

H. I. SEDDON.
TYPE WRITING MACHINE.
APPLICATION FILED JUNE 13, 1906.

945,986.

Patented Jan. 11, 1910.

5 SHEETS—SHEET 1.

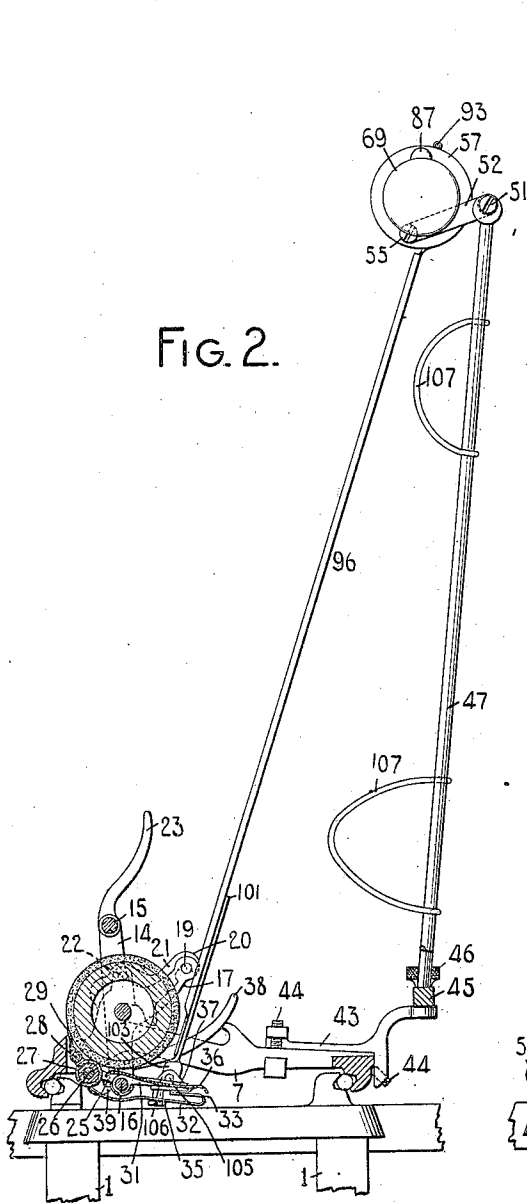


FIG. 2.

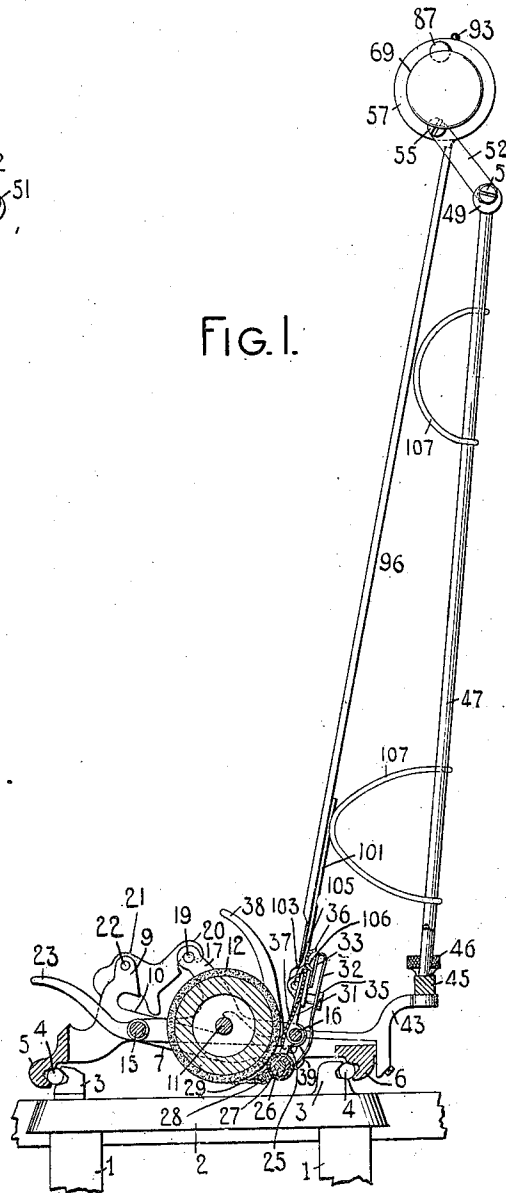


FIG. 1.

WITNESSES.

M. W. Pool
M. H. Hammer

INVENTOR:

Harry I. Seddon

By Jacob Felbel

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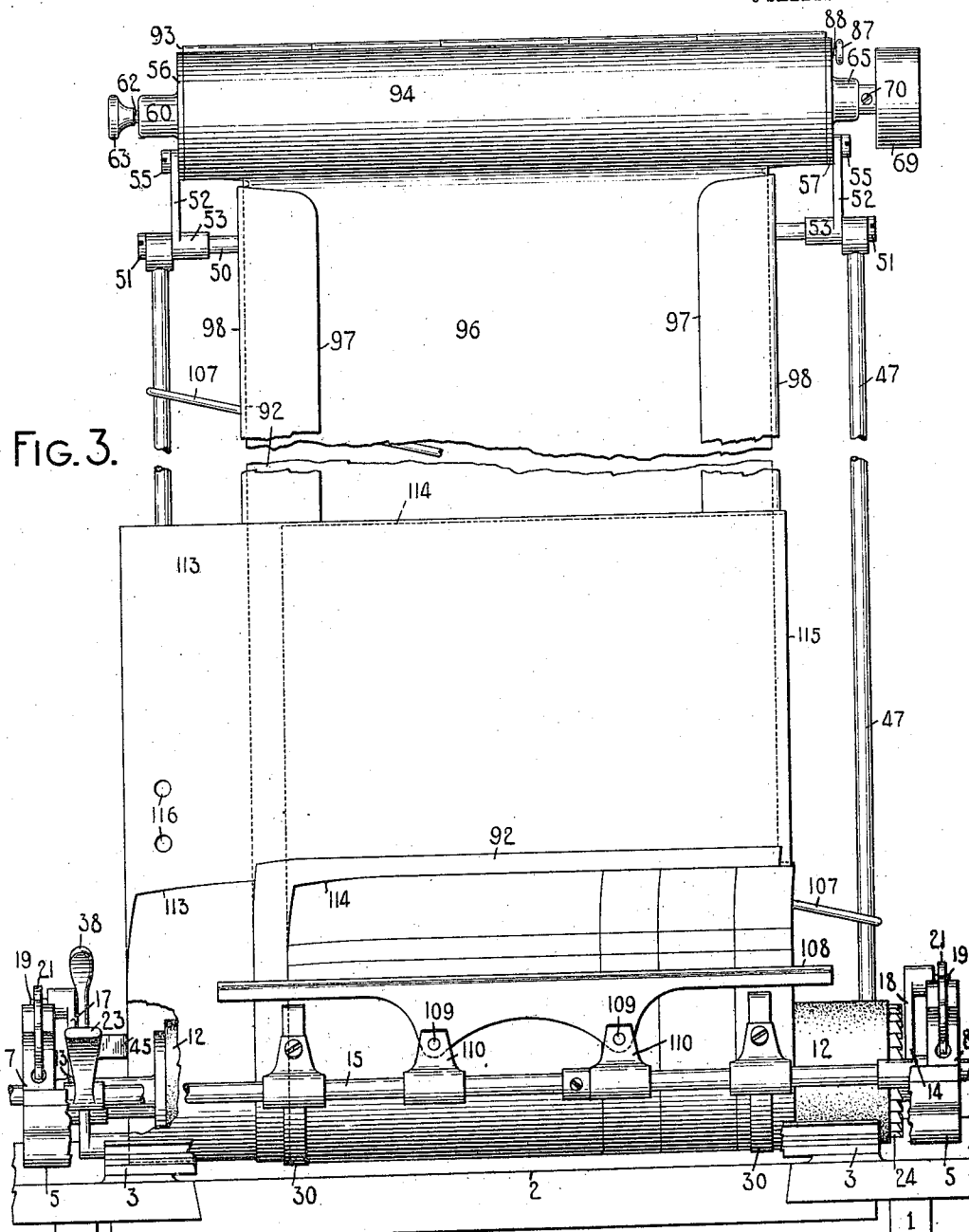


FIG. 3.

WITNESSES:

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FIG. 4:

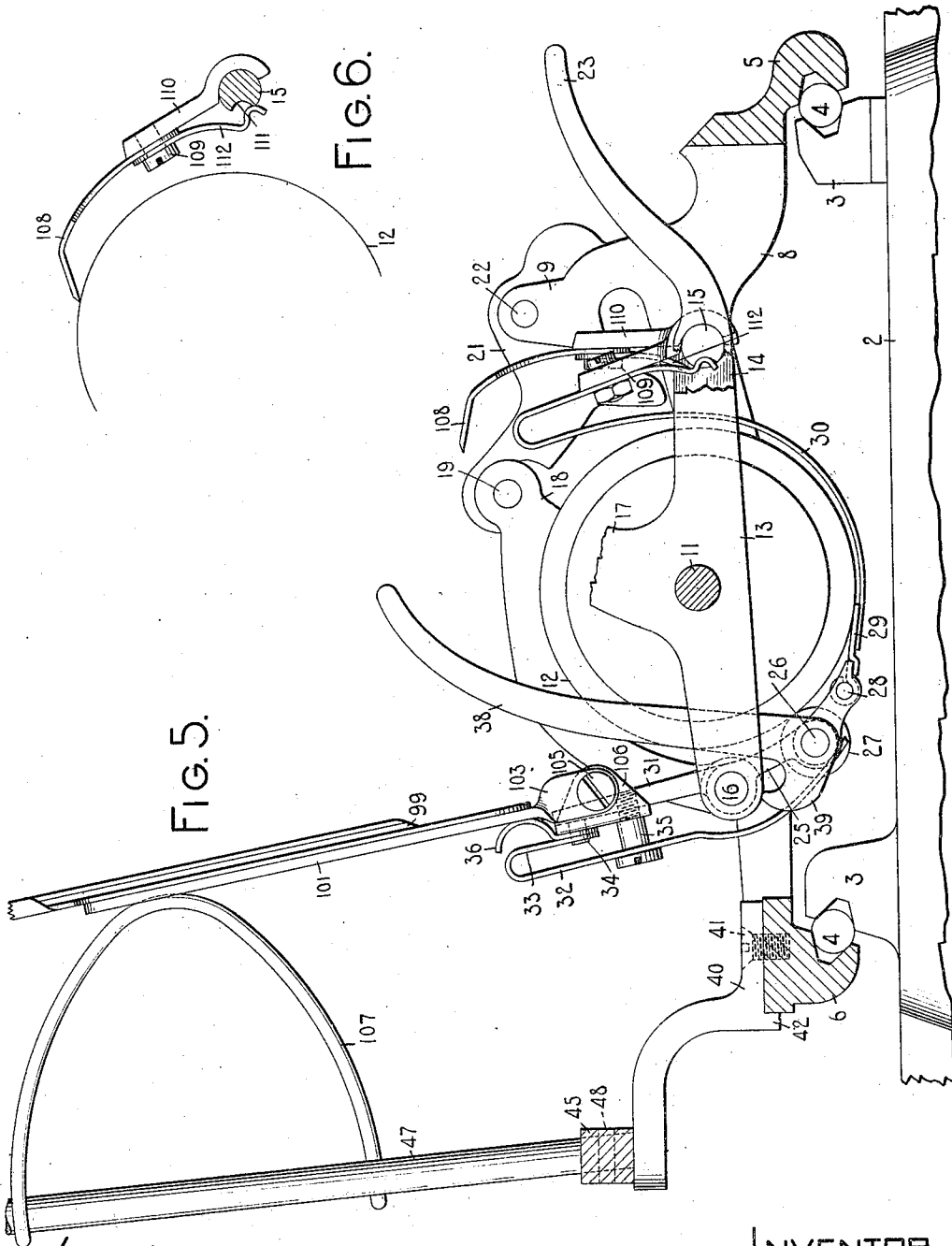
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5 SHEETS—SHEET 4.



WITNESSES:

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5 SHEETS—SHEET 5.

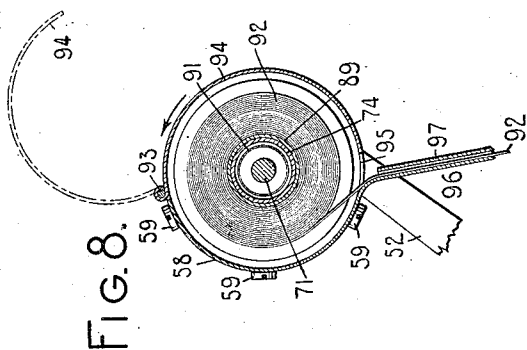


FIG. 8.

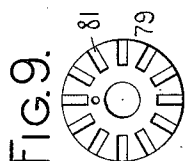


FIG. 9.

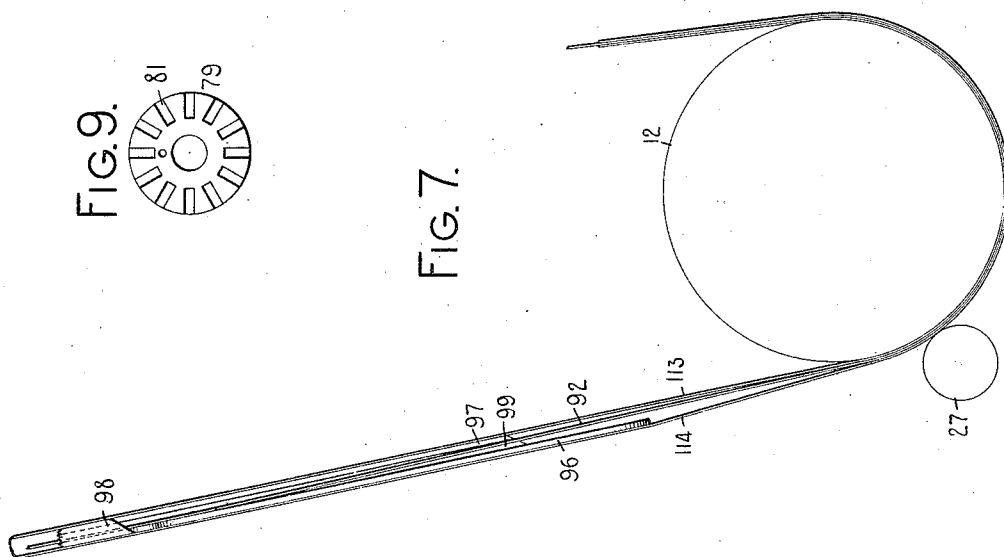


FIG. 7.

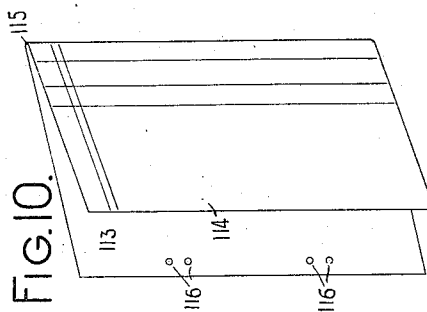


FIG. 10.

WITNESSES:

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UNITED STATES PATENT OFFICE

HARRY I. SEDDON, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE SMITH PREMIER TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

945,986.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed June 13, 1906. Serial No. 321,575.

To all whom it may concern:

Be it known that I, HARRY I. SEDDON, citizen of the United States, and resident of Syracuse, 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 more especially to paper supply and paper feeding devices for typewriting machines.

One object of the invention is to provide a rotary material-carrying device which operates automatically to rewind the material unwound during printing operations.

Another object is to provide an improved chute or guide-way and one which properly coöperates with a pivotally mounted platen in any of the positions to which said platen may be swung.

Another object is to arrange and operate said chute so that it may be employed with a roll holder carrying a roll of material such as carbon paper to guide the material from the roll to the platen, which material passes through said chute, and also to guide a work sheet or paper to be written upon. The device is shown in the present instance in connection with a folded work sheet, the chute being included between the folds of the work sheet.

Another object is to provide in combination with a roll holder, an improved construction of cutting-blade adapted to sever the paper from the roller.

Various other objects will appear in the course of the following specification.

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

In carrying out my invention in the form shown in the present case, I arrange a detachable frame or support on the carriage of the typewriting machine and pivotally mount at the upper end of said frame a casing having a hinged cover within which is detachably journaled a rotary material-carrying device or roll holder, said roll holder carrying a roll of carbon paper. A chute or guide-way

extends downwardly from the casing and is pivotally connected at its lower end portion with the platen frame. The carbon paper is guided downwardly from the roll holder through the chute and its free end passes between the platen and the usual paper feed roller, so that when the platen is turned for line spacing the carbon paper is fed around with the platen, being unrolled from the holder and drawn downwardly through the chute.

The device thus briefly described is adapted to have used in connection therewith folded bill sheets of the kind frequently used in commercial billing, each of said bill sheets being first brought into coöperation with the chute, one of the parts of said bill sheet passing in front of said chute and over the carbon paper and the other of said parts passing behind said chute, the fold of the bill sheet engaging with one of the side edges of the chute, which thus serves as a side guide.

It will be understood that as the folded bill sheet is fed around with the platen in the usual manner, the carbon paper will be fed around at the same time between the parts of the bill sheet, so that when the printing instrumentalities are operated, one part of the bill will receive impressions directly from the usual inking ribbon and the other part of the bill sheet will receive impressions from the carbon paper, two copies thus being made. When the writing on the bill sheet has been finished, the latter is fed forwardly out of the machine and is then held by the operator, while at the same time the usual feed roll release is actuated. In connection with the rotary material-carrying device or roll holder I provide an automatic return for the carbon paper which is operative to rewind on the roll holder an amount equal to that unwound during the printing operations. The actuation of the feed roll release brings the automatic returning device for the carbon paper into operation, so that the carbon paper which has been used in the writing of the folded bill sheet will be drawn back through the machine until the carbon has returned to the position from which it was started when the feeding of the bill sheet in line space direction was be-

gun. Thereafter other bill sheets may be written and the carbon automatically returned in the same way until its printing surface has become exhausted, whereupon the exhausted portion may be fed forward and detached by means of a cutting blade provided for the purpose so that a fresh portion of carbon may be employed for writing a plurality of succeeding bill sheets.

The invention is shown as applied to the No. 4 Smith Premier typewriter which is a machine of the rocker-platen style and the lower portion of the chute is pivotally connected with the platen frame so that said chute is substantially tangential of the platen in either of the positions to which the latter may be rocked, the arrangement conducing to a smooth and easy feeding of the carbon to the platen. It is to be understood, however, that various features of the invention are not limited to any particular style of typewriting machines and may be readily adapted to other forms of writing machines.

In the accompanying drawings, Figure 1 is a side view, on a reduced scale, of the upper part of a typewriting machine showing my invention applied thereto, the platen and platen carriage being shown in section, and other parts being shown in section and broken away for the sake of clearness. Fig. 2 is a view corresponding to Fig. 1 but showing the parts in the relations in which they appear when the platen is rocked forward to expose the writing. Fig. 3 is a front elevation of the upper part of a machine with my invention in place thereon, parts being broken away. Said Fig. 3 is drawn to a somewhat larger scale than Figs. 1 and 2. Fig. 4 is a full-sized fragmentary front elevation of my novel paper supply and paper feeding devices, the material-carrying sleeve or roll holder and its casing and bearings being shown in longitudinal section and parts being omitted and broken away. Fig. 5 is an enlarged fragmentary side view partly in section of the carriage and its bearings, part of my invention being shown in combination with said carriage. Fig. 6 is an enlarged side view of the paper cutting blade in operative position, the support of said blade being shown in section and the platen being diagrammatically illustrated. Fig. 7 is an enlarged side view of the lower part of the chute or guide-way and showing the position of the carbon paper and the folded bill sheet in relation to said chute, the platen and paper feed roller being diagrammatically illustrated. Fig. 8 is a full-sized transverse sectional view of the roll holder, its casing or cover and the upper part of the chute or guide-way. Fig. 9 is an enlarged face view of a part hereinafter termed a bearing block. Fig. 10 is a perspective view on a reduced scale of a folded

work sheet or bill sheet of the character preferably employed with my present invention.

In the drawings, corner posts 1 of the machine frame sustain a top plate 2 on which are fixed a pair of track ways 3 which are longitudinally grooved to receive anti-friction balls 4. Coöperating with the balls are grooved front and rear bars numbered respectively 5 and 6, said bars being joined at their ends by side bars 7 and 8 and constituting with said side bars a platen carriage. Each of the side bars is provided with an upstanding arm 9 and has an inclined slide-way 10 which coöperates with the axle or shaft 11 of a platen 12, said axle being journaled in a platen frame comprising side bars 13 and 14, a front bar 15 and a rear bar 16. The side bars of the platen frame are provided with upwardly extending portions 17 and 18 from which project lateral studs 19, said studs normally engaging with the hooked ends 20 of spring controlled latches 21 pivoted at 22 in the portions 9 of the side bars of the carriage. A finger piece or lifting handle 23 is secured to the front bar 15 of the platen frame near its left end. The normal relations of the platen, the platen frame and carriage are illustrated in Fig. 1. It will be understood that when the lifting handle 23 is raised the platen is rocked forwardly and upwardly, the platen axle sliding and turning on the ways 10 and the platen being rocked forward to the position illustrated in Fig. 2 to expose the writing.

It is not deemed necessary to describe the construction and mode of operation of the carriage and platen frame at greater length, as these parts in themselves are not my invention and are well known in the art. The carriage, it will be understood, is controlled by a spring drum and step-by-step feeding devices which coöperate in a known manner, when the usual printing keys are actuated, to move the carriage a letter space distance at a time leftward across the top plate and longitudinally of the track-ways 3. At its right-hand end the platen is provided with a line space ratchet wheel 24 (Fig. 3) which is actuated by the usual line spacing handle and pawl (not shown) to rotate the platen on its axis to space between the lines of writing.

Loosely hung on the rear bar 16 of the platen frame are depending arms or links 25 which carry a feed roll shaft 26, said shaft carrying a feed roller or presser roll 27 which extends longitudinally of the platen at its rear (Figs. 1, 2 and 5). The lower ends of the links 25 pivotally support at 28 a paper plate 29, said plate being maintained in coöperative relation with the platen by the rearward extensions of resilient paper fingers 30 supported on the front

bar 15 of the platen frame. Upwardly extending arms 31 fixed to the rear bar 16 of the platen frame support leaf springs 32, the lower free ends whereof cooperate with the feed roll shaft to maintain the feed roller 27 spring pressed toward the platen. The forwardly and downwardly bent upper portions 33 of the leaf springs 32 engage studs 34 projecting rearwardly from the arms 31 and said leaf springs are maintained in engagement with said studs by shouldered screws 35 which screw into the arms 31 below the studs 34. Confined between the portions 33 of the leaf springs and the rear faces of the arms 31 are the curved end tabs or ears 36 of a paper table 37, said paper table extending downwardly and forwardly toward the platen as best shown in Fig. 1. A feed roll release lever 38 is fixed to the feed roll shaft 26 at the left of the platen, said lever being provided with a lug 39 which, when the release lever is operated, cooperates with the rear bar 16 of the platen frame in such a way that forward and downward pressure on the release lever operates to swing the feed roller 27 away from the platen to release or free the paper.

Referring now to my novel improvements, I prefer to mount them in a frame on the platen carriage which frame may be readily detached when it is not desired to make use of my invention. Some of the features of the latter, however, it is to be understood, are applicable whether the devices are mounted on the carriage or on the frame of the machine.

My novel improvements are especially useful in billing work and as in such work a tabulator is commonly employed, I prefer to mount the frame or support for my invention on the tabulator column stop bar.

Referring more especially to Figs. 2 and 5 of the drawings, a bracket 40 is secured by a screw 41 to the rear bar 6 of the carriage near its right-hand end, said bracket being provided with a shoulder 42 which prevents rotary movement of the bracket on its screw. At the left hand and rear of the carriage frame a second bracket 43 is secured by set screws 44 in a fixed relation with the carriage frame. A toothed column stop bar 45 of the usual or suitable construction is removably secured by thumb screws 46, to the rear end portions of the brackets 40 and 43. Near either end the stop bar 45 is provided with a vertical opening which receives a vertically disposed frame rod 47, each of the said frame rods being secured in place by a pin 48 passing horizontally through the stop bar 45 (Fig. 5). It will be noted that the two frame rods 47 and the column stop bar 45 constitute a U-shaped frame which may be readily detached from the carriage by loosening the thumb screws 46.

It will further be understood that when it is desired to make use of the tabulator without employing my present invention, a column stop bar without the frame rods may be substituted for the one just described or the latter may be detached from the frame rods 47 by removing the pins 48. Suitably secured at the upper ends of the frame rods 47 are bearing pieces 49 which, as best shown in Fig. 4, are perforated to provide bearings for a rock shaft 50, said rock shaft connecting the upper ends of the frame rods and being held in place by headed screws 51 threaded into the rock shaft at its ends. Crank arms 52 are supported on the shaft 50 by their hubs 53 which are held in fixed relation with the shaft by pins 54, said pins being driven through the hubs and the rock shaft. The free ends of the crank arms 52 are perforated to receive shouldered screws 55, said shouldered screws screwing into heads or end pieces 56 and 57 of a casing for a material-carrying device presently to be described. These end pieces are preferably of cast metal and are joined by a segmental cover or casing proper of sheet metal, said casing being indicated by the numeral 58 and, as best shown in Fig. 8, being secured in a fixed relation with its heads or end pieces by headed screws 59.

It will be understood that the cover as a whole comprises the heads 56 and 57 and the body portion 58 and that it is pivoted by means of the shouldered screws 55 to the crank arms 52, so that said cover may be turned on its bearings in said crank arms. Furthermore, the rock shaft 50 and the crank arms may be turned in the bearings 49 at the top of the frame rods, so that the cover above described may also have rotary motion about the axis of the rock shaft 50. The left-hand head 56 of the casing is provided with a central boss 60 having a recess which receives a bearing plunger 61 provided with a central bearing opening or depression, the stem 62 of said plunger extending outwardly through the bottom of the recess in the boss 60 and being provided with a head or finger piece 63. Between the bottom of the plunger 61 and the bottom of the recess a wire spring 64 is coiled around the stem 62, said spring tending to force the plunger inwardly toward the middle of the machine. The right hand head 57 of the casing is provided with a central hub or boss 65 which is perforated to provide a bearing for a short shaft 66. The shaft terminates at its inner end in a head 67, said head being provided with a central depression and with a cross slot indicated by the numeral 68. The outer end of the shaft 66 has fixed thereon a finger wheel 69 which is secured in place by a screw 70. The construction is such that endwise motion of the shaft 66 in its bearing is pre-

vented by the head 67 and the finger wheel 69 but said shaft is capable of turning freely in its bearing unless positively held. The central depression in the head 67 of the short shaft 66 receives one end of an axial support or shaft 71 of the roll holder, the opposite end portion of said shaft 71 being reduced as indicated at 72, the reduced end being received in the bearing opening or depression in the plunger 61. A pin 73 is driven through the right-hand end portion of the shaft 71, said pin projecting from the surface of the shaft and engaging in the slot 68 formed in the head of the short shaft 66. The construction is such that the two shafts 71 and 66 are always caused to turn together but may be separated by moving the shaft 71 longitudinally leftward. By pulling outwardly the head 63 of the spring plunger, the latter is caused to disengage from the reduced end 72 of the shaft 71 and said shaft may then be readily removed from its bearings. When in place, the shaft 71 may be turned so that the end 72 revolves in the spring plunger 61, while the opposite end being fixed in the head of the short shaft 66 the latter will be caused to turn with the shaft 71 and the bearing 65 of the short shaft also serves as a bearing for the shaft 71.

The material-carrying device or roll holder which is mounted on the shaft 71 comprises an inner sleeve 74 which surrounds the shaft 71, the left end of said sleeve being closed by a cylindrical bearing block or hub 75 which is secured in the sleeve by a screw 76. The inner end of the screw 76 is reduced as indicated at 77, the reduced end engaging in a circumferential groove or depression 78 in the shaft 71. The construction is such that while the sleeve and bearing block 75 may freely rotate on the shaft 71, relative endwise movement of the sleeve and shaft is prevented by the engagement of the screw end 77 with the groove 78. The right-hand end portion of the sleeve 74 bears on a bearing block 79 which is maintained in a fixed relation with the shaft 71 by a set screw 80, the left-hand portion of said bearing block being reduced in diameter, as indicated at 79^a, to provide a suitable bearing surface upon which the end portion of the sleeve 74 is adapted to turn freely. The right-hand vertical face of the bearing block 79 is provided with a circularly arranged series of notches or depressions 81, the shape of which is best shown in Fig. 9. Adapted to engage with the notches or depressions 81 is a detent 82 pivoted at 83 in a lug 84 projecting inwardly from the right-hand head 57. The upper end or shank 85 of the detent is bent outwardly at right angles to the body portion and passes freely through an opening 86 in the head 57, said shank being provided at its outer end with a finger button 87. A

coiled spring 88 engages the button 87 and tends normally to maintain the detent engaged with one or another of the notches 81, thus serving to prevent rotation of the shaft 71 in its bearings. When the finger button 87 is pressed inwardly, however, the detent disengages from the bearing block 79, thus freeing the shaft 71. I employ a detachable spool having a core 89, which, when said spool is in position on the device, surrounds the sleeve 74, constituting a sort of outer sleeve, said core or outer sleeve being provided at its ends with flanges 90. The friction between the inner and outer sleeves 74 and 89 is sufficient to cause them to turn together or, when one of them is held from turning to cause the other one also to be held from turning. Within the inner sleeve 74 and surrounding the shaft 71 is a coiled spring 91, the right-hand end of said spring being fast in the block 79 and the left-hand end of said spring being fast in the block 75. The carbon paper, duplicating strip or other material is wound on the spool as shown at 92. The construction is such that the paper may be unwound by pulling on its free end. When the roll holder, comprising the spool and the inner sleeve, is thus turned, the bearing block 75 turns with it while the bearing block 79, together with the shaft 71, is held motionless by the detent 82, the result being that the spring is wound to increase the tension thereof. When, however, the detent 82 is operated to release the block 79, the block and the shaft 71 may be turned together with the roll holder without affecting the tension of the spring 91. The spool carrying the roll of carbon paper may be readily slipped on or off the inner sleeve 74. The segmental portion 58 of the casing or cover is at the back of the carbon roll as best indicated in Fig. 8. Hinged at the top of the casing at 93 is a segmental cover 94 which normally is in the position shown in full lines in Fig. 8 but which may be moved or swung upwardly to the position shown by the dotted lines in said figure in order that the carbon roll holder may be exposed for removal or other purposes. As shown in Fig. 8 the lower edge of the cover 94 terminates a short distance in front of the lower portion of the casing 58, leaving a space, which is represented in Fig. 8 by the numeral 95, through which space the free end of the carbon may be drawn. Except for this space or slot, the casing completely incloses the carbon roll holder when the cover 94 is closed, so that the carbon is not exposed to the air and may be preserved from deterioration.

A chute or guide-way for the carbon paper or other material carried by the roll holder is provided in order that the said carbon paper may be suitably guided downwardly toward the platen and properly caused to

coöperate therewith. I prefer to make this chute of sheet metal, that shown in the drawings being represented as a whole by the numeral 96 and being formed preferably integral with the segmental portion 58 of the casing, as clearly shown in Figs. 4 and 8 of the drawings. When thus formed integral with the casing it will be understood that the chute is held in place by the headed screws 59. The side portions 97 of the chute are bent inwardly toward each other as indicated at 98 forming grooves or slots 99 through which the edge portions of the carbon pass and are guided. The chute extends downwardly and forwardly toward the platen, being normally arranged in a plane substantially tangential of the platen at the rear thereof as clearly seen in Fig. 1. The lower edge of the chute terminates just forward of the top of the paper table 37 and said lower edge is inclined upwardly from left to right as indicated at 100 (Fig. 4) for a purpose presently to be described. A sheet metal strip 101 best shown in Figs. 4 and 5 is secured at the lower left-hand portion of the body of the chute by means of rivets 102. The lower end of the strip 101 is twisted at right angles to the body portion as indicated at 103 and is formed with an opening 104 which receives a shouldered screw 105, said screw being threaded into a small bearing plate 106, which plate is secured at the rear of the left-hand arm 31 in a fixed relation therewith by means of the stud 34 and screw 35. The shouldered screw 105 forms a pivotal bearing for the strip 101 and through said strip the chute or the guide-way is thereby pivotally connected with the platen frame and platen. Guide wires 107 are suitably secured, as by soldering, to the frame rods 47, two of said guide wires being shown, one arranged above the other and both extending downwardly from the left-hand frame rod 47 to the right-hand frame rod, said guide wires, when viewed from the side, bowing or curving forwardly as shown clearly in Figs. 1, 2 and 5.

A suitable severing device for the material carried by the roll holder is provided at the front of the platen, said device comprising a cutting blade 108 secured by headed screws 109 to bearing arms 110, said bearing arms at their lower ends being curved (Fig. 6) to partially embrace the cylindrical front bar 15 of the platen frame. The bar or rod 15 is provided at its rear with a longitudinal groove 111 which coöperates with the curved lower ends of spring plates 112 to maintain the bearing plate normally in the position shown in Fig. 5, said spring plates 112 being secured at their upper ends to the cutting blade by the screws 109. The cutting blade is adapted to be swung rearwardly and downwardly against the tension of the springs 112 to the position shown

in Fig. 6, where the cutting edge engages with the platen or the paper thereon, so that the paper may be readily severed. When pressure is removed from the cutting blade the latter will be restored to normal position by the action of the spring plates 112, the lower ends of which tend to reseat themselves in the groove 111 in the front bar 15 of the platen frame.

My invention, as has been stated, is especially adapted for use with folded bill sheets, such, for example, as the one shown in Figs. 3, 7 and 10. Each of the bill sheets comprises two parts, a wide part designated by the numeral 113 and a narrower part 114, the two parts joining at one side along their longitudinal edges in a fold or crease 115. The narrow part 114 of the bill sheet is suitably ruled and forms the bill proper which preferably receives impressions directly from the inking ribbon. The wider part 113 preferably receives impressions from the carbon paper or other transfer medium. After the bill has been written the two parts are separated along the fold or crease 115 and the part 114 is forwarded to the customer while the part 113 is preferably incorporated in a book which forms part of the records of the business, said sheet 113 being preferably provided with holes 116 with which may coöperate the pins or other retaining means in the record book. Prior to my present invention the writing of bills of this character necessitated frequent handling of the carbon paper and the consequent soiling of the fingers of the operator, as well as the consumption of considerable time. By providing a rotary material-carrying device or roll holder which is capable of a plurality of complete rotations and is associated with means for turning the roll backward automatically as far as it is first turned forward, frequent handling of the carbon paper is avoided and rapid and accurate writing of the bills is greatly facilitated.

At the beginning of the work the parts of the apparatus are positioned as shown in Fig. 1 and the free end of the carbon paper 92 is passed downwardly from the back of the roll through the opening or space 95 and is entered in the grooves 99 in the chute. Before the free end of the carbon is drawn downward through the chute, the release button 87 is preferably pressed inward, releasing the block 79 and shaft 71, so that thereafter as the free end of the carbon is drawn downward through the chute toward the plate, the carbon roll holder is turned in the direction of the arrow in Fig. 8 and the shaft 71 is turned with said roll holder, the two parts being connected for this purpose by the spring 91 which is stiff enough to cause the roll holder and shaft to turn together without putting

the spring 91 under tension. The carbon is drawn downwardly until its leading edge passes out of the grooves in the chute and over the paper table 37 and is brought into
 5 coöperation with the platen and the paper feed roller, the latter being preferably moved to releasing position until the leading edge of the carbon has passed between said feed roller and the platen. Thereafter the
 10 finger button 87 may be released, causing the detent 82 to reëngage with one of the notches 81 in the block 79, so as to hold the shaft 71 from any further rotary movement. One of the folded bill sheets may now be ar-
 15 ranged in position for being fed into the machine. With its bottom uppermost and with the fold or crease 115 at the right, said bill sheet is brought into coöperation with the chute 96, the wider or record part 113
 20 of the bill sheet being passed from left to right in front of the chute and over the carbon paper and the bill proper or narrower portion 114 passing behind the chute. The movement from left to right is continued
 25 until the fold or crease 115 engages with the right-hand edge 98 of the chute. This edge is preferably contained in a plane to which the platen axle is perpendicular, so that said edge 98 serves as a side guide for
 30 the bill sheet and positions it so that it may be fed truly and correctly over the platen.

It will be understood from a consideration of Fig. 1 that the part 114 of the bill sheet will be held against the rear face of the
 35 chute by the guide wires 107. If now the platen be turned in line spacing direction the bill sheet and carbon will be fed around said platen together, the carbon as it leaves
 40 the chute being inclosed between the two parts of the bill sheet, the carbon and bill sheet together being fed out of the machine at the front in a relation with the latter
 45 which will be clearly understood from an inspection of Fig. 3. It will be apparent that, when the bill sheet has been fed far enough forward for writing the first line, if
 50 the printing instrumentalities are actuated, they will coöperate with the portion 114 of the bill sheet through the usual inking ribbon so that the type impressions on the part 114 will be made from the ink on the ribbon while the type impressions on the record part 113 of the bill sheet will be made from the carbon 92.

55 From a consideration of Fig. 4 of the drawings and from what has already been said, it will be understood that during the line spacing operations through which the bill sheet passes, the lower portion of the carbon will be controlled by the platen and the feed roller, and the roll holder will be
 60 turned to unroll more or less of the carbon from the roll. During this turning movement of the roll holder the bearing block 75
 65 will be turned with it but the shaft or axial

support 71 and the bearing block 79 will be held motionless by the detent 82, so that the inner sleeve 74 will turn on the reduced portion 79^a of the block 79 as a bearing. Con-
 70 sequently the spring 91 will be wound up so that its tension will gradually increase, the amount of said increase of course depending on the amount of carbon which is unwound from the roll. After the writing on the bill has been completed the platen may be turned
 75 in line spacing direction until the lower edge of the bill has been moved downwardly and forwardly past the feed roller 27. The operator may now grasp the upper portion of the bill sheet with the right hand, being
 80 careful not to grasp or hold the free end of the carbon paper, while with the left hand the feed roll release lever 38 is depressed to move the feed roller away from the platen. As soon as the releasing movement of the
 85 feed roller takes place, the spring 91, being under tension, acts automatically to turn the roll holder in a direction opposite to that indicated by the arrow in Fig. 8, thereby
 90 rewinding the carbon paper on the roll. The rewinding of the carbon continues until the spring 91 has reached its normal state. In other words, the amount of carbon re-
 95 wound will equal the amount unwound after the detent 82 was allowed to engage and hold the bearing block 79, and when the spring ceases to rewind the carbon the lower
 100 free end of the latter will be in the position from which it started when the feeding of the bill sheet around the platen was com-
 105 menced. A second bill sheet may now be introduced, written upon and fed through the machine as before, the same portion of the carbon again being used to reproduce the type impressions on the record portion
 110 of said bill sheet. Thereafter the carbon may be restored to the first position by again operating the feed roll release lever in the manner above described.

The operations above outlined may be
 115 repeated with a plurality of succeeding bill sheets until the lower portion of the carbon becomes exhausted from use. When this occurs the carbon may be drawn forwardly around the platen until the used portion or
 120 section has been drawn past the cutting blade 108 whereupon the latter may be pressed down to the position shown in Fig. 6 and the used portion or section of the carbon may be severed. If now the feed
 125 roll release lever be operated the spring 91 will act to rewind the carbon until its lower free end will have been drawn backwardly around the platen and up through the chute a distance from the feed roller equal to the
 130 length of the used portion of the carbon which has been severed by the cutting blade 108. Before introducing the next bill sheet, therefore, the button 87 may be pressed in-
 135 ward to release the shaft 71 and bearing

block 79 and the lower free end of the carbon may be again drawn down through the chute until it is brought into the control of the paper feed roller 27 whereupon the button 87 may be released, leaving the parts in the proper position for the introduction of the next bill sheet.

Another mode of operating the parts to secure the same result and which may be followed if desired, is to first press the button 87 before feeding the carbon paper forward to be torn off. After tearing off the desired amount and while still holding the button 87, the paper may be rewound by turning the finger wheel 69, to bring the lower end of the paper to the proper position. Each portion or section of the carbon may be employed for writing some half dozen or more bill sheets and as the roll holder may carry a roll of carbon of some fifteen or more yards in length, it will be apparent that a large number of bills may be written before the roll of carbon has all been used. When the entire roll has been exhausted the spool may be slid off the inner sleeve 74 and a new spool and carbon roll substituted.

When during the operation of the machine it becomes necessary to inspect the work, the lifting handle 23 is raised to rock the platen forwardly in the usual manner from the position indicated in Fig. 1 to that in Fig. 2. During this forward rocking movement of the platen the platen frame will be swung about the pivots 19 and the casing, roll holder and chute will be swung downwardly and forwardly to the positions shown in Fig. 2. During the downward and forward movement of the roll holder casing, the crank arms 52 will swing downward, turning the rock shaft 50 in its bearings 49 while at the same time the casing will have a further turning movement in its bearings at the outer free ends of the crank arms 52 so that the movement of the casing is a compound one. It will be apparent that this compound swinging movement of the casing is brought about from its connection with the platen frame through the chute 96. The lower end of the chute 96 is swung forwardly with the platen frame, the pivotal connection between the two permitting an easy change in the relations of the parts. In this new position of the chute 96 it will be seen that it is substantially tangential of the platen at its rear, the consequence of this arrangement being that the back and forth rocking movements of the platen may take place without rumpling or buckling the carbon paper where it passes from the lower end of the chute into feeding engagement with the platen.

If during the operation of the machine a bill sheet has been fed through the machine so far that the bottom edge of said bill sheet

has passed the lower edge 100 of the chute 96 and it be desired to feed the bill sheet backwardly for correction or other purpose the bottom edge of the part 114 of the bill sheet will first engage near its left-hand edge with the bottom edge 100 of the chute during the backward movement, since the left-hand portion of the bottom edge of the chute is lower than the right-hand portion thereof. This left-hand portion of the lower edge of the part 114 is free and tends to fall away from the back of the chute and in practice it will be found always to fall far enough back to pass readily behind the chute. Consequently as the backward feeding movement of the bill sheet is continued the point of contact between the bottom edge of the part 114 and the bottom edge 100 of the chute will move gradually from the left to the right, the bottom edge of the bill sheet being forced or directed rearwardly behind the chute so that the right-hand corner of the part 114 and the fold or crease 115 will be prevented from abutting against the lower edge of the chute and will be fed smoothly around the latter, causing the bill sheet, as it is fed backward, again to embrace the chute properly. It will be apparent that while the left-hand bottom edge of the part 114 tends to fall away from the back of the chute, the right-hand part of the bottom edge will be held comparatively close to the back of the chute by the part 113 of the bill sheet which lies on top of the chute. Consequently if the backward feeding movement of the bill sheet is further continued the right-hand portion of the lower guide wire 107 will first cooperate with the right-hand portion of the part 114 and the point of contact between said guide wire and said part 114 will gradually move from the right to the left, forcing or guiding the free left-hand lower edge of the part 114 between the guide wire and the back of the chute. It will be seen therefore that by inclining the lower edge 100 of the chute properly from left to right and by inclining the guide wires upwardly from right to left, I provide guiding members which aid in guiding the bill sheet in its return movement so as to feed it smoothly and correctly. When the paper is fed backward as above described, the carbon is rewound onto the roll holder by the spring 91, which keeps said carbon taut and smooth. The carbon itself holds the part 113 of the paper out of contact with the lower edge 100 of the chute 96.

Various changes may be made without departing from the spirit and scope of my invention.

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

1. In a typewriting machine, the combination of a carriage, a platen shiftable thereon from normal to abnormal position, a roll

holder, and connections between said platen and said roll holder for taking up slack in the material carried by said roll holder during the movements of the platen from one of its positions to the other.

2. In a typewriting machine, the combination of a carriage, a rocker platen thereon, a pivotally supported roll holder, connections between said roll holder and said rocker platen for giving a compensating movement to the holder when the platen is rocked.

3. In a typewriting machine, the combination of a rotary material-carrying device; means for subjecting the same as it is turned to a force tending to turn it in the opposite direction; and means operative at will to render said last recited means ineffective when the device is turned.

4. In a typewriting machine, the combination of a rotary holder or carrier for paper or the like; a spring for turning said holder in one direction; and means whereby said spring may be put under tension or not as desired, when said holder is turned in the opposite direction.

5. In a typewriting machine, the combination of a roll holder for holding a roll of carbon paper; a spring connected at one end to said roll holder; a device to which the other end of said spring is connected; and controlling means for said device whereby said device, if desired, may be permitted to turn with said roll holder to any desired extent, so that the turning of said roll holder does not affect the tension of said spring and whereby, if desired, said device may be held so that when said roll holder is turned to unwind the paper therefrom said spring is put under tension to rewind said paper on said roll holder.

6. In a typewriting machine, the combination of a rotary roll holder; an axial support therefor; and a spring connected with said roll holder and with said support, said roll holder being capable of rotation on said axial support and relatively thereto whereby the tension of said spring is altered, and said support and roll holder being rotatable together so that the tension of said spring will remain unaltered.

7. In a typewriting machine, the combination of a rotary roll holder; an axial support therefor; a spring coiled within the core of said roll holder and connected with the latter and with said support, said roll holder being normally rotatable on said axial support and relatively thereto, whereby the tension of said spring is altered; and means for enabling said roll holder and its support to be turned together without affecting the tension of said spring.

8. In a typewriting machine, the combination of a rotary roll holder; an axle therefor; a spring coiled within the core of said

roll holder and connected with the latter and with said axle; paper feeding devices operative to draw the material from said roll holder, the tension of said spring being thereby increased; and means for enabling said axle to be turned in its bearings to enable said roll holder to be turned without affecting the tension of said spring.

9. In a typewriting machine, the combination of a rotary roll holder; an axle therefor; a spring connected with said roll holder and with said axle, said roll holder being rotatable on said axle to wind or unwind the paper or other material, whereby the tension of said spring is altered; a frame or casing in which said axle is journaled; means normally preventing said axle from turning in its journals or bearings; a platen; and a chute or guide-way between said roll holder and said platen.

10. In a typewriting machine, the combination of a rotary roll holder for carbon paper; an axial support for said roll holder; a casing inclosing said roll holder and in which said axial support is mounted, said casing being provided with a movable cover; a platen; and a chute or guide-way integral with said casing and serving to guide the paper to the platen.

11. In a typewriting machine, the combination of a rotary roll holder for carbon paper; an axial support for said roll holder; a casing inclosing said roll holder and in which said axial support is journaled, said casing having a hinged cover; a platen; and a grooved guide-way or chute integral with the casing and serving to guide the paper to the platen.

12. In a typewriting machine, the combination of a platen, a support for a duplicating sheet, means on said support for guiding said duplicating sheet, and means on said support for guiding a work sheet.

13. In a typewriting machine, the combination of a platen, and a chute for a duplicating sheet arranged in proximity to the platen, said chute comprising interiorly means for guiding said duplicating sheet, and said chute having exteriorly a side edge which serves as a side guide for a work sheet.

14. In a typewriting machine, the combination of a platen, and a substantially flat chute for a duplicating sheet arranged in proximity to the platen, said chute comprising a body supporting portion and inwardly bent overhanging portions, which with the body portion form interiorly guides for a duplicating sheet, and which exteriorly form a side edge guide for a folded bill sheet.

15. In a typewriting machine, the combination of a platen; and a chute or guide-way for carbon paper or the like arranged in proximity to the platen, the lower edge

of said chute terminating in a line oblique to the axle of the platen.

16. In a typewriting machine, the combination of a carriage; a platen mounted thereon; a frame or support on the carriage; a carbon roll holder journaled on said frame; a chute or guide-way arranged between the roll holder and the platen, the lower edge of said chute terminating in proximity to the platen and in a line oblique to the axle of the platen.

17. In a typewriting machine, the combination of a carriage; a platen mounted thereon; a frame or support on said carriage; a carbon roll-holder journaled on said frame; a chute or guide-way for the carbon paper arranged between said roll holder and said platen; and guide wires on said frame, said guide wires cooperating with the chute to guide the paper to be written upon.

18. In a typewriting machine, the combination of a carriage; a platen mounted thereon; a chute or guide-way for carbon paper or the like supported on said frame, the side edge of said chute serving as a side guide for a folded sheet which is to be written upon; and guide wires secured to said frame obliquely to the line of movement of the paper to be written upon, said guide wires cooperating with the back page of the folded sheet to be written upon to guide it.

19. In a typewriting machine, the combination of a platen; a roll holder; and connections including a pivot between said platen and said roll holder.

20. In a typewriting machine, the combination of a carriage; a rocker platen thereon; a roll holder; and connections including a pivot between said rocker platen and said roll holder.

21. In a typewriting machine, the combination of a carriage movable in letter space direction; a platen; a platen frame mounted on said carriage and shiftable thereon transversely of the direction of letter space feed movement; a roll holder; and a connection between said roll holder and said platen frame through which movement of one of the parts causes relative movement of the other part.

22. In a typewriting machine, the combination of a carriage; a platen frame pivotally mounted thereon; a platen in said frame; a roll holder; and connections including a pivot between said roll holder and said platen frame which transmits motion from said platen frame to said roll holder.

23. In a typewriting machine, the combination of a carriage movable in letter space direction; a platen; a platen frame mounted on said carriage and shiftable thereon transversely of the direction of letter space feed movement; a roll holder; a frame in which

said roll holder is journaled; and connections including a pivot between said roll holder and said platen frame which transmits motion from said platen frame to said roll holder.

24. In a typewriting machine, the combination of a carriage movable in letter space direction; a platen; a platen frame mounted on said carriage and shiftable thereon transversely of the direction of letter space feed movement; a roll holder; a frame in which said roll holder is journaled exteriorly of its axis; and a chute connecting said roll holder and said platen and capable of transmitting motion from one to the other.

25. In a typewriting machine, the combination of a carriage; a platen adapted to be rocked on said carriage to expose the writing; a roll holder; a frame in which said roll holder is pivoted exteriorly of its axis; and a chute or guide-way connecting said roll holder and said platen and capable of transmitting motion from one to the other.

26. In a typewriting machine, the combination of a carriage; a rocker platen thereon; and a chute or guide-way for paper or the like, said chute being arranged above and at the rear of the platen and being substantially tangential of said platen in either of the positions to which it may be rocked.

27. In a typewriting machine, the combination of a carriage; a platen frame pivotally mounted thereon so that the platen may be raised to a non-printing position; a platen in said frame; a roll holder; and a chute or guide-way between said roll holder and said platen, said chute being pivotally connected with said platen frame and being substantially tangential of the platen in both the normal and raised positions of the latter.

28. In a typewriting machine, the combination of a carriage; a platen frame pivoted thereon; a platen in said platen frame; a support on said carriage; a frame or casing movably mounted on said support; a roll holder rotatable in said frame or casing; and a chute or guide-way rigid with said frame or casing and pivotally connected with said platen frame.

29. In a typewriting machine, the combination of a carriage; a platen frame pivoted thereon; a platen in said platen frame; arms rising from said carriage and supporting a rock shaft; a casing supported on said rock shaft; a roll holder journaled in said casing; and a chute or guide-way fixed to said casing and pivoted to said platen frame, said chute or guide-way extending forwardly and downwardly in a plane substantially tangential of the platen at the rear thereof.

30. In a typewriting machine, the combination of a carriage; a platen frame pivoted thereon; a platen in the platen frame; a cross-bar detachably connected with the carriage and extending longitudinally of it

at the rear; arms fixed to and rising from said cross bar; a rock shaft journaled in the upper end portions of said arms; hanger arms fixed on said rock shaft; a casing 5 pivoted to said hanger arms; a detachable roll holder in said casing; and a chute or guide-way extending from said roll holder toward the platen and pivotally connected to said platen frame.

10 31. In a typewriting machine, the combination of a platen frame comprising a grooved cylindrical front bar; a platen in said frame; a roll holder; and a cutting blade pivotally mounted on said front bar 15 and carrying a flat spring which coöperates with the groove in said front bar to maintain said cutting blade normally separated from the platen.

20 32. In a typewriting machine, the combination of a rotary roll holder; an axle therefor; a frame or casing in which the axle is journaled; a detent on said frame normally maintaining the axle and frame in fixed relation so that the roll holder may 25 rotate on the axle, said detent being operative to release said axle so that it may turn with said roll holder; and a spring connected at one end to the roll holder and at the other end to the axle.

30 33. In a typewriting machine, the combination of a rotary roll holder; an axle therefor; a frame or casing in which the axle is journaled; a detent pivoted on the frame and normally maintaining the axle 35 and frame in fixed relation so that the roll holder may rotate on the axle, said detent being operative to release said axle so that it may turn with said roll holder; and a yielding connection between said roll holder 40 and said axle.

34. The combination with the carriage and platen and presser rolls of a typewriter, of a roll supported by the carriage, a duplicating strip on said roll, means for turning

the roll to retract the strip after being 45 drawn outward and when released from the pressure of the presser rolls, and a guide for the folded side edge of a folded sheet between the platen and the roll.

35. The combination with the carriage, 50 platen, roll and strip wound thereon, of a guide, the edge of which serves to determine the position of the folded side edge of a folded sheet in respect to the plate, and free at the lower end to permit the 55 sheet to be fed downward with the strip to the platen.

36. The combination with the carriage and platen of a typewriter, of a support for a roll carrying a duplicating strip, and 60 means for turning the roll tending to rewind the strip whenever the latter is drawn from the roll, and a guide for the folded side edge of a folded sheet between the roll and the platen.

37. The combination with the carriage, 65 platen, roll, and sheet wound upon said roll, of a guide between the roll and platen arranged to permit the lower part of a folded sheet to be passed beneath the guide and 70 beneath the strip, with the other part above the guide and above the strip, and free at the lower end to permit the sheet and strip to be carried downward to the platen away from the guide.

38. The combination of the carriage, roll 75 carried by and above the carriage, and duplicating strip carried thereby, and a plate arranged to support the unwound part of the strip between the roll and the carriage. 80

Signed at the borough of Manhattan, city of New York in the county of New York and State of New York this 12th day of June, A. D. 1906.

HARRY I. SEDDON.

Witnesses:

E. M. WELLS,

M. F. HAUNWEBER.