No. 791,670. PATENTED JUNE 6, 1905.

A. T. BROWN.

TYPE WRITING MACHINE.

APPLICATION FILED FEB. 27, 1904.

2 SHEETS—SHEET 1.

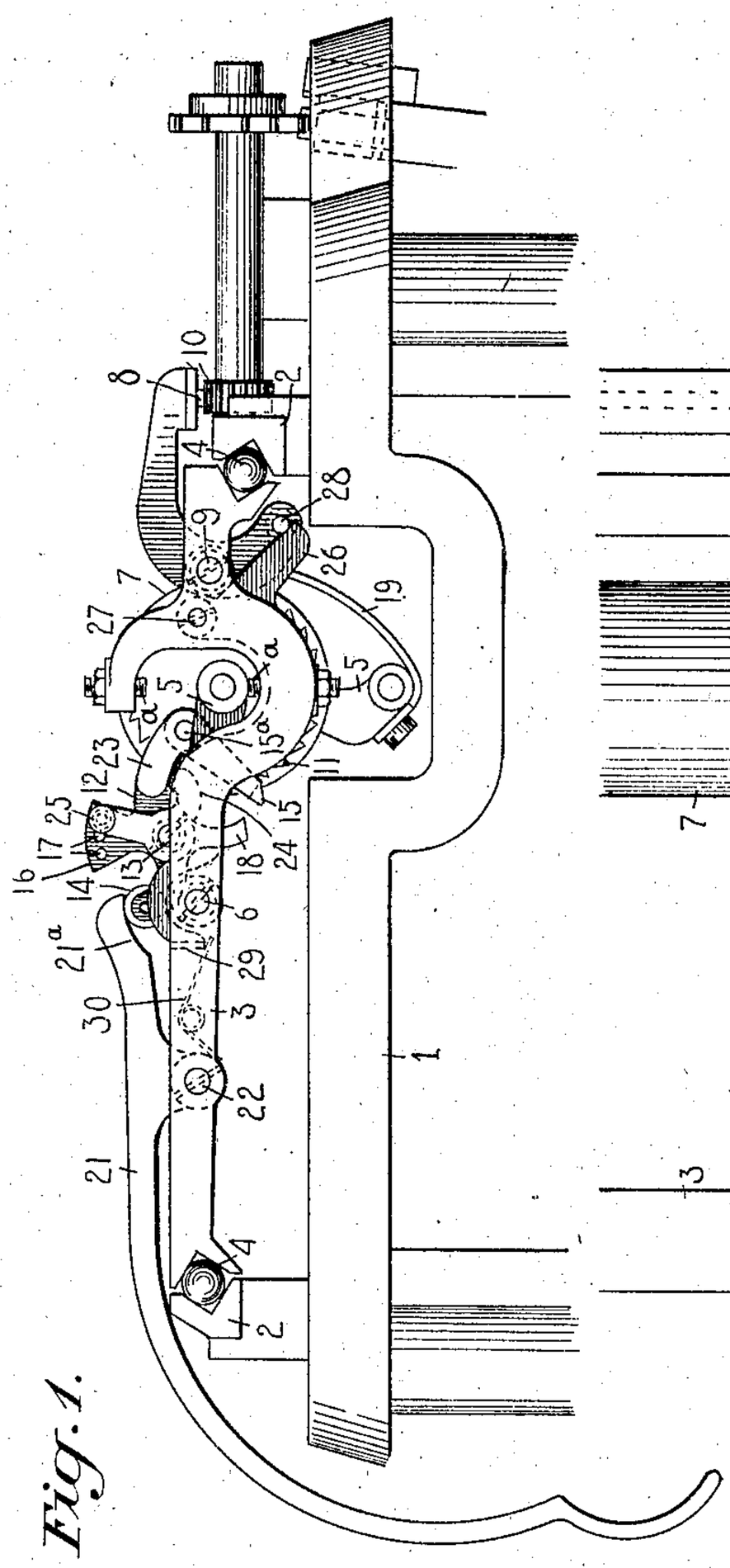

Fig. 1.

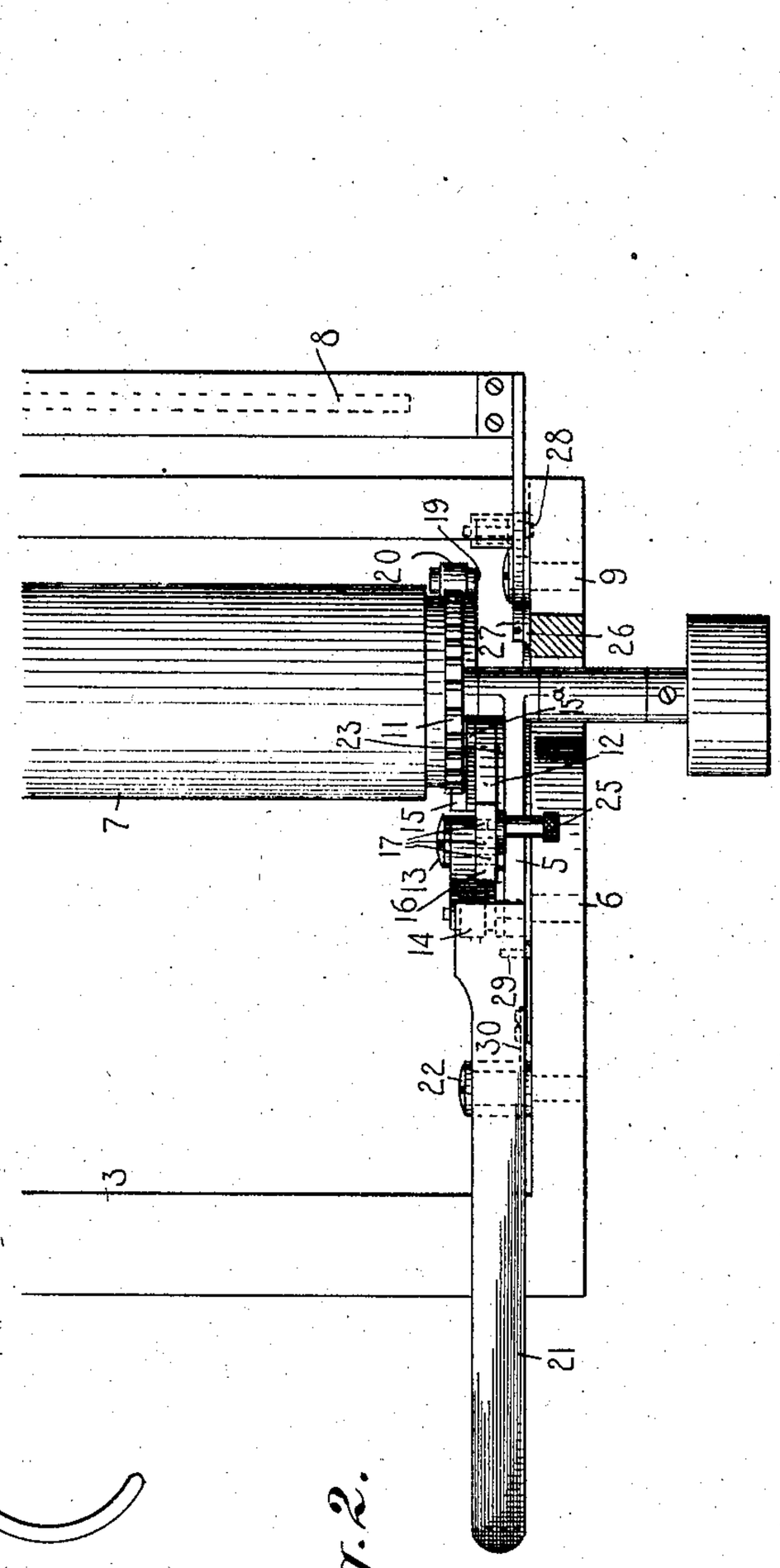

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

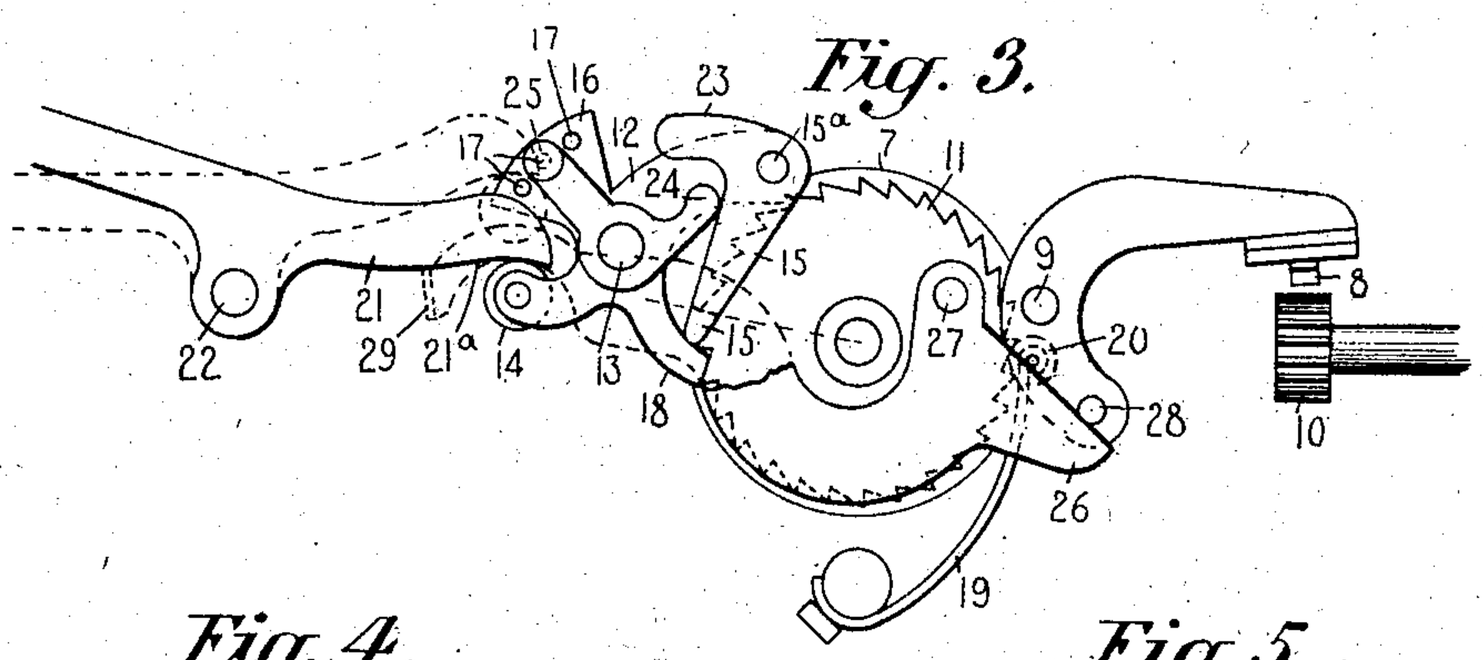


Fig. 4.

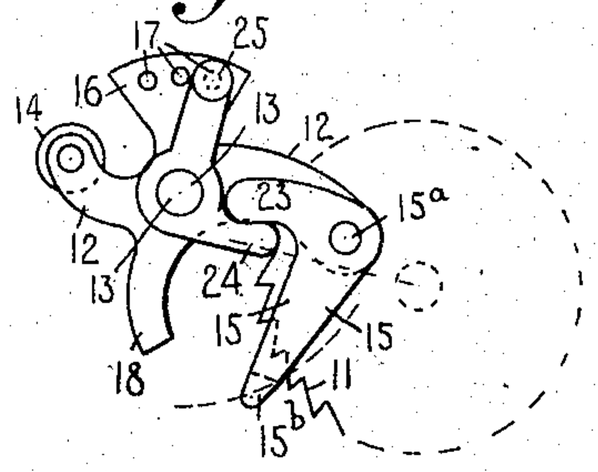


Fig. 5.

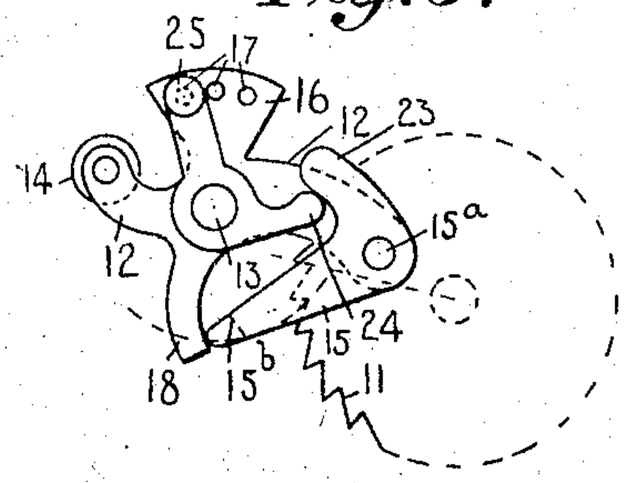


Fig. 6.

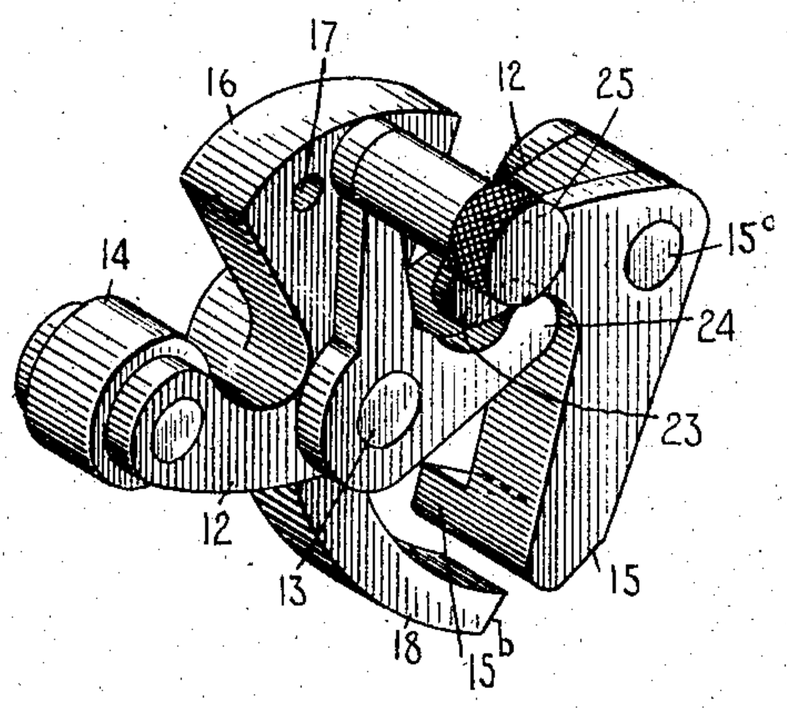
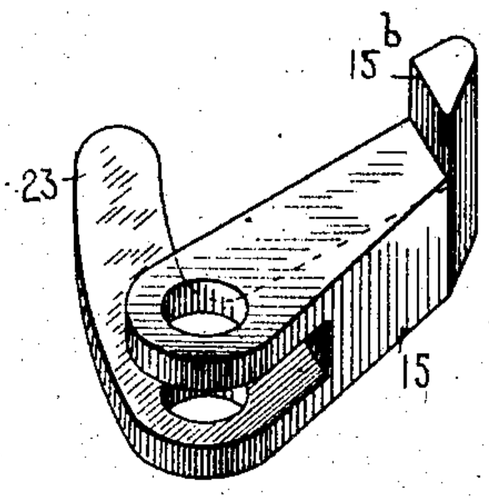


Fig. 7.



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No. 791,670. Patented June 6, 1905.

UNITED STATES PATENT OFFICE.

ALEXANDER T. BROWN, OF SYRACUSE, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 791,670, dated June 6, 1905.

Application filed February 27, 1904. Serial No. 195,631.

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.

This invention relates to line spacing or feeding mechanism for type-writing machines, one object of the invention being in a machine shifting its platen transversely for upper and lower case printing to operate the line-space mechanism in all positions of the platen.

Another object is in such a machine to have the hand-lever of the line-space mechanism always in the same position relatively to the carriage or unaffected by the lifting or lowering of the platen to shift its printing position.

Another object is to vary the amount of the line-feed.

Another object is to prevent overthrow of the platen during line-feeding.

Other objects will appear hereinafter.

To these ends the invention consists of certain features of construction and arrangements and combinations of devices, all as hereinafter described, and more particularly set forth in the appended claims.

One form of the invention is embodied in the machine illustrated in the accompanying drawings, in which—

Figure 1 is a view from the right of the machine. Fig. 2 is a plan view of the mechanism shown in Fig. 1. Fig. 3 is a view from the right of the line-space mechanism with frames omitted. Figs. 4 and 5 are views illustrative of the operation of the line-feed mechanism. Fig. 6 is a perspective view of the platen-carrier member of the compound line-space lever with the parts carried thereby, and Fig. 7 is a like view of the pawl.

Referring to the drawings, 1 is the top plate or frame of a front-strike writing-machine, and 2 represents carriage-guides mounted thereon.

3 is a carriage connected to the rails 2 by antifriction devices 4 in the form of rollers or balls, said devices 4 also preventing the carriage 3 from rising. 5 is a platen-carrier, which is pivotally connected with said carriage 3, at the ends thereof and forward of the platen, as at 6, and 7 is a platen journaled in said carrier 5.

The carrier 5 may be moved up and down by any suitable mechanism (not shown) in order to move the platen 7 from one to another printing-point around the pivotal centers 6, and this up-and-down movement of the carrier is limited by set-screws *a*, that are carried by the carriage proper, 3.

8 is a rack-bar which is pivoted to the carriage 3 on an axis 9, so as to be movable out of mesh with a pinion 10 of the usual driving and escapement mechanism, and thus release the carriage.

The reference 12 marks a lever fulcrumed at 13 on the platen-carrier 5 and having a roller 14 journaled thereon; 15, a pull-pawl pivoted at 15^a on an arm thereof, which extends alongside a line-space ratchet-wheel 11, secured to the platen; 16, a segment provided with a plurality of recesses or holes 17, and 18 a platen-stop which is adapted to be brought into contact with the backs of the teeth of the wheel 11 to prevent overthrow of the platen during line-spacing.

19 is a spring fast to the platen-carrier 5 and provided with a roller 20, which coacts with the wheel 11 as a detent to hold the platen 5 steady, as usual.

21 is a hand-lever fulcrumed on a horizontal pivot 22 on the carriage 3 and extending rearward over the roller 14. The forward end of said lever 21 extends downward and in front of the top plate of the machine to afford a handle whereby the line-space mechanism may be operated in any transverse position of the carriage.

The pawl 15 is provided with an arm or tail 23, which extends toward the fulcrum 13 of the lever 12, and a pawl-stop 24 is pivoted on said fulcrum-pin 13 and normally holds the working tooth 15^b of the pawl out of engagement with the ratchet-wheel 11, as shown. The stop 24 has a spring-pin 25 thereon which engages with any one of the holes or recesses 17, thus causing the pawl-stop 24 to move

with the lever 12. With the stop 24 in the position shown in Fig. 4 the pawl 15 rotates the platen a distance corresponding to three teeth of the wheel 11, with the spring-pressed pin 25 in the middle hole 17 (see Fig. 3) the pawl turns the platen a distance corresponding to two teeth, and with the pin 25 in the left-hand hole 17, as in Fig. 5, the platen is turned a distance equal to one tooth, the pawl-stop 24 causing the pawl to engage with one or another tooth of wheel 11, according to its own position.

26 marks a lever which is fulcrumed at 27 on the platen-carrier 5 and engages under a pin 28 on a lever or arm from the rack-bar. The forward end 29 of lever 26 is bent around under the lever 21, so that the lever 26 will be operated by the lever 21 and the rack 8 will be lifted out of mesh with the pinion 10 whenever line-spacing takes place. In operation the pawl 15 passes clear and inside of the stop 18, and the latter engages a tooth of wheel 11, though this is not essential to the invention in all aspects thereof.

From an inspection of Fig. 1 it will be seen that the roller 14 is adjacent to the pivotal center 6 on which the platen is shifted for upper and lower case writing, and that during such shifting movement the roller moves in a short arc which is substantially concentric with a pivot 6 and with the face 21ª on the hand-lever 21, and that the relation between the roller 14 and the face 21ª of the hand-lever is not materially changed in shifting the platen from one case position to another, so that the parts are at all times in position to be actuated by the hand-lever 21. It will also be observed that the lever 21 has a fixed extent of movement irrespective of the extent of line-spacing movement given the platen, so that the stop 18 will always coöperate with the teeth of the line-spacing wheel at the completion of the line-spacing movement to prevent overthrow of the platen, and the carriage-release will always be effected in a uniform manner and at substantially the same point in the operation of the hand-lever.

The operation of the device has been given in substance in the foregoing description and need not be repeated.

The construction of the parts of the line-spacing mechanism is such that they are restored to their normal positions by their own weight. I prefer, however, to employ a spring 30 to restore the carriage-releasing lever 26 to normal position.

While I have shown my invention applied to a front-strike type-writing machine and one in which the platen receives an up-and-down shifting movement to change the case position thereof, from certain aspects of my invention it is not limited to a machine of this character, and various changes may be made without departing from the spirit of invention.

Certain features shown in the accompanying drawings are not claimed herein, but are claimed in a separate application filed by me on the 4th day of March, 1904, Serial No. 196,537.

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

1. The combination with the line-space ratchet-wheel, of a platen, a lever extending alongside said wheel, a pull-pawl hung from and having an arm extending toward the fulcrum of said lever, an adjustable pawl-stop coacting with said pawl-arm, a platen-stop integral with said lever and coacting with said wheel, and an independent hand-lever for operating said first-mentioned lever.

2. The combination with the line-space ratchet-wheel, of a platen, a lever extending alongside said wheel, a pull-pawl hung from and having an arm extending toward the fulcrum of said lever, a pawl-stop pivoted on the same axis as said lever, means for connecting said stop and lever in different relative positions, and a platen-stop on said lever.

3. The combination with a carriage, of a platen-carrier connected thereto to swing vertically about an axis in front of the platen, a line-space ratchet thereon, a lever fulcrumed on said platen-carrier in front of the platen, a pawl on said lever, and a line-space lever fulcrumed on the carriage and operating said pawl-carrying lever.

4. The combination with a platen and its line-space ratchet-wheel, of a carriage, a platen-carrier pivotally connected with said carriage in front of said platen and swinging vertically, a lever fulcrumed on said platen-carrier, a pawl carried by said lever, and a line-space lever fulcrumed on the carriage and actuating said pawl-carrying lever.

5. The combination of a carriage, a platen, a platen-carrier pivoted to said carriage in front of the platen and swinging vertically, a ratchet-wheel on said platen, a lever fulcrumed on said platen-carrier and provided with a pawl and a platen-stop, and a line-space lever fulcrumed on said carriage and arranged to operate said pawl-lever in all positions of the platen-carrier.

6. The combination of a carriage, a platen, a platen-carrier pivoted to said carriage in front of the platen and moving the platen vertically, a line-space ratchet-wheel on said platen, a pawl-carrying lever fulcrumed on said carrier and provided with a platen-stop, a pawl-stop pivoted on said carrier and adjustably connected with said lever, and a line-space lever fulcrumed on said carriage.

7. The combination of a platen, its line-space ratchet, and a lever pivoted in front of said platen and having an arm extending rearward alongside of said ratchet, another arm extending forward in the machine and provided with an antifriction-roller, an upwardly-extending arm or segment, and a platen-stop underneath, with a pawl hung from said rear

arm and passing between its own pivot and said platen-stop, a pawl-stop adjustably connected with said segment or arm, a carriage, and a lever fulcrumed on said carriage and adapted to coact with said roller.

8. In a type-writing machine, the combination of a carriage, a platen-carrier pivoted thereto and swinging the platen up and down, the platen journaled in said carrier, a line-space ratchet on said platen, and a compound line-space lever having one member fulcrumed on said carriage and another fulcrumed on said platen-carrier.

9. In a type-writing machine, the combination of a carriage, a platen, a platen-carrier hinged to the carriage in front of the platen and swinging the platen up and down, a letter-space rack-bar pivoted to the carriage, a line-space ratchet on said platen, a compound line-space lever having one member fulcrumed on the said carriage and another member fulcrumed on said platen-carrier, and provided with a pawl and lifter for said rack and operated by the first-mentioned member of the compound lever.

10. In a type-writing machine, the combination of a carriage, a platen that is adapted to receive an up-and-down shifting movement relatively to the carriage to change the case position thereof, a line-spacing ratchet-wheel connected to the platen, a line-spacing pawl, a lever that carries said pawl, and a coöperating hand-lever carried by the carriage, the pawl-carrying lever swinging in an arc substantially concentric with the pivotal center on which the platen is shifted.

11. In a type-writing machine, the combination of a platen that is adapted to receive an up-and-down shifting movement to change the case position thereof, a line-spacing ratchet-wheel connected to the platen, a line-spacing pawl, a lever that carries said pawl, the pawl-carrying lever which swings in an arc substantially concentric with the pivotal center on which the platen is shifted, and a hand-lever having a face that is likewise substantially concentric with the pivotal center on which the platen is shifted and which contacts with a part carried by said pawl-carrying lever.

12. In a type-writing machine, the combination of a carriage, a platen-carrier pivoted to receive an up-and-down shifting movement independently of the carriage for upper and lower case writing, a platen carried by said carrier, a line-spacing ratchet-wheel connected to said platen, an actuating device carried by said platen-frame and adapted to vibrate in a vertical plane, a line-spacing pawl carried by said actuating device, and a hand-lever pivoted to the carriage and coöperating with said actuating device to move it to effect a line-spacing movement of the platen.

13. In a type-writing machine, the combination of a carriage, a platen-carrier pivoted to receive an up-and-down shifting movement independently of the carriage for upper and lower case writing, a platen carried by said carrier, a line-spacing ratchet-wheel connected to said platen, a lever pivoted to the platen-carrier and adapted to vibrate in a vertical plane, a line-spacing pawl pivoted to said lever, and a hand-lever pivoted to the carriage and coöperating with said pawl-carrying lever.

14. In a type-writing machine, the combination of a carriage, a platen-carrier pivoted to receive an up-and-down shifting movement independently of the carriage for upper and lower case writing, a platen carried by said carrier, a line-spacing ratchet-wheel connected to said platen, a lever pivoted to the platen-carrier and adapted to vibrate in a vertical plane, a line-spacing pawl pivoted to said lever, an adjustable stop device carried by said pawl-carrying lever and coöperating with said pawl, and hand-actuated means for operating said lever.

15. In a type-writing machine, the combination of a carriage, a platen-carrier pivoted to receive an up-and-down shifting movement independently of the carriage for upper and lower case writing, a platen carried by said carrier, a line-spacing ratchet-wheel connected to said platen, a lever pivoted to the platen-carrier, a line-spacing pawl pivoted to said lever, a stop device that is pivoted to said lever and which coöperates with said pawl, means for affording an adjustment of said stop device on the lever and for maintaining it fixed in its adjusted position on said lever, and hand-actuated means carried by the carriage and cooperating with said lever for actuating it to effect a line-spacing movement of the platen.

16. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected thereto, a platen-carrier, a lever pivoted to the platen-carrier and having a fixed extent of movement irrespective of the extent of line-spacing afforded the platen, a line-spacing pawl carried by said lever, an adjustable device carried by said lever and controlling the position of said pawl relatively thereto, a stop carried by said lever and coöperating with the line-spacing ratchet-wheel to prevent overthrow thereof, and an independent hand-lever for actuating said pawl-carrying lever.

17. In a type-writing machine, the combination of a carriage, a platen, a line-spacing ratchet-wheel connected thereto, a platen-carrier, a lever pivoted to the platen-carrier and having a fixed extent of movement irrespective of the extent of line-spacing afforded the platen, a line-spacing pawl pivoted to said lever and movable independently thereof, an adjustable device carried by said lever and controlling the initial position of said pawl relatively thereto, carriage-releasing means controlled by said lever, and hand-actuated means for controlling said lever.

18. In a type-writing machine, the combination of a carriage, a platen that is adapted to be shifted up and down in said carriage to change the case position thereof, a line-spacing wheel connected to said platen, a line-spacing device coöperating with said line-spacing wheel, a hand-actuated device carried by the carriage and coöperating with said line-spacing device to effect a line-spacing of the platen, and means for automatically releasing the carriage when said hand-actuated device is operated.

19. In a type-writing machine, the combination of a carriage, a platen that is adapted to be shifted up and down in said carriage to change the case position thereof, a line-spacing wheel connected to said platen, a line-spacing device coöperating with said line-spacing wheel, a hand-actuated device carried by the carriage and bearing substantially the same relation to and coöperating with said line-spacing device to effect a line-spacing of the platen whether the platen be in the upper or lower case position, and means for automatically releasing the carriage when said hand-actuated device is operated.

20. In a type-writing machine, the combination of a platen that is adapted to be shifted up and down for upper and lower case writing, a line-spacing wheel connected to said platen, a hand-actuated device for effecting a line-spacing of the platen and which remains fixed against movement during the shifting of the platen, and carriage-releasing means with which said hand-actuated device coöperates during the line-spacing operation to automatically afford a release of the carriage when the platen receives a line-spacing movement.

21. In a type-writing machine, the combination of a platen that is adapted to be shifted up and down for upper and lower case writing, a line-spacing wheel connected to said platen, a line-spacing device, adjustable means therefor to determine the extent of line-spacing movement that may be given to the platen, a hand-lever for effecting a line-spacing of the platen and which remains fixed against movement during the shifting of the platen and has a given extent of movement irrespective of the extent of line-spacing movement of the platen, and carriage-releasing means with which said hand-lever coöperates during the line-spacing operation, to automatically effect a release of the carriage when the platen receives a line-spacing movement.

22. In a type-writing machine, the combination of a carriage, a platen, a platen-carrier for said platen and which is adapted to receive an up-and-down movement independently of the carriage for changing the case position of the platen, a line-spacing wheel connected to the platen, a line-spacing device carried by the platen-carrier, a hand-lever carried by the carriage and coöperating with said line-spacing device, and a carriage-releasing device independent of the line-spacing device and hand-lever and controlled by said hand-lever during the operation thereof for line-spacing.

Signed at Syracuse, in the county of Onondaga and State of New York, this 24th day of February, A. D. 1904.

ALEXANDER T. BROWN.

Witnesses:

C. E. TOMLINSON,

E. E. CUY.