H. H. STEELE.

TYPE WRITING MACHINE.

APPLICATION FILED NOV. 19, 1913.

1,138,993.

Patented May 11, 1915.

2 SHEETS—SHEET 1.

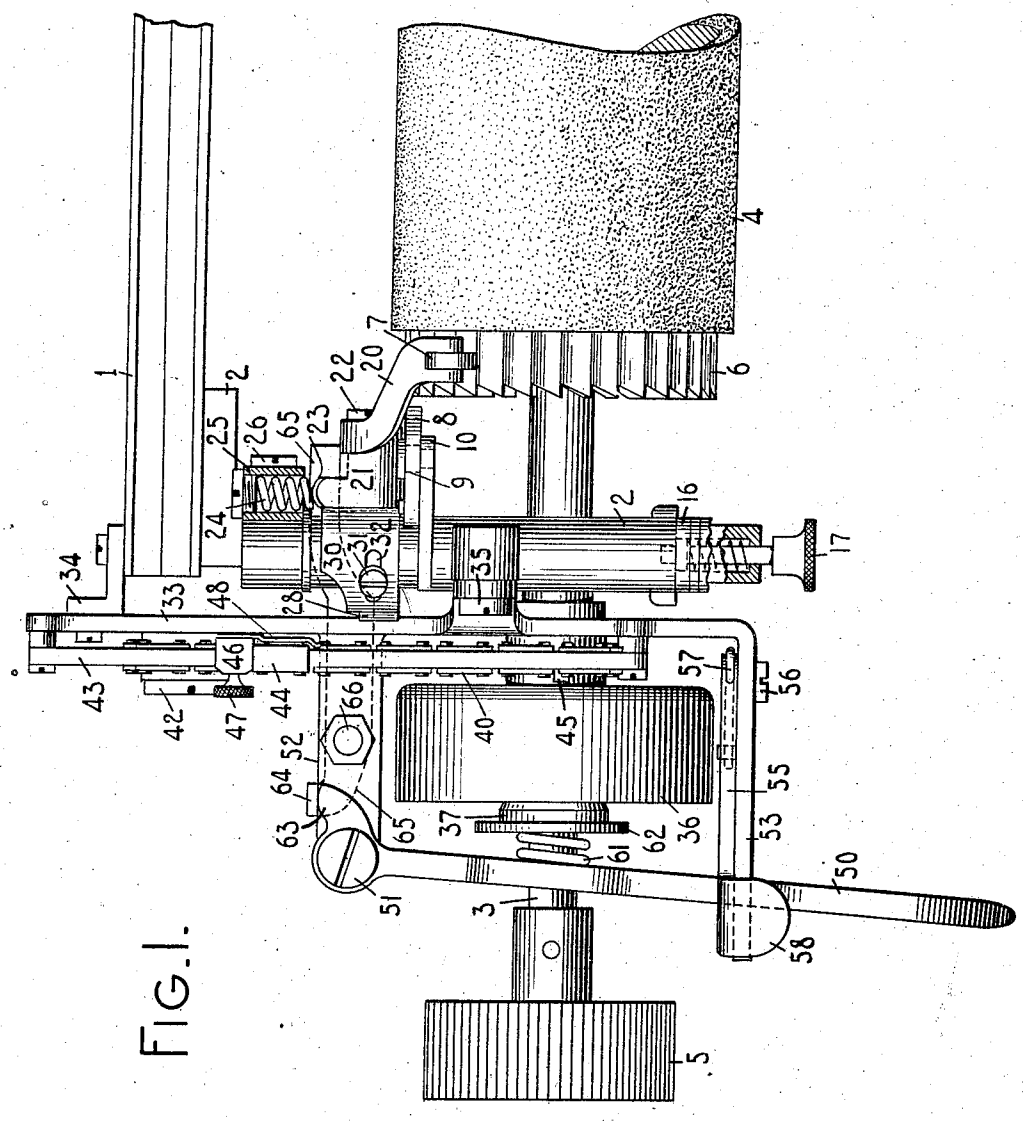

FIG. 1.

WITNESSES:

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2 SHEETS—SHEET 2.

FIG. 2.

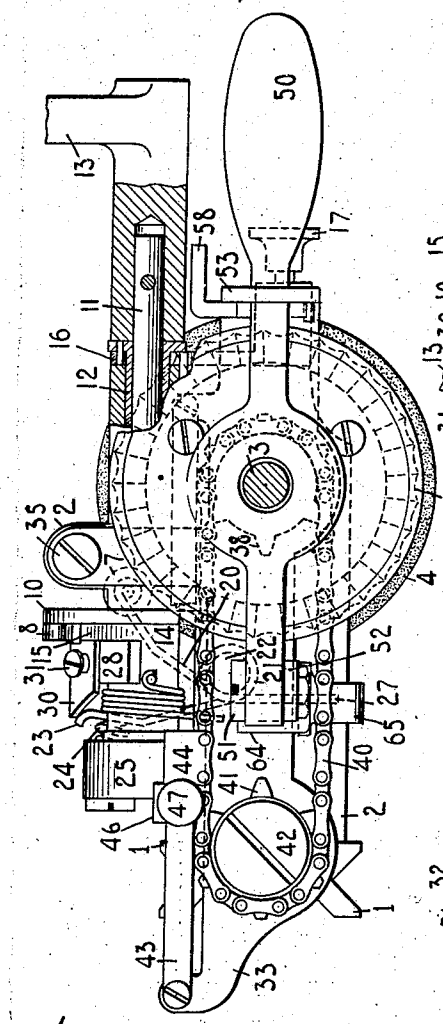


FIG. 3.

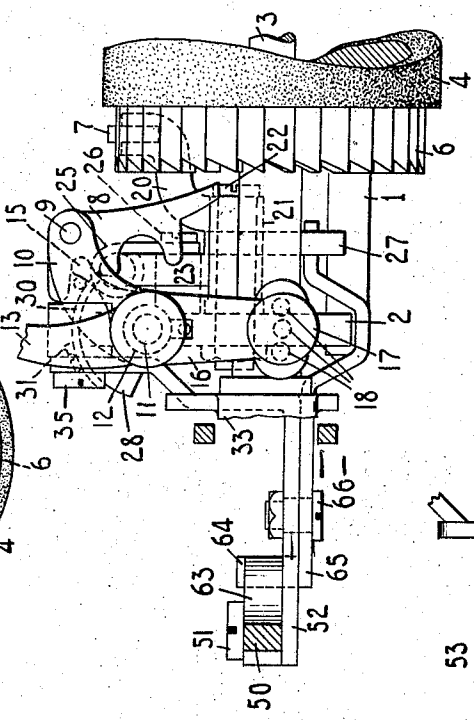


FIG. 4.

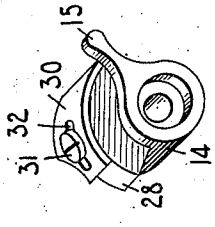
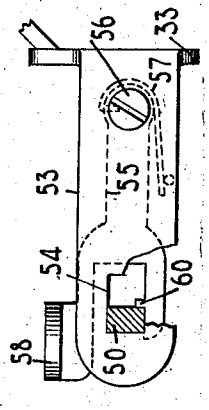


FIG. 5.



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UNITED STATES PATENT OFFICE.

HERBERT H. STEELE, OF MARCELLUS, NEW YORK, ASSIGNOR TO THE MONARCH TYPE-WRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,138,993. Specification of Letters Patent. Patented May 11, 1915.

Application filed November 19, 1913. Serial No. 801,904.

To all whom it may concern:

Be it known that I, HERBERT H. STEELE, citizen of the United States, and resident of Marcellus, 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.

My invention relates to typewriting machines, and it has for its principal object the provision of means to render easier and less noisy the operation of turning the platen. This is done by preventing the line space detent from clicking over the teeth of the line space wheel as the latter is turned, both by the ordinary line spacing handle and also when turning the platen through greater distances, as in the use of certain billing devices.

I show in the accompanying drawings means for holding the detent inoperative on the line space wheel in both these operations, namely, when the line space handle is worked and also when the billing attachment is used.

To the above and other ends, my invention consists in certain features of construction and combinations and arrangements of parts, all of which will be fully set forth herein and particularly pointed out in the claims.

In the accompanying drawings, all of which are on an enlarged scale, Figure 1 is a top plan view of as much of a typewriter carriage as is necessary to illustrate my invention. Fig. 2 is an end elevation. Fig. 3 is a front elevation. Fig. 4 is an isometric view of a detail, and Fig. 5 is a front view of a certain latch and its associated parts.

In the drawings, parts have been shown broken away or in section and parts have been omitted for convenience or clearness of illustration.

I have shown my invention embodied in a Monarch typewriter, of which machine, however, there is illustrated only the left-hand end of the carriage and platen, and parts carried thereby.

The carriage is shown of the ordinary Monarch construction including a main transverse back bar 1 which is grooved in its upper and lower edges to constitute parts of the roller bearings by which the carriage is supported, and said carriage also comprises a left-hand end bracket 2 and a right-hand end bracket, the latter not shown. In said brackets there is journaled the shaft 3 of a roller platen 4, said shaft being equipped at its ends with the usual finger wheels 5. On the left-hand end of the platen is mounted a line space wheel 6 having crown ratchet teeth and having also, in the present instance, peripheral teeth or flutings, the latter for engagement with the roller 7 of the platen detent. Said crown teeth are for engagement by the line space pawl 8. The line space mechanism including said pawl 8 and the means for actuating it, is or may be substantially identical with that shown in the patent to Merritt No. 791,483, dated June 6, 1905. Said pawl is pivoted at 9 to an arm 10 loosely mounted on a shaft 11 and on a sleeve 12 surrounding said shaft. Said shaft 11 extends horizontally toward the front where it has rigidly mounted thereon a line spacing lever or handle 13 and on the rear end of said shaft there is rigidly mounted a member 14 shown in Fig. 4. Said member comprises an arm 15 which engages a notch in the pawl 8, and when the shaft 11 is rotated by an operation of the handle 13, this arm 15, acting on said pawl, first swings the pawl about its pivot 9 into engagement with the wheel 6, and then moves said pawl, together with the arm 10, downward until the parts are arrested in a manner well known in the art and as explained in the Merritt patent. The part 14, as here shown, has some other devices mounted thereon which will be presently described and which are not shown in the Merritt patent.

At its forward end the sleeve 12 has mounted thereon a depending arm 16, the lower end of which carries a puppet 17 adapted to engage in any one of three holes 18, according as the arm 16 is swung to the right or to the left. The effect of an adjustment of said arm, and with it of the sleeve 12, is to vary the number of tooth-spaces that the platen is turned at each operation of the line spacing mechanism, this being done by varying the normal position of the arm 10 in a manner well known in the art and set forth in detail in the Merritt patent.

The platen detent shown in the present

case is similar to that shown in my prior Patent No. 1,018,786, dated Feb. 27, 1912, to which patent reference is made for a description of said detent more detailed than that which follows. The roller 7 is mounted in the free end of an arm 20 which projects from a hub 21 pivoted on a transverse horizontal pivot 22 projecting inward from the bracket 2. Another arm 23 projects upward from the hub 21 and said arm 23 is pressed toward the front of the machine by a spring 24 mounted in a drum 25 suitably secured, as by a screw 26, to the bracket 2. In said prior patent the arms 20 and 23 and the hub 21 are all described as bent up out of a single piece of sheet metal suitably stamped out. In the present instance I modify the construction of the detent lever thus made by adding a third arm 27 (Figs. 2 and 3), which arm extends downwardly from the hub, being folded down from the sheet metal between the arms 20 and 23.

On the hub of the member 14 I mount a sector 28 and on said sector I mount an adjustable cam 30, said cam being secured to the convex face of the sector by means of a headed screw 31 passing through an elongated slot 32 in the cam 30. The construction is such that the cam 30 can be adjusted circumferentially around the sector 28 and secured in adjusted position by tightening the screw 31. The parts are so adjusted that when the line space lever is in normal position, as shown in the drawings, the right-hand rear corner of the cam 30 lies just above the backwardly inclined upper end of the arm 23 of the detent lever, and when the line space lever is operated said cam 30 moves to the right and downward, camming the arm 23 toward the rear against the tension of the spring 24 and thus lifting the detent roller 7 out of the line space wheel and holding it inoperative until the line space lever returns to normal position. The resistance of the detent to the turning of the platen is thus removed and the noise which otherwise would be caused by the detent is prevented. The adjustable knob or puppet 17 is shown in its middle position where the parts are set for double spacing; that is to say, for spacing of such character that one operation of the line space lever turns the platen a distance of two teeth of the wheel 6. By adjusting said knob to the right so that the puppet or pin at the end thereof projects into the right-hand one of the three holes 18, the parts of the line space mechanism are set back a tooth so that when the line space lever is operated the wheel will be turned three teeth. If the machine is adjusted in this way for triple line spacing, the cam 30 should also be adjusted to the right of its present position on the sector 28 so as to lift the detent in the first part of the stroke. In short, the cam 30 should be adjusted in harmony with the puppet 17. As by far the greater part of the work done on any given machine is done with some one of the three kinds of line spacing of which the machine is capable, I have not deemed it necessary to show here a more convenient means for adjusting the cam 30 than that which involves loosening the screw 31, but it will of course be understood that other means can be provided for adjusting this cam if preferred.

I have shown the machine equipped with a billing attachment which, except in certain particulars that will be pointed out, is or may be like that shown in my prior Patent No. 1,014,673, dated Jan. 16, 1912. One of the respects in which the present biller differs from that of the patent is that said biller is here shown as mounted on the left-hand end of the carriage, whereas that of the patent is shown mounted on the right-hand end of the carriage, and this change has occasioned a corresponding change in all the parts; that is to say, the parts of the present biller bear the relation to those of the patented biller of left-hand to right-hand. The biller has been slightly modified in one or two other respects which will be pointed out in detail.

The attachment comprises a bracket plate 33 supported from the typewriter carriage partly by means of a bracket 34, Fig. 1, partly by means of a screw 35, and partly by means of a certain sleeve that surrounds the platen shaft 3, all substantially as described in the patent. The mechanism also includes a clutch, most of the mechanism of which is inclosed in a casing 36 but involving also a cone 37 which very loosely surrounds the platen shaft 3 and is adapted to be pressed into the part 36 where it acts on certain dogs, all as fully described in the patent. Said biller also includes a sprocket wheel 38, Fig. 2, rigidly mounted on the hub of the casing 36 and over which runs a sprocket chain 40, said sprocket chain also running over an idler sprocket 41 suitably journaled at 42 on the bracket 33. A bar 43 is supported at its ends by the bracket 33 and on said bar a stop 44 is adapted to travel, said stop being slidably mounted on the bar 43 and connected with one of the links of the chain 40. The motion of the stop 44 toward the front of the machine is limited by a fixed stop 45 projecting from the bar 43 and its motion toward the rear of the machine is limited by an adjustable stop 46 mounted on and adjustable along the bar 43 and capable of being secured in adjusted position by a set screw 47. This stop 46 has a sort of brake-spring 48 mounted thereon and adapted to engage the traveling stop 44 in a manner and for a purpose set forth in the patent.

The construction is such that the casing 36 and sprocket 38 are normally loose on the shaft 3 so that the platen can be turned without affecting the chain 40 and the stop 44 connected therewith. But the clutch is capable of an operation that connects the casing 36 rigidly with the shaft 3 so that when the platen is turned backward to position for insertion of a new sheet the sprocket wheels and the chain move with it, the traveling stop 44 moving toward the front of the machine until it is arrested by the stop 45. When the new bill or invoice is inserted the platen is turned forward until the stop 44 is arrested by the adjustable stop 46, after which the clutch is disconnected and the platen is operated by the line space mechanism in the ordinary way.

The connection and disconnection of the billing mechanism is controlled by a hand operated lever 50 which at its rear end is pivoted at 51 on a bracket 52 projecting outward from the bracket 33 in the rear of the casing 36. Said bracket 33 has a branch or arm 53 bent toward the left from its forward end, and this arm is formed with a slot 54 through which the release lever 50 passes, and by which it is guided and its motion in right and left directions limited. The lever 50 is normally held in its left-hand position by means of a latch lever 55 pivoted at 56 to the arm 53 and normally held up by a spring 57 and provided with a finger piece 58 by which it can be depressed. This lever is slotted or bifurcated, one branch of it lying beneath the lever 50 and having a tooth 60 projecting upward therefrom into position to hold the said lever 50 in either one of its two positions, namely, in its normal left-hand position or in its operated right-hand position, as the case may be. This latch can be released at any time by depressing the finger piece 58.

The lever 50 between its ends surrounds the shaft 3, as shown in Fig. 2, and as shown in Fig. 1 a spring 61, coiled about the shaft 3, is situated between said lever and a washer 62 surrounding the shaft 3 and lying between the spring 61 and the cone 37 of the clutch. When the lever 50 stands in the position shown in the drawings, the clutch is in released position, but when it is moved toward the right it compresses the spring 61, thus forcing the cone 37 toward the right under spring pressure and operating the clutch in a manner that will be understood from the patent.

The described construction differs from that of the patent in that in said patent the spring 61 is not employed but another spring is employed which is capable of moving the cone into the clutch, said other spring being, however, normally compressed so as to be inoperative by means of the lever 50 which lever is for that purpose held in its outer position by means of a latch similar to the latch 55, but in the patent said latch is capable of holding the lever only in its outer position, said lever being pushed in toward the platen by the spring above referred to, when the latch is released. The patented clutch has therefore been modified in these two particulars. One further modification consists in the provision, upon the rear end of the lever 50, of a lever arm 63 extending toward the right from the pivot 51 and normally resting in front of an ear 64 bent up from a lever 65 of the first order, pivoted at 66 to the underside of the bracket 52. The construction is such that when the lever 50 is moved toward the right the left-hand arm of the lever 65 is moved toward the rear and the right-hand arm of said lever is moved toward the front. Said right-hand arm of the lever extends beneath the bracket 2, being bent downward for the purpose of clearing said bracket, as shown in Fig. 3, and the extreme end of said arm lies just behind the lever arm 27 which, as above described, is an arm of the platen detent lever. The construction is such that when the clutch is thrown in, the arm 27 is moved toward the front of the machine, thus lifting the detent out of the wheel 6 with the result that when the platen is turned backward for the insertion of a new sheet and again forward to bring said sheet to the right-hand line that such turning is done free from the resistance and noise due to such detent.

Various changes may be made in the details of construction and arrangement without departing from my invention.

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

1. In a typewriting machine, the combination with a platen, a line space wheel, a detent, and a line space pawl for operating said line space wheel through successive line-space distances, of means for automatically disengaging said detent during the operation of said pawl to turn said ratchet wheel and platen.

2. In a typewriting machine, the combination with a platen, a line space wheel, a detent, a line spacing handle, a line spacing pawl, and means adjustable to regulate the number of tooth spaces through which said wheel is turned at each operation of said pawl, of a device operated by said line space handle for disengaging said detent during the operation of said pawl, and separate means for adjusting said device in harmony with the adjustment of the first mentioned adjustable means.

3. In a typewriting machine, the combination with a roller platen, a line space wheel, a line space handle, a rock shaft operated by said handle, and a line space pawl operated by said rock shaft, of a cam mounted

on said rock shaft and adapted to engage said detent to lift it away from said wheel.

4. In a typewriting machine, the combination with a roller platen, a line space wheel, a line space handle, a rock shaft operated by said handle, and a line space pawl operated by said rock shaft, of a cam mounted on said rock shaft and adapted to engage said detent to lift it away from said wheel, means adjustable to vary the extent of line spacing, and means for adjusting said cam.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 17th day of November, A. D. 1913.

HERBERT H. STEELE.

Witnesses:

BESSIE KITTEY,

H. BARRY.