

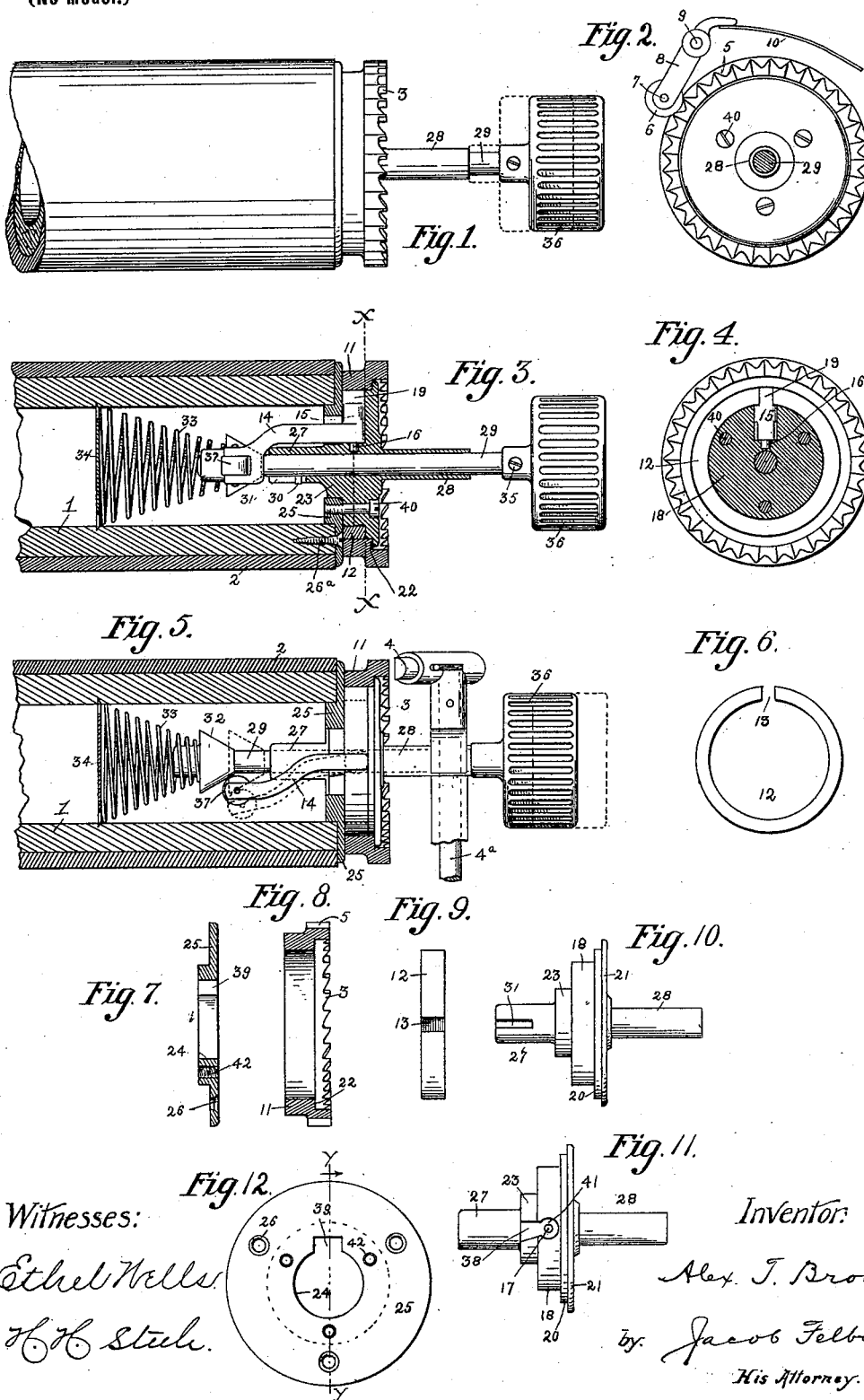
No. 648,100.

Patented Apr. 24, 1900.

A. T. BROWN.
TYPE WRITING MACHINE.

(Application filed May 16, 1898.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,100, dated April 24, 1900.

Application filed May 16, 1898. Serial No. 680,801. (No model.)

To all whom it may concern:

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

My invention has for its main object to provide means for enabling the platen to be turned variable distances in line-space direction independently of its line-spacing ratchet-wheel and detent for the purpose of facilitating the writing upon paper having ruled lines spaced apart differently from the tooth-spaces of the line-spacing ratchet-wheel and for writing upon printed forms having blank spaces to be filled in with the type-writer; and my invention has for a further object to provide a simple and effective construction whereby when the platen shaft, axle, or rod is moved endwise the platen is thereby released or disconnected from its ratchet-wheel or ring and may then be rotated while the said wheel or ring remains at rest by simply turning the said shaft, axle, or rod, the platen automatically reengaging with the ratchet-wheel and the other parts returning to their normal positions upon releasement of said shaft, axle, or rod.

To these ends my invention consists in the various features of construction and combinations of devices, all of which will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation of the right-hand end of a platen and line-spacing mechanism embodying my improvements and adapted for a Smith Premier type-writer, in which the carriage moves from right to left in the letter-spacing movements. Fig. 2 is a right-hand end view of the same with the hand-wheel or knob removed and with the platen ratchet-wheel detent added. Fig. 3 is a central vertical section of the parts shown at Fig. 1. Fig. 4 is a vertical cross-section taken at the line *xx* of Fig. 3, but showing the parts turned to different positions. Fig. 5 is a longitudinal section similar to Fig. 3, but showing the parts turned to different positions and including the line-space pawl and part of its lever and

part of the carriage and bar of a Smith Premier machine. Fig. 6 is a side elevation of the spring-ring. Fig. 7 is a section on the line *yy* of Fig. 12. Fig. 8 is a section of the line-spacing ratchet wheel or ring. Fig. 9 is a top plan view of the spring-ring. Fig. 10 is a side elevation of the hub or platen head, &c. Fig. 11 is a similar view of the same device viewed from the opposite side, and Fig. 12 is a side elevation of the platen end disk.

In the various views the same part will be found designated by the same numeral of reference.

The platen comprises, as usual, a hollow wooden core 1 and an outside rubber sheath or cover 2. The line-spacing ratchet wheel or ring is provided in this instance with side or crown ratchet-teeth 3 for engagement by the usually-employed line-space pawl 4 and with peripheral teeth 5 for the engagement of a detent 6, preferably made in the form of a freely-revoluble roller pivoted at 7 on a lever 8, fulcrumed at 9 to a part of the platen carrier or frame and provided at its rear end with a spring 10, which holds the detent always in engagement with the teeth 5 of the ratchet-wheel.

The ratchet wheel or ring is formed or provided with a circular flange 11, within which is fitted a circular ring 12, made, preferably, of spring-steel and which is open or divided at one point, as shown at 13.

14 is an arm or lever formed or provided with a pivotal portion or journal 15, having at its lowermost end a pivot-pin 16, which enters a bearing or step 17 in a hub 18, and having at its uppermost end a square, flattened, or angular portion 19, which enters the space or cut-away 13 in the spring-ring 12. The hub 18 is circular in form and takes a bearing around the inner side of the ring 12. On the right-hand side of this hub or bearing portion 18 is an integral flange 20, which lies against the outer side of the spring-ring and also bears around the inside of the flange 11 of the ratchet-wheel, and adjacent to the flange 20 on the right-hand side is still another flange or circular lip 21, which lies within the ratchet-ring proper and with its inner face against a circular shoulder 22, formed at the junction of the ratchet-ring and the flange 11. On the left-hand side of

the bearing 18 there is a smaller hub 23, fitted into a circular seat or bearing 24, formed centrally in a ring or disk 25, which is provided with three screw-holes 26, through which screws 26^a pass to secure the said disk to the end of the platen. Extending inwardly from the hub 23 is a sleeve 27 and extending outwardly from the hub 18 is another sleeve 28. Through the sleeves 27 and 28 and hubs 10 18 and 23 passes a shaft or spindle 29, which is provided with a radial pin 30 to engage with a longitudinal slot 31 in the sleeve or bearing 27, and at the inner end of said shaft or axle 29 is provided a cone or tapering device 32, against which presses one end of a 15 spiral spring 33, whose opposite end bears against a suitable stop or abutment 34, fixed in the hollow core of the platen. At the outer end of the shaft or rod is attached, by means of a screw 35, a knob or hand-wheel 36, whereby said shaft may be conveniently pushed inwardly and also rotated. Coacting with the conical device 32 at the inner end of the shaft is an antifriction-roll 37, pivoted on the inner 25 free end of the arm or lever 14, which is adapted to move to and from the longitudinal center of the platen, as will be hereinafter described, and to permit this vibration of said lever the hub 23 is cut away at 38, with one of its walls slanting, and the disk 25 is 30 notched or cut away at 39, the root of the lever-arm or that portion near the pivot occupying these cut-away portions.

The hub-like device or head carrying the sleeves 27 and 28 is attached to the ring or centrally-open disk 25 by means of three screws 40.

The abutment 34 for the spring 33 is preferably formed with three arms with sharp edges, and these arms are slightly bent out of the plane of the body of the device, so that it may be readily slipped into the bore of the platen-core, and when it has been moved therein to the desired position tools are inserted from opposite ends of the core and these 45 arms are straightened out and forced into the wood of the core, so that they take a bite or grip therein, and thus securely hold the device in place. Instead of this construction, however, pins may be driven through the core 50 from the outside, so as to form a suitable seat or bearing for the spring. The abutment having been secured in place, the spring 33 is inserted. The ring or disk 25 may then be secured to the end of the core by means of the screws 26^a. The lever 14 may now be connected to the hub 18 by passing its journal or pivotal end down through the socket or circular opening 41 in the hub, so that its pivot-pin 16 passes into the seat or step 17 in 60 said hub. The C-shaped spring or split spring-ring may now be slipped onto the hub 18, and so that the square or angular portion 19 of the lever-axis enters the opening 13 in said ring. The shaft or spindle may now 65 be passed through the sleeves 27 and 28, entering the sleeve 27 first and passing through the center of the hub or head and then out

through the sleeve 28, after which the knob or wheel 36 may be attached to said shaft. The ratchet-ring may now be applied, and these parts thus assembled are then ready for 70 attachment to the platen, which is done by means of the screws 40, which pass through the hub 18 and enter the tapped holes 42 in the ring or disk 25.

When the parts have been properly put together and connected with the platen, the antifriction-roll 37 stands normally at the highest or widest portion of the cone or incline and the lever is vibrated outwardly or 80 stands in the dotted-line position shown at Fig. 5, owing to the outward tension or pressure of the spring 33, which acts normally to press the shaft outwardly or in a direction opposite to the carriage letter-feed. In this 85 outward position of the shaft and lever under the tension of said spring the square or angular portion of the pivot of the lever acting on the divided ends of the spring-ring operates to expand the ring and cause it to press 90 against or frictionally engage with the inner surface of the flange 11 of the ratchet-ring and with such force that the said ratchet-ring is thereby connected for the time firmly with the said spring-ring. The spring-ring being connected to the pivot of the lever and the pivot of 95 the lever being seated radially in the hub 18 of the head, it follows that when the line-spacing pawl is actuated and turns the ratchet-wheel the spring-ring, the lever, and the hub are all 100 rotated in unison, and the hub being screwed fast to the disk or ring 25 it is thus attached firmly to the platen, and the platen is thereby caused also to turn with the parts named during the regular line-spacing operations of 105 the machine. These turning or rotative movements of the platen are, however, limited to distances equal to the distance apart of the teeth of the ratchet-wheel, the spring-pressed detent 6 bobbing freely over the teeth of the 110 ratchet-ring during such movements and operating to regulate the line-space feed and also to hold the platen firmly in position during the time of writing. When, however, it may be desired to feed the platen in line-space 115 direction variable distances or distances greater or less than the distances determined by the spacing of the ratchet-teeth, as for writing upon ruled paper or for filling in blank spaces or printed forms, the hand-wheel 120 or knob 36 is first pressed inwardly or in the direction of the carriage letter-feed to the full-line position shown at Fig. 5 and against the tension of the spring 33, whereupon the roller 37 rides down upon the cone 32 to the 125 narrow or smaller end thereof, and the lever 14 is automatically vibrated inwardly under the contractile force of the spring-ring 12, whereupon the friction or pressure of said ring is removed from the ratchet-ring, and the latter is thus disconnected from the other 130 parts of the device and will remain at rest under the pressure of the spring-detent during the rotative movement of the platen which

is to follow. While the shaft is thus held pressed in or toward the left and the ratchet-wheel is thus disconnected from the platen, the shaft may be turned in either direction, either through a large or small arc, in accordance with the necessities of the case, and the rotation of said shaft will be communicated to the hub or head by means of the pin-and-slot connection 30 31 between the shaft and the sleeve 27, and the said hub or head being rigidly attached through the disk or ring 25 to the platen it follows that the platen will turn with said hub and shaft and turn independently of the line-spacing ratchet-wheel and its detent. When the paper has thus been brought to the printing point and it may be desired to resume writing, the hand is removed from the wheel 36, whereupon the spring 33 causes the shaft to move outwardly again or in a direction opposite to the carriage letter-feed, and during this movement the cone or inclined surface 32, acting upon the roller 37, operates to force the lever 14 outwardly again and to cause its angular pivot to again expand the split ring 12 and renew the frictional engagement between said ring and the line-spacing ratchet-wheel. In other words, when the knob is released the parts are all automatically returned to normal position and the mechanism is again put in condition for regular line-spacing operations by means of the line-spacing lever 4^a and pawl 4.

It will be understood from the foregoing that the line-spacing ratchet-wheel is frictionally connected with the platen through a C-shaped or split spring-ring under the tension or pressure of a supplemental spring and intermediate devices, the said spring-ring having a normal contractile tendency which is overcome by the tension of the spiral spring 33, and hence it follows that when the tension or pressure of the spring 33 is removed the friction-spring 12 automatically contracts and disengages the line-spacing ratchet-wheel from the platen, thus leaving the latter free to be turned in either direction and to any desired extent independently of the regular line-spacing mechanism.

Although I prefer to employ the C-shaped friction spring-ring, other forms of friction devices may be employed in lieu thereof, and likewise other means than the lever and its coacting parts may be used to transmit the pressure of the spring 33 to produce a frictional engagement between the ratchet-ring and the platen, the main feature of this part of my invention embodying the use of a spring, as 33, to force some device to make frictional engagement between the platen and the ratchet-ring and to maintain such engagement until a force is applied to such spring through an endwise movement of the shaft or spindle by the hand of the user in a direction opposite to the tension of the spring, so as to disengage the friction device and permit the platen to be rotated independently thereof by a rotative movement of said shaft or spindle

while it is held in its abnormal endwise position.

It will be noted that the shaft must be moved in the direction of the carriage letter-feed in order to release the clutch members, and that because of this arrangement the position of the carriage is not disturbed at the platen-releasing operation. This disturbance would, however, result if the shaft were to be moved in the opposite direction in order to effect a release of the platen, inasmuch as the letter-feeding devices, although holding the carriage against thrust or pull in the direction of the carriage-feed, allow it to yield freely to pressure applied in the opposite direction. It will thus be seen that if the shaft in this case were arranged to be pulled or pushed toward the right to release the platen from the clutching devices it would be necessary always to disturb the position of the carriage and draw it back to the limit of its right-hand movement. Otherwise it would be necessary for the operator to use the other hand for holding the carriage in position during the releasing movement of the platen and subsequent adjustment of the paper, which would prove more inconvenient than to first return the carriage to the right.

Various changes in detail, construction, and arrangement may be made to adapt the main features of my invention to other descriptions or styles of writing-machines than the one for which it has been specially designed.

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

1. In a type-writing machine, the combination of a platen having a line-space ratchet-wheel, a friction device, a spring acting on said friction device normally to establish frictional engagement between the ratchet-wheel and the platen, a shaft or spindle connected to the platen and also connected to said spring in such manner that when said shaft or spindle is moved endwise in the direction of the carriage letter-feed it removes the pressure of said spring from said friction device and thereby breaks the frictional connection between said ratchet-wheel and platen, and also connected in such manner that when the said shaft or spindle is rotated, while in its abnormal endwise position and while the friction device is disengaged, the said platen is rotated with said shaft or spindle and independently of the said ratchet-wheel; substantially as described.

2. In a type-writing machine, the combination of a platen having a line-spacing ratchet-wheel, a friction device connected to the platen, a spring acting normally to press said frictional device into engagement with said ratchet-wheel, a shaft or spindle connected to the platen and also connected to said spring in such manner that when said shaft or spindle is moved endwise in the direction of the carriage letter-feed it removes the pressure of said spring from said friction device and thereby frees the latter from the ratchet-

wheel, and also connected in such manner that when the said shaft or spindle is rotated while the friction device is disengaged the said platen is rotated with said shaft or spindle 5 and independently of the said ratchet-wheel; substantially as described.

3. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a friction device for connecting the platen 10 and the ratchet-wheel, a spring for normally establishing such connection, an endwise-movable shaft or spindle arranged to be forced in one direction by said spring and also adapted to be turned to rotate said platen; the construction being such that when the shaft or 15 spindle is moved by hand endwise in the direction of the carriage letter-feed and against the tension of said spring the frictional connection between the platen and the ratchet-wheel is destroyed and at such time the platen 20 may be turned independently of the ratchet-wheel by a rotative movement of said shaft or spindle; substantially as described.

4. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a platen head or hub, a shaft or spindle passed 25 therethrough, a friction device between the platen head or hub and the ratchet-wheel, a spring within the platen tending to move said shaft or spindle endwise and operating also 30 to produce a frictional engagement between the ratchet-wheel and the said hub or head; the construction and arrangement being such that when the shaft or spindle is moved endwise in the direction of the carriage letter-feed 35 and against the tension of said spring the friction between the ratchet-wheel and the hub or head is removed, and the platen is free to be turned independently of the ratchet-wheel by a rotative movement of said shaft; 40 substantially as described.

5. In a type-writing machine, the combination of a platen, a line-space ratchet-ring, a friction device adapted normally to establish 45 a connection between the ratchet-ring and the platen, a spring, means between said spring and said friction device for communicating the pressure of said spring to said friction device, and an endwise-movable shaft 50 or spindle connected to the platen and adapted to work against the pressure of said spring when moved in the direction of the carriage letter-feed; substantially as described.

6. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a split spring-ring for establishing a frictional 55 connection between said ratchet-ring and said platen, a shaft or spindle, a spring acting against the same to force it endwise, and means between said shaft and said split 60 spring-ring for acting on said split spring-ring during the movements of said shaft; substantially as described.

7. In a type-writing machine, the combination of a platen, a line-space ratchet-ring, a split spring-ring for establishing frictional 65 connection between the two, a lever engaging

said split spring-ring, an endwise-movable shaft or spindle provided with an inclined 70 surface to act on said lever, and a spring for moving said shaft or spindle endwise and causing a frictional engagement between said spring-ring and said ratchet-ring; substantially as described.

8. In a type-writing machine, the combination of a platen, a line-space ratchet-ring, a split spring-ring for frictionally connecting 75 the platen and the ratchet-ring, an endwise-movable shaft or spindle provided with a tapering device, a spring for pressing said shaft or spindle outwardly, and a lever connected 80 to said spring-ring and adapted to be acted upon by the tapering device on the shaft or spindle and to communicate the pressure of said spring to the said spring-ring; substantially 85 as described.

9. In a type-writing machine, the combination of a platen, a line-space ratchet-ring, a split spring friction-ring, a lever for expanding 90 said ring, and spring-acted means for vibrating said lever to expand said ring; substantially as described.

10. In a type-writing machine, the combination of a platen, a line-space ratchet-ring, a split spring friction-ring, a lever for expanding 95 said ring, an endwise-movable shaft or spindle provided with an incline for moving said lever outwardly to expand said ring, and a spring acting upon said shaft or spindle to move it endwise; substantially as described. 100

11. In a type-writing machine, the combination of a platen, a line-space ratchet-ring, a split spring friction-ring within the same, 105 a platen head or hub, a lever pivoted radially in said hub or head and extending within the platen, a shaft or spindle passing through said hub and provided with a cone adapted to act on said lever, and a spring for pressing 110 said shaft or spindle outwardly; substantially as described.

12. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a split spring-ring within the same, a hub or 115 head within said split spring-ring and attached to the platen, a lever having a radial pivot and mounted on said hub or head and extending within the platen, a platen shaft or spindle passing through said hub or head 120 and provided with a cone or cam for acting on said lever, and a spring for acting on said shaft or spindle and causing said lever to expand said split ring; substantially as described.

13. In a type-writing machine, the combination of a platen, a line-space ratchet-ring, 125 a split spring-ring within the same, a hub or head within said split ring and provided with sleeves or bearings, a lever pivoted radially in said hub or head and having an angular part fitted within the space or opening provided 130 in said split ring, a shaft or spindle passing through said hub or head and its sleeves and provided with a tapering device to act on said lever, and a spring for forcing

said shaft or spindle outwardly and causing the said lever to expand the said split ring within the ratchet-ring; substantially as described.

5 14. In a type-writing machine, the combination of a platen, a disk secured to one end thereof, a hub or head secured to said disk, a split spring-ring surrounding said hub or head, a line-space ratchet-ring surrounding
10 said spring, a lever pivoted in said head or hub and engaging the split portion of said ring, a shaft or spindle provided with a tapering device to act on said lever, and a spring for forcing said shaft or spindle end-
15 wise and causing the said lever to expand the said split ring; substantially as described.

15 15. In a type-writing machine, the combination of a platen, a disk secured to one end thereof, a hub or head secured to said disk
20 and provided on opposite sides with sleeves, one of which is slotted longitudinally, a platen shaft or spindle passing through said hub or head and said sleeves and provided with a pin to engage said slot, a spring, a tapering
25 or conical device on said shaft or spindle, a lever pivoted in said hub or head and adapted to be acted upon by said tapering or conical device, a split spring-ring connected to said lever and adapted to be expanded thereby,
30 and a line-spacing ratchet-ring surrounding said split spring-ring and adapted to receive the pressure thereof under the tension or pressure of the spring which acts on the shaft or spindle; substantially as described.

35 16. In a type-writing machine, the combination of a platen, a disk secured thereto, a hub or head attached to said disk and having sleeves on opposite sides, one of said sleeves being slotted longitudinally, a shaft
40 or spindle passing through said sleeves or hub and having a pin to engage said slot, a spring within the platen for pressing said shaft or spindle outwardly, a lever pivoted radially on said hub or head and having its
45 arm passed through said disk to the inside of the platen, a tapering or conical device on said shaft or spindle adapted to coact with the inner free end of said arm or lever, a line-space ratchet-ring, a split spring-ring between
50 said hub or head and said ratchet-ring and connected to the pivotal portion of said lever at its split or severed portion, whereby the

outward movement of said lever under the tension of the spring will cause the expansion of said split spring-ring and its frictional en- 55
gagement with the interior of the line-space ratchet-ring; substantially as described.

17. In a type-writing machine, the combination of a platen, a disk attached thereto, a head having the hubs 18 and 23, the flanges 60
20 and 21, and the sleeves 27 and 28, the hub 18 having the socket 41 and step 17, and the hub 23 having the cut-away 38, the lever 14 having the pivotal portion 15, the pivot-pin 16, the square or angular portion 19, the split 65
spring-ring surrounding the hub 18 and engaged at the split portion by the angular portion 19 of the lever, the shaft or spindle passing through the hub and the sleeve and having the pin 30 engaging with the slot 31, the 70
cone on said shaft or spindle engaging with an antifriction-roller on the lever, the spring 33 pressing said lever outwardly and the ratchet-ring surrounding said split spring-ring and frictionally connected to the platen 75
thereby; substantially as described.

18. In a type-writing machine, the combination of a line-space ratchet-wheel, a suitable detent therefor so constructed and arranged that the ratchet-wheel may at any 80
time be rotated freely in either direction, a platen rotatable relatively to the ratchet-wheel, a hand-wheel movable longitudinally of the platen and provided with means for rotatively engaging the platen after such longitudinal movement, a friction device controlled by the hand-wheel for locking the
85 platen to the ratchet-wheel, and a spring constructed to return the hand-wheel to normal position, whereby the hand-wheel while in 90
normal position may be turned to rotate both the platen and the ratchet-wheel, and after being pushed in the direction of the carriage letter-feed may be turned to rotate the platen only, and when released may be automatically returned to normal position; substan- 95
tially as described.

Signed at New York city, in the county and State of New York, this 14th day of May, A. D. 1898.

ALEXANDER T. BROWN.

Witnesses:

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