C. SPIRO.

LINE SPACING MECHANISM.

APPLICATION FILED NOV. 15, 1920.

1,402,266. Patented Jan. 3, 1922.

2 SHEETS—SHEET 1.

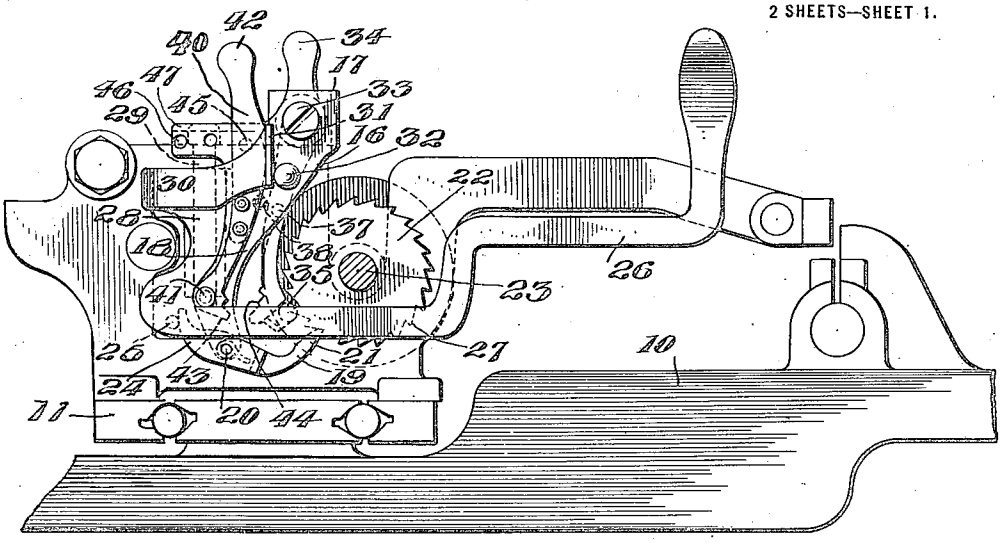


Fig. 1.

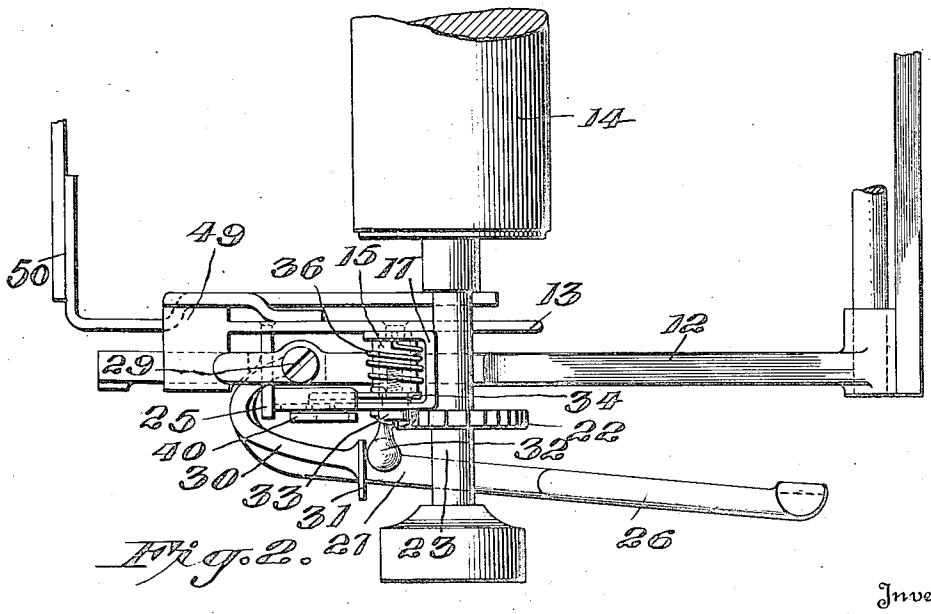


Fig. 2.

Inventor

Charles Spiro,

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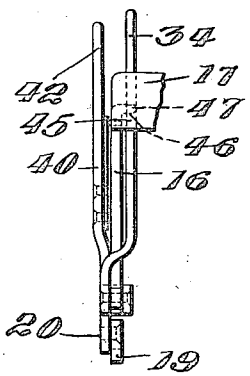


Fig. 4.

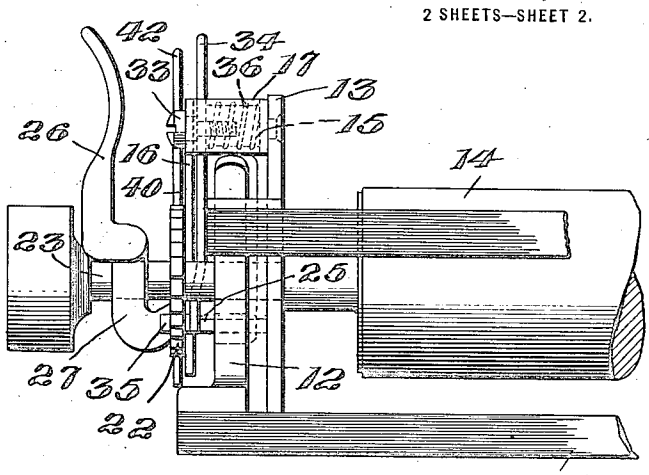


Fig. 3.

Fig. 6.

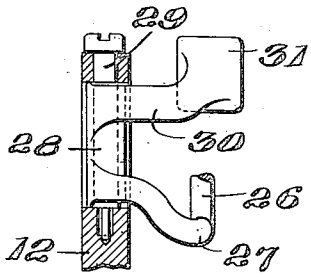
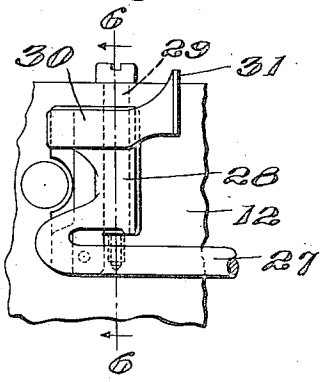


Fig. 5.



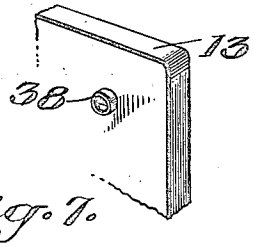


Fig. 7.

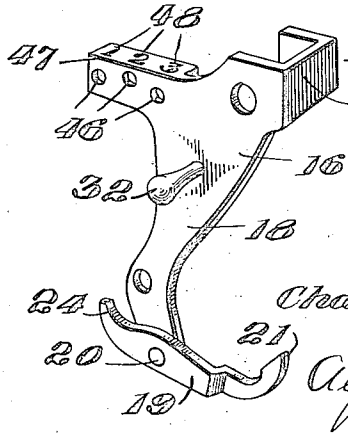


Fig. 8.

Inventor

Charles Spiro,

Alfred T. Gage

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UNITED STATES PATENT OFFICE.

CHARLES SPIRO, OF NEW YORK, N. Y., ASSIGNOR TO FEDERAL ADDING MACHINE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

LINE-SPACING MECHANISM.

1,402,266. Specification of Letters Patent. Patented Jan. 3, 1922.

Application filed November 15, 1920. Serial No. 424,067.

To all whom it may concern:

Be it known that I, CHARLES SPIRO, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Line-Spacing Mechanism, of which the following is a specification.

This invention relates to a line spacing mechanism and particularly to a construction in which the platen and line spacing members cooperating therewith are case shifted relative to the line space lever upon the carriage frame.

The invention has for an object to provide a novel and improved construction of space pawl lever and detent mounted upon the same pivotal center and connected by a spring so as to be tensioned in opposite directions, together with a gage lever mounted upon the pawl lever and coacting with variable space steps upon the detent.

A further object of the invention is to present an improved structure of space pawl lever and detent carried by a case shifted platen frame and provided with means to engage a compensating face upon a line space lever pivoted upon the carriage frame.

Another object of the invention is to provide a novel construction and arrangement of the space pawl lever, detent, and line space lever whereby a single spring tensions all of the parts, and the pawl lever entirely supports the gage or variable space lever.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings—

Figure 1 is a side elevation of the invention;

Figure 2 is a plan thereof;

Figure 3 is a front elevation;

Figure 4 is a detail front elevation of the pawl lever, detent and gage lever;

Figure 5 is a detail elevation of the line space lever pivot;

Figure 6 is a section on line 6—6 of Figure 5;

Figure 7 is a detail of the detent retaining stud; and

Figure 8 is a detail of the space pawl lever.

Like numerals refer to like parts in the several figures of the drawings.

The numeral 10 designates the top plate of a typewriting machine and may be of any desired construction or configuration, and upon which the platen carriage 11 travels in the usual manner. The end wall 12 of this carriage supports the frame 13 carrying a case shifting platen 14 and pivoted at 49 to be actuated by the rear rail 50 in the usual manner. These parts may be of any preferred character, for instance as shown in my application filed Feby. 14, 1920, Serial No. 358,593.

The frame 13 has projected laterally therefrom a post 15 upon which the space pawl lever 16 is pivotally mounted. This lever is preferably formed with a yoke-shaped portion 17 at its pivotal end. The depending arm 18 thereof has the spacing pawl 19 pivoted thereto at 20. The tooth 21 of this pawl is deflected or bent to engage with the teeth of the usual ratchet wheel 22 upon the platen shaft 23 when the pawl is swung forward in the spacing action. The pawl is also provided with a retracting tail 24 disposed to engage a pin or projection 25 from the frame 13 in the rearward movement of the pawl which acts to cam the tooth thereof away from the ratchet wheel.

The pawl lever 16 is actuated by a line spacing lever 26 having a deflected portion 27 to pass beneath the platen shaft and a vertically disposed elongated pivoting hub 28 mounted within a recess by the pivot pin 29 carried by the end wall 12 of the carriage frame. The upper portion of this hub is provided with an actuating finger 30 having a plane or flat compensating face 31 of sufficient area to provide for the case shifting movement of the platen. This face engages a spherical or ball stud 32 extended from the pawl lever so as to reduce the friction in the spacing and case shifting operations to a minimum.

The post 15 has mounted thereon a pivoting stud or screw 33 upon which the detent lever 34 is mounted and the lower end thereof is deflected outward and carries the usual detent wheel 35 engaging the teeth of the ratchet wheel 22. The detent is held in contact with the ratchet wheel by a coiled spring 36 surrounding the post 15 and secured at one end to the detent lever and at its opposite end to the pawl lever which effects a retraction of the latter as the detent is thrown toward the ratchet wheel and also maintains the line space lever in its normal

position. The control and restoration of all of the parts is thus effected by a single spring. For the purpose of retaining this detent out of contact with the ratchet wheel when it is desired to release the same, a stud 37 is provided upon the detent and coacts with the countersink of a bushing 38 upon the carriage frame, as shown in Figure 7.

Upon the outer face of the pawl lever a gage or variable space lever 40 is pivoted at 41 and provided at its upper end with a handle 42. The lower end of the gage lever is formed with a stop 43 to determine the extent of throw of the pawl lever by engaging any one of a series of variable space steps 44 upon the lower portion of the detent lever. The gage lever may be held in its adjusted position by any desired means, such as a spring pin 45 thereon disposed to engage cooperating seats 46 in the extension 47 from the pawl lever. This extension is provided upon its upper face with indicating characters 48 to determine the extent of spacing. An adjustment of this gage lever limits the travel of the pawl and the consequent rotation of the platen for one, two or three spaces.

In the operation of the invention pressure upon the line space lever toward the right causes the actuating finger to engage and move the pawl lever toward the ratchet wheel and against the tension of the spring connecting the pawl lever to the detent lever. This action effects the line space feeding and the extent thereof is determined by the position of the gage or variable space lever carried by the pawl lever and contacting with the steps upon the detent. The latter may be retained out of contact with the ratchet wheel when it is desired to release the latter. By mounting the pawl lever and detent upon the same pivotal center and connecting them by the tension spring, the single spring controls both levers and also the line space lever upon the carriage frame. The pawl lever also forms a support for the gage lever and its indicating devices and permits the same to act against the detent which is braced by its contact with the ratchet wheel. The arrangement disclosed herein permits the free case shifting with the platen of all the parts engaging the ratchet wheel and provided for compensation between the pawl lever and the relatively fixed line space lever.

While one specific application of this invention has been shown and described herein the same is not confined thereto as changes and alterations may be made in the construction without departing from the spirit of the invention as defined by the following claims.

What I claim is—

1. The combination with a platen provided with a ratchet wheel, of a pawl lever pivoted upon a post, a detent lever mounted upon the same pivotal center, a line space lever disposed to engage and actuate said pawl lever, and a tension spring connecting said pawl and detent levers.

2. The combination with a platen provided with a ratchet wheel, of a lever provided with a pawl to feed said wheel, a detent lever mounted upon the pivotal center of the pawl lever, a tension spring connecting said pawl and detent levers, a gage lever pivoted upon the pawl lever to engage said detent, and a line space lever disposed to actuate said pawl lever.

3. The combination with a platen provided with a ratchet wheel, of a pawl lever, a pawl pivoted upon the lower portion thereof to feed said wheel and provide with a retracting tail, a relatively fixed projection in the path of said tail, a detent lever mounted at the pivotal center of the pawl lever and having a roll engaging said wheel, a spring connected to move said pawl and detent levers in opposite directions, and a line space lever disposed to actuate said pawl lever.

4. In a line space mechanism, a frame provided with a post, a pawl lever pivoted thereon and extending readwardly and downwardly therefrom, a feed pawl pivoted upon the lower portion of said lever, a detent lever pivoted upon said post, and a tension spring surrounding the post and connected at opposite ends to the pawl and detent levers.

5. In a line space mechanism, a frame provided with a post, a pawl lever having a yoke-shaped upper portion pivoted thereon, a detent lever pivoted upon the post within said portion, a spring surrounding the post and connected to said pawl and detent levers, and a line space lever disposed to actuate said pawl lever.

6. In a line space mechanism, a frame, a pawl lever pivoted thereon and carrying a feed pawl at its lower portion, a detent lever pivoted upon said frame and provided with variable space steps, a gage lever pivoted upon the pawl lever and having a stop to engage said steps, and a line space lever disposed to actuate said pawl lever.

7. In a line space mechanism, a frame, a pawl lever pivoted thereon and provided with a feed pawl, a detent lever pivoted upon the frame and formed with variable spaced steps, a gage lever pivoted upon the pawl lever and having a stop to engage said steps, a spring retaining device upon said gage lever adapted to seat at fixed points upon said pawl lever, and a line space lever disposed to actuate said pawl lever.

8. In a line space mechanism, a case shifting platen frame, a platen and ratchet wheel thereon, a pawl lever pivoted to oscillate in a vertical plane at the rear of the ratchet wheel and provided with a feed pawl,

a line spaced lever having a vertical pivot upon the carriage frame, and an actuating finger from the line space lever having a compensating face at the rear of the pawl lever to engage a part thereof in moving contact.

9. In a line space mechanism, a case shifting platen frame, a platen and ratchet wheel thereon, a lever pivoted upon said frame to oscillate in a vertical plane and provided with a feed pawl, a lateral actuating projection from said lever, and a line space lever having an actuating finger movable in a horizontal plane and provided with a compensating face disposed in the path of travel of said projection.

10. In a line space mechanism, a case shifting platen frame, a depending lever pivoted thereon and provided with a feed pawl at its lower end, a spherical projection from said lever, and a vertically pivoted line space lever having a plane actuating finger to engage said projection.

11. In a line space mechanism, a case shifting platen frame, a depending lever pivoted thereon and provided with a feed pawl at its lower end, a projection from said lever having a curved contact face, and a pivoted line space lever having a vertically disposed plane actuating finger for rolling contact with said projection.

12. In a line space mechanism, a case shifting platen frame, a feed pawl lever pivoted thereon and provided with a lateral spherical actuating projection, a detent lever mounted upon the pivotal center of the pawl lever, a line space lever pivoted upon a carriage frame at the rear of said pawl lever and having a forwardly extending actuating finger with a face engaging said projection in either case shifted position, and a tension spring connecting said pawl and detent levers whereby all levers are controlled by a single spring.

13. In a line space mechanism, a pawl lever provided at its upper portion with a pivoting yoke and a rearward extension with an angular indicating face, a depending arm from said lever having a feed pawl pivoted thereon, and a line space lever disposed to actuate said pawl lever.

14. In a line space mechanism, a pawl lever provided at its upper portion with a pivoting portion and a rearward extension having retaining seats and an indicating face, a depending arm from said lever carrying a feed pawl, a gage lever pivoted upon said arm and having means to engage said seats, an abutment for said gage lever, and a line space lever disposed to actuate said pawl lever.

15. In a line space mechanism, a pawl lever provided at its upper portion with pivoting means, a depending arm from said lever carrying a feed pawl, a gage lever pivoted upon said arm and having a stop face, a pivoted detent lever having variable space steps disposed to abut said face, and a line space lever to actuate said pawl lever.

In testimony whereof I affix my signature.

CHARLES SPIRO.