a suitable number of keys each of which when depressed causes the machine to print a desired character.

Another object is to employ operating means whereby the type-wheels of two machines located at opposite ends of the line-wire may be operated in unison from each end of the line.

Another object is to employ novel mechanism for operating the carriage of each machine automatically for producing an impression by means of the type, for rotating the platen, and for returning the platen to its initial position upon the completion of a line.

With the above and other objects in view the invention consists in the novel construction and combination of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a vertical section through one of the type-writers constructed in accordance with my invention. Fig. 2 is a horizontal section therethrough, showing the carriage and type-wheel in plan. Fig. 3 is a section on line 3 3, Fig. 1, and showing in elevation the ratchet of the carriage and the pawl for operating the same. Fig. 4 is a section on line 4 4, Fig. 1, showing the ratchet-shifting cam. Fig. 5 is a detail view of one form of circuit-closing mechanism which may be employed in connection with the type-writer and its electrical connections being shown diagrammatically. Fig. 6 is a section through the disk of the operating device. Fig. 7 is an enlarged section through a portion of a spindle connected to the clutch of

the type-wheel and showing the spring-cushion used in connection therewith. Fig. 8 is a perspective view of the carriage of the machine, the platen being shown detached therefrom; and Fig. 9 is an enlarged perspective view of the circuit-closing means illustrated in Fig. 5.

Referring to the figures by numerals of reference, 1 is a casing of any suitable form having a spring or other suitable motor 2 thereon which is adapted to continuously rotate a gear 3, which is connected to the upper end of a tubular shaft 4. This shaft is arranged vertically within the casing and bears at its lower end within a tubular casting 5, having a slot 6 therein. Oppositely-disposed slots 7 are formed within the shaft 4 at a point near the upper end thereof, and within these slots are slidably mounted arms 10, which are arranged within and secured to a cone-shaped slide 11, having a toothed or serrated face, as illustrated in Fig. 2. This cone is slidably mounted upon the shaft 4, and the arms thereof are integral with or connected to a spindle 12, which extends longitudinally through shaft 4 and is formed, preferably, of two telescoping members, having a spring 13 interposed therebetween and forming a cushion. A sleeve 14 is loosely mounted upon the lower end of the spindle and has a laterally-extending lug 15 thereon, which is slidably mounted within a slot 16, formed within one end of a lever 17. This lever projects through the slot 6 before referred to, and one end thereof is connected to a rod 18, which extends upward through the top of the casing 1 and has an armature 19 connected to its upper end and extended over a magnet 20. A spring 21 is mounted upon a rod 18 at a point between the casing and the armature and serves to hold said armature normally removed from contact with the magnets.

A block 22 is secured to the rod 18 and has a spring-pressed pawl 23 therein which normally engages one of a series of teeth 24, which project from a flange 25, extending around a cylindrical type-wheel 26. This wheel has a series of type 27 arranged in a line upon the periphery thereof, and it is loosely mounted upon a collar inclosing the shaft 4 and provided upon its upper surface with a cone-shaped projection 28, which incloses the sleeve 11, and is provided upon its in-

ner surface with teeth or serrations, as shown in Fig. 2. A flange 29 is arranged upon the upper surface of the wheel and concentric therewith and is provided in its outer face with a groove 30, within which is secured one end of a cable or flexible strip 31. This strip extends over a pulley 32, fastened within the casing in any suitable manner, and thence downward to a point adjacent to the bottom of the casing 1. A weight 33 of suitable form is connected to this flexible strip.

Parallel guide-rods 34 and 34^a extend transversely of the casing 1 and serve to guide and support the carriage of the machine. Arms 35 are slidably mounted on these rods and extend upward and are secured to parallel rods 36, which connect end plates 37 to the carriage, having inwardly-extending flanges 38 at their upper edges. Rollers 39 are mounted upon these rods 36 and form bearings for a base-plate 40, which has downwardly-extending flanges 41 and 42 at its outer and inner edges, respectively. This plate extends under the flanges 38 before referred to, and coiled springs 43 are interposed between its flange 42 and the inner side strip 44 which connects the end plates 37.

A horizontally-arranged connecting-strip 45 is located between and secured to the inner arms 35 of the carriage at a point below the guide-rod 34^a, upon which said arm is mounted, and this plate serves to support a bar 46, having depending ratchet-teeth 47 at opposite edges thereof. This bar is slotted, as shown at 48, and is adapted to move laterally upon the rod 34^a. The ratchets are held normally in position over retaining-plungers 49 and 50 by means of a coiled spring 51, which is interposed between bar 46 and a strip 52, which connects the outer arms 35, as shown.

A bracket 53 is arranged upon the bottom casing 1, and a lever 54 is fulcrumed therein and connected at one end to the rod 18. This lever has slots therein, and within two of these slots are mounted lugs 55, which extend laterally from the lower ends of the plungers 49 and 50, which are slidably mounted in guides 57, arranged on a supporting-frame 58 within the casing. The other slot in lever 54 receives a lug 59, which extends laterally from a rod 60, slidably mounted in a guide 61 on the frame 58 and having a pawl 62 pivoted to the upper end thereof. A spring 63 serves to hold this pawl normally in engagement with a ratchet-wheel 64, which is secured to and revolves with a shaft 65, journaled within the casing 1. A second spring-pressed pawl 66 also engages this ratchet-wheel and is pivoted to a bracket 67, which is immovably secured within the casing. A wheel 68 is secured to shaft 65 and revolves therewith, and this wheel has a series of cam projections 69 upon the periphery thereof

which are adapted to be brought successively into contact with the outer flange 41 of the carriage of the machine. The inner end of frame 58 serves to support a revoluble rod 70, having an arm 71, which extends laterally from the upper end thereof, and a coiled-spring 72 serves to hold said arm normally in the path of a pin 73, which is secured to and extends downward from the lower surface of the type-wheel 26. A cam 74 is secured to rod 70 and is adapted when said rod is rotated to bear upon the end of the bearing 46 and move it upon the guide-rod 34^a, thereby compressing springs 51 and removing the ratchet-teeth 47 from position above the plungers 49 and 50.

Standards 75 are arranged above the base-plate 40 of the carriage, at opposite ends thereof, and are provided with transversely-extending slots 76, within which are journaled necks 77, extending over the ends of a platen 78 of ordinary form. A ratchet-wheel 79 is connected to each of these necks and engaged by a spring-pressed plunger 80, which is slidably mounted within ears 81, formed upon the standards 75. These plungers extend inwardly into the casing and are adapted to be contacted by an operating-strip 82, which extends transversely of the casing and is slidably mounted upon guides 83, secured within the casing upon the sides thereof. A rod 84 is arranged within the casing and secured to the top thereof, and upon this rod is mounted a cam 85, having an arm 86, which is held, by means of a coiled spring 87, normally in the path of a lug 88, which extends upward from the type-wheel 26. Springs 89 are mounted upon the guides 83, so as to hold the operating-strip 82 normally removed from the plungers 80. Standards 90 are also located upon base-plate 40 and serve to support a roller 91, which bears upon the platen and is employed for holding a sheet of paper in position thereon. A pulley 92 is journaled within a bracket 93 at one end of the casing, and a flexible strip 94 extends thereover. One end of this strip is fastened to one end of the carriage-wheel, and the other end thereof has a weight 95 fastened thereto.

The machine herein described is adapted to be operated in any suitable manner so that the circuit through the magnets 20 may be closed for a desired period in order to print the proper character. I preferably provide an operating device such as described and illustrated in a patent granted to me June 7, 1904, and numbered 761,917. This mechanism comprises a key-lever 96, which is supported upon a coiled spring 97 and is connected, by means of a rod 98, with one end of a cam 99. The curved edge of this cam projects into and is slidably mounted within a shoe 100, which is connected to one end of a sliding rod 101, mounted within ears 102, projecting laterally from a supporting-bracket

103. The rear end of the rod 101 is connected by means of a pitman 104, to a disk 105, which is revolubly mounted upon a short shaft 106, extending laterally from a hanger 107. This disk is formed of hard rubber or other non-conducting material, and a strip 108, of copper or other conducting material, is embedded in the periphery of said disk and is connected to the shaft 106 by an arm 109. A hanger 110 is arranged adjacent to the disk 105, and to the lower end thereof is hinged an arm 111, having a roller 112 journaled therein and held normally in contact with the periphery of the disk by a spring 113. A coiled spring 114 incloses the rod 101 and is secured to said rod and adapted to bear upon one of the ears 102. The line-wire 115 of an ordinary telegraph-circuit is electrically connected with the hanger 107, and another wire 116 of said circuit extends from the hanger 110 to the magnets 20, and a wire 117 serves to conduct the current from said magnets to the ground. One disk 105 is provided for each key of a keyboard, and the strips 108 upon the disks are of different lengths. When it is desired to print a character, the proper key on the keyboard is depressed and cam 99 is swung upon its fulcrum and causes rod 101 to slide within ears 102, thereby compressing the spring 114. This longitudinal movement of the rod will continue until one-half a revolution has been imparted to the disk 105. As soon as the key is released spring 114 will expand and complete the revolution of the disk, and during this completion of a revolution strip 108, embedded within the disk, will come into contact with the roller 112, and the circuit will promptly be closed between wires 115 and 116. The magnets 20 will thus be energized and armature 19 attracted thereto. This will cause rod 18 to slide downward, compressing spring 21, and lever 17 will slide the sleeve 11 upward into engagement with the serrated face of the cone 28. The sleeve and cone will be placed into engagement before the pawl 23 is pressed downward out of engagement with the teeth 24 on flange 25 of the type-wheel 26, and therefore the said wheel will be held against movement and the motor 2 stopped until the downward movement of armature 19 is stopped. As soon as the limit of this movement of the armature has been reached the pawl will become disengaged from the teeth 24, the continued movement thereof being permitted by the spring-cushion 13, which is interposed between the ends of the spindle 12. When the teeth are released from the pawl, the motor 2 will promptly rotate wheel 26 and cause flexible strip 31 to be wound upon the grooved flange 29, thereby raising weight 33. Simultaneously with the lowering of rod 18 and the operation of the type-wheel the plunger 49 is drawn downward and plunger 50 is pressed upward. The teeth of the ratchets 47 are so shaped that when plunger 50 comes upward into contact therewith it will force said ratchets longitudinally, and thereby raise the weight 95. Rod 60 is also moved upward with plunger 50, and pawl 62 thereon is caused to slip over a tooth of the ratchet-wheel 64. The parts will be held in this position, with the type-wheel rotating, until the disk 105 has been returned to its normal position by spring 114 and the circuit has been broken between the wires 115 and 116. As soon as the circuit is broken spring 21 throws armature 19 away from magnets 20 and the pawl 23 comes into engagement with a tooth 24 just prior to the removal of sleeve 11 from engagement with cone 28 and stops the action of the motor until said sleeve and cone have become disengaged. The motor is stopped for a sufficient period by this pawl to permit the platen 78, with the paper thereon, to be thrown against the type 27, which has been brought into proper position in relation to said platen. This movement of said platen is secured by the following manner: When rod 18 moves upward, propelled by spring 21, the outer end of lever 54 is swung downward and draws pawl 62 therewith. As this pawl is in engagement with the ratchet-wheel 64, it will cause the cam-wheel 68 to rotate, and one of the projections 69 thereon will come into contact with the front flange 41 of the base-plate 40 and force it and the platen mounted thereon inward, thereby compressing the springs 43. This entire operation takes place during the time in which the type-wheel 26 is held by the pawl, and as soon as sleeve 11 drops out of engagement with the cone 28 the weight 33 will return the wheel 26 to its normal position, such movement being permitted by the spring-pawl 23, which allows the teeth 24 to slip thereunder when moving downward. It will be understood that when the armature 19 and rod 18 move upward the plunger 50 will be withdrawn from engagement with its ratchet 47, and the plunger 49 will be returned to engagement with its ratchet 47 in time to prevent the ratchets and the carriage connected therewith from returning to their normal position. From the above explanation it will be obvious that as the various characters are printed upon the type-writer the carriage will be moved longitudinally by the reciprocating plungers 49 and 50. When the end of a line has been reached and it is desired to partly rotate the platen, a key in the keyboard, which is employed for this purpose, is depressed and the operation above described is repeated. The type-wheel, however, is permitted to rotate a sufficient distance to enable the lug 88 to come into contact with arm 86 of cam 85, and said cam will thus be drawn against the strip 82 and will impart lateral movement thereto and cause it to slide upon the guides

83. This strip will come into contact with plungers 80 and cause them to bear upon ratchet-wheels 79 and partly rotate them. As soon as the lug 88 begins its return movement the cam 85 will be returned to normal position by its spring 87, strip 82 will be returned to normal position by its springs 89, and the plungers 80 will be returned by the springs arranged thereon. When upon the completion of a line it is desired to shift the carriage longitudinally, so as to begin a new line, a key in the keyboard, which is provided therefor, is depressed, and when the wheel 26 has been rotated a sufficient distance the pin 73, depending therefrom, will come into contact with arms 71 and swing the same and cause rod 70 to rotate. This will bring the cam 74 against the side of the bar 46 and shift the same so as to remove the ratchet-teeth 47 from above the plungers 49 and 50 and the weight 95, which is gradually raised as the carriage is forced along by said plungers, will promptly return the carriage to its normal position. When the cam 74 is released, spring 51 will return the ratchet-teeth to their normal positions.

It will be understood that a key will be provided upon the keyboard for forming spaces between the printed words, and the mechanism employed for performing this operation is similar to that employed for printing a letter, with the exception that the type-wheel 26 is rotated until a blank space is brought into position in front of the platen. It will thus be obvious that when the platen is thrown forward no imprint will be made upon the paper, but the carriage will be moved one space. A type-ribbon 118 may be mounted in any suitable manner so as to extend between the platen 78 and type-wheel 26.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

1. In a type-writer of the character described, the combination with a motor; of a shaft operated by said motor, a type-wheel loosely mounted upon the shaft, means for locking the wheel to said shaft, teeth upon the wheel, a pawl normally engaging one of said teeth, a magnet, and an armature for said magnet, said armature being connected to and adapted to operate the pawl and locking means.

2. In a type-writer of the character described, the combination with a motor; of a shaft adapted to be operated thereby, a wheel loosely mounted upon the shaft, means for locking the wheel to the shaft, a flange upon

the wheel, a weighted flexible strip connected to the flange, a magnet, and an armature for said magnet, said armature being connected to and adapted to operate the locking means, whereby the wheel is rotated and the flexible strip wound thereon.

3. In a type-writer of the character described, the combination with a motor; of a shaft adapted to be operated thereby, a type-wheel loosely mounted upon the shaft, a flange upon the wheel, a weighted flexible strip connected to said flange, means for locking the wheel upon the shaft, a series of ratchet-teeth encircling the wheel, a pawl normally engaging one of said teeth, a magnet, and an armature for said magnet, said armature being connected to and adapted to operate the pawl and locking means, whereby the wheel may be simultaneously released from the pawl and rotated with the shaft, thereby winding the flexible strip thereon.

4. In a type-writer of the character described, the combination with a motor; of a shaft adapted to be rotated thereby, a wheel loosely mounted upon the shaft, type projecting from the periphery thereof, a toothed flange encircling the wheel, means for locking the wheel to the shaft, a pawl normally engaging one of the teeth, a magnet, and a spring-pressed armature for said magnet, said armature being connected to and adapted to operate the pawl and locking means.

5. In a type-writer of the character described, the combination with a motor; of a shaft adapted to be operated thereby, a type-wheel loosely mounted upon the shaft, a conical extension upon said wheel and inclosing the shaft, said extension having a serrated inner face, a conical sleeve upon the shaft and adapted to rotate therewith, a magnet, and an armature connected to the sleeve and adapted to move the same into engagement with the extension of the wheel.

6. The combination with a motor; of a tubular shaft adapted to be rotated thereby, a type-wheel loosely mounted upon the shaft, a hollow conical extension upon the wheel having a serrated inner face, a spindle slidably mounted within the shaft, arms thereto projecting through slots in the shaft, a conical sleeve connected to said arms and having a serrated outer face, a magnet, and an armature connected to the spindle and adapted to throw the sleeve into engagement with the extension upon the wheel.

7. The combination with a motor; of a tubular shaft adapted to be operated thereby, a type-wheel loosely mounted upon the shaft, a hollow extension upon the wheel having a serrated inner surface, a sleeve mounted upon the shaft having a serrated outer surface, a sectional spindle slidably mounted within the shaft, arms thereto projecting through slots in the shaft and connected to the sleeve, a spring-cushion interposed between the sec-

tions of the spindle, a magnet, and an armature for said magnet, said armature being connected to and adapted to operate the spindle, whereby the sleeve is placed into engagement with the extension on the wheel.

8. The combination with a motor; of a tubular shaft adapted to be rotated thereby, a type-wheel loosely mounted upon the shaft, a hollow extension thereon having a serrated inner face, a sleeve slidably mounted upon the shaft and having a serrated outer face, a sectional spindle slidably mounted within the shaft, arms thereto projecting through slots in the shaft and secured to the sleeve, a spring-cushion interposed between the sections and the spindle, a lever connected to the spindle, a magnet, an armature thereto, and a rod connecting the armature and lever.

9. In a type-writer of the character described, the combination with a motor; of a tubular shaft adapted to be operated thereby, a type-wheel supported by and loosely mounted upon said shaft, a flange upon the wheel, a hollow extension on the wheel having a serrated inner face, a weighted flexible strip connected to the flange, a serrated sleeve slidably mounted upon the shaft, a sectional spindle slidably mounted within the shaft and connected to said sleeve, a spring-cushion interposed between the sections of the spindle, a lever connected to the spindle, a magnet, a spring-pressed armature thereto, and a rod connecting the armature and lever.

10. The combination with a motor; of a shaft adapted to be rotated thereby, a type-wheel loosely mounted upon the shaft, a toothed flange inclosing the wheel, a serrated extension upon the wheel, a serrated sleeve slidably mounted upon the shaft, a sectional spindle connected to said sleeve, a spring-cushion interposed between the sections, a lever connected to the spindle, a magnet, a spring-pressed armature, a rod connecting the armature and lever, a pawl upon the rod normally engaging one of the teeth of the flange, and a weighted flexible strip connected to and adapted to be wound by the rotation of the wheel.

11. The combination with a type-wheel, a motor, and electrically-operated means for connecting said wheel to the motor; of alternately-operating plungers connected to and operated by said means, a carriage, a spring-pressed bar slidably mounted upon the carriage, parallel series of ratchet-teeth depending from the bar and adapted to be engaged, and moved longitudinally by, the plungers, a revoluble rod, a cam thereon bearing upon the bar, an arm to said rod, and means upon the type-wheel for contacting with and operating said arm and rod, whereby the ratchet-teeth are shifted from position above the plungers.

12. The combination with a motor, a type-

wheel, and electrically-operated means for placing said wheel in operative relation with the motor; of alternately-operating spring-pressed plungers, a carriage, a spring-pressed sliding bar upon the carriage, parallel series of depending ratchet-teeth upon said bar adapted to be alternately engaged, and moved longitudinally by, the plungers, a revoluble rod, a cam thereon normally bearing upon the bar of the ratchets, an arm to the rod, and means upon the type-wheel for engaging the arm and imparting lateral movement to the bar and ratchets.

13. The combination with a motor, a type-wheel, and electrically-operated means for placing said wheel in operative relation with the motor; of a longitudinally-movable carriage, a spring-pressed base-plate thereon, a cam-wheel, a plunger, means thereon for rotating said wheel and imparting a reciprocating motion to the base-plate, said plunger being connected to the electrically-operated means.

14. The combination with a motor, a type-wheel, and electrically-operated means for placing said wheel in operative relation with the motor; of a longitudinally-movable carriage, a spring-pressed base-plate slidably mounted upon the carriage, a revoluble cam-wheel, a ratchet-wheel connected thereto, a plunger, a pawl thereon adapted to engage the ratchet and impart a rotary motion to the cam-wheel, thereby reciprocating the base-plate, and means for operating said plunger.

15. In a type-writer of the character described, the combination with a motor, a type-wheel, a magnet, a spring-pressed armature, and means connected to said armature for placing the wheel in operative relation with the motor; of a longitudinally-movable carriage, a spring-pressed base-plate slidably mounted thereon and carrying a platen, a rotary cam-wheel, a ratchet-wheel connected thereto, a plunger connected to and adapted to be operated by the spring-pressed armature, and a pawl upon the plunger engaging the ratchet-wheel, and adapted to rotate the same, whereby a reciprocating motion is imparted to the base-plate.

16. The combination with a motor, a type-wheel, a magnet, a spring-pressed armature, and means connected to said armature for locking the type-wheel to the motor; of a longitudinally-movable carriage, a spring-pressed base-plate slidably mounted thereon and carrying a platen, a wheel, cam projections upon the periphery thereof, a ratchet-wheel connected thereto and revoluble therewith, a lever connected to the spring-pressed armature, a plunger operated by said lever, and a pawl thereon normally engaging the ratchet-wheel and adapted to rotate the cam-wheel and thereby impart a reciprocating motion to the base-plate and platen.

17. The combination with a motor, a type-wheel, a magnet, a spring-pressed armature, and means connected to and operated by the armature for locking the wheel to the motor;
 5 of a longitudinally-movable carriage, a platen journaled thereon, a ratchet-wheel connected to the platen, a spring-pressed plunger engaging the ratchet-wheel and a slidable strip adapted to contact with and operate the
 10 plunger, a cam for operating said strip, and means upon the type-wheel for rotating the cam.

18. In a type-writer of the character described, the combination with a casing; of a
 15 motor, a type-wheel, a magnet, a spring-pressed armature, means connected to and operated by the armature for locking the wheel to the motor, a longitudinally-movable carriage, a platen journaled thereon, a ratchet-wheel connected to the platen, a spring-pressed plunger engaging the ratchet-wheel,
 20 guides within the casing, an operating-strip slidably mounted thereon, a cam, a bar upon the strip, and means upon the wheel for rotating the cam.

19. In an electrically-operated type-writer, the combination of a motor, a type-wheel, a clutch for throwing the type-wheel into and out of engagement with the motor, means for
 30 holding the type-wheel stationary, and electrically controlled means acting both to operate the clutch and the type-wheel-holding means.

20. In an electrically-operated type-writer, the combination of a motor, a type-wheel, clutch mechanism for throwing the type-wheel into and out of engagement with the motor, means for holding the type-wheel in-
 40 active, and electrically-controlled mechanism for first operating the clutch and then operating the type-wheel-holding means.

21. In an electrically-operated type-writer, a motor, a type-wheel, magnet-controlled means for throwing the type-wheel into and out of engagement with the motor, means for
 45 holding the type-wheel stationary, a longitudinally-movable and laterally-shiftable carriage, a tension device for moving the carriage in one direction, means for propelling the carriage step by step in the opposite direction, magnet-controlled means for throw-
 50 ing the type-wheel into and out of engagement with the motor, and operating the type-wheel-holding means, and means operated by the said magnet-controlled means for operat-
 55 ing the step-by-step-propelling mechanism and laterally shifting the carriage.

22. In an electrically-controlled type-writer, the combination of a motor, a type-wheel, means for throwing said type-wheel
 60 into and out of engagement with the motor, and a cushioned spindle controlling the means whereby the type-wheel is thrown into and out of engagement with the motor.

65 23. In an electrically-operated type-writer,

the combination of a motor, a type-wheel, a clutch for throwing the type-wheel into and out of engagement with the motor, a spring-cushioned spindle for actuating the clutch, and electrically-controlled means for actu-
 70 ating said spindle.

24. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a carriage provided with two sets of ratchet-teeth, means for moving
 75 the carriage in one direction, and plungers adapted to engage the teeth for moving the carriage in the opposite direction.

25. In an electrically-operated type-writer, the combination of a motor, type-wheel actuated thereby, a carriage, a tension device for moving the carriage in one direction, and plungers operating on the carriage for moving the carriage in opposition to the influence
 80 of the tension device.

26. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a carriage provided with two series of teeth having inclined faces, a tension device for moving the carriage in one direc-
 90 tion, and plungers operating against the inclined faces of the teeth for advancing the carriage in the opposite direction against the influence of the tension device.

27. In an electrically-operated type-writer, 95 the combination of a motor, a type-wheel actuated thereby, a laterally-shiftable carriage, a tension device for moving the carriage in one direction, mechanism for propelling the carriage in the opposite direction, and means for
 100 shifting the carriage laterally to effect a disengagement between said carriage and the propelling mechanism.

28. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a longitudinally-movable and laterally-shiftable carriage provided with two sets of teeth, a tension device for moving the carriage in one direction, plungers acting on the teeth to move the carriage in the opposite
 110 direction, and means for shifting the carriage laterally to effect a disengagement between the carriage and the mechanism employed to move the carriage against the influence of the tension device.

29. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a longitudinally-movable and laterally-shiftable carriage, a tension device for moving the carriage in one direction, means for propelling the carriage step by step in the opposite direction, and a cam for effecting a disengagement between the carriage and the step-by-step propelling mechanism.
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30. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a longitudinally-movable and laterally-shiftable carriage, a rotary platen mounted on the carriage, ratchet mech-
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anism for imparting rotary intermittent movement to the platen, and means whereby the type-wheel is adapted to actuate said ratchet mechanism.

5 31. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a longitudinally-movable carriage, a rotary platen mounted thereon, ratchet mechanism for imparting intermittent rotary movement to the platen, a spring-retracted presser-bar, and means controlled by the type-wheel for operating said presser-bar and actuating the ratchet mechanism.

10 32. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a carriage, a rotary platen mounted thereon, ratchet devices at opposite ends of the platen for imparting rotary intermittent movement thereto, a presser-bar common to both ratchet devices, and means controlled by the type-wheel for moving the presser-bar and actuating the ratchet devices.

15 33. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a longitudinally-movable and laterally-shiftable carriage, a platen mounted thereon and movable toward and

away from the face of the type-wheel, and mechanism embodying a cam for shifting the carriage laterally and moving the platen toward the type-wheel. 30

34. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a longitudinally-movable and laterally-shiftable carriage, a platen mounted thereon, means for holding the platen away from the face of the type-wheel, and a cam for shifting the carriage and urging the platen toward the type-wheel. 35

35. In an electrically-operated type-writer, the combination of a motor, a type-wheel actuated thereby, a longitudinally-movable and laterally-shiftable carriage, a platen mounted thereon, a wheel having cam projections for urging the carriage toward the type-wheel, and ratchet mechanism for imparting intermittent rotary movement to said wheel. 40 45

In testimony whereof I affix my signature in presence of two witnesses.

WILLIS J. ROUSSEL.

Witnesses:

L. A. DELHOMMER,
F. J. DELHOMMER.