No. 840,123. PATENTED JAN. 1, 1907.

J. EDWARDS.

TYPE WRITER ATTACHMENT.

APPLICATION FILED JULY 17, 1905.

3 SHEETS—SHEET 1.

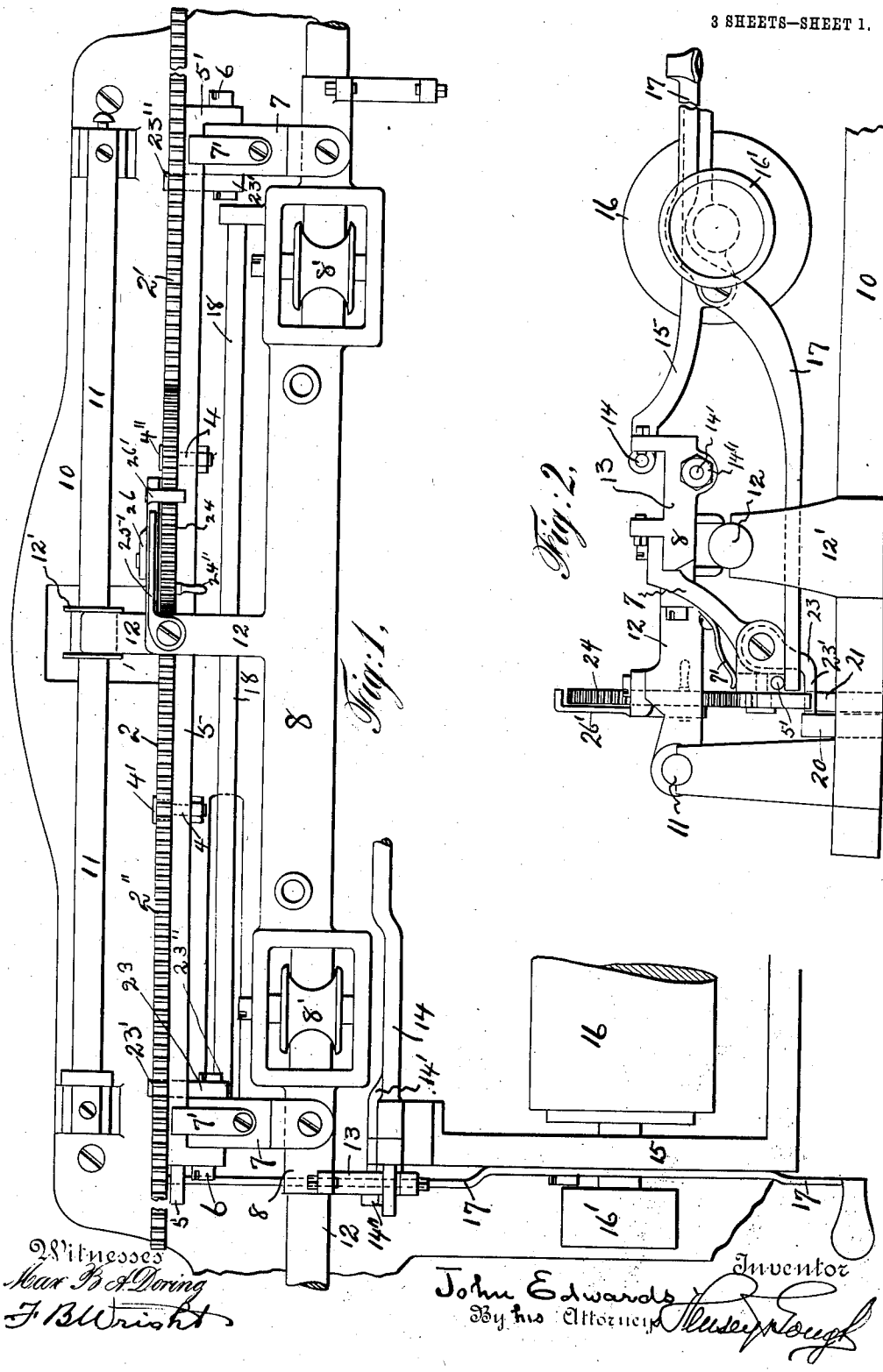


Fig. 1.

Fig. 2.

Witnesses
Max B. A. Doring
F. B. Wright

Inventor
John Edwards
By his Attorneys
Wilkinson & Boughton

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3 SHEETS—SHEET 2.

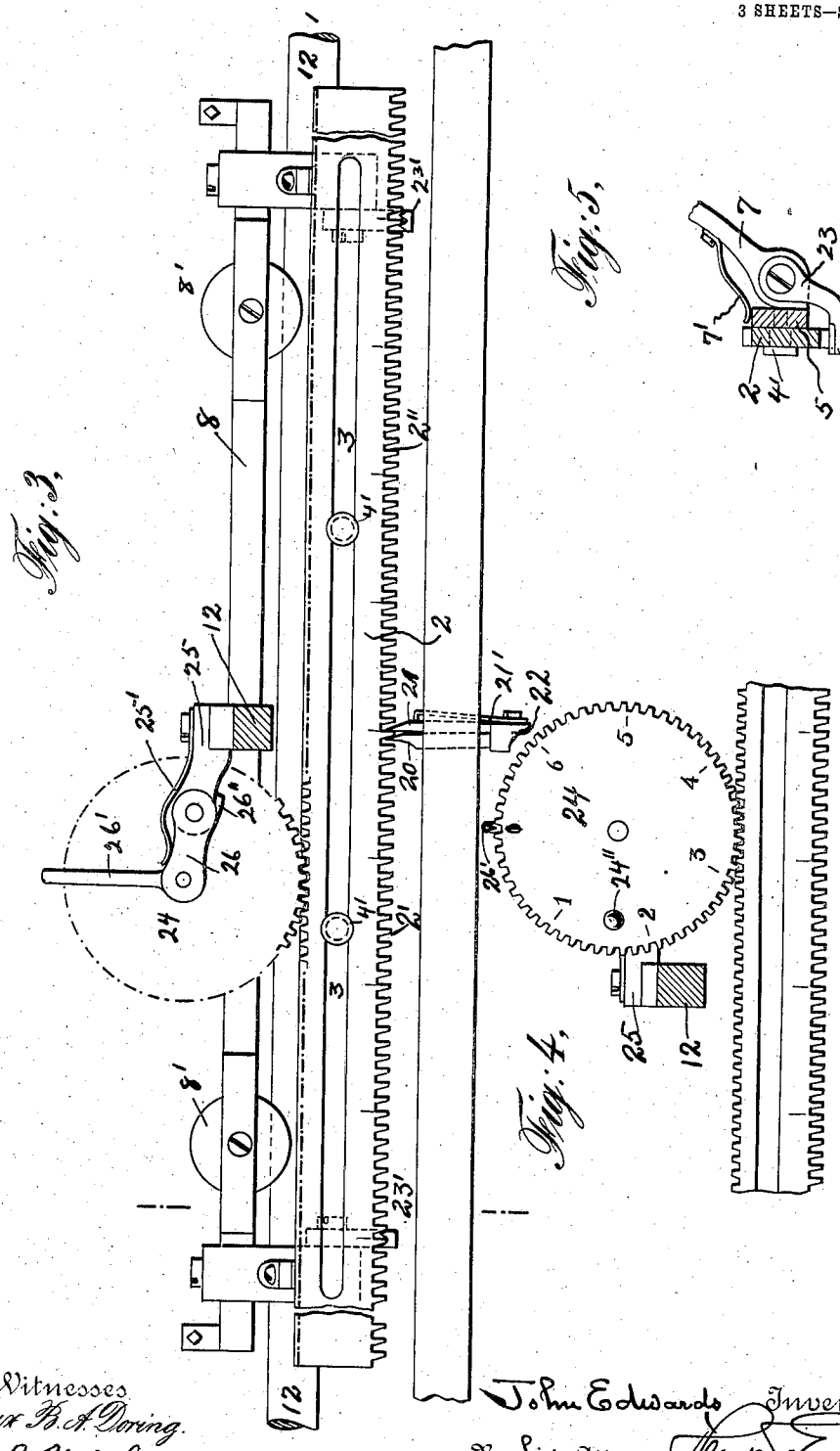


Fig. 3.

Fig. 5.

Fig. 4.

Witnesses
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3 SHEETS—SHEET 3.

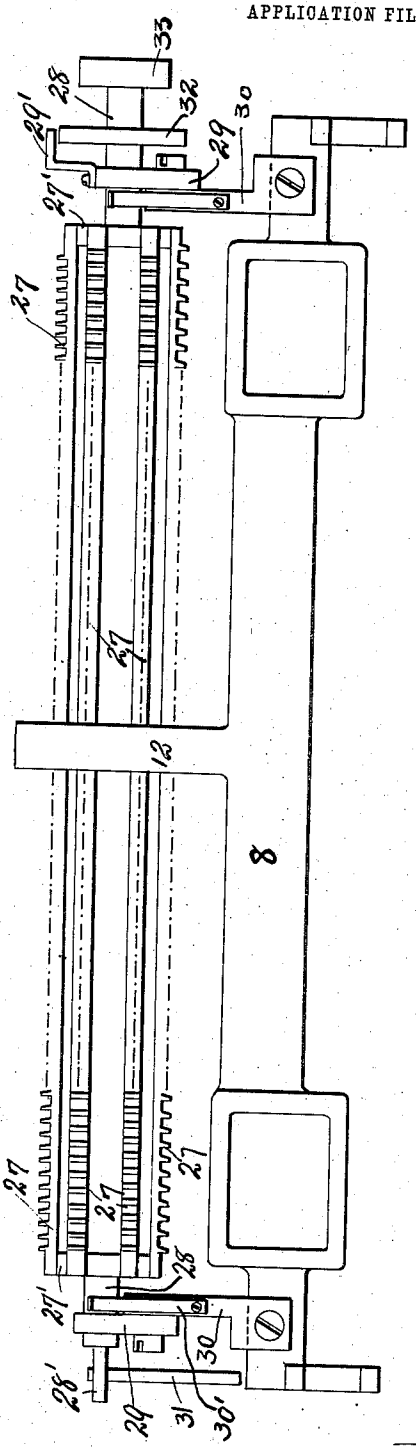


Fig. 6.

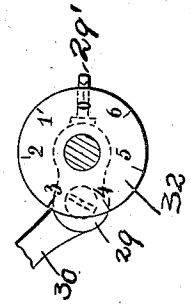


Fig. 8.

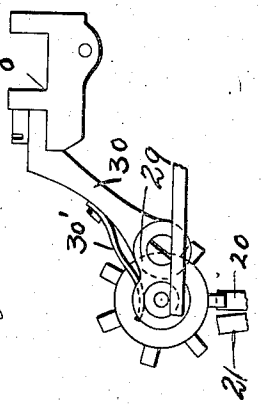


Fig. 7.

Witnesses
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John Edwards Inventor
By his Attorneys Howson & Howson

UNITED STATES PATENT OFFICE.

JOHN EDWARDS, OF EDGARD, LOUISIANA.

TYPE-WRITER ATTACHMENT.

No. 840,123. Specification of Letters Patent. Patented Jan. 1, 1907.

Application filed July 17, 1905. Serial No. 270,034.

To all whom it may concern:

Be it known that I, JOHN EDWARDS, a citizen of the Republic of France, residing at Edgard, in the parish of St. John the Baptist and State of Louisiana, have invented certain new and useful Improvements in Type-Writer Attachments, of which the following is a specification.

My invention relates to an attachment for type-writers, and more specifically to means whereby an even margin may be secured for type-written matter—in other words, whereby the line may be "justified."

At the present time the length of type-written lines on a page is unequal, and the right side of a page of type-written matter has a ragged appearance, some of the lines extending out to the margin and others falling short thereof by one, two, or more spaces. It is the object of my invention to permit the justifying of such lines for a perfect copy from a "proof-sheet," much as a printer justifies a line of type after a proof has been taken—that is, by inserting proper spaces between letters or words—so that the printed line is lengthened until it is even with the margin.

To that end my invention consists in the use of one or more auxiliary racks or toothed rules, which are shifted into the place of the regular rack and which has fewer teeth to the inch than the regular rack, thus increasing to a slight degree the spacing between letters or between words, such increased width of spacing being comparatively slight individually, but taken in the aggregate sufficient to lengthen out the printed line to the margin.

I have illustrated my invention as embodied in two forms of devices.

In the drawings, Figure 1 is a top plan view of the rear part of a type-writer carriage to show the relation of my shiftable rack to the machine. Fig. 2 is an end elevation to show particularly the rack-lifting mechanism. Fig. 3 is a rear elevation of the upper part of the carriage and the rack. Fig. 4 is a detail of the rack-shifting wheel. Fig. 5 is a detail of the catch which engages the rack to the carriage. Fig. 6 is a plan view of another form of my invention wherein a plurality of racks are used. Fig. 7 is an end elevation of Fig. 6. Fig. 8 is a detail of the rack-turning wheel.

Before describing the mechanical details of my device I will explain how it is to be used.

The prime object of my invention is to permit the extension of a line of type-written matter so that an even margin may be secured. This, while of no great importance in ordinary letters, is greatly to be desired in the preparation of circulars and other papers where the general neatness and beauty of the page is to be taken into account. Preliminary to the use of my auxiliary justifying spacing-rack a "copy" or "proof-sheet," as it may be called, is written as in ordinary cases, it being noted, however, at the end of every line how many spaces are needed to fill out the line to the margin. This may be conveniently indicated on the ordinary machine by the use of the colon (:) for each space. At the end of a line so written there will be as many colons or other indices as there are spaces needed to fill up the line to the margin. Having made this proof-sheet, a fair copy is to be made from this, using my auxiliary rack to space the letters either in the whole of the line or a part thereof to an extent sufficient to fill up the line to the margin.

I will now describe my auxiliary spacing-rack in detail, referring to the accompanying drawings, wherein like numerals designate like parts.

The construction shown in Figs. 1 to 5 comprises a toothed rule or rack-bar 2 of about the ordinary length of a type-writer carriage—that is, nearly twice as long as the regular rack-bar in use. This elongated rack-bar takes the place of the ordinary rack-bar, but differs therefrom in two respects. It is shiftable longitudinally relative to the carriage and it is not composed of teeth all spaced an equal distance apart. With a rack-bar 2 of, say, sixteen inches length, seven inches of the rack would have, we will assume, ten teeth to the inch, or seventy teeth in all. This portion is indicated by 2'. The next six inches 2'' of the rack portion, forming an auxiliary rack, would have, say, nine teeth to the inch, or fifty-four in all. By moving this rack-bar one inch toward the left you would replace ten teeth by nine teeth, or you would have in a line seven inches long sixty-nine spaces instead of seventy spaces. By moving the rule two inches to the left you decrease the number of spaces in the line to sixty-eight in a seven-inch line, or, in other words, the typed line which would ordinarily be compressed within sixty-

eight spaces, or two spaces less than a seventy-space line of seven inches, is now lengthened to fill out the whole line, all as will more fully appear hereinafter. In order that the rack-bar 2 may be readily shiftable with relation to the carriage, I preferably provide it with a longitudinal slot 3. (Shown clearly in Fig. 3.) 4 4 are roller-bearings which project into the slot and carry the rack-bar. The bearing-rollers 4 are mounted on suitable pins 4′, projecting from a longitudinal bar 5, which is fast to the carriage and travels with it. The location of the guide-bar 5 is best seen in Fig. 1. At its ends the bar 5 has ears 5′ 5′ forwardly projecting, through which pass the pivot-pins 6 6, by which the guide-bar 5 is pivoted for a vertical turning movement to the downwardly-bent arms 7, which are rigidly attached to the longitudinal traveling bar 8 of the ordinary carriage-frame about on a line with the bearings of the paper-cylinder. 7′ 7′ indicate flat downwardly-acting springs attached to the upper face of arms 7, the free ends of which bear upon the upper edge of the guide-bar 5 for a purpose to be later described. I have shown only so much of a frame and cylinder-carriage of a type-writer as will suffice for an understanding of my invention, and before proceeding further with the description of the details of the rack-lifting mechanism I will briefly refer to such parts of an ordinary machine as are shown in the drawings. 10 is the carriage-platform, on which is supported the carriage-guide rod 11, along which travels the usual sleeve 12′, held in the forked arm 12, which projects backwardly from the traveling frame-bar 8. The bar 8 has mounted on it the usual rollers 8′, which rest upon and travel on the guide-rod 12, which is mounted on the pillow-blocks 12′ of the carriage-platform 10. 13 designates the forwardly-projecting ends of the bar 8, and 14′ 14′ designate the two parallel rods between the end pieces 13, the lower one of which projects through end pieces 13 and carries the nuts 14″. The upper rod 14 forms the pivot-shaft for the cylinder-supporting frame 15. This frame bears the usual cylinder 16, having milled turning head 16′. 17 is the rack-bar-elevating key, ordinarily termed the "carriage-release." This lifts the rack-bar out of engagement with the spacing dogs or pawls 20 21 and allows the carriage to be pulled to the end of its travel by the usual flexible metal strap 18. The key 17, however, performs another function in combination with my extended rack 2, which will be later described. The escapement or spacing dogs 20 21 are of the kind usually found in type-writing machines, and as their construction and mounting possess no novelty I have not illustrated the well-known working mechanism whereby they are moved back and forth through the notches of the rack. 21 designates the "loose" dog, and 20 the "rigid" dog. In operation whenever a type-key is depressed and the rocking arm 22 brought forward to a point where the rigid dog 20 engages with the rack the loose dog springs forward, forced by spring 21′ opposite to the next notch of the rack. When the type-key is released and the rocking arm 22 moved, the loose dog is again engaged in the notch to which it is opposite and is carried back even with the other by the forward action of the carriage. This is one of the ordinary escapement mechanisms, but I wish it understood that any other form of escapement may be used with or adapted to my rule, and I do not wish to be limited to this particular form in my claims, except where expressly stated. It is necessary in order that the rack-bar 2 may be shifted upon the longitudinally-fixed bar 5 that the rack-bar be adapted to be raised free from the dogs and free of catches 23, which hold the rack-bar 2 set relatively to the guide-bar 5. These catches 23 are practically a part of the downwardly-inclined arms 7 7. As shown, each consists of a sleeve 23″, (shown in dotted lines in Fig. 2,) a downwardly and rearwardly projecting finger 23′, whose extremity engages with the teeth of the rack-bar 2. The sleeve 23″ is rigidly fast to the pivot-pin 6, which connects the guide-bar 5 to the arm 7. It will thus be seen that when the rack-bar is lowered into its normal position the catch engages with the teeth to hold the rack-bar relatively rigid with the carriage, so that the carriage moves with it. A pin 5′ is prolonged from the guide-bar 5 at one end, under which the rear end of the key-lever 17 projects. Hence by depressing said key at its finger end the guide-bar 5 and its attached rack-bar 2 is raised free from catch 23, and the rack-bar 2 may then be moved along to any desired position relative to the bar 5 and the carriage. While the rack-bar 2 might be moved without any particular mechanism for that purpose, I prefer to use an adjusting-wheel 24, (shown best in Figs. 3 and 4,) which has teeth 24′ engaging with teeth 2′′′′ on the upper edge of the rack-bar 2. This wheel I have shown as supported pivotally on a laterally-projecting arm 25, bolted to the rearwardly-extending forked arm 12. 26 is a link pivoted to the extremity of the arm 25 for a vertical movement, in whose other end the wheel 24 is mounted. Projecting upwardly from the link is a pointer-standard 26′, carrying a pointer 26″, which acts in conjunction with the numbers on the face of the wheel to show the amount it has been turned, and hence the position of the rack-bar 2. The wheel is mounted to have vertical movement, so that it may yield when the rack-bar is raised. To hold it down to the

rack-bar, I use the spring 25′, and a stop 26′ prevents its too great depression. A stud 24″ allows the wheel to be easily manipulated. In operating this form of my invention to slide the rack-bar 2 to the left to bring one or more inches of the second part of the rack into engagement with the dogs, as before described, I simply depress the key 17, which raises the rack out of contact with the catch 23 and dogs 20 21. The wheel 24 is then rotated the proper degree to bring from one to six inches of the auxiliary rack into play. The key 17 is then released and the spring 7′ forces down the rack-bar into engagement with the dogs and catch 23.

In Figs. 6, 7, and 8 I show a simpler construction and one which in many ways I prefer. In this I use a plurality of separate racks mounted to be brought into engagement with the dogs by a rotative movement. I have shown a set of six rack-bars 27, supported at their ends in heads 27′, which are rigid on a central shaft 28. This shaft is mounted to turn in bearings on links 29, which are pivoted to downwardly-projecting arms 30, corresponding in position and operation to the arms 7 of the mechanism heretofore described. One end of shaft 28 is prolonged, as at 28′, and under it projects the finger 31 of the ordinary carriage-shifting key, such as the key 17 before described. Springs 30 bear downwardly on shaft 28 and hold one of the racks into engagement with the dogs 20 21. The link 29 at the end of the shaft opposite to the finger 31 has an index-pointer 29′ mounted on it, which indicates on a wheel 32 and in conjunction with the numerals on said wheel what rack is in engagement with the dogs. A milled finger-wheel 33 is used for turning the shaft 28. The teeth on the separate racks may be arranged in either of two ways. The first rack may have ten teeth to each inch, or in a rack of seven inches seventy teeth. The second rack may have ten teeth to the inch throughout six inches of its length and nine teeth in the remaining inch. The next rack may have ten teeth to the inch for five inches and nine teeth in each remaining inch, and so on for each rack, or one rack can have seventy evenly-spaced teeth, another sixty-nine evenly-spaced teeth, another sixty-eight, and so on. I do not wish to be limited in the setting of these teeth, as I may use either of the two arrangements described. In some respects I prefer the first-named arrangement, which allows of even margin at the commencement of all lines; but the second arrangement permits of a more even spacing of the entire line and it is also of use when an increased spacing between letters and words is desired for an entire page. It is obvious also that I increase the difference between the number of teeth on the racks to a much greater degree, if I so desire, so that, for instance, one of the racks could have only half the number of spaces of the normal rack ordinarily used.

The construction shown in Figs. 6 to 8 is used in the same manner as that before described, except that the shaft 28 is turned to bring one or the other of the racks into position to be engaged by the dogs. In writing the fair copy from the proof-sheet the number of spaces needed to fill out the line is noted, as before described, and the rack having the proper number of spacing-teeth is turned to engage with the dogs.

While I have shown the invention as embodied in certain mechanisms and adapted to a certain class of type-writer machines, I do not wish to be limited to the exact forms or arrangements shown, as it may be varied in many ways and adapted to all makes of machines using a rack in conjunction with escapements of any construction and whether the rack or escapement teeth be in a longitudinally-extended series or set about the circumference of a circle or wheel.

Having described my invention, what I claim is—

1. In a type-writer, a carriage, escapement mechanism for allowing the lateral shifting of said carriage, two or more connected sets of escapement-teeth, one set having teeth with a normal space between them, the other set having teeth the spaces between each two teeth of which are of like width to each other, but smaller than the spaces between the normal teeth of the other set, and means for operatively engaging said sets and moving one of the other sets of teeth into or out of engagement with the said escapement mechanism, substantially as described.

2. In a type-writer, an escapement-rack having normally space teeth, said rack being continued beyond the machine to form an auxiliary rack and being there provided with teeth variably spaced to the normal teeth of the rack, and means for sliding said rack laterally to move the main rack out of position relatively to the carriage travel and to bring the auxiliary rack in position either along the whole or a portion of the carriage travel.

3. In a type-writer having a carriage and a main spacing-rack attached thereto, and escapement mechanism acting on the teeth of the rack to allow it and the carriage to shift laterally, an auxiliary spacing-rack having a less number of teeth than the main rack so mounted that it may be substituted for said main rack and engaged with the carriage escapement mechanism, mechanism for shifting said racks so that one may be substituted for the other, and a mechanism attached to the carriage for lifting the main or auxiliary racks out of engagement with the

shifting mechanism to allow one rack to be replaced by the other, substantially as described.

4. In a type-writer having a carriage, a main spacing-rack, and escapement-dogs engaging with said rack for allowing the step-by-step lateral movement of said main rack and carriage, an auxiliary spacing-rack connected with said main rack having a less number of teeth than the main rack, so mounted that it may be substituted for said rack and engage with the escapement-dogs, means for shifting said racks and mechanism attached to the carriage for lifting the main or auxiliary racks out of engagement with the escapement mechanism to allow one rack to be replaced by the other, substantially as described.

5. In a type-writer, a carriage, controlling mechanism, main spacing-rack mounted on said carriage and adapted to be moved out of operative relation with the said controlling mechanism, an auxiliary rack attached to the main rack, mechanism whereby the auxiliary rack may be moved into the place of the main rack to engage with the carriage-controlling mechanism, mechanism engaging with the said racks to control the carriage, arms projecting from the longitudinal main bar of the carriage-frame, links pivoted to said arms and carrying the main and auxiliary racks, springs on said arms for holding the links depressed to bring the rack-bars into contact with the controlling mechanism, and a key pivoted on the carriage whose end engages said rack-bars to raise the same out of contact with the said shifting mechanism.

6. In a type-writer, having a carriage with mechanism for controlling the lateral shift of said carriage, an elongated rack-bar having a certain number of teeth along a portion of its length and a certain other number of teeth along the remainder of its length, the said rack-bar being shiftable laterally with relation to the carriage, guides in which said rack-bar is supported, a catch connected to the carriage and normally engaging with the rack-bar to hold it to move with the carriage, and means for lifting said rack-bar out of engagement with said catch to permit it to be shifted with relation to the carriage to bring a variable number of teeth into operative relation with the carriage-shifting mechanism, substantially as described.

7. In a type-writer, a carriage and mechanism for controlling the lateral shift of said carriage, a laterally-shiftable elongated rack-bar, having a certain number of teeth along a portion of its length equal to the length of the line to be written, and a certain other number of teeth along the remainder of its length, guides for connecting said rack to the carriage, a catch for holding said rack from lateral shifting relative to said guides and carriage, and means for freeing the rack-bar from engagement with said catch to permit the lateral shifting of said rack-bar to bring a variable number of teeth into operative relation with the carriage-shifting mechanism, substantia ly as described.

8. In a type-writer, a carriage-platform and carriage mounted to move laterally thereon, arms projecting from the rear of said carriage, a longitudinal guide-bar having an upwardly-yielding connection with said arms, springs for holding said guide-bar down, mechanism for raising said guide-bar up against the force of said springs, a rack-bar mounted to slide longitudinally on said guide-bar but to move vertically with it, catches on said arms adapted to engage with the rack-bar when the same is in its lowest position, and carriage-operating mechanism adapted to engage with and move said rack-bar when the same is in its lowest position, said rack-bar having a certain number of teeth along one portion of its length equal to the length of the line to be written and a certain other number of teeth along the remainder of its length, substantially as described.

9. In a type-writer, a carriage-platform and carriage mounted to move laterally thereon, arms projecting from the rear of said carriage, a longitudinal guide-bar having ears pivoted to said arms, springs for holding said guide-bar in its lowest position relative to said arms, a key pivoted on said carriage and engaging to lift said guide-bar when depressed, springs for holding said bar depressed, guide-pins on said bar projecting rearwardly, a slotted rack-bar mounted on said guide-pins to slide longitudinally thereon, and carriage-operating mechanism adapted to engage with said rack-bar to move the carriage laterally along the platform, said rack-bar having a certain number of teeth along one portion of its length equal to the length of the line to be written and a certain other number of teeth along the remainder of its length, substantially as described.

10. In a type-writer, a carriage-platform and carriage mounted to move laterally thereon, arms projecting from the rear of said carriage, a longitudinal guide-bar having ears pivoted to said arms, springs for holding said guide-bar in its lowest position relative to said arms, a key pivoted on said carriage and engaging to lift said guide-bar when depressed, springs for holding said bar depressed, guide-pins on said bar projecting rearwardly, a slotted rack-bar mounted on said guide-pins to slide longitudinally thereon, and carriage-operating mechanism adapted to engage with said rack-bar to

move the carriage laterally along the platform, said rack-bar having a certain number of teeth along one portion of its length equal to the length of the line to be written, and a certain other number of teeth along the remainder of its length, in combination with a rack-bar-shifting wheel mounted to engage with the upper edge of said bar to shift it laterally, and a pointer arranged to coöperate with said wheel to show the longitudinal position of the said rack-bar, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 10th day of July, A. D. 1905.

JOHN EDWARDS.

Witnesses:
EUGÉNE DUMEZ,
EMILE LAUREUB.