P. J. DREHER.

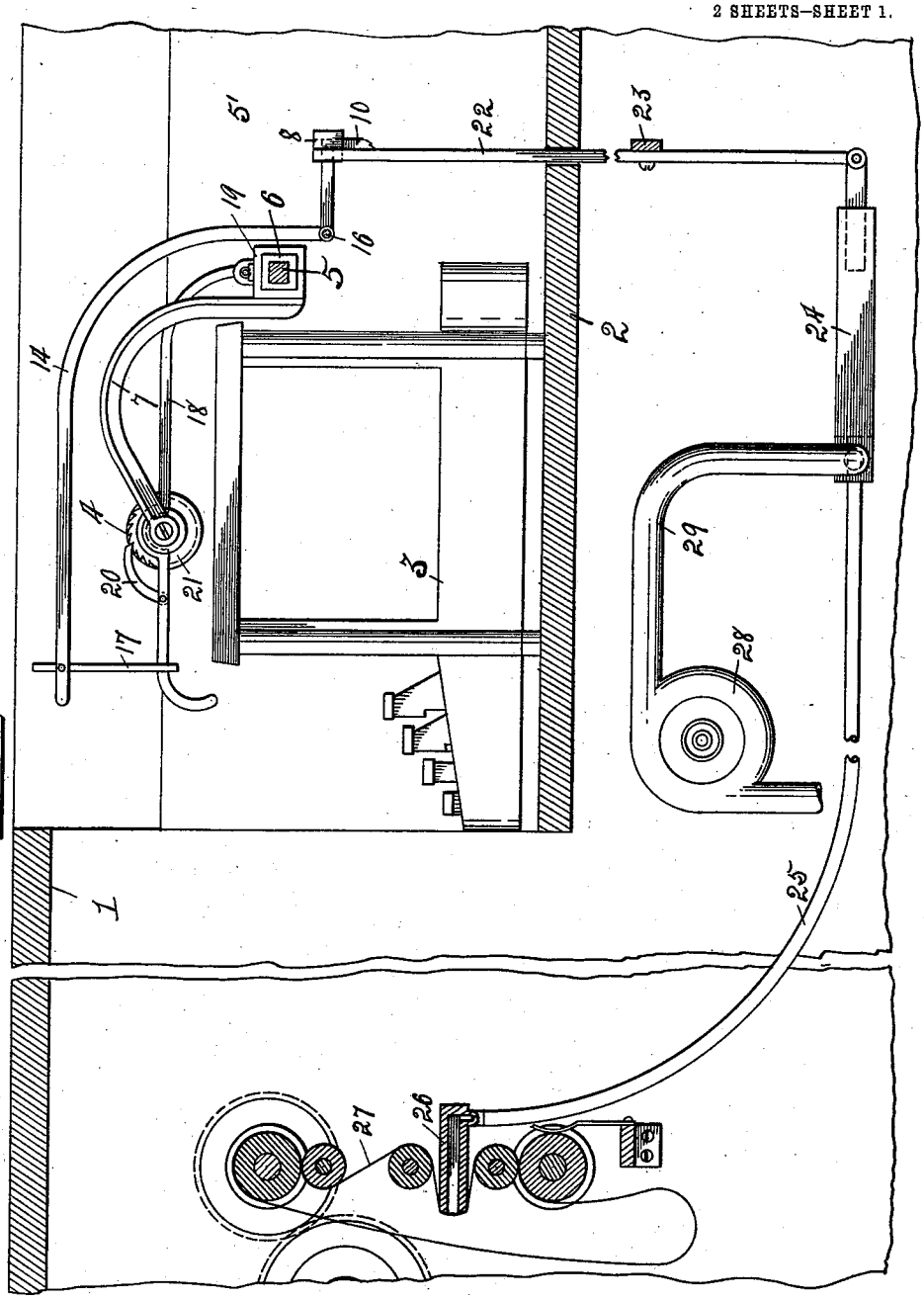
LINE SPACING MECHANISM FOR TYPE WRITERS.

APPLICATION FILED SEPT. 25, 1911.

1,028,845. **Patented June 4, 1912.**

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

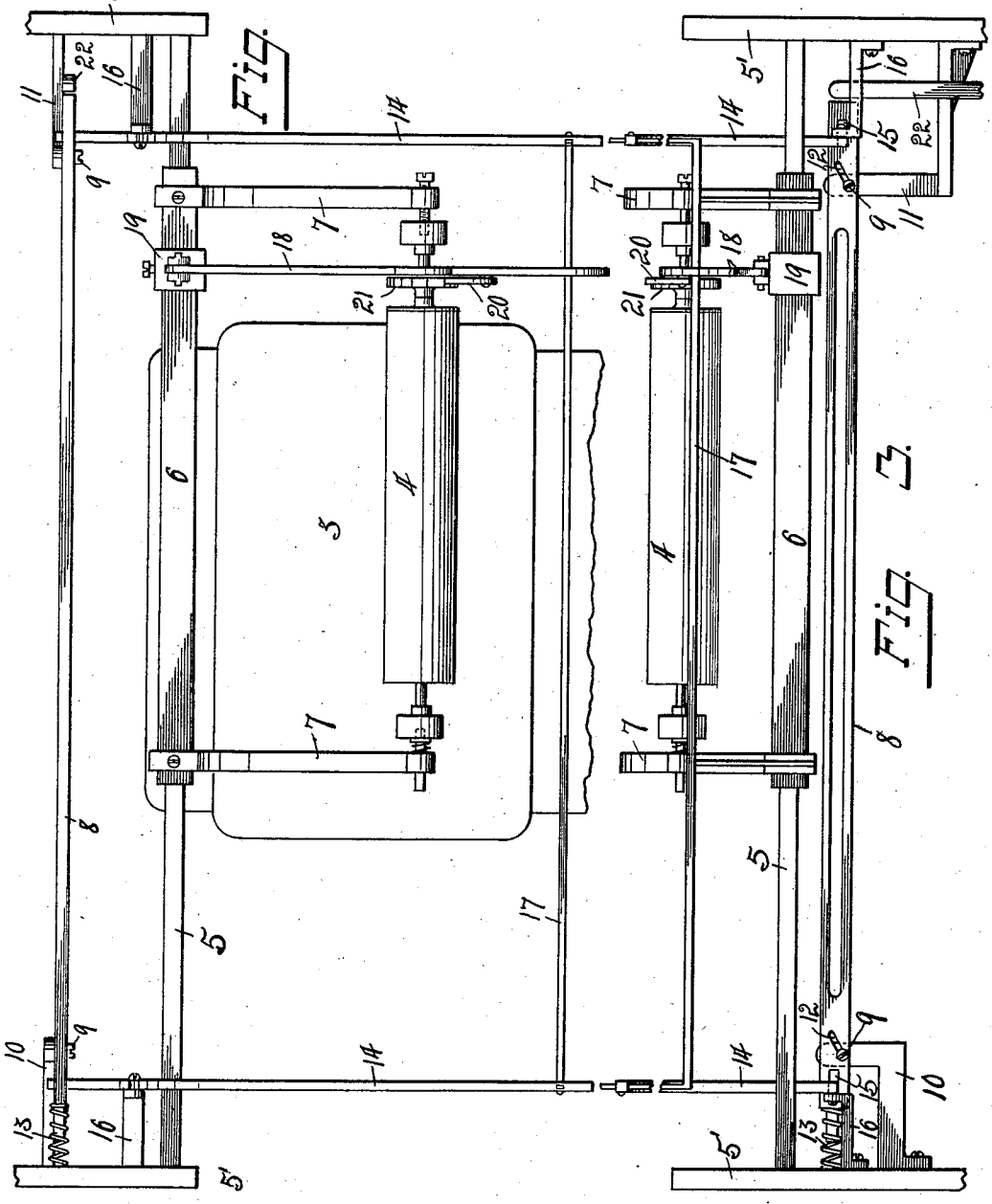

Fig. 3.

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UNITED STATES PATENT OFFICE.

PHILLIP JACOB DREHER, OF TOLEDO, OHIO.

LINE-SPACING MECHANISM FOR TYPE-WRITERS.

1,028,845. Specification of Letters Patent. Patented June 4, 1912.

Original application filed July 31, 1911, Serial No. 641,560. Divided and this application filed September 25, 1911. Serial No. 651,269.

To all whom it may concern:

Be it known that I, PHILLIP JACOB DREHER, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Line-Spacing Mechanism for 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to automatic typewriters or similar machines of the pneumatically operated type and has particular reference to the line spacing mechanism thereof, but is not restricted to such use as it may be used in any connection for which it may be applicable.

The object of my invention is the provision of a simple mechanism of this class which is efficient in its operation, strong and durable in its construction, inexpensive of manufacture, and capable of being easily attached to most if not all makes of typewriters on the market.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of a mechanism embodying my invention with parts in vertical section. Fig. 2 is a top plan view thereof with portions removed, and Fig. 3 is a front elevation of the upper portion of such mechanism.

This application is a division of an application filed by me on July 31, 1911, Serial No. 641,560.

Referring to the drawings, 1 designates a typewriter desk or case with which the invention is associated, which is shown in the present instance as having a lowered top portion 2 upon which the typewriter 3 may rest.

The usual rotary typewriter platen is indicated at 4, the movable carriage with which it is associated not being shown as it forms no part of the present invention and the styles thereof vary for different makes of machines.

A bar 5 forming a track for the carriage of my mechanism is mounted adjacent to the upper rear portion of the typewriter transversely thereof in any suitable manner, as by having its ends attached to plates or frame standards 5′, which are set vertically within the lowered portion of the desk 1 against the sides thereof, as shown. The carriage referred to is shown, in the present instance, as comprising a beam 6, through which the track-bar 5 freely works, and as having arms 7, 7, rigidly projecting upward and forward from the opposite end portions thereof and attaching to the ends of the platen roll shaft in a suitable manner to impart longitudinal movements to the platen when the carriage is moved upon its track and to permit a free turning of the platen relative to the carriage. It will be understood that the weight of the platen roll is not supported by the carriage 6—7 but is borne entirely by the typewriter carriage (not shown) in the usual manner, the carriage 6—7 only serving to impart retracting movements to the platen roll and its carriage as described in the application of which this is a division.

Mounted, in the present instance, to the rear of the track-bar 5 in parallelism therewith is a longitudinally shiftable bar 8, which is supported by pins 9 projecting from brackets 10 and 11 and working through diagonally disposed slots 12 in said bar, the brackets 10 and 11 being attached to the respective side plates 5′. The bar 8 is normally held at the limit of its movement to the right by the action thereon of a coiled compression spring 13, which is mounted intermediate the left end thereof and the associated plate 5′. The slots 12 of the bar are so inclined relative thereto as to coact with the pins 9 to cause said bar to have a lowering movement when moved to the left or against the tension of the spring 13. Upon a lowering movement of the bar 8 it acts upon the rear ends of forwardly projecting levers 14—14, which lever ends project within registering openings 15 in said bar, to effect a raising of the forward ends thereof, as is apparent. The levers 14 are fulcrumed to brackets 16 projecting from the respective plates 5′ or case sides, and

project upward and forward from such brackets preferably adjacent the limits of reciprocatory movements of the platen-roll 4 and have their forward ends connected by a rod 17 which, in the present instance, is of U-shape and is adjustably suspended from said levers.

A line spacing lever 18, which may be the spacing lever customarily employed in machines of this type, is shown in the present instance as being pivoted to the rear of the platen roll, as to a block 19 that is adjustably mounted on the carriage beam 6. The lever 18 projects forward from the block 19 over one end portion of the platen-roll shaft and thence extends over the rod 17 in contact therewith, whereby a raising of the forward ends of the levers 14 will impart an upward or spacing movement to said spacing lever 18. A pawl 20 is carried by the spacing lever and coacts with a ratchet wheel 21 on the associated end portion of the platen roll shaft to impart predetermined rotary movements to the platen roll when the lever 18 is raised or oscillated for such purpose.

The longitudinal movements of the bar 8 against the tension of its spring 13 are actuated by the movement in one direction of a lever 22 which is shown as being vertically disposed with its upper end in lateral contact with the right-hand end portion of the bar 8. The lever 22 is fulcrumed to a bracket 23 projecting from an associated side of the desk or case 1, and has its lower end loosely attached to the movable part of a bellows 24 in a suitable manner. A tube 25 leads from a tracker 26 which is mounted in convenient position within the case 1 and connects to the bellows 24 in the usual manner, whereby the collapsing of such bellows is controlled by the registering of perforations in a control sheet 27 with the passage of the tracker 26 with which the tube 25 is associated. The movement of the control sheet 27 in contact with the tracker 26 is controlled by any suitable form of guiding and driving mechanism as described in my said former application. An exhaust pump 28 has connection with the bellows 24 through the pipe 29.

The operation of my invention is as follows: Upon a moving of a perforation in the control sheet 27 into register with the tracker passage in communication with the tube 25 the bellows 24 is collapsed in a manner well understood in the art, thus effecting an oscillation of the lever 22 in a direction to move the bar 8 to the left or against the tension of the spring 13. The lowering of the bar 8, which is effected by reason of the diagonal slots 12 therein working over the guide pins 9, causes a raising of the forward ends of the levers 14—14 and attached bar 17 and a consequent raising of the spacing lever 18, which is in engagement with the bar 17. As the spacing lever 18 is raised the pawl 20 thereon coacts with the ratchet-wheel 21 to turn the platen-roll one or more spaces, as may be desired. When the perforation in the control sheet 27 has passed from register with the tracker passage in communication with the tube 25 the movable part of the bellows 24 operates to return the lever 22 to normal position to permit a return of the bar 8 to its normal position under the influence of its spring 13, thereby permitting a lowering of the forward ends of the levers 14 and the spacing lever 18 to normal position, as is apparent.

It is obvious from the above that I have provided a simple and efficient pneumatically operated mechanism for effecting a spacing movement of the platen roll as the writing of addresses, letters or other matter may require.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is,—

1. The combination with the platen-roll of a typewriter, of a line spacing lever having pawl and ratchet connection with the platen-roll, a horizontal bar mounted for horizontal movements, means guiding the movements of such bar to cause it to have vertical movements when moved in a horizontal plane, means yieldingly holding the bar in one position, pneumatically controlled means operative to impart movements in the opposite direction to said bar, and mechanism connecting said bar and spacing lever for imparting line spacing movements to the latter when the bar is moved by said pneumatically controlled means.

2. The combination with the platen roll of a typewriter, of a line spacing lever pivoted to the rear of the platen roll and movable therewith in its longitudinal movements, said lever having its forward end projecting in advance of the platen roll, pawl and ratchet connection between said lever and platen roll operable to communicate rotation to the platen roll upon an upward oscillation of said lever, a pair of levers, one disposed at each end of the longitudinal movements of the platen roll, a member connecting and movable by said pair of levers and having sliding engagement with said spacing lever, and means automatically operable to move said pair of levers to communicate platen roll turning movements to said spacing lever.

3. The combination with the platen roll of a typewriter, of a lever having pawl and ratchet connection with the platen roll, a bar, means guiding the movements of said

bar to cause it to have transverse movements when longitudinally moved, connection between said bar and lever for imparting platen roll actuating movements to the lever when the bar is moved, and mechanism automatically operable to move said bar.

4. The combination with the platen roll of a typewriter, of a reciprocal bar, means guiding said bar to cause it to have vertical transverse movements when longitudinally reciprocated, means operable to intermittently shift said bar, a set of levers fulcrumed adjacent to said bar and having engagement therewith, a bail-like member connecting the forward ends of said levers, a line spacing lever pivoted at one side of the platen roll and projecting to the opposite side thereof with its free end working over said member and in sliding engagement therewith, and pawl and ratchet connection between said spacing lever and platen roll.

In testimony whereof, I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

PHILLIP JACOB DREHER.

Witnesses:
C. W. OWEN,
E. E. THOMAS.