P. B. TINGLEY.

LINE SPACING ATTACHMENT FOR WRITING MACHINES.

APPLICATION FILED DEC 16, 1913. RENEWED OCT. 19, 1914.

1,118,074. Patented Nov. 24, 1914.

Fig. 1

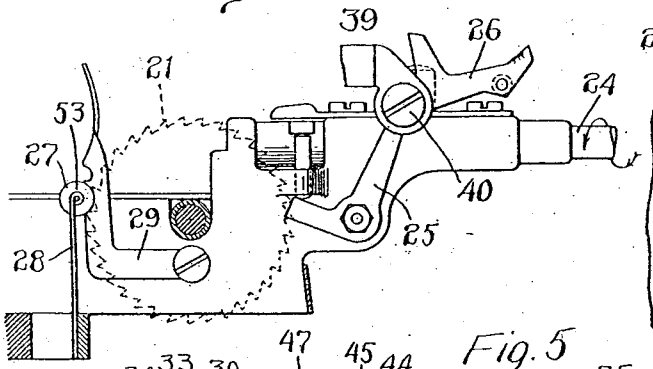


Fig. 2

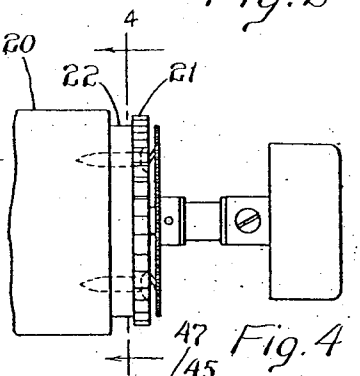


Fig. 3

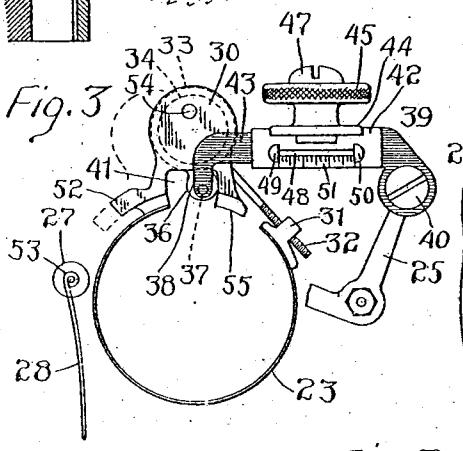


Fig. 5

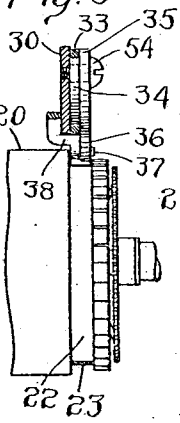


Fig. 4

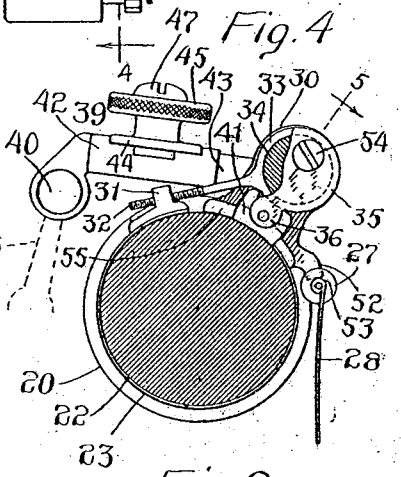


Fig. 6

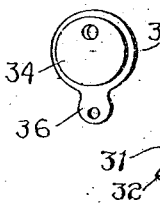


Fig. 7

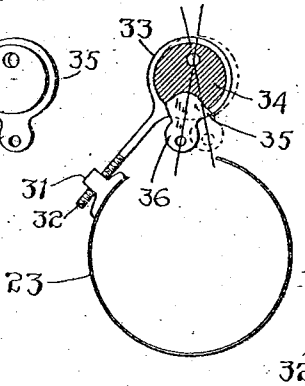


Fig. 8

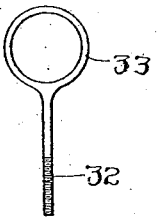


Fig. 9

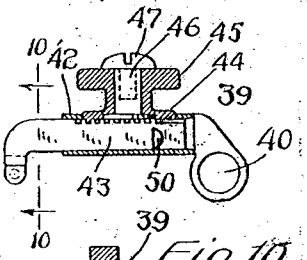


Fig. 11

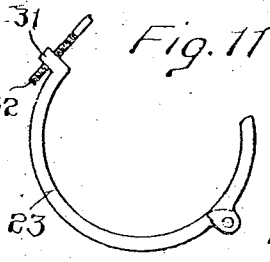
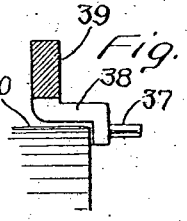


Fig. 10



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LINE-SPACING ATTACHMENT FOR WRITING-MACHINES.

1,118,074. Specification of Letters Patent. Patented Nov. 24, 1914.

Application filed December 16, 1913, Serial No. 807,011. Renewed October 19, 1914. Serial No. 867,534.

To all whom it may concern:

Be it known that I, PHILO B. TINGLEY, a citizen of the United States, residing at New York, county of New York, State of New York, have invented an Improvement in Line-Spacing Attachments for Writing-Machines, of which the following is a specification.

This invention has for its object to produce a line spacing attachment which may be applied to old or new writing machines and will enable the operator to give to the line any required uniform spacing, to space irregularly or to re-aline with perfect accuracy a sheet that has been removed. It is of course well understood that in writing machines as ordinarily constructed the spacing of the lines is effected by the engagement of a pawl with the teeth of a ratchet wheel, three spacings being ordinarily provided which are known as single, double and triple spaces. Should it be required to space irregularly, however, as in filling in blanks, or should a spacing be required other than the three arbitrary spacing provided, or should it be desired to approximately fill a sheet of limited size with a certain number of lines which would not correspond with either of the three arbitrary spacings provided, it would be necessary to throw off the spacing attachment and space each line by rotation of the platen by hand and guess work. These difficulties are wholly overcome by my novel spacing attachment in which the forward movement of the platen is effected by the action of an oscillatory gripping band, the action of which is adjustable so as to cause the band to grip the platen at the required instant to produce the desired line space, by an actuation of the spacing lever of the machine. With these and other objects in view I have devised the novel spacing attachment which I will now describe referring to the accompanying drawing forming a part of this specification and using reference characters to indicate the several parts.

Figure 1 is a detail elevation of so much of an L. C. Smith & Bros. writing machine as is necessary to illustrate the application of my novel spacing attachment thereto; Fig. 2 an elevation of the right end of the platen detached showing the spacing ratchet wheel and the handle for rotating the platen; Fig. 3 an elevation of the attachment with the gripping band in its normal or retracted position; Fig. 4 an elevation of the attachment from the opposite point of view, the gripping band being at its forward or operated position and the platen in section on the line 4—4 in Fig. 2, looking in the direction of the arrows; Fig. 5 an elevation as seen from the left in Fig. 4, parts being in section on the line indicated by 5, looking in the direction of the arrow and the greater portion of the link being removed; Fig. 6 a perspective of the eccentric detached; Fig. 7 a detail elevation, partly broken away, from the opposite point of view to Fig. 3, illustrating the operation of the eccentric; Fig. 8 an elevation of the eccentric strap detached; Fig. 9 a view partly in elevation and partly in section of the adjustable link detached; Fig. 10 an enlarged detail sectional view on the line 10—10 in Fig. 9, looking in the direction of the arrows, and Fig. 11 is an elevation illustrating a variant form of gripping band detached.

20 denotes the platen and 21 the spacing ratchet wheel which is detachably secured to the right end thereof. The platen is ordinarily shouldered, and the spacing ratchet wheel forms with the shoulder a groove 22 which receives the gripping band 23 of my novel attachment.

24 denotes the spacing lever and 25 the bell crank lever of an ordinary writing machine.

27 denotes a roller carried by a spring arm 28 secured to a fixed portion of the machine. This roller has no function in connection with my present invention and is thrown out of operative position by means of a lever 29. The hub at the upper end of the spring arm, however, serves as a stop as will be more fully explained. Various intermediate parts are not shown and this mechanism is not illustrated or described in detail as it differs in the various machines in general use.

The gripping band partly incloses the end of the platen and lies, in the present instance, in groove 22. In the form illustrated in Figs. 3, 4 and 7 a resilient gripping band is used. The form illustrated in Fig. 11 differs in that the band is made heavier and in parts which are hinged together. The ends of the gripping band are attached respectively to a plate 30 and to an eye 31 which is engaged by a threaded shank 32 extending from an eccentric strap 33 which incloses an eccentric 34. The eccentric is

shown as provided with a flange 35 which overlies the strap (said strap lying between the flange and plate 30, see Fig. 5,) and is provided with an ear 36 which is engaged by a pin 37 projecting from an arm 38 which extends from an adjustable reciprocating link 39 by which the gripping band is oscillated, said link being pivoted to bell crank lever 25, as at 40. The eccentric is adapted to oscillate on a shouldered screw 54 which engages plate 30 (see Figs. 4 and 5). The quickness of the grip, that is, of the action of the gripping band on the platen, is determined by adjustment of threaded shank 32 in eye 31. To effect this adjustment, screw 54 is removed and the strap detached from the eccentric and given one or more half turns in either direction as may be required. The strap is then replaced on the eccentric and the screw turned in. Plate 30 is provided with a recess 41 through which arm 38 extends, the right wall of said recess, as seen in Fig. 3, serving as a stop, when engaged by the ear, to limit the return or releasing movement of the link. The plate is also preferably provided with a bearing 55 which by light engagement with the platen prevents tilting of the plate relatively to the platen and insures smooth action of the gripping band. The link may be made adjustable in any ordinary or preferred manner. In the present instance I have shown the link as comprising a tubular member 42, a toothed slide 43 and a scroll wheel 44 provided with a finger piece 45. The scroll wheel is mounted to oscillate on a stud 46 and is retained in place by a cap screw 47 engaging the stud. The scroll engages the teeth on the slide and causes the slide to reciprocate within the tubular member to lengthen or shorten the link and thereby cause more or less forward movement of the gripping band at each oscillation, and consequently a greater or less space between the lines printed by the machine. I have shown the tubular member as provided with a slot 48 at one end of which is a projection 49. The toothed slide is provided with a projection 50 which extends through the slot (see Fig. 3). A scale 51 may be provided contiguous to the slot, so graduated that the space between the projections 48 and 49 will correctly indicate the space between lines printed by the machine. In Figs. 3 and 4 the link is shown as shortened to the extreme of its movement, which would produce the longest space within the capacity of the machine. The space is shortened by lengthening the link, which is effected by rotation of the scroll wheel to move the toothed slide outward. As a means of limiting the forward movement of the gripping band, I provide a lug 52 upon plate 30 which at the extreme forward movement of the gripping band will engage a suitable stop, as a hub 53, carried by the spring arm 28. The engagement of lug 52 with this hub limits the forward movement of the gripping band which is produced by movement of the spacing lever.

It will be noted (see Figs. 3 and 4) that the axis of the link is parallel with a line drawn through the pivotal points of the link to the bell crank lever and of the ear on the eccentric to the pin extending from the link, and also that an extension of the axial line of said pin would intersect the peripheral line of the platen. The special advantages of this construction and arrangement of parts are that changes in the adjustment of the link produce the same changes in the movement of the platen and consequently of the paper and that the movement of the platen and paper will equal the movement of the link.

In use the regular spacing pawl of the machine, indicated by 26, may be either removed or thrown backward out of the way, as in Fig. 1. When the link is moved forward the first action is to oscillate the eccentric and cause the band to grip the platen. Continued movement of the link carries the band forward and causes forward rotation of the platen until the movement is stopped by engagement of lug 52 with the stop. Backward movement of the link first oscillates the eccentric backward and releases the grip of the band on the platen, after which the band is carried backward to its normal position leaving the platen held in the position to which it was carried, by the forward movement of the band. The space between the lines printed by the machine is determined by the length of the link, which is adjusted to the requirements of use and will produce any required spacing within the capacity of the machine. The longer the link the shorter the space between the lines and vice versa.

Having thus described my invention I claim:—

1. An attachment of the character described comprising a band adapted to engage a writing machine platen, means for oscillating said band and simultaneously causing it to grip the platen, and means for determining the quickness of the grip of the band on the platen.

2. An attachment of the character described comprising a band adapted to engage a writing machine platen, means for oscillating said band and simultaneously causing it to grip the platen and means for regulating the distance the band, and consequently the platen, will be carried forward by each actuation of the band.

3. An attachment of the character described comprising a band adapted to engage a writing machine platen, an eye upon one end of said band, a plate to which the

other end of said band is connected, an eccentric pivoted on said plate and having an ear, an eccentric strap having a shank engaging the eye and a link pivoted to the ear and adapted to oscillate the eccentric to cause the band to grip the platen and move forward to rotate the platen and on the return movement to cause the band to release the platen and move to normal position independently of the platen.

4. An attachment of the character described comprising a band adapted to engage a writing machine platen, a plate to which one end of the band is connected, an eccentric pivoted on said plate, an eccentric strap having a shank engaging the other end of the band and a reciprocating link connected to the eccentric.

5. An attachment of the character described comprising a band adapted to engage a writing machine platen, a plate to which one end of the band is secured and which is provided with a recess, an eccentric pivoted on said plate and having an ear lying in the recess, an eccentric strap having a shank engaging the other end of the band, and a reciprocating link having an arm to which the ear on the eccentric is pivoted, engagement of said ear with the wall of the recess limiting the return movement of the eccentric.

6. An attachment of the character described comprising a band adapted to engage a writing machine platen, a plate to which one end of the band is secured, an eccentric pivoted on said plate, an eccentric strap engaging the other end of the band and a link for oscillating the eccentric and the band comprising a tubular member, a toothed slide therein and a scroll wheel on the tubular member which engages the slide.

7. The combination with a writing machine platen and a reciprocating link, of a band partly inclosing the platen, a plate to which one end of the band is connected, an eccentric pivoted to the plate and having an ear to which the link is pivoted and an eccentric strap having a shank engaging the other end of the band, substantially as described, for the purpose specified.

8. The combination with a writing machine platen, a longitudinally adjustable link and means for reciprocating said link, of a band partly inclosing the platen, a plate to which one end of the band is connected, an eccentric pivoted to the plate and to which the link is pivoted, and an eccentric strap having a shank engaging the other end of the band.

9. The combination with a writing machine platen and a reciprocating link, of a band partly inclosing the platen, a plate to which one end of the band is connected, an eccentric pivoted to the plate and having a flange, an ear on said flange to which the link is pivoted and an eccentric strap retained in place by the flange and having a shank engaging the other end of the band.

10. The combination with a writing machine platen and a reciprocating link, of a band partly inclosing the platen, a plate to which one end of the band is connected, an eccentric pivoted to the plate and to which the link is pivoted, an eccentric strap having a shank connected to the other end of the band and means for stopping the forward movement of the band and the platen.

11. The combination with a writing machine platen and a reciprocating link, of a band partly inclosing the platen, a plate to which one end of the band is connected and which has a bearing lightly engaging the platen, an eccentric pivoted to the plate and to which the link is pivoted, and an eccentric strap having a shank adjustably engaging the other end of the band.

12. The combination with a writing machine platen and a reciprocating link comprising a tubular member, a toothed slide therein, and a scroll wheel on the tubular member which engages the slide, of a band partly inclosing the platen, a plate to which one end of the band is connected, an eccentric pivoted to the plate and to which the link is pivoted, and an eccentric strap having a shank adjustably engaging the other end of the band.

13. The combination with a writing machine platen and a reciprocating link, of a band partly inclosing the platen, a plate to which the band is connected and which is provided with a lug, an eccentric pivoted to the plate and to which the link is pivoted, an eccentric strap having a shank engaging the other end of the band and a stop engaged by the lug to limit the forward movement of the band and the platen.

14. The combination with a writing machine platen and a reciprocating link, of a band partly inclosing the platen, a plate to which the band is connected and which is provided with a recess, an eccentric pivoted to the plate and having an ear to which the link is pivoted and which engages the wall of the recess to limit the return movement of the eccentric and the band, and an eccentric strap having a shank engaging the other end of the band.

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

PHILO B. TINGLEY.

Witnesses:

CHARLES MALCOM BENGLESS,

ALBERT F. EASTWOOD.