

No. 788,012.

PATENTED APR. 25, 1905.

N. L. ANDERSON.
TYPE WRITER.

APPLICATION FILED SEPT. 26, 1904.

6 SHEETS—SHEET 1.

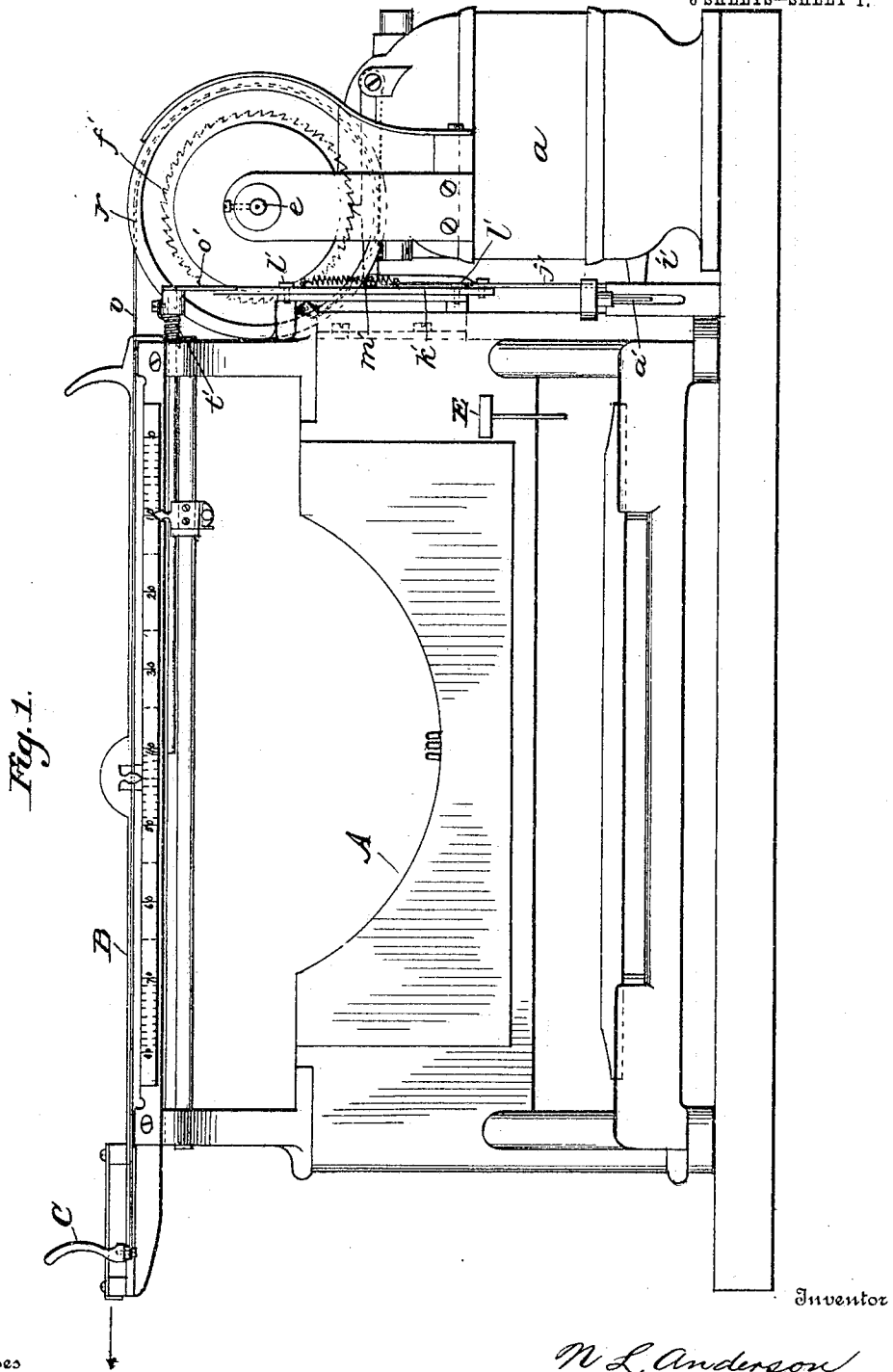


Fig. 1.

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6 SHEETS—SHEET 2.

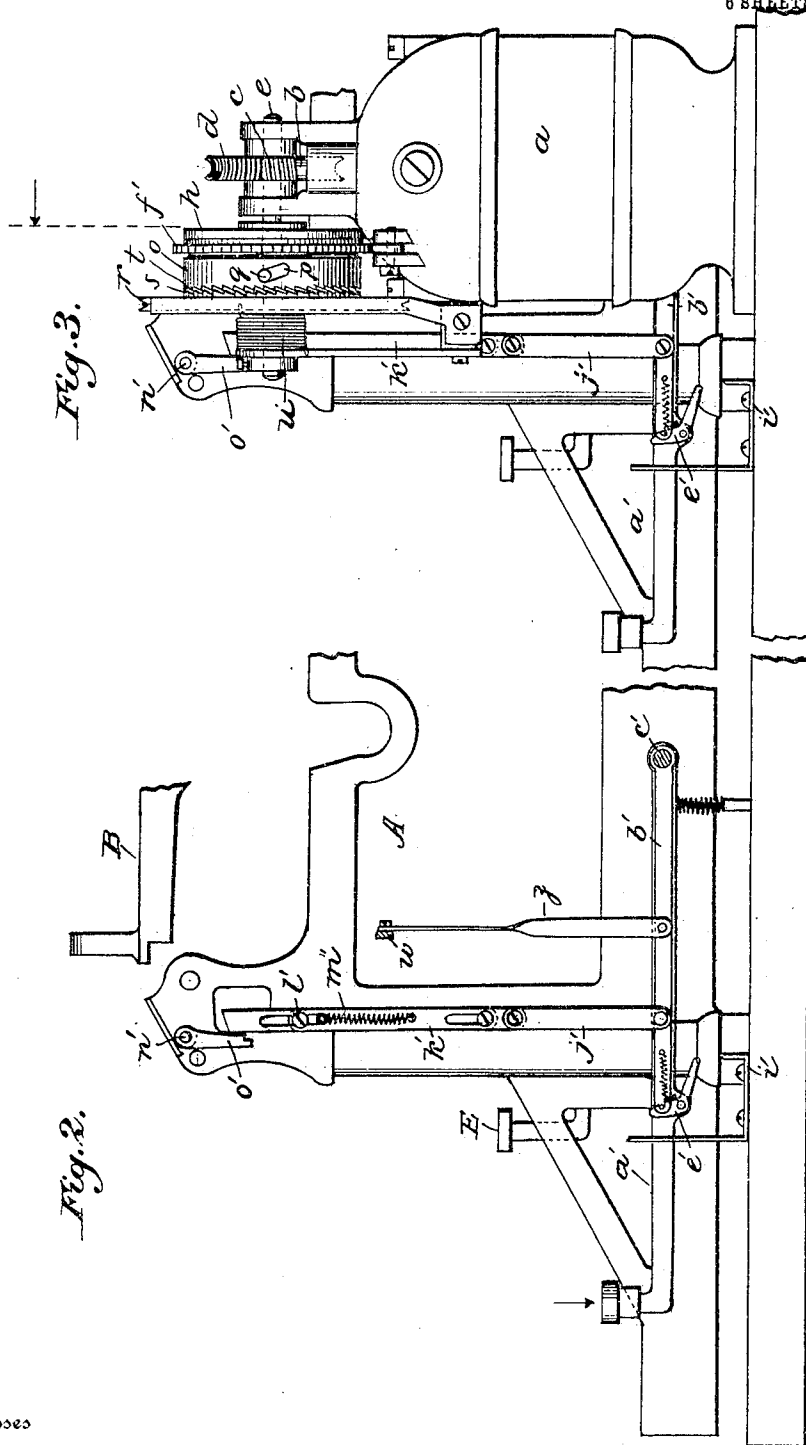


Fig. 3.

Fig. 2.

Fig. 1.

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6 SHEETS—SHEET 3.

Fig. 5a.

Fig. 5.

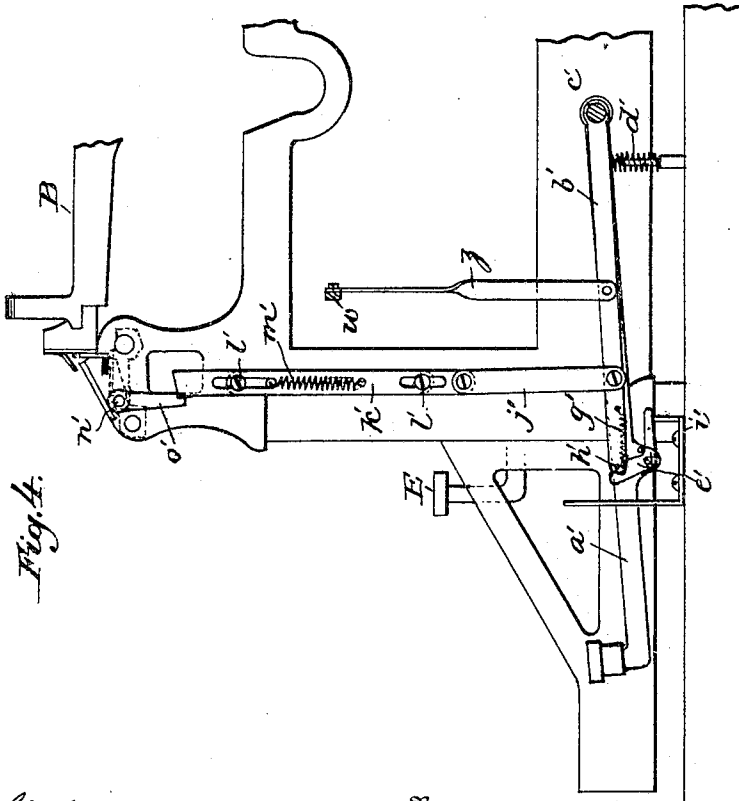
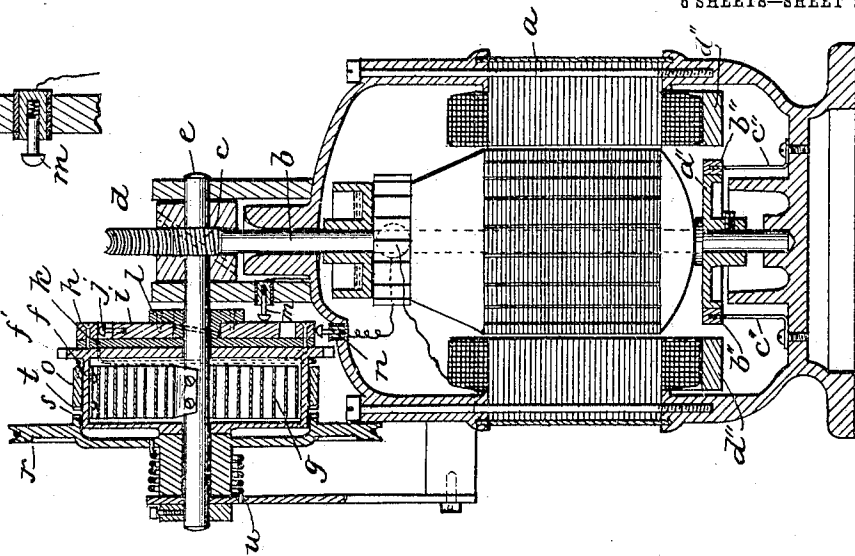


Fig. 4.

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6 SHEETS—SHEET 4.

Fig. 6.

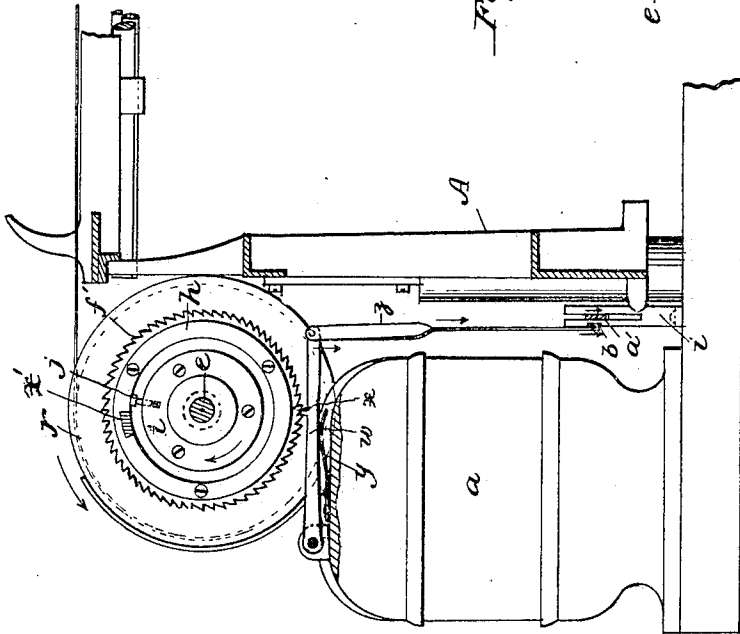


Fig. 7.

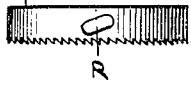


Fig. 8.

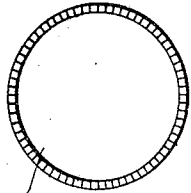


Fig. 9.

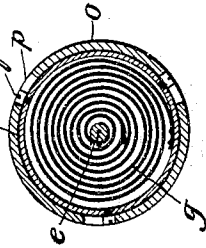
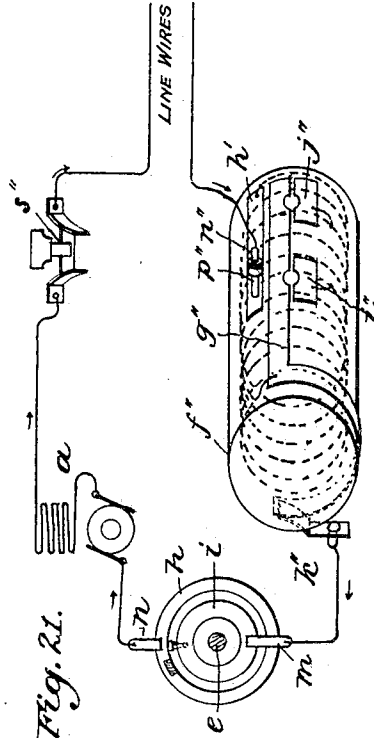


Fig. 21.



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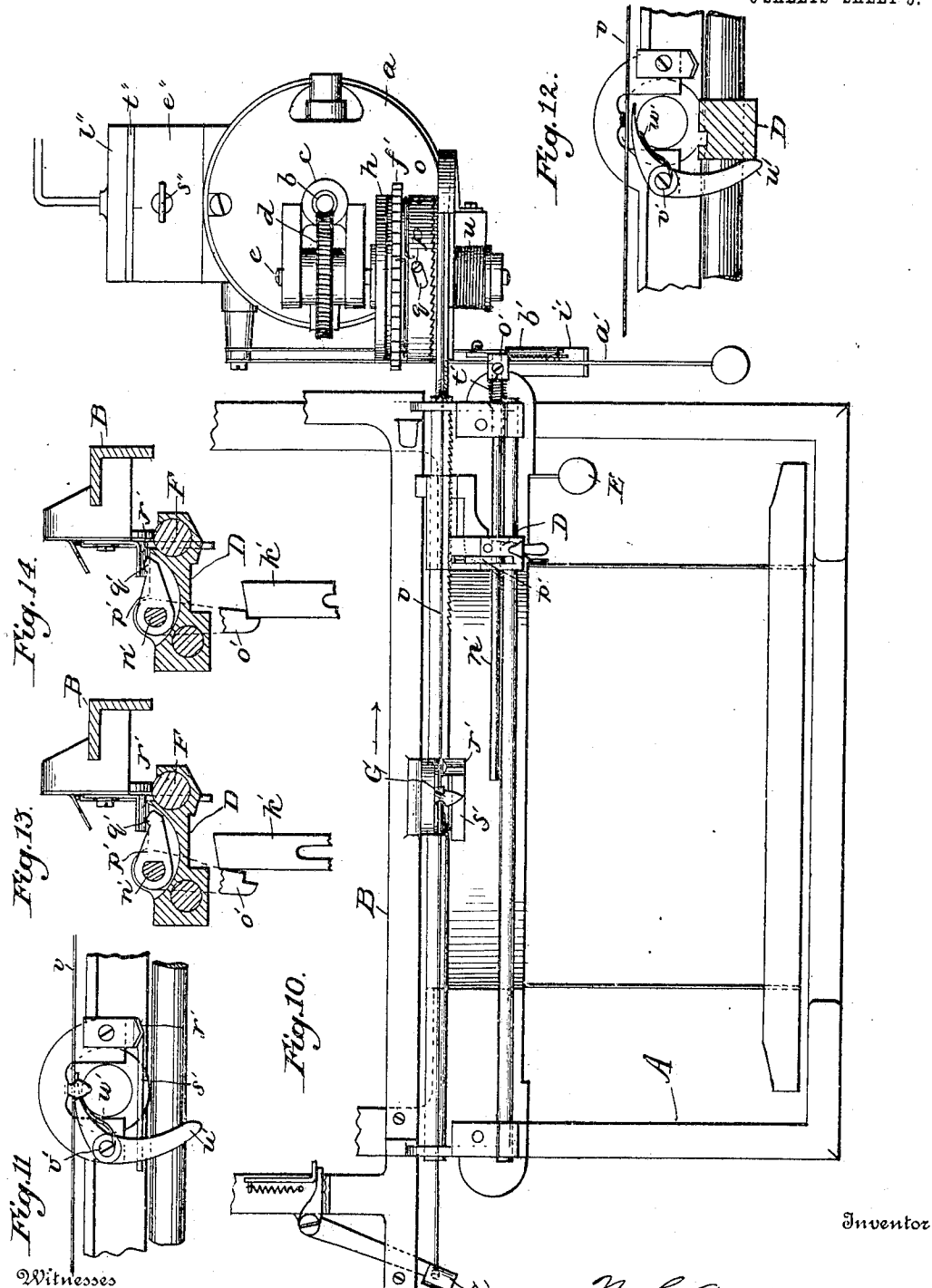
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6 SHEETS—SHEET 6.

Fig. 15.

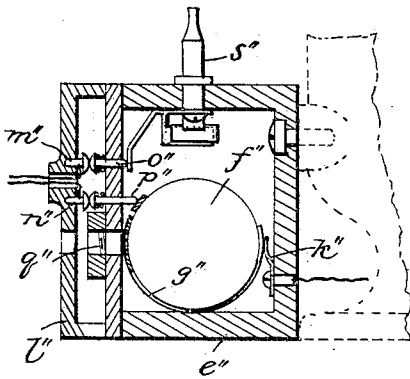


Fig. 16.

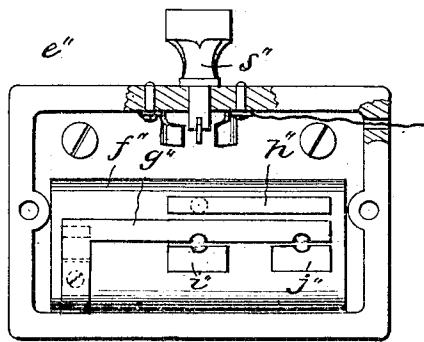


Fig. 17.

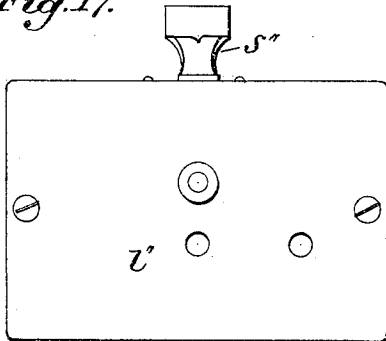


Fig. 18.

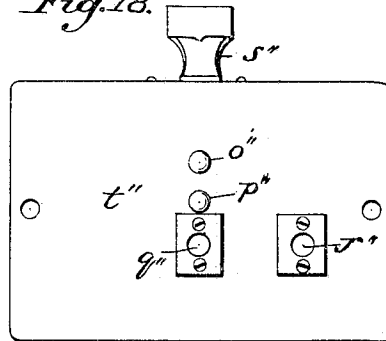


Fig. 19.

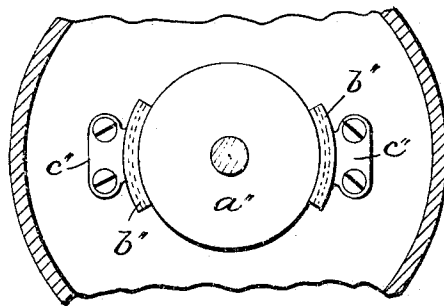
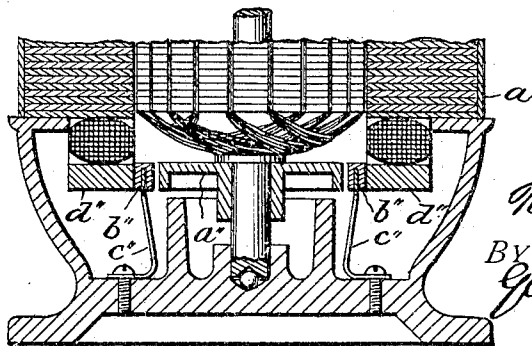


Fig. 20.



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UNITED STATES PATENT OFFICE.

NEAL LARKIN ANDERSON, OF MONTGOMERY, ALABAMA.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 788,012, dated April 25, 1905.

Application filed September 26, 1904. Serial No. 225,981.

To all whom it may concern:

Be it known that I, NEAL LARKIN ANDERSON, a citizen of the United States, residing at Montgomery, Montgomery county, State of Alabama, have invented certain new and useful Improvements in Type-Writers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to type-writers, and more particularly to mechanism for effecting the return of the paper-carriage of type-writer machines of the general type described and claimed in my former patents, No. 695,779, granted March 18, 1902, and No. 732,498, granted June 30, 1903.

The object of the invention is to provide a type-writer with mechanism for returning the carriage and simultaneously spacing the platen, possessing greater simplicity of construction and efficiency of operation, and involving a material reduction in the cost of manufacture and installation.

More particularly the improvements embodied in the present invention comprise means for effecting the accurate spacing of the lines of print, said means being integrally correlated with the carriage-return mechanism, means for bringing into action the spring-motor for returning the carriage and for disengaging the same from the carriage through the intervention of stop mechanism associated with the usual margin-stop, means for disengaging the return-key from the mechanism that trips the spring-motor into action, whereby the key may be held down by the operator without interfering with the release of the return spring-motor or the advance of the carriage for writing the new line, means for promptly and effectively checking and stopping the momentum of the electric motor which maintains the energy of the auxiliary or return spring-motor, and means for readily adapting the electric motor to currents of different types or potentials.

Referring to the accompanying drawings, Figure 1 is a front elevation of a standard "Underwood" type-writer with my improvements applied thereto, certain portions of the

type-writer mechanism being omitted for the sake of clearness. Fig. 2 is a fragmentary side elevation of the type-writer, showing the carriage-return key and its appurtenant mechanism. Fig. 2^a is an enlarged detail view of the latch for connecting the return-key and the lever for operating the motor-stop. Fig. 3 is a side elevation showing the spring-motor and the electric motor in position. Fig. 4 is a view corresponding to Fig. 2, showing the return-key in depressed or operative position. Fig. 5 is a vertical section through the motor mechanism. Fig. 5^a is an enlarged detail view of one of the contact pins or brushes by means of which the circuit is established between the spring-motor mechanism and the electric motor. Fig. 6 is a fragmentary sectional rear elevation showing the relation of the motors to the machine-frame. Figs. 7 and 8 are a side view and a front elevation, respectively, of the clutch-ring for connecting the spring-drum to the band-wheel. Fig. 9 is a transverse section through the spring-drum and clutch-ring. Fig. 10 is a plan view of the forward part of the type-writer, illustrating the relation of the carriage-return mechanism and the platen-spacing means, certain portions of the type-writer mechanism being omitted for the sake of clearness. Fig. 11 is an enlarged detail view showing the clutch-lever for locking the traction-band to the carriage-frame. Fig. 12 is a corresponding view showing said clutch-lever in released position. Fig. 13 is a detail view, in transverse section, showing the means for locking and releasing the return-key. Fig. 14 is a corresponding view showing said means in locked position. Figs. 15, 16, 17, and 18 are detail views of the rheostat-controller for the electric motor. Figs. 19 and 20 are horizontal and vertical sections, respectively, through the lower part of the electric motor, showing the braking means for said motor. Fig. 21 is a diagrammatic view of the electric circuits and connections by means of which the electric motor is controlled.

Referring to the drawings, A indicates a type-writer having the usual reciprocating paper-carriage B, which is provided with the ordinary rotary platen by means of which the

paper is supported and spaced for successive lines of writing, said platen being omitted to avoid complicating the drawings. On the left-hand side of the carriage B is pivoted a spring-retracted lever C, which is employed for spacing the platen for the successive lines of print, and in this type of machine it is customary to grasp said lever and return the carriage to its initial position at the same time the platen is spaced, so that the carriage is returned to its initial position and the paper moved forward for a new line of print by one motion of the operator, as will be understood by those familiar with this class of machine.

Mounted upon the machine-frame, adjacent the right-hand end thereof, is a small electric motor *a*, having a vertical shaft *b*, upon the end of which is secured a worm-gear *c*, which meshes with and drives a worm-wheel *d*, which is secured to a shaft *e*, journaled in suitable bracket-bearings on the motor-casing. Loosely mounted upon the shaft *e* is a spring-drum *f*, having an annular rim *f'*, provided with ratchet-teeth. The actuating-spring *g* of said motor is connected at one end to the shaft *e* and at the other to the interior of the drum *f*, substantially in the manner shown in my former patents above referred to. Loosely journaled on the shaft *e* adjacent to the drum *f* is a band-wheel *r*, to which is connected one end of a flexible traction band or strip *v*, the other of which is secured to the platen-spacing lever C.

Mounted upon the outer periphery of the drum *f* is an annular clutch-ring *o*, provided with a series of diagonal slots *p*, which are engaged by screws or studs *q*, set in the periphery of the drum *f*. The edge of said clutch-ring is provided with teeth or serrations *t*, adapted to be brought into mesh with a similar set of teeth or serrations *s* on the adjacent face of the band-wheel *r*. A spiral spring *u*, secured at one end to the band-wheel and at the other to a stationary part of the motor-frame, serves to rotate said band-wheel in a direction to take up the slack of the traction-band when the carriage is returned or moved backward by hand.

On the face of the spring-drum *f* there is mounted a conductor-ring *h*, which is separated from said drum by an insulating-disk *k*. Secured to the shaft *e* by means of an insulating-bushing *l* is a conductor-disk *i*, in the periphery of which is a spring-pressed conductor-pin *j*, which engages the inner edge of the ring *h* and establishes electric connection between said ring and the disk *i*. Spring-pressed pins or brushes *m* and *n*, carried by suitable insulated bushings in the motor-frame, serve to establish circuit connections between a source of electricity, ring *h*, disk *i*, and the electric motor *a* in a manner to be more particularly described hereinafter.

Pivoted on the upper end of the casing of the electric motor *a* is a stop-lever *w*, having

thereon a pawl *x*, adapted to engage the ratchet-teeth *f'* on the spring-drum *f* and restrain said drum, said lever being normally lifted by a spring *y* to cause the pawl *x* to engage the ratchet-teeth aforesaid. To the forward end of the lever *w* is connected a rod *z*, which in turn has a pivotal connection with a lever *b'*, mounted upon a pivot-pin *c'* on the side of the motor-frame. Pivoted on the pin *c'* aforesaid is a key or key-lever *a'*, midway the length of which is pivoted an angular latch *e'*, having a notch or recess in its upper end adapted to normally engage a laterally-projecting pin *h'* on the lever *b'*, so that the key-lever *a'* and the lever *b'* are normally connected by and caused to move together through the interposed latch *e'*. A spring *g'*, connecting said latch with the key-lever *a'*, holds said latch in position to engage the pin *h'*, and a detent *v'* on the base of the machine lies in the path of the horizontal arm of the latch *e'* and rocks said latch against the tension of spring *g'*, so as to disengage said latch from the pin *h'* and permit the key *a'* and the lever *b'* to move independently of each other. The detent *v'* is formed by the upturned end of an L-shaped guide-bracket, the forward end of which is slotted to provide a guide for the key-lever *a'*.

Mounted upon the machine-frame above the levers *a'* and *b'* is a sliding bar *k'*, which is connected to and guided upon the standard of the machine-frame by screws or studs *l'*, engaging suitable slots in said bar. A spring *m'*, connected at one end to the machine-frame and at the other end to said bar, tends to lift said bar and the lever *b'*, connected thereto by a link *j'*, so that they normally occupy the relative positions illustrated in Fig. 2. Journaled in the upper forward portion of the machine-frame, and substantially parallel to the carriage-way F, is a horizontal rod *n'*, upon the outer end of which is rigidly secured a depending pawl *o'*, having a notch in its lower end adapted to receive the upper end of the bar *k'* when said bar is pulled down to the position shown in Fig. 4. A short helical spring *t'*, secured at one end to the machine-frame and at the other end to the rod *n'*, serves to rock said rod, so that the depending pawl *o'* on the end thereof is normally in position to engage the bar *k'*, as hereinbefore described. The rod *n'* also passes through the body of the adjustable margin-stop D, which in this machine is adapted to be moved backward and forward upon its supporting-rod, so as to stop the carriage in its return movement at any predetermined margin-defining point, as will be understood by those familiar with this machine. Rigidly connected to the rod *n'* is a generally horizontal finger or stop *p'*, having a boss or extension *q'* on its upper forward end, which lies in the path of movement of a detent or abutment *r'*, mounted on the carriage-frame adjacent to the usual scale-pointer. The forward edge of the detent *r'* is

beveled or inclined to provide for a gradual but definite depression of the stop p' , as the parts aforesaid come in contact upon the return of the carriage. The rear sides of the detent r' is provided with an extension s' , lying in the plane of movement of said detent and substantially equal in length to ten printing-spaces or equivalent to the usual space provided at the beginning of a paragraph. It will be seen, therefore, that the stop p' is engaged by the detent r' and the rear projection thereof, while the paper-carriage moves over the usual paragraphing-space both at the end of the return and initial forward movement of said carriage.

Pivoted on a suitable stud v' on the frame of the carriage B at a point adjacent to the scale-pointer is a curved clutch-lever u' , the upper end of which is forced by a spring w' against the traction-band v and serves to hold the same firmly against the pointer, as shown in Fig. 11, while the lower end of said lever u' is adapted to be engaged by the lower portion of the margin-stop D, whereby said lever is rocked against the tension of spring w' to release the traction-band v for reasons to be more particularly explained hereinafter.

In order to promptly arrest the movement of the electric motor when the tension of the spring-drum has been properly restored, I have found it desirable to interpose a positive braking means for the electric-motor shaft, said braking means consisting of the following elements: A disk a'' , of brass or other non-magnetic metal, is secured to the lower end of the motor-shaft b , and cooperating therewith are two brake-shoes b'' , preferably of soft iron, which are normally forced into engagement with the periphery of the disk a'' by means of spring-standards c'' , upon which the brake-shoes are supported. It will be seen, therefore, that the brake-shoes normally engage the disk on the shaft b and prevent rotation of the electric motor. In order to relieve the motor-shaft from this braking action, I provide two polar extensions d'' from the field pole-pieces, which extensions lie adjacent to the brake-shoes b'' , so that when the motor is energized by a current passing therethrough and the pole-pieces are magnetized the polar extensions d'' will exercise a strong magnetic pull upon the brake-shoes and draw the same out of contact with the disk a'' , so that the electric motor may start.

The electric motor a is preferably of the series-wound type and is adapted for either direct or alternating current circuits, and in order to permit the motor to be operated upon circuits of various voltages and with either direct or alternating currents I have provided a controller. (Illustrated more particularly in Figs. 15, 16, 17, 18, and 21.) Said controller consists of a box e'' , of porcelain or similar material, which is secured to the mo-

tor-frame by suitable screws. Within said box is mounted a cylinder f'' , upon which is wound a coil of German silver or other high-resistance metal, preferably provided with a porcelain coating. To the periphery of the cylinder is secured an L-shaped conductor g'' , one portion of which partially encircles the cylinder near one end thereof and the other portion of which runs longitudinally of the surface of said cylinder. Adjacent to the horizontal portion of the conductor g'' are mounted two blocks i'' and j'' , which are connected to the resistance-wire at separate points intermediate the ends thereof. The adjacent edges of the blocks i'' and j'' and the conductor g'' are recessed to form sockets for the reception of suitable plugs, whereby a circuit may be closed from either of said blocks directly to the conductor g'' . One end of the conductor-wire is secured to the curved end of the conductor g'' and the other end of said resistance-wire is connected to a longitudinal strip h'' , mounted on the surface of the cylinder above the conductor g'' . The box e'' is closed by a cover or partition t'' , which is provided with two holes or sockets registering with the plug-sockets between the blocks i'' and j'' and conductor g'' , and two spring-pressed pins o'' and p'' serve to make connection with the strip h'' and one terminal of an ordinary snap-switch s'' . The other terminal of said snap-switch s'' is connected with one of the motor-leads. Removably secured to the box and overlying the partition t'' is an outer cover l'' , likewise perforated for the circuit-plugs and carrying two pins m'' and n'' , adapted to engage the pins o'' and p'' , said pins m'' and n'' being connected to the two line-wires. A brush or spring contact k'' engages the free end of the curved portion of conductor g'' and is connected to the other lead of the motor. The resistance included in the controller above described, of course, may be proportioned to suit any desired conditions of current or voltage; but it has been found that an efficient control may be maintained when the resistance is made sufficiently large to enable the motor to be operated upon a circuit of two hundred and forty volts, under which circumstance the current will pass through the entire coil. If the motor, for example, is wound for one hundred and ten volts alternating current, it will be necessary to introduce a resistance of about one hundred and forty-six ohms if a direct current of the same potential be employed. For the alternating current above referred to a plug would be inserted in socket q'' , thereby short-circuiting a large portion of the resistance-coil, and if the motor were then placed upon a direct-current circuit of the same voltage the plug would be removed from socket q'' and inserted in socket r'' , which would interpose a larger section of the resistance-coil in the circuit sufficient to compensate for the change in current.

The operation of the apparatus, as above described, is as follows: The margin-stop D is adjusted to the desired position and the operator proceeds as in the usual course of writing. Upon reaching the end of the line the return-key *a'* is struck with substantially the same movement required to operate one of the printing-keys. The downward movement of the key *a'* carries with it lever *b'* by reason of the connection of key *a'* with lever *b'* by means of latch *e'*. As key *a'* reaches the downward limit of its movement latch *e'* strikes detent *i''* and is rocked to disengage the notch in said latch from the pin on the end of lever *b'*. The downward movement of lever *b'* pulls the locking-lever *w* downward against the tension of spring *y*, thereby moving pawl *x* out of engagement with ratchet *f'*. The drum *f* being now free to move under the tension of its spring revolves toward the right and carries with it clutch-ring *o*, which is forced toward the band-wheel *r* by virtue of the inclined slots *p* engaging the pins *q* in the periphery of the drum *f*, thereby causing the teeth on said clutch-ring to engage the corresponding teeth on the band-wheel and causing said band-wheel to revolve with the spring-drum and wind up the flexible band *v*. The winding up of said band draws the paper-carriage to the right—viz., returns said carriage to its initial position and also moves the platen-spacing lever C against the tension of its spring to revolve the platen, and thereby space the paper for a new line. The descent of lever *b'* draws down the bar *k'* against the tension of spring *m'* and permits pawl *o'* to slip over the end of said bar and hold the latter and the lever *b'* in depressed position. The pawl *o'*, as hereinbefore described, is moved into engaging position by the partial rotation of rod *n'* under the influence of spring *t'*. This movement of rod *n'* also throws the end *q'* of the stop *p'* upward and into the path of movement of the detent *r'* on the paper-carriage. The several parts, as above described, occupy the positions shown in Figs. 4 and 14 until the carriage reaches the end of its return movement—that is to say, until it reaches the point where it is about to be arrested by the margin-stop. This movement of the carriage causes the detent *r'* to strike the end *q'* of stop *p'* and rock rod *n'* to move pawl *o'* out of engagement with bar *k'*, thereby permitting said bar to move upward under the tension of spring *m'* and return the lever *b'* to its horizontal position, which also causes lever *w* to move upward and engage pawl *x* with the ratchet *f'* and arrest the movement of the spring-drum *f*.

It will be seen that the releasing of the spring-drum is effected by the operation of the release-key *a'* and that the locking of the pawl *x* in its released position and the subsequent reengagement of said pawl with the ratchet to stop the spring-drum is independ-

ent of said key *a'*, and the disengagement of the spring-motor from the band-wheel *r* will be properly effected even if the operator should inadvertently keep the key *a'* depressed, as said key is disengaged from the lever *b'* and its connected locking-bar *k'* by means of the interposed latch *e'*, as hereinbefore described. Should the locking-bar *k'* and lever *b'* be released before the operator releases key *a'*, however, the latter will be returned to its proper position upon release by the spring *d'*, and the latch *e'* will again connect key *a'* and lever *b'*.

When the carriage is arrested at the end of its return movement, the spring-drum *f* will be stopped in the manner above described. The momentum of clutch-ring *o*, however, will usually be sufficient to cause the latter to revolve until pins *q* engage the opposite end of the inclined slots *p*, and thereby withdraw said clutch-ring from engagement with the band-wheel *r*. The electric motor, however, continues to operate to fully restore the tension of the spring-drum in a manner fully set forth in my patents above referred to, and this operation need not, therefore, be more particularly described. When said electric motor has completely restored the tension of the spring-drum, however, and the circuit of said motor has been broken at the fiber-block *a'*, the field-coils of said motor are immediately deenergized, thereby permitting the brake-shoes *b''* to move into engagement with the brake-disk *a''* and instantly arrest the movement of said motor to prevent overwinding due to inertia of the motor and also to prevent the possibility of the conductor-pin *j* passing beyond the fiber-block and overwinding the spring to the extent of another full revolution.

As the stop *p'* is carried by the margin-stop, it will be seen that the exact point at which said stop will be actuated to release the locking-bar *k'* and the stopping-pawl *x* is determined by the position of the margin-stop D, which carries said stop *p'*, and it is obvious that the setting of the margin-stop at any desired point will determine the point at which the locking mechanism will be tripped to release the return spring-motor. As hereinbefore described, the detent *r'* is provided with an elongated end *s'*, covering substantially ten letter-spaces along the scale. The object of thus elongating the detent or trip is as follows: When the operator desires to return the carriage from any point previous to the number "10" on the scale, (this being the usual paragraph-point,) it is always for the purpose of beginning a new paragraph. It would be impracticable to return the carriage prior to reaching this point by means of the return-motor, as the apparatus would not have developed sufficient momentum to effect the line-spacing and complete the return. Consequently as the carriage moves over these first

ten letter-spaces the stop p' is held down by the elongated end s' of detent r' , so that when the return-key u' is struck by the operator at any point before "10" is reached on the scale the effect will be merely to release the return spring-motor for an instant from the pawl x , and during this instant the said motor will wind up the traction-band v sufficiently to swing the platen-spacing lever to the right, and thereby space the paper for a new line; but as the bar h' is immediately released the pawl x again engages the ratchet-teeth and arrests the spring-drum, and the carriage is not returned, so that the operator may at once continue his new line from the paragraph-point "10," moving up to that point, if necessary, by striking the usual tabular key E, which is provided for the ordinary margin-spacing. It will thus be seen that the carriage may be returned from any point along the line beyond the number "10" on the scale, and as within that point the operator always desires to start a new paragraph it is not necessary that the carriage be returned; but when he touches the return-key u' a new line is spaced and he may at once continue writing on this line. It is possible, of course, to secure the same result by providing stop p' with an elongated extension instead of the detent r' , as it is only necessary that said stop and said detent be held in engagement for a period of travel of the carriage equal to ten letter-spaces.

In returning the carriage after writing very short lines it sometimes happens that the clutch-ring o does not attain sufficient momentum to release itself from the band-wheel r when the spring-motor is stopped, and thus the carriage is still locked with the return spring-motor, and the writing cannot proceed until the band-wheel has been manually disengaged from the clutch-ring. This difficulty is obviated by the spring-actuated clutch u' , which locks the band v to the carriage. The failure of the clutch-ring to release after a short line has been written is sometimes due also to the fact that the carriage does not attain sufficient momentum to permit said ring to disconnect from the band-wheel before the spring which returns the spacing-lever to its normal position operates to throw said lever to the left, draws the band backward, and causes the band-wheel to hold the clutch-ring in locked position. By interposing clutch-lever u' to lock the band v to the carriage, the pressure of the spring w' operating said clutch being just sufficient to overbalance the spring in the spacing-lever, the band between the clutch and the spacing-lever is held stationary until after the clutch-ring o has been disengaged. By this means the release of the spring-motor will be effected with certainty and efficiency. The lower end of the clutch-lever u' , however, lies in the path of the margin-stop mechanism, as shown in Fig. 12, and strikes this stop at the second or third letter

from the beginning of the new line. The operation of this clutch mechanism is as follows: Normally the clutch-lever u' grips the band v , as shown. When, however, the return-key is struck, the return spring-motor through the band-wheel r draws the band through the clutch u' and swings the platen-spacing lever C to the right, thus spacing for a new line. As before described, the tension of the spring w' on the clutch is just sufficient to overcome the tension of the spring on the spacing-lever, so that said lever is held in its extreme right-hand position during the return of the carriage, and when the carriage reaches the end of its return movement and the clutch-ring o is unlocked there is no counteracting tendency of the spacing-lever to reverse the movement of the band-wheel and reengage the clutch, since the tension of the spacing-lever spring is counteracted by the tension of the spring w' of clutch-lever u' . When the clutch-lever u' engages the margin-stop D, however, the band is released, and the platen-spacing lever returns to its normal position under the influence of its spring. It will also be apparent that when in the advance of the carriage for a new line the end of the clutch-lever u' has passed out of contact with the margin-stop D said clutch-lever will again grip the band v , and the mechanism will be ready for a subsequent operation. In order to avoid any undue wear of the band v at the point where it is engaged by the clutch-lever u' , said band may be wrapped with fine wire or other suitable protecting material.

Having thus described my invention, what I claim is—

1. A type-writer having a paper-carriage, a motor for returning the carriage to the beginning of a line, a key-released stop for said motor, means for locking the stop in releasing position, and means on the paper-carriage for disengaging the lock to permit the stop to engage the motor.

2. A type-writer having a paper-carriage, a motor for returning the carriage to the beginning of a line, a stop for said motor, a key-lever for releasing said stop, means for locking said stop in releasing position, means on the paper-carriage for disengaging the lock to permit the stop to engage the motor, and connections between the key-lever and the stop to permit the latter to operate independently of the key-lever.

3. A type-writer having a paper-carriage, a motor for returning the carriage to the beginning of a line, a pawl for stopping said motor, a lever for releasing said pawl, a key for actuating the lever to release the pawl, a latch for connecting the key and the lever, an abutment for throwing said latch to disengage the key and lever when the latter have been operated, a sliding bar connected to said lever, a pivoted pawl on the type-writer frame engaging said bar to lock the lever when the latter

has been depressed, and means on the carriage to rock said pawl and release the lever when the carriage returns to a starting-point.

4. A type-writer having a paper-carriage, a lever thereon for spacing the platen and returning the carriage, a motor for returning the carriage, a connection between the motor and the spacing-lever, a key-released stop for said motor, means for locking the stop in releasing position, and means on the paper-carriage for disengaging the lock to permit the stop to engage the motor.

5. A type-writer having a paper-carriage, a lever thereon for spacing the platen and returning the carriage, a motor for returning the carriage, a band connecting the motor and the spacing-lever, a stop for said motor, a key-lever for releasing said stop, means for locking said stop in releasing position, means on the paper-carriage for disengaging the lock to permit the stop to engage the motor, and connections between the key-lever and the stop to permit the latter to operate independently of the key-lever.

6. A type-writer having a paper-carriage, a motor for returning the carriage, a stop for said motor, a key-lever for releasing said stop, a sliding bar connected to said key-lever, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod adapted to engage the sliding bar to lock said bar and said stop in motor-releasing position, an adjustable stop on said rod, and a detent on the carriage adapted to engage the adjustable stop to rock the rod and release the key-lever and the motor-stop.

7. A type-writer having a paper-carriage, a motor for returning the carriage to the beginning of a line, a pawl for stopping said motor, a lever for releasing said pawl, a key for actuating the lever to release the pawl, a latch for connecting the key and the lever, an abutment for throwing said latch to disengage the key and lever when the latter have been operated, a sliding bar connected to said lever, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod adapted to engage the sliding bar to lock said bar, the pawl for stopping the motor in releasing position, an adjustable stop on said rod, and a detent on the carriage adapted to engage the adjustable stop to rock the rod and release the lever and motor-stop.

8. A type-writer having a paper-carriage, a motor for returning the carriage, a key-released stop for said motor, means for locking the stop in releasing position comprising a

sliding bar connected to the key, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod and engaging said rod when the key is depressed, an adjustable margin-stop surrounding said rod, a stop fast to said rod and movably connected to said margin-stop, and a detent on the carriage adapted to engage the last-mentioned stop to rock the rod and release the key and motor-stop.

9. A type-writer having a paper-carriage, a motor for returning the carriage, a platen-spacing lever connected to said motor, a key-released stop for said motor, a sliding bar connected to the key, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod, a stop fast to said rod, and a detent on the carriage cooperating therewith to rock the rod, the stop on the rod and the detent on the carriage having a relatively long period of engagement, whereby when a short line has been written, the motor may be operated to space the platen without returning the carriage.

10. A type-writer having a paper-carriage, a motor for returning the carriage, a platen-spacing lever connected to said motor, a key-released stop for said motor, a sliding bar connected to the key, a rod journaled on the machine-frame, a spring-actuated pawl fast to said rod, a stop fast to said rod, and an elongated detent on the carriage engaging the stop on the rod to hold the rod and its pawl in inoperative position until the carriage passes the paragraph-point, whereby when a short line has been written, the motor may be operated to space the platen without returning the carriage.

11. A type-writer having a paper-carriage, and a spring-retracted platen-spacing lever, a motor for returning the carriage, a band-wheel having a flexible connection with said platen-spacing lever, a clutch for connecting the spring-motor and the band-wheel, a clutch on the carriage for locking the flexible connection to the carriage, and a stop on the machine-frame adapted to release the last-mentioned clutch and permit the spacing-lever to return to normal position after the band has been released from clutched engagement with the motor.

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

NEAL LARKIN ANDERSON.

Witnesses:

H. R. JOHNSON,
W. R. MCDADE.