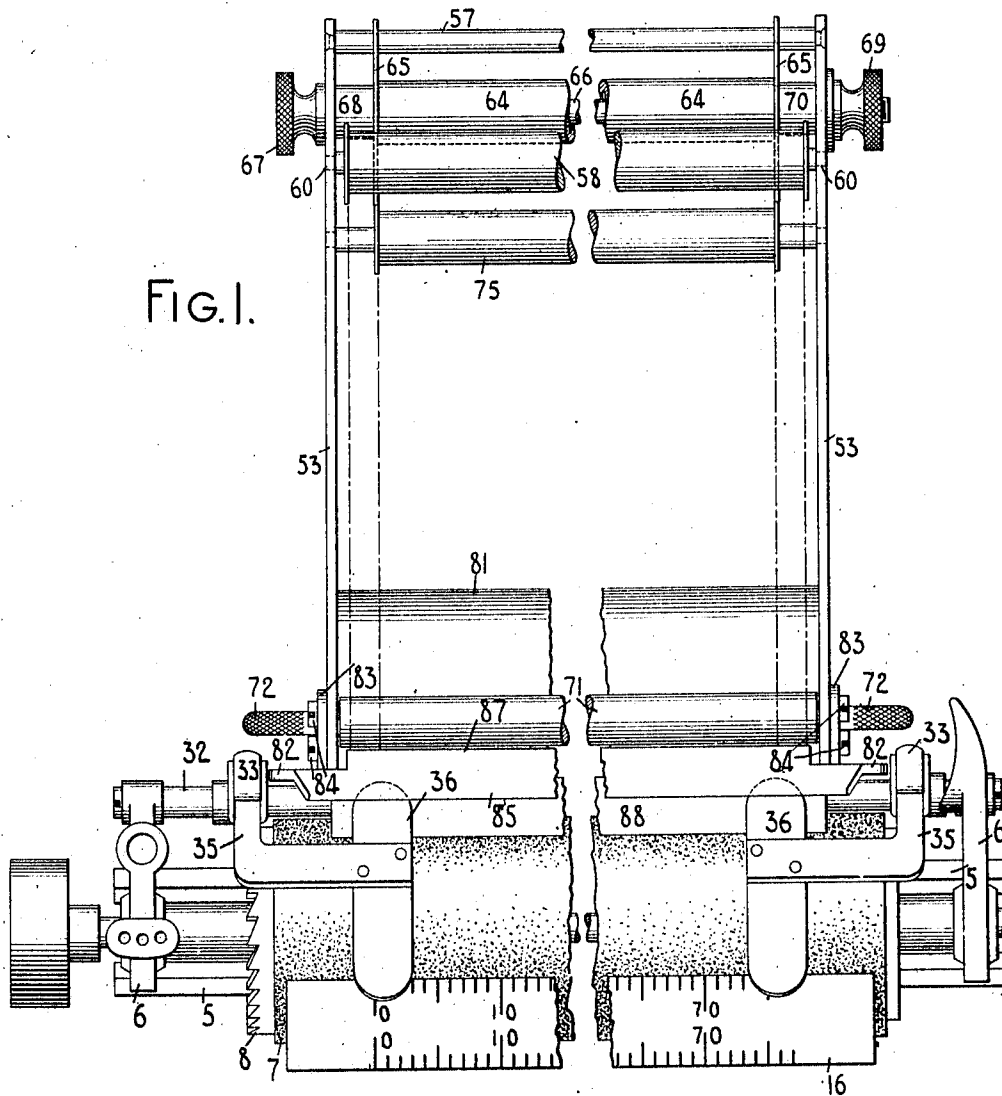


H. H. STEELE.  
TYPE WRITING MACHINE.  
APPLICATION FILED JAN. 7, 1910.

989,309.

Patented Apr. 11, 1911.

5 SHEETS—SHEET 1.



WITNESSES:

*E. M. Wells*

*M. W. Pool*

INVENTOR:

*Herbert H. Steele*

*By Jacob F. Felt*

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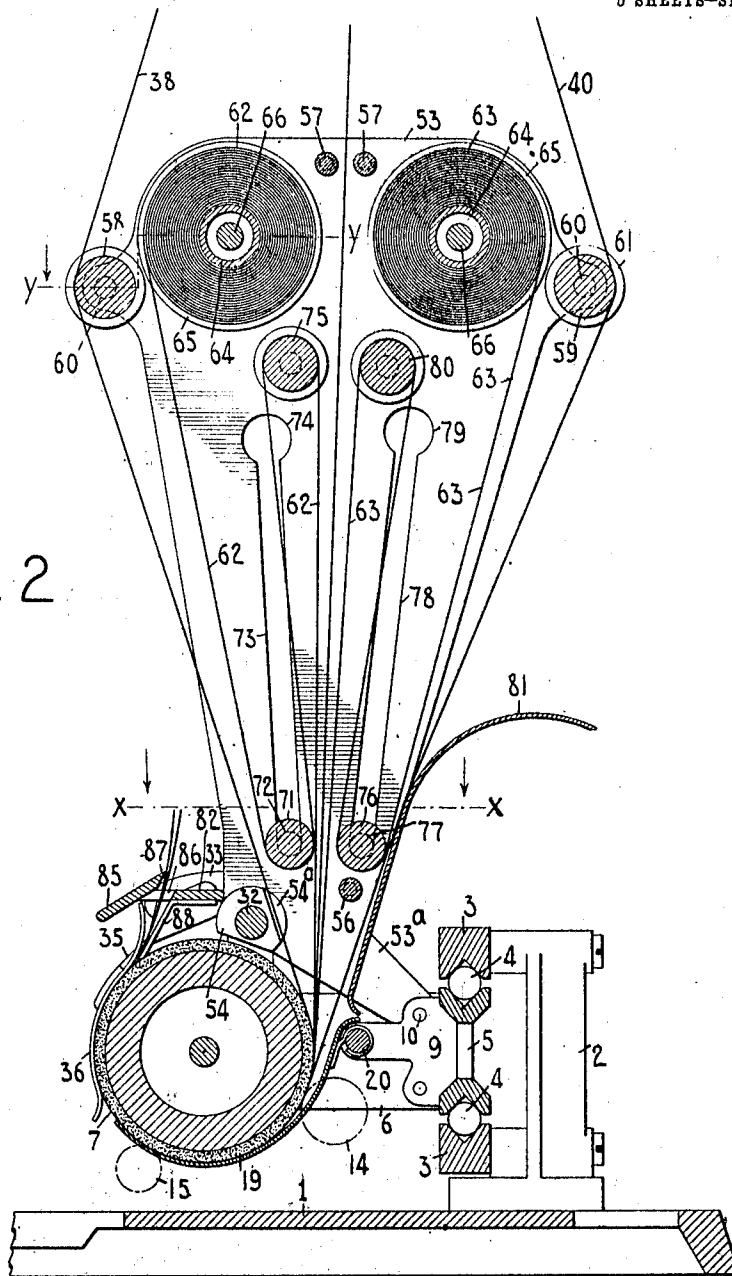
H. H. STEELE.  
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5 SHEETS—SHEET 2.

FIG. 2



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6 SHEETS—SHEET 3.

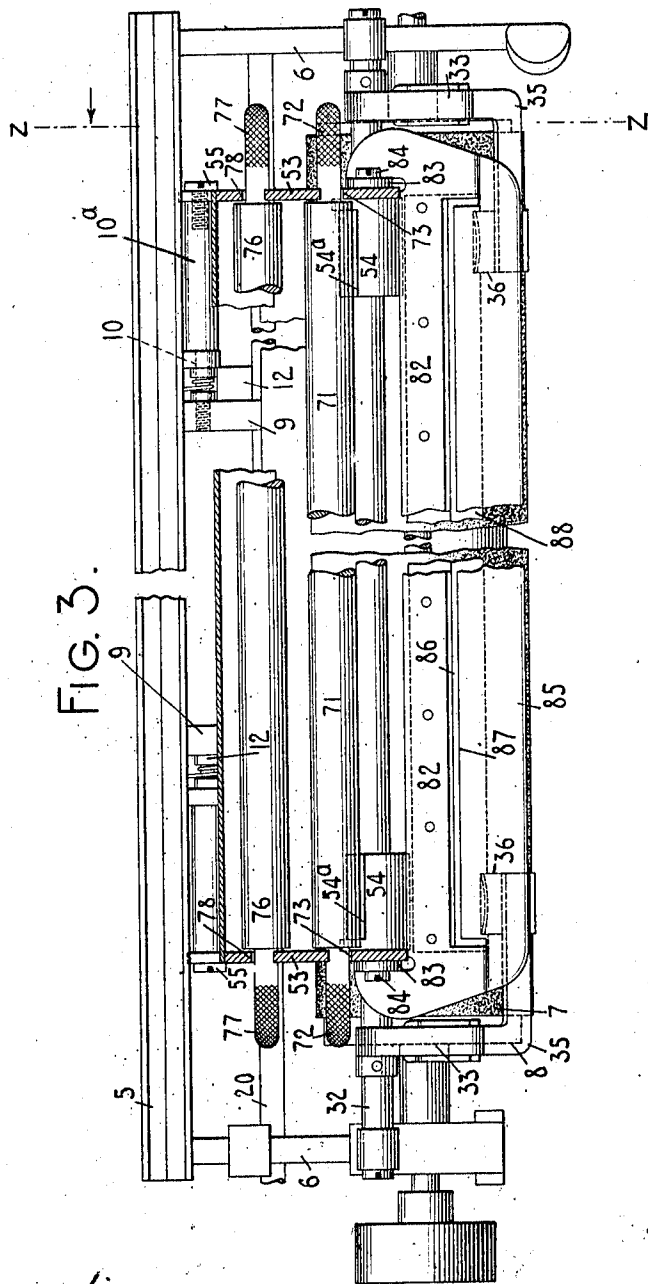


FIG. 3.

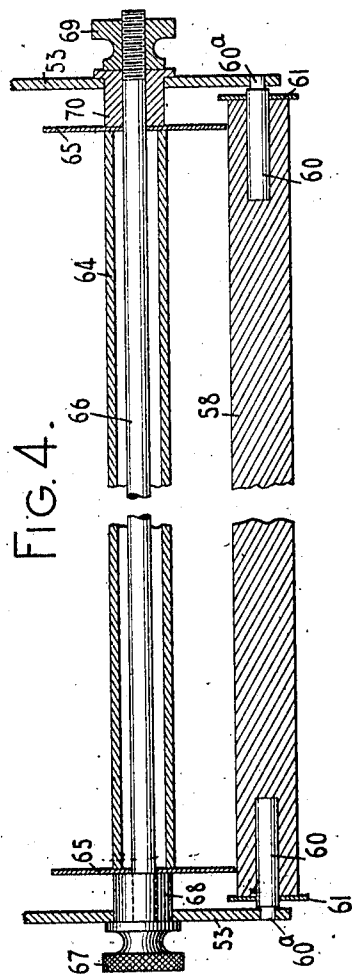


FIG. 4.

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6 SHEETS-SHEET 4.

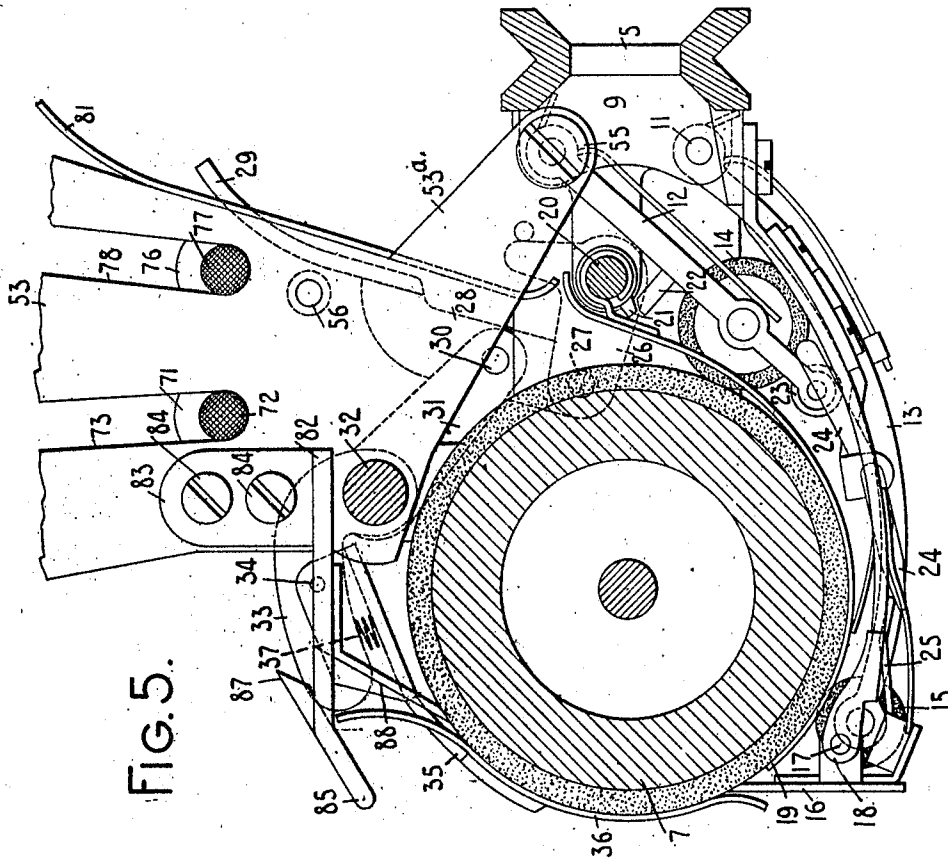


FIG. 5.

WITNESSES:

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*inv. Pool*

INVENTOR:

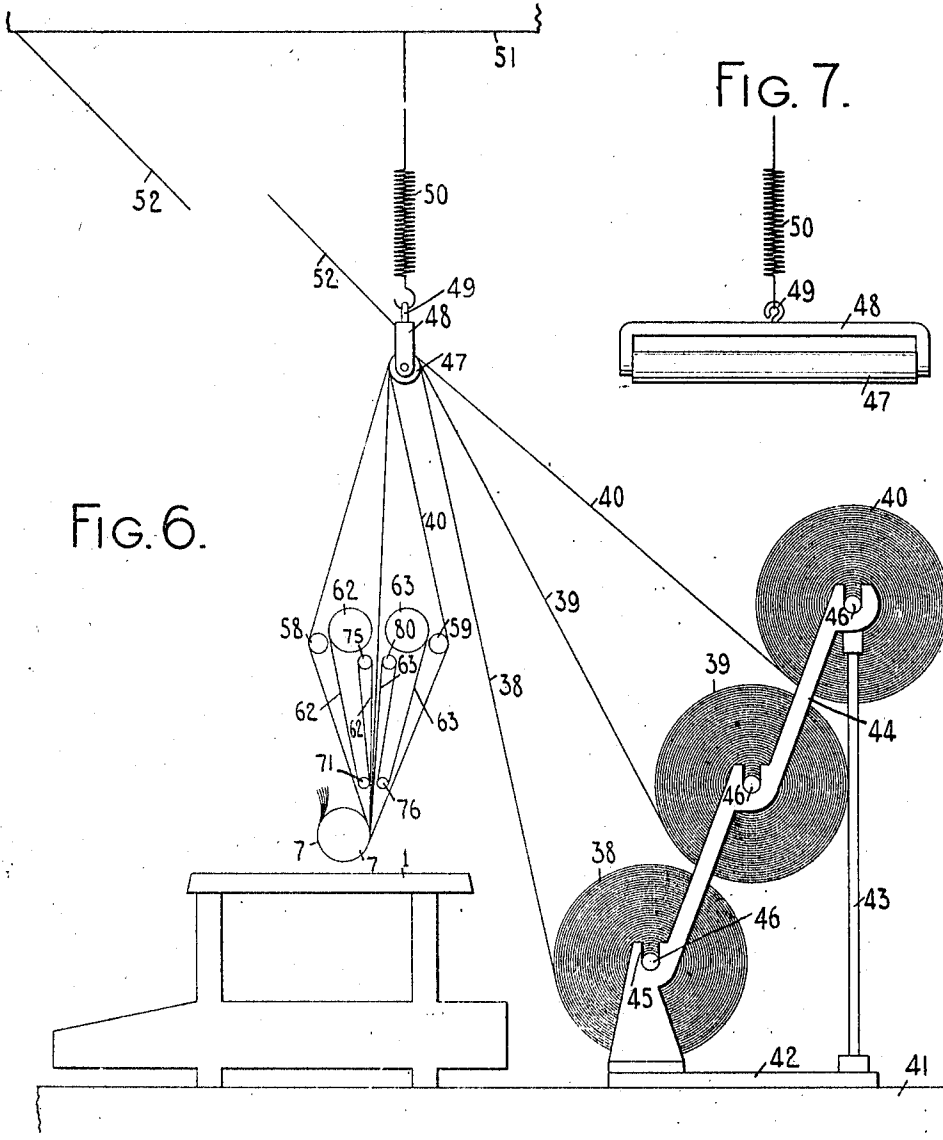
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H. H. STEELE.  
TYPE WRITING MACHINE.  
APPLICATION FILED JAN. 7, 1910.

989,309.

Patented Apr. 11, 1911.

6 SHEETS—SHEET 6.



WITNESSES:

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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.

989,309.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed January 7, 1910. Serial No. 536,814.

*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 especially to means for duplicating copies of typewritten matter and the general object of said invention is to provide improved devices of the class specified.

To the above and other ends, my invention consists in the features of construction, combinations of devices and arrangements of parts hereinafter described and particularly pointed out in the claims.

My present invention provides means for writing a plurality of duplicate copies simultaneously with the production of the original or first copy of the work.

In the preferred embodiment of my invention herein illustrated three copies are written at one time. The work sheets are preferably in web or roll form, three rolls being mounted on a stationary support in rear of the machine and the paper being led from said rolls up over a spring mounted guide roller and thence down to the traveling platen of the machine. On the platen frame or carrier is mounted an auxiliary frame which supports two rolls of duplicating material or carbon paper, together with automatically operated gravity returning devices for said carbon paper of the general character shown in my pending application Serial No. 528,462, filed November 17th, 1909. The work sheets are interleaved with the carbon paper and the five sheets, that is, the three work sheets and the two carbon sheets, are fed simultaneously around the platen by means of the usual paper feeding devices. The actuation of the printing instrumentalities operates to produce an impression on the outermost work sheet through the usual inking ribbon, while the two underlying work sheets simultaneously receive impressions from the co-operating carbon sheets at desired inter-

vals. The paper feeding devices may be released, permitting the carbon paper to be automatically drawn back or returned by the gravity devices so that the same portions of the carbon paper may be repeatedly used to reproduce the type impressions. A severing device is provided by which the work sheets may be severed at desired points.

The details of my present invention and the advantages resulting from the employment of the same will be better understood from a more particular description in connection with the accompanying drawings which show one form of my invention, and wherein,

Figure 1 is a fragmentary front elevation of the upper part of a Monarch typewriting machine embodying my invention. Fig. 2 is a vertical, sectional view, taken transversely of the platen and the platen carrier about midway the length of the platen. Fig. 3 is a fragmentary horizontal sectional view taken on a plane represented by the dotted line  $x-x$  in Fig. 2 and looking downward in the direction of the arrows at said line. Fig. 4 is a fragmentary horizontal sectional view taken on planes represented by the broken dotted line  $y-y$  in Fig. 2 and looking downward in the direction of the arrow at said line. Fig. 5 is an enlarged vertical sectional view taken on the plane represented by the dotted line  $z-z$  in Fig. 3 and looking in the direction of the arrow at said line. Fig. 6 is a diagrammatic side elevation showing the relationship between my improvements and the typewriter as a whole. Fig. 7 is a front elevation of a device hereinafter termed a spring mounted guide roller for the work sheets.

While my invention is illustrated in connection with a Monarch typewriting machine, it will be apparent that said invention may be adapted in whole or in part to other kinds of writing machines.

Referring to Fig. 2, the top plate 1 of the machine is shown as supporting standards 2 to which are secured grooved track-ways 3, said track-ways receiving anti-friction balls 4 which provide bearings for a

slide bar 5, said bar being comprised in a platen carrier or frame which further includes end bars 6 projecting forward from the ends of the slide bar and supporting a rotary platen 7. The platen is provided with line spacing devices which include or may include a ratchet wheel 8 (Fig. 1) connected to one end of the platen and cooperating with a hand actuated pawl (not shown).

It is to be understood that the usual or suitable key operated type bars and the usual or suitable ribbon feeding and controlling devices are also to be employed, although it is not considered necessary to show them in the present case.

Lugs 9 (shown in Figs. 2 and 5) extend forward from the slide bar 5 and carry screw pins 10 and 11 which pivotally support pairs of spring pressed arms 12 and 13, the pair of arms 12 carrying the main feed roller 14 and the pair of arms 13 carrying the secondary feed roller 15. The main feed roller cooperates with the platen at the rear thereof while the secondary feed roller is arranged forward of the main feed roller at the front lower side of the platen. Above and forward of the secondary feed roller is a spring pressed scale plate 16 (Figs. 1 and 5) which extends lengthwise of the platen below the printing line and is pivotally supported at 17 on arms 18 secured to the slide bar 5. A curved spring pressed paper deflector or apron 19 is arranged at the rear and under sides of the platen, being provided with openings through which the sections of the feed rollers protrude to cooperate with the platen. Said apron 19 is supported on a rock shaft 20 which carries lugs 21 cooperative with lugs 22 on the arms 12 to swing said arms on their pivots and release the feed rollers and the scale plate. The release of the secondary feed rollers is effected by rolls 23 on extensions of the arms 12, said rolls 23 acting against the arms 13 to swing the same downward, the downward movement of said arms 13 also relaxing the spring pressure against the apron 19. To release the scale plate 16 one of the arms 12 acts against a lever 24 which operates on an arm 25 projecting rearward from the scale plate, the result being that the scale plate is swung on its pivot 17 away from the platen to inoperative position. The releasing devices for the scale plate are more fully disclosed in the patent to George A. Seib, No. 912,186, granted February 9th, 1909 to which reference may be had for details.

To turn the rock shaft 20 to release the paper feeding devices, I preferably employ means of the character shown in the patent to Edwin E. Barney, No. 942,535, dated December 7th, 1909, which means include a crank arm 26 fixed to one end of the rock

shaft and pivotally connected at 27 with an arm 28 terminating in a finger piece 29, said arm 28 being pivotally connected at 30 with an arm 31 which is pivoted on the adjacent end bar 6. The normal positions of the releasing means and of the paper feeding and controlling devices are shown in Fig. 5. When the finger piece 29 is pulled forward it rocks the shaft 20 and moves the paper feeding devices away from the platen to inoperative position. The arms 28 and 31 constitute toggle elements which are straightened when the finger piece 29 is pulled forward, thereby locking the parts in released position.

Other paper controlling devices or paper fingers may be provided as shown in Figs. 1 and 5. Said paper fingers are slidably mounted on a rod or bar 32 extending lengthwise of the platen above the same and secured to the end bars 6. Each paper finger comprises a slidable support 33 to which is pivoted at 34 an inwardly off-set arm 35 carrying a curved guide or finger proper 36 which is constantly pressed toward the platen by a coiled spring 37. The lower end of the fingers 36 overlie the upper edge portion of the scale plate 16 so that when the paper releasing mechanism is operated by the finger piece 29 the upper end of the scale plate 16, swinging forward, will press against the paper fingers and swing them away from the platen so as to free from said fingers any paper which may underlie them.

Paper supply rolls 38, 39 and 40 may be mounted on a stationary support such as is illustrated in Fig. 6. Said support is arranged on the top 41 of the table or desk on which the typewriting machine is placed and in rear of the machine. The stationary support may comprise a base plate 42 from which rise standards 43, said standards assisting to support bearing arms 44 which are secured to the front of the base 42 and extend diagonally upward and rearward therefrom. The arms 44 are provided with open-mouthed bearings or slot-ways 45 for the shafts 46 of the paper supply rolls 38, 39 and 40, said rolls being arranged one above and behind another. The paper is drawn forward from the under sides of the supply rolls and is led upward and forward over a guide roller 47 which is yieldingly suspended above the platen. As appears from Figs. 6 and 7, the guide roller 47 is journaled in a U-shaped frame 48 carrying a hoop 49 which engages the hooked lower end of a yielding or spring support 50, said spring support depending from the ceiling 51 or other fixed element or stationary part. A guy wire or diagonal connection 52 is connected at its lower end to the frame 48 and extends forward and upward to the ceiling or fixed element 51. The three work sheets

38, 39 and 40 pass over the top of the spring mounted guide roller 47 and thence downward and toward the platen, their downward course being guided by devices presently to be described.

The platen carrier carries a detachable frame which provides a support for the carbon roll devices as well as for the work sheet guide. Said frame, as shown in Figs. 1-5, comprises side plates 53 which are arranged transversely of the platen and extend upward therefrom in parallelism. Each side plate is provided with an inwardly extending boss or hub portion 54 through which the paper finger rod 32 passes, said rod assisting to support said plates. The rear lower end of each plate 53 is formed with an extension 53<sup>a</sup> which is secured by a headed screw 55 to an enlargement or stud 10<sup>a</sup> formed integrally with and extending laterally outward from the adjacent pivot pin 10.

By the described construction the side plates are rigidly secured to and supported on the platen carrier but may be readily detached therefrom by removing the paper finger rod 32 and unscrewing the screws 55. The side plates are connected together by a tie or cross rod 56 near the lower ends of the plates 53 and also by a pair of parallel tie rods 57 arranged close together near the upper ends of said plates. The middle work sheet 39 passes downward toward the platen between the two rods 57 which assist to guide said work sheet. The inner and outer work sheets 38 and 40 are guided downward over guide rollers or idlers numbered respectively 58 and 59. Said guide rollers may be of wood and are supported on the frame comprising the side plates 53, the guide roller 58 being at the front of the frame and the guide roller 59 at the rear thereof, both being near the top of the frame. From the guide rollers 58 and 59 the work sheets 38 and 40 incline downward toward each other, being drawn close together in the neighborhood of the platen. The bosses 54 are cut away as indicated at 54<sup>a</sup> (Fig. 2) to provide a passage-way for the work sheet 38. The construction of the guide rollers 58 and 59 and the method of mounting the same are substantially alike and a description of one will apply to both.

In Fig. 4 the guide roller 58 is shown as being provided at its ends with bearing pins 60 which extend outward and have reduced end portions 60<sup>a</sup> engaging in bearing openings in the side plates 53. At each end of the roller a detachable flange 61 is supported on the associate pin 60.

The frame comprising the side plates 53 carries near its top two rolls 62 and 63 of carbon paper or other transfer medium. The guiding devices 57, 58 and 59 cooperate to spread apart or separate the work sheets

38, 39 and 40 so that the carbon roll 62 and the cooperating supporting, guiding and controlling devices therefor may be arranged on the frame between the work sheets 38 and 39, while the carbon roll 63 and its corresponding devices are arranged between the work sheets 39 and 40. The carbon rolls are mounted on holders or carriers which are substantially alike so that a description of one will apply to both, reference being had particularly to Fig. 4. Each holder or carrier comprises a tubular core 64 and flanges 65, the roll of carbon paper being wound on the core and confined between the flanges. The spool or holder 64, 65 is supported on a shaft 66 which extends through the core and terminates at its left-hand end outside the adjacent side plate 53 in a knurled head 67. On the shaft 66, between the head 67 and the adjacent flange 65, is arranged a spacing sleeve 68, said sleeve bearing in an opening in the side plate 53. At its right-hand end the shaft 66 is externally threaded to cooperate with a thumb nut 69, a flanged spacing sleeve 70 being arranged between the thumb nut and the adjacent spool flanges 65, the flange of said spacing sleeve being outside of and contiguous to the right-hand side plate 53 and said sleeve 70 bearing in an opening in said side plate. The construction is such that when the thumb nut 69 is tightened the sleeves 68 and 70 are forced toward each other and cooperate with the flanges 65 to hold the roll carrier or spool in adjusted positions. When the thumb nut is loosened the spool may revolve freely on the shaft 66. It will be understood that there are two carbon roll holders each provided with supports and clamps as above described.

The carbon paper 62 is drawn off the front holder, carrier or spool downward at the front side of the roll, passing under a roller 71 of metal or the like, the end portions whereof are reduced and knurled as indicated at 72, thus providing finger pieces for conveniently handling the roller when desired, as when the carbon sheet is to be replaced by a new roll. Said end portions 72 bear in upwardly extending slot-ways 73, said slot-ways inclining slightly forward and terminating at their upper ends in enlargements 74 through which the roller 71 may be withdrawn. The roller or sheet-feeding device 71 is adapted to act as a gravity device to retract or back-feed the carbon paper after it has been fed forward for writing purposes and also to draw a fresh supply of paper from the roll of carbon when the nut 69 is loosened. In other words, when either end portion of the carbon paper is held fast the opposite end portion may be automatically fed or moved endwise by the gravity device, said device operating independently of the platen and being separated therefrom.

The carbon paper 62 passes under and around the gravity roller 71 and thence is led upward and over a flanged guide roller 75 which may be of wood, said guide roller 75 being arranged above the top portions or enlargements 74 of the slot-ways, and being mounted preferably similarly to the guide rollers 58, the side plates 53 providing bearings for said guide roller 75. From the guide roller 75 the carbon paper 62 is led downward to the platen, passing between the work sheets 38 and 39, the carbon side of the carbon paper 62 being turned inward so that it will off-set on the work sheet 38.

The second carbon sheet 63 is unwound from the rear of its roll and passes downward and around a gravity roller 76 similar in construction and operation to the gravity roller 71. The gravity roller 76 is provided with reduced and knurled end portions 77 which engage with upwardly extending slots 78 in the side plates 53, said slots inclining slightly rearward and terminating in enlargements 79 through which the roller 76 may be removed when desired. From the forward side of the gravity roller 76 the carbon paper 63 extends upward and forward over a flanged guide roller 80 and then downward to the platen, passing between the work sheets 39 and 40, the coated side of the carbon paper being turned inward so that it will off-set on the work sheet 39 and reproduce the type impressions thereon.

An upwardly extending and rearwardly curved paper table 81 is arranged above the paper apron 19, forming in effect a continuation thereof, said paper table being secured at its ends to the side plates 53. The paper table may serve as a guide and also covers and protects the sheets from the rear in the neighborhood of and above the point at which said sheets are brought into cooperation with the platen. The sheets are introduced together between the platen and the paper apron 19 and feed rollers 14 and 15, and pass around the platen and upward at the front side thereof under the scale plate 16 and the paper fingers 36. Above the guiding portions of the paper fingers is arranged a plate 82 which, as shown in Figs. 1 and 5, is provided with upstanding tabs or ears 83 which receive headed screws 84, said screws securing the plate 82 to the outer faces of the side plates 53. The plate 82 is cut out and bent to provide an inclined cutter bar or severing blade 85, and a slot-way 86, the inclined cutting edge 87 of said bar or blade being disposed above the opening or slot-way 86 in the plate, the sheets after being printed upon passing upward through the slot 86 behind the cutting blade as appears in Fig. 2. A downwardly inclined guide plate 88 is secured to the under side of the plate 82, the guide or deflector 88 coop-

erating with the upper end portions of the guiding fingers 36 to direct the paper into the slot 86.

It will be understood that during this initial adjustment of the five work sheets, the thumb screws 69 are loosened so that the holders 64, 65 of the carbon rolls may turn freely and the carbon sheets 62, 63 may be advanced around their respective gravity rollers and guide rollers without lifting said gravity rollers as the platen is turned to feed the sheets. The various sheets are arranged initially so that the two carbon sheets terminate just above the printing line while the three work sheets are positioned to receive printing in their first lines. The present construction is particularly adapted to railroad way-billing, and it may be assumed that the three work sheets contain printed forms respectively of the original freight bill, a delivery receipt and a shipper's duplicate. The printed headings of these forms are of course repeated at regular recurring intervals on the work sheet rolls and initially the first blanks in the top headings of the forms will be in register or alinement with each other and opposite the printing point, so that type impressions will be reproduced through the regular ribbon on the outer sheet and through the two carbon sheets on the two inner work sheets. Prior to beginning the printing the thumb nuts 69 are tightened and consequently after the first line of printing has been completed and the line spacing devices are operated to turn the platen and simultaneously advance the five sheets, the gravity rolls 71 and 76 will correspondingly rise in their guide slots. It will be apparent that the blanks in the three headings or forms may be each filled in at a single operation, the blanks in the headings, of course, registering throughout, although the printed forms containing said blanks may differ more or less. After the blanks in the forms have been filled in, the items in the body of the bill may be written, these items being simultaneously printed on the underlying sheets. During the various line spacing operations incidental to the writing of the bill the gravity rollers 71 and 76 will rise step-by-step in their slots since the carbon rolls are held from turning through the locking action of the nuts 69. If found desirable the gravity rollers may be controlled by rack and pinion devices of the character shown in my pending application aforesaid.

During the line spacing operations the impulse given to the work sheets will cause the spring 50 which supports the guide roller 47 to flex and then react, the reaction rotating the unwinding rolls of paper 38, 39 and 40 easily and so as to absorb the shock received from the line spacing lever and pre-

vent the paper from being jerked to an abnormal extent from the rolls as might be the case if the yieldingly supported or spring mounted guide roller were not employed.

5 Furthermore, the to-and-fro movements of the carriage during printing will cause the spring mounted guide roller to adapt itself to the inclination assumed by the work sheets which it supports, due to the change  
10 in position of the lower portions of said work sheets at and in the neighborhood of the platen.

When the writing of the first bill is entirely completed, the platen may be turned  
15 to advance all of the webs or work sheets until the bottom of the first bill, as indicated by a line of perforations or other marks on the outermost web, is brought opposite the upper edge 87 of the severing  
20 blade 85, said edge serving as a line indicator. The finger piece 29 may then be pulled forward, throwing off the paper feed and controlling devices and releasing all of the webs of the work sheets. The gravity  
25 rollers will thereupon drop in their slots, drawing back or retracting the carbon sheets around the platen and between the interleaved work sheets, which work sheets will remain stationary. When the gravity rolls  
30 are arrested by striking the bottoms of their slot-ways the carbon inlays or sheets will have been drawn back to a point below the cutter bar but above the printing line. Thereafter the paper feeding devices may  
35 be restored to normal position and the three work sheets may be severed so as to detach the three printed bills; one of which, as has been stated, will form the original bill, another the delivery receipt and the third a  
40 shipper's duplicate. The operations above outlined may be repeated for each set of bills. When the carbons show signs of exhaustion from repeated use they may be severed at the same time with one of the sets  
45 of bills, and then prior to operating the finger piece 29 the thumb nuts 69 may be loosened, permitting the gravity rollers to draw a fresh supply of carbon from the rolls, after which, of course, the rolls should  
50 be re-locked.

The system for which the present invention, operated as just explained, was particularly designed heretofore, required the use of a double folded blank to provide for  
55 three separate records. This blank had to be folded accurately to aline or bring in register all three printed forms and the operator was required to insert two separate carbon sheets between the folds of the blank.  
60 The printed forms were delivered unfolded by the printer and the operator had to fold them as explained, insert the carbon sheets, copy the records from the way bill and then remove the carbon sheets or inlays sepa-

65 rately. The carbon sheets had to be the size of the bill; and as the greater number of bills are not completely filled with writing but comprise only one to three lines, the wear on the carbon sheets was irregular and there was a large percentage of waste.

70 From what has been said above it will be apparent that when my invention is employed, a great saving in time and labor is effected and an improvement in accuracy and neatness is obtained. Of course, how-  
75 ever, the invention may be used in other ways and for other work besides those described. The structure, for example, may be adapted to reproduce one copy instead of two by drawing back one of the carbon sheets  
80 and its associate work sheet out of the control of the platen and its feeding devices. Furthermore, various changes in construction may be made within the scope of my invention.

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

1. In a typewriting machine, the combination of a platen; a platen carrier comprising a rear bar and also a bar arranged over  
90 said platen and extending lengthwise of the same; a detachable frame secured to said platen carrier, said frame comprising side plates provided with bosses through which  
95 said last mentioned bar passes and also comprising rearward extensions rigidly secured to said rear bar; and paper controlling devices on said frame.

2. In a typewriting machine, the combination of a platen; a platen carrier comprising  
100 a rear bar and a detachable rod or bar arranged over the platen and extending lengthwise of the same; a frame detachably mounted on said platen carrier and comprising  
105 side plates provided with bosses which receive said rod or bar and further comprising rearward extensions which are secured by screws to studs extending laterally from forward projections on said rear bar and  
110 also comprising tie rods connecting said side plates; and paper controlling devices on said frame.

3. In a typewriting machine, the combination of a platen; a platen carrier comprising  
115 a rear bar and a paper finger rod, a feed roller cooperative with the platen, said feed roller being supported by arms pivoted to screw pins carried by said rear bar; a detachable frame connected to said paper finger rod, said frame having rearward extensions  
120 which are detachably connected to said screw pins; and paper controlling devices on said frame.

4. In a typewriting machine, the combination of a platen; a platen carrier comprising  
125 parallel rods or bars; a detachable frame supported by said rods or bars and comprising side plates and a paper table se-

cured to and connecting said side plates; and paper controlling devices on said frame.

5. In a typewriting machine, the combination of a movable platen, a stationary support carrying a supply of paper; and a spring mounted roller over which said paper is guided between said stationary support and said movable platen.

6. In a typewriting machine, the combination of a movable platen, a stationary support carrying a supply of paper; a guide roller; a frame on which said guide roller is pivoted; a spring support for said frame; and a guy wire connected to said frame.

7. In a typewriting machine, the combination of a movable platen; a stationary support arranged behind said movable platen and carrying a supply of paper; and a spring mounted guide roller for said paper, said spring mounted guide roller being arranged above said platen and connected to a fixed element.

8. In a typewriting machine, the combination of a movable platen; a stationary support for a plurality of rolls of paper; and a guide roller for said paper, said guide roller being arranged over said platen and having a yielding connection to a fixed element.

9. In a typewriting machine, the combination of a movable platen; a stationary paper device from which paper is supplied to the platen; and a yieldingly mounted guide for said paper, said guide being supported independently of both said platen and said paper device.

10. In a typewriting machine, the combination of a rotary platen, a stationary paper device from which paper is supplied to the platen; and a paper guide yieldable when rotary movement is given to said platen.

11. In a typewriting machine, the combination of an endwise movable platen; a stationary paper supply device; and a spring-mounted guide yieldable during endwise movements of said platen.

12. In a typewriting machine, the combination of a platen; a platen carrier; a frame on said platen carrier; a plurality of rolls of carbon paper on said frame; and gravity operated returning devices for said carbon paper on said frame.

13. In a typewriting machine, the combination of a platen; a platen carrier; a frame on said platen carrier; a plurality of rolls of carbon paper on said frame; a plurality of automatically operating returning devices for said carbon paper mounted on said frame; and guiding devices for said carbon paper also mounted on said frame.

14. In a typewriting machine, the combination of a platen; a platen carrier; a

frame on said platen carrier; a plurality of rolls of carbon paper on said frame; gravity operated returning devices for said carbon paper on said frame; and guiding devices on said frame for work sheets cooperating with said carbon paper.

15. In a typewriting machine, the combination of a platen; and a plurality of separate gravity operated devices for moving endwise a plurality of sheets over said platen but independently of the same; the sheets each being fast at one end.

16. In a typewriting machine, the combination of a platen, releasable means cooperative with the platen for feeding a plurality of sheets over the same, one end of each sheet being fast and a plurality of separate means for back feeding said sheets when said releasable means are released.

17. In a typewriting machine, the combination of a platen, releasable means cooperative with the platen for feeding a plurality of sheets around the platen, one end of each sheet being fast and a plurality of gravity rollers, one for each sheet, said rollers operating independently of the platen to move said sheets endwise when said releasable means are released.

18. In a typewriting machine, the combination of a platen; releasable means for feeding a plurality of sheets over said platen; a plurality of holders for said sheets; clamps for said holders; and means for feeding the sheets while said holders are held by said clamps.

19. In a typewriting machine, the combination of a platen; releasable means for feeding a plurality of sheets over said platen; a plurality of holders for said sheets; clamps for said holders; and means for moving the sheets endwise while said holders are held by said clamps, said sheet feeding means being operative also to turn said holders to unwind said material therefrom when said clamps are inoperative.

20. In a typewriting machine, the combination of a platen supporting a plurality of sheets; and mechanism comprising a plurality of automatically operated devices for moving said sheets endwise, each of said devices being operative at will to move opposite end portions of the associate sheet.

21. In a typewriting machine, the combination of a platen, a platen carrier, a frame thereon; guides on said frame for maintaining a plurality of work sheets separated or spread apart; a plurality of carbon rolls arranged between said spread apart work sheets; and devices for automatically moving the carbon endwise, said devices being supported on said frame and arranged between said work sheets.

22. In a typewriting machine, the com-

5 bination of a platen; a platen carrier; a  
frame thereon; guides on said frame for  
maintaining a plurality of work sheets sep-  
arated or spread apart; a plurality of car-  
10 bon rolls arranged between said spread apart  
work sheets; gravity rollers for said carbon,  
said gravity rollers being mounted each in a  
pair of slots formed in said side plates and  
being arranged between the work sheets; and  
10 guide rollers also coöperative with said car-

bon paper and arranged between said work  
sheets.

Signed at Syracuse in the county of Onon-  
daga and State of New York, this 5th day of  
January, A. D. 1910.

HERBERT H. STEELE.

Witnesses:

ANNA T. LYNCH,  
BESSIE G. KITTELL.