Aug. 29, 1933. C. GABRIELSON 1,924,119

TYPEWRITING MACHINE

Filed Aug. 2, 1930 4 Sheets-Sheet 1

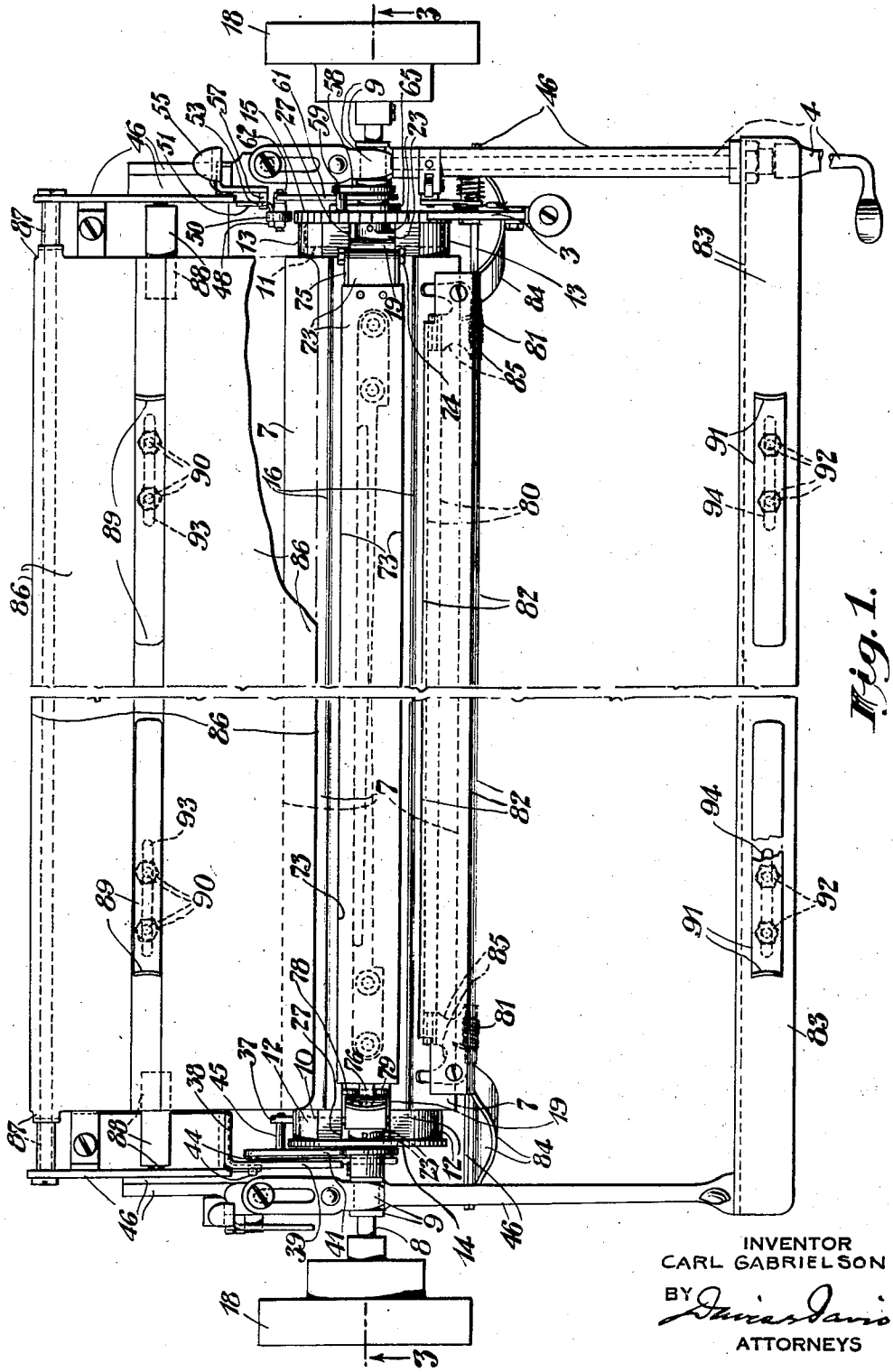

Fig. 1.

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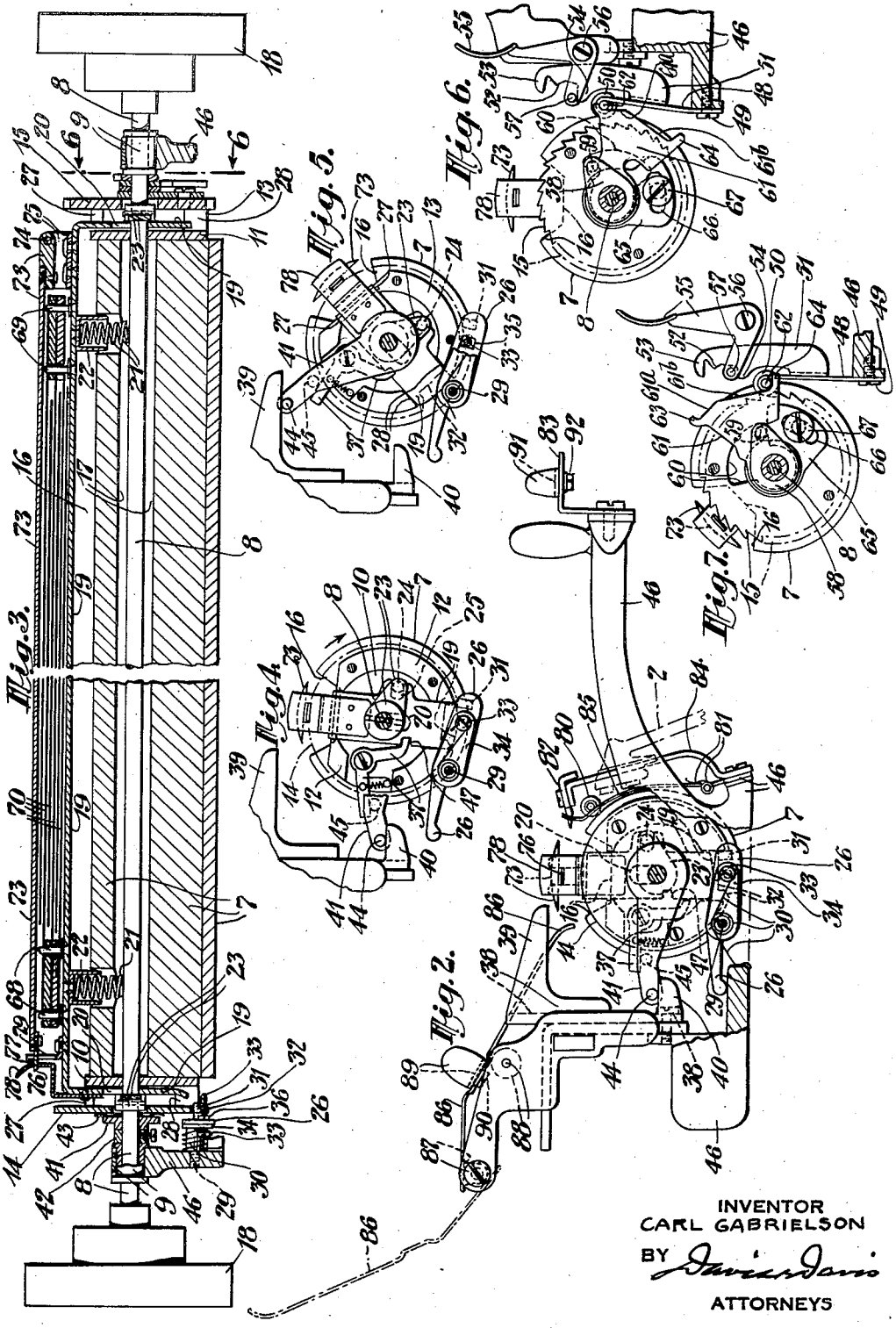

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TYPEWRITING MACHINE

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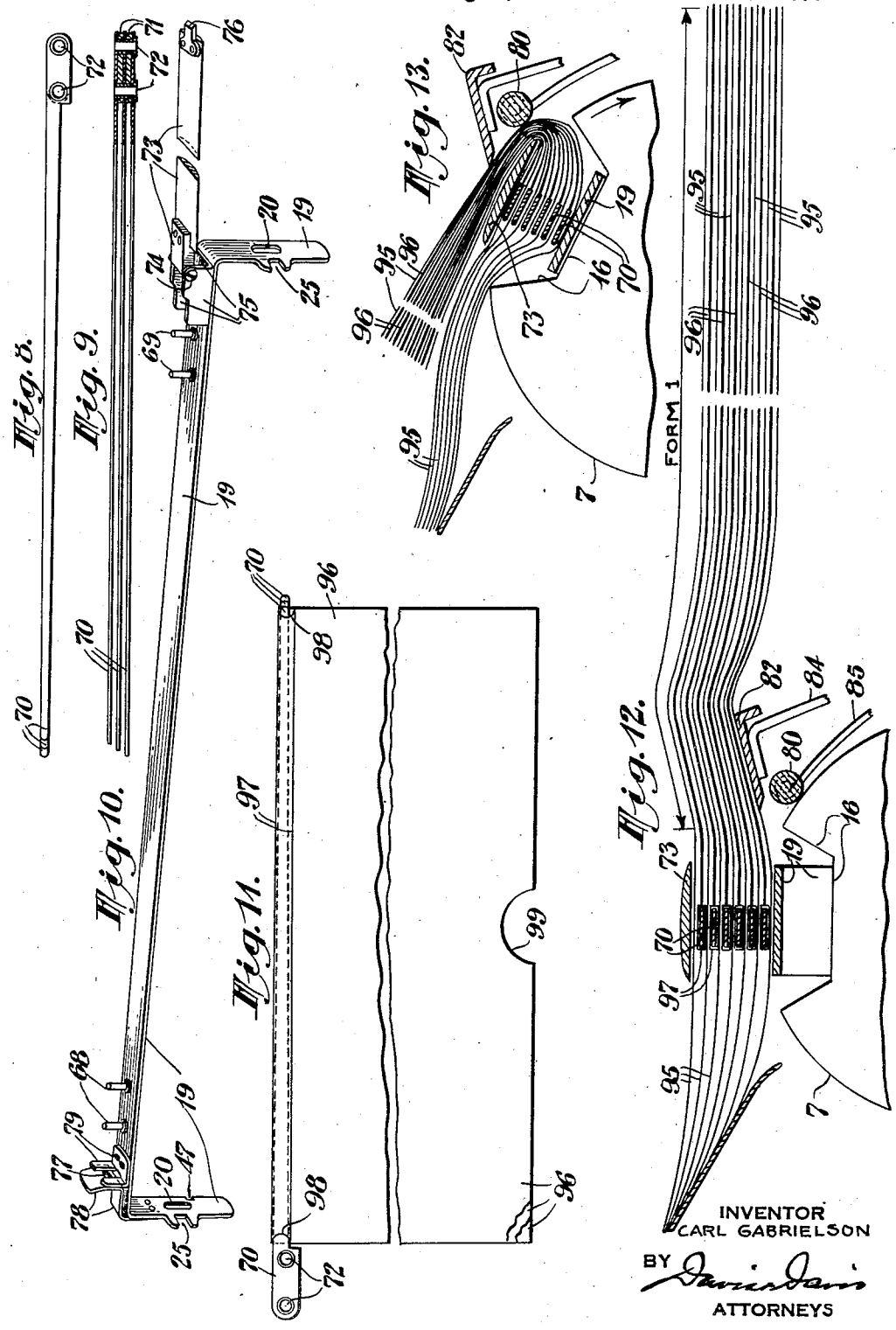

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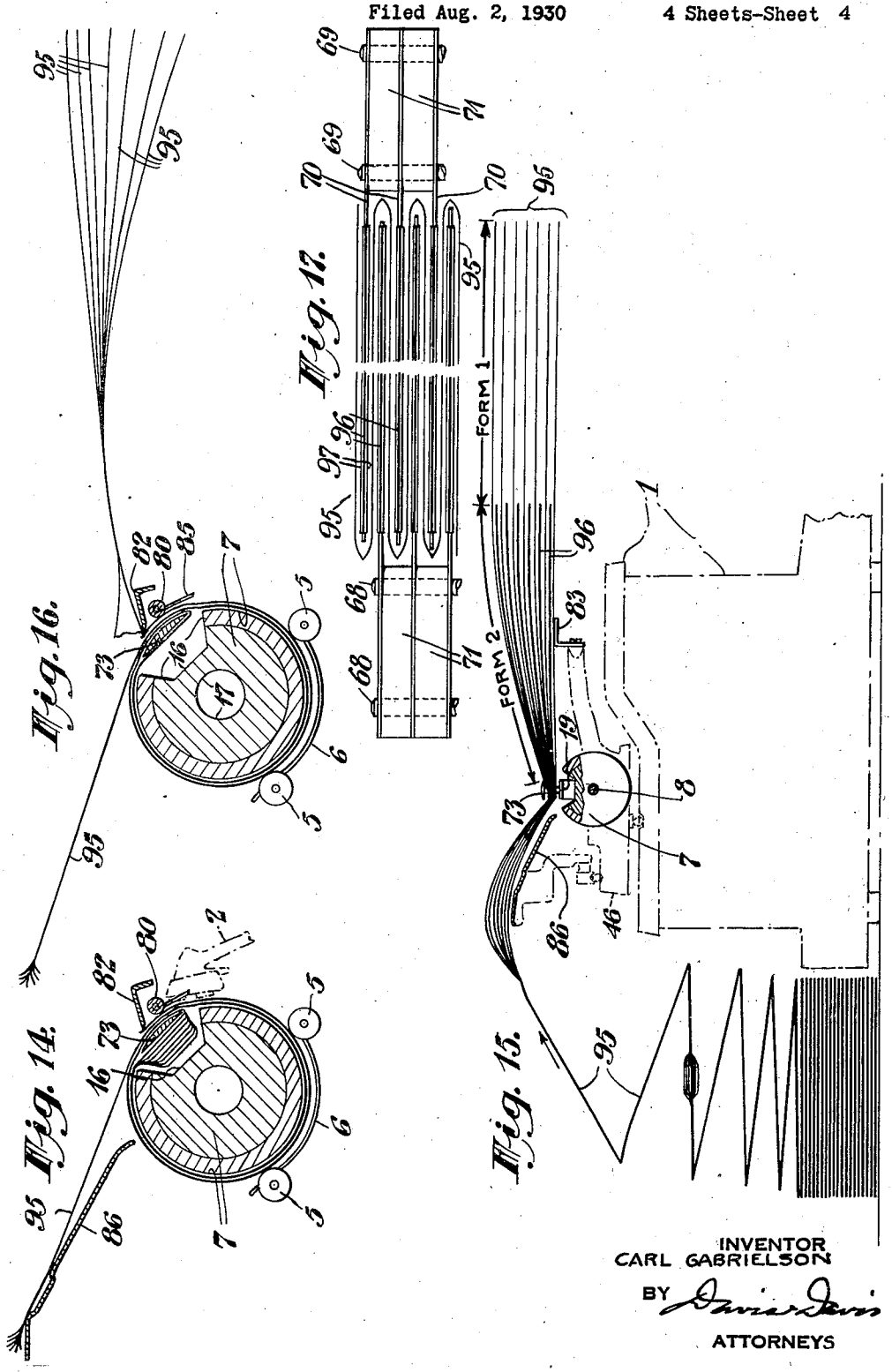
TYPEWRITING MACHINE

Filed Aug. 2, 1930 4 Sheets-Sheet 4



Patented Aug. 29, 1933 1,924,119

UNITED STATES PATENT OFFICE

1,924,119

TYPEWRITING MACHINE

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Application August 2, 1930. Serial No. 472,607

26 Claims. (Cl. 197—126)

This invention relates to improvements in typewriting machines, and particularly to machines for use with superposed webs or fanfold webs in manifolding work.

The invention has for its principal object to provide simple and efficient means for handling and typing superposed webs or work plies (and especially fanfold webs) interleaved with carbon sheets in such manner that the carbon sheets may be repeatedly used in conjunction with successive longitudinal sections of the multi-ply web or superposed work webs and the typing of an indefinite series of such portions (for example, successive ones of a series of printed forms on the plies of a fanfold web or other superposed plies) may be accomplished with ease and speed.

Other objects are to provide a simple and efficient machine for fanfold manifolding work which is compact and may be produced at low cost, and to provide such a machine wherein the relative stripping movement between the web and carbon sheets is attained without lifting the platen and with the webs and carbons substantially flat and loosely interleaved. A further object is to provide carbon and work-web handling means for a manifolding typewriting machine which may be built into existing types of machines, or may be attached to such machines by simply removing the existing paper carriage and substituting a carriage provided with the improved carbon and work-handling means.

The invention also includes an improved method of handling superposed work plies and carbon sheets in manifolding work.

Other objects, features and advantages of the invention will appear from the following description of the preferred embodiment of the invention illustrated in the accompanying drawings:

In the drawings:

Fig. 1 is a plan view of the platen carriage of an L C Smith typewriting machine with the improvements embodied therein;

Fig. 2 is a side elevation of the improved carriage and parts thereon as viewed from the left hand side of the machine, part of the near side of the carriage being broken away, the parts being in the same position as in Figs. 1, 3 and 12.

Fig. 3 is a fragmentary vertical transverse sectional view on the line 3—3 of Fig. 1;

Figs. 4 and 5 are detail views similar to Fig. 2 illustrating the operation of certain of the parts, as more fully hereinafter described, the platen being shown in Fig. 5 at the opposite limit of its rotation out of Fig. 2 position;

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 3;

Fig. 7 is a view similar to Fig. 6 illustrating a feature of operation of certain parts hereinafter described;

Figs. 8 and 9 are detail views showing one of the two gangs or sets of carbon-sheet holding or anchor bars;

Fig. 10 a detail view of the carrier or support for the gangs of carbon-sheet holding bars;

Fig. 11 a detail view showing one gang of bars with its attached or anchored superposed carbon sheets;

Fig. 12 is a detail view showing the plies of the initial form or section of a web interleaved with the carbons ready for positioning about the platen preparatory to starting typing thereof, this position being the same subsequently assumed to permit stripping the web forward past the carbons;

Fig. 13 is a view similar to Fig. 12 showing the plies of the first form with the interleaved carbons automatically folded up and back upon the succeeding form and being introduced downward and rearward about the platen with the form moving bottom first around the platen axis toward the position shown in Fig. 14;

Fig. 14 is a view showing the platen rotated to the limit of its movement in form or typing area introducing direction (as in Fig. 5) ready for typing and line-spacing in the ordinary direction by the usual line-spacing and typing devices of the machine;

Fig. 15 is a diagrammatic view showing the fanfold web threaded through the modified L C Smith typewriting machine, the first form being shown as drawn forward by the operator beyond the carbons to interleave the carbons with the second form or typing area and condition the first typed form or area for tearing off;

Fig. 16 is a view showing the second form positioned for typing, as in the case of the first form in Fig. 14, and the first form being torn off; and

Fig. 17 is a detail view looking from the front of the machine showing, on an enlarged scale, the two sets of carbon holding bars with their attached carbon sheets interleaved with the plies of the fanfolded web.

The improvements are shown as embodied in the well known L C Smith typewriting machine, the main frame of which is indicated at 1 and supports the usual parts, including the key actuated type bars, one of which type bars is indi-

cated at 2. The traveling platen carriage 46 is mounted on the main frame in the usual manner and is controlled by the usual escapement mechanism. The usual line spacing pawl 3 and its usual actuating mechanism, including the operating handle 4, are mounted on the carriage as usual, as are also the usual paper feed rolls 5 and paper apron 6 below the platen. The improvements will now be described.

The roller platen 7 is loosely mounted on a platen shaft 8 which is journalled in the side members of the carriage in the usual manner, as shown at 9. Shaft 8 passes through central bearing bores in metal platen end disks 10 and 11 the outer faces of which are cored to provide annular outwardly extending flanges 12 and 13 abutted respectively by an end plate or disk 14 and a line space ratchet wheel 15, the disks and said abutting elements being secured to the platen by suitable screws as indicated in Figs. 2 to 7. The platen roller 7 is cut away longitudinally to provide a relatively wide and deep flat-bottomed channel 16 extending the full length of the platen roller and also has an axial bore 17 through which the platen shaft extends.

Means are provided at the left hand end of the platen for positively limiting the extent of rotation of the platen in both directions, said means arresting the rotation of the platen forwardly or in the usual line-spacing direction at a point at which the channel 16 is at the top of the platen or facing directly upward, and limiting backward or reverse rotation of the platen before the channel comes opposite the printing point a second time. Preferably the last mentioned point of arrest is that shown in Fig. 14 so that the platen has an oscillatory movement limited to about one full revolution and, in the particular construction shown, slightly more than one full turn in each direction, the latter capacity enabling utilization of all or substantially all the cylindrical impact surface of the roller from edge to edge of slot 16 as an effective backing or impact surface in typing. The platen is rotatable step by step by the line-spacing mechanism in the usual direction, and is rotatable in both directions by either of the finger wheels 18 fixed on the platen shaft in the usual way.

The means for limiting the rotation of the platen and the driving connection between the platen shaft and platen roller will now be described. The platen roller is driven from the platen shaft through the medium of a metal frame which is carried by the platen to rotate therewith and is shiftable radially of the platen toward and from the platen axis by the platen shaft which has a limited rotary movement relatively to the platen roller.

This metal frame comprises a rigid yoke-like main body part 19 consisting of a flat metal bar or strap overlying the flat bottom of channel 16 and parallel therewith, the ends of which bar are bent flatwise at right angles to the slot bottom to form legs extending toward the opposite side of the platen from the slot. The legs of the frame have short longitudinal slots 20 through which the platen shaft extends, said frame being normally urged outward by coiled springs 21 the inner ends of which abut the platen shaft and the outer ends of which are housed in cups 22 riveted to the under side of the cross-bar of the frame. The cups and springs work freely in suitable radial clearance bores in the platen, as shown. The platen shaft coacts with the ends of the slots nearest the free ends of the frame legs to arrest outward movement of the frame with the frame cross-bar located at the peripheral line of the platen roller or in the position shown in Figs. 1, 2, 3, 12 and 15, while said shaft coacts with the opposite ends of the slots to limit the extent of movement of the frame in the opposite direction, or in the retracted position of the frame shown in Figs. 4, 5, 7, 13, 14 and 16.

Keyed on the platen shaft to turn therewith are a pair of rock arms 23 each having a laterally extending pin or stud 24 engaged in a transverse slot 25 in the adjacent leg of the radially movable frame 19 carried by the platen roller. The frame legs are slidably guided in diametrically opposite slots 27 and 28 in the flange of each of the end disks of the platen roller as shown, and the platen is automatically locked against accidental rotation in reverse direction, when line-spaced or rotated forwardly into the normal position shown in Figs. 1, 2 and 3, by means of a spring-pressed latch lever 26.

Latch lever 26 is pivoted on a stud 29 on the carriage and normally urged counterclockwise to a locking position shown in Figs. 2 and 3 by a spring 30. The rear arm of lever 26 engages a part of the carriage in the locking position to limit upward swinging of the forward arm of the lever with a laterally projecting finger or lug 31 on said forward arm engaged in a locking notch 32 in end plate 14. The forward arm is adapted to be rocked down during the last part of the inward movement of the frame 19 to unlock the platen automatically as shown in Fig. 4 just as the frame is drawn to its innermost position by reverse rotation of one of the finger wheels. This unlocking is effected in the particular construction shown by the lower end of the adjacent frame leg moving downward to and then carrying downward a vertically adjustable projection on the latch comprising a screw 33 tapped through a loosely pivoted arm 34 on stud 29 and passing through a short slot 35 in the forward arm of the latch lever and clamped in adjusted relation to the latch lever by a clamping nut 36 threaded on the screw against the inner face of the forward arm of the latch lever.

The frame is automatically locked in its retracted or innermost position against the thrust of the frame projecting springs, at the start of the rotation of the platen following the above described initial portion of the reverse rotation of the platen shaft independently of the platen, by a spring urged latch lever 37 of bellcrank form pivoted on a screw tapped into end disk 10 and having a nose adapted to snap into a lateral notch 47 in one edge of the adjacent frame leg when said leg has been drawn downward to its lowermost position and the platen begins to rotate. After the unlocking of the platen, the platen and shaft will obviously turn in unison upon continued reverse rotation of the finger wheel until arrested by the stop means hereinbefore referred to.

The stop means comprises a metal bracket 38 secured to the carriage adjacent the left hand end of the platen and to the rear of the platen and having superposed forwardly extending arms 39 and 40. An arm 41 loosely pivoted at its forward end on the platen shaft between a collar 42 and end plate 14 of the platen is frictionally urged to rotate with the platen, a spring friction washer 43 on the platen shaft preferably being interposed between said arm 41 and said end plate, as shown more clearly in Fig. 3. A laterally outwardly extending pin or stud 44 on the rear or free end of arm 41 is adapted to engage

the under side of the upper arm 39 and the upper side of the lower arm 40. A laterally inwardly extending pin or stud 45 on arm 41 is engaged under the rearwardly extending arm of latch lever 37 in the normal unlocked position of the frame and locked position of the platen. As the platen begins to rotate in reverse direction after unlocking thereof, latch 37 becomes free to snap into its coactive notch in frame 19, and arm 41 then is driven frictionally away from stop arm 40 to stop arm 39, whereupon arm 41 is arrested while the platen continues to turn. The platen continues turning with the finger wheel and carries lever 37 bodily with it until the rearwardly extending arm of lever 37 engages behind the pin 45 on the blocked or arrested arm 41, thereby arresting the platen in the position shown in Figs. 5, 14 and 16 and positively limiting the extent of its reverse rotation without unlocking frame 19.

If the platen be now rotated forwardly or in normal line-spacing direction by the line space mechanism, or by one of the finger wheels, arm 41 will be frictionally driven by the platen until arrested by engagement of pin 44 with arm 40, while latch lever 37 will travel bodily with the platen until its projecting arm engages over pin 45 as in Fig. 4, and a slight continued rotation of the platen will cause latch 37 to be disengaged by pin 45 from the frame leg notch 47 (permitting the frame to be projected outward by its springs), the forward rotation of the platen being thereupon positively arrested with the platen in Fig. 2 position by reason of the pendent or nosed arm of lever 37 rocking slightly outward against the flange 12 of end disk 10, whereupon the locking projection 31 of latch lever 26 snaps up into the notch 32 in end plate 14 and again locks the platen against backward or reverse rotation.

It is desirable that a spring urged detent for the line-space ratchet wheel be employed as common in ordinary typewriting machines. In order to prevent noise incident to ratcheting of the wheel past the detent during the backward or reverse rotation of the oscillatory platen, means are provided for automatically throwing off the detent as the platen reaches the limit of its forward line-spacing movement and holding the detent out until the platen reaches or substantially reaches the limit of its reverse rotation, at which latter point of the platen movement the detent is automatically rendered effective on the ratchet wheel.

Mounted on the carriage in rear of the line-space ratchet wheel 15 is an upstanding resilient arm 48 secured by a screw 49 at its lower end to the carriage 46 and having a detent roller 50 journalled thereon intermediate its ends normally urged by said arm between two teeth of the wheel. Arm 48 preferably has an upper portion 51 having a cam portion or forward projection 52 and forwardly extending fingers 53 and 54 above and below cam portion 52. A bell-crank finger lever 55 for normally releasing the detent is pivoted at 56 on the carriage and has a pin 57 coactive with fingers 53 and 54 to limit the extent of swinging of the detent release lever and coactive with cam portion 52 to release the detent and hold it out when the finger portion of the lever is pushed rearward to carry the pin up in front of the cam and into the notch formed by the cam and upper finger.

The means for automatically throwing the detent in and out is controlled by the oscillation of the platen and comprises an arm 58 loosely pivoted at one end on the platen shaft at the inner end of the right hand shaft bearing and carrying at its other end a pin 59 extending inwardly into an arcuate slot 60 in line space ratchet wheel 15. Pin 59 is coactive alternately with opposite edges of a substantially segmental cam plate 61 loosely pivoted on the platen shaft at the inner side of arm 58. Cam plate 61 has a high edge portion 61^a and a low edge portion 61^b at its rear edge coactive with the axle 62 of the detent roller to respectively throw and hold out the detent roller and allow the detent roller to coact with the teeth of the ratchet wheel, as shown in Figs. 6 and 7. At the upper and lower ends of its rear cam edge, plate 61 has rearwardly extending stop fingers 63 and 64 coactive with roller axle to limit oscillation of the cam plate. The slot 60 and pin 59 afford a lost-motion drive for arm 58 that causes the pin to turn the came plate relatively to the ratchet to throw out the detent as the platen reaches its normal Fig. 6 position in its forward rotation and to turn said plate relatively to the ratchet in the opposite direction to allow the detent to spring forward to the ratchet as the platen nears its Fig. 7 position. The length of the arcuate slot is sufficient to allow for the rotation of the platen through a fraction more than one full turn and may be varied as required by an adjustable plate 65 pivoted on the platen shaft between the cam plate and ratchet wheel and having an arcuate slot 66 through which extends the shank of a clamping screw 67 threaded into the ratchet wheel.

The radially shiftable frame on the platen serves as a support for the carbon sheet carrying or anchoring devices, and also acts as a means for clamping the web to the platen and driving the web, and as part of the means whereby the leading portion of the web with interleaved carbon sheets is folded upward and backward upon a following portion of the web, as hereinafter more fully explained. Riveted to the transverse portion of the U-shaped frame bar 19 adjacent the opposite ends thereof are two pairs of upstanding pins 68 and 69, the pins of each pair being located adjacent each other in alignment longitudinally of the platen.

The anchor bars or fingers 70 for the carbon sheets extend inwardly alternately from opposite sides of the frame one above the other and each bar 70 is anchored at one end only. Preferably the two sets of oppositely extending bars 70 are secured together in two gangs each removable as a unit from the frame, and the bars of each set or gang are spaced apart vertically to afford ample room for the work web plies and carbon sheets and permit them to shift easily relatively to each other when the platen is in normal position with the frame projected radially outward. To the foregoing ends, the bars of each gang have spacing blocks 71 between their outer ends, the bars and blocks being rigidly secured together by a pair of hollow rivets 72 which receive the supporting pins to detachably hold the gang of bars to the frame in parallelism with the platen.

To serve as a means for retaining the gangs of anchor bars on the pins during rotation of the platen, effecting clamping of the fanfold web and interleaved carbons to the platen to drive the web during turning of the platen, and assist in the folding or doubling back of the leading portion of the web, the radially shiftable frame

also comprises an outer transverse clamping bar 73 normally parallel with and above the transverse portion of the U-shaped frame bar 19 and close to the upper ends of the pins 68 and 69. Bar 73 is hinged at one end at 74 to a small bracket 75 riveted to the outer face of bar 19 at the right hand end of the platen roller and has a tongue 76 at its other end normally engaged in an aperture 77 in an upstanding spring latch arm 78 riveted at its lower end to the left hand leg of bar 19. A small bracket 79 with two upstanding arms engaging opposite side edges of tongue 76 to assist in holding the bar 73 parallel with the platen axis, is preferably provided, as shown, said bracket being riveted to bar 19.

Coactive with frame bar 73 to fold back the leading portion of the superposed web plies with the interleaved carbon sheets and to cause said web portion and sheets to be smoothly wrapped around the platen, is a front or auxiliary paper feed roller 80 journalled in the upper ends of a pair of supporting arms 85 which are connected at their lower ends with the carriage by spring hinges 81. Roller 80 contacts the platen between the printing line and platen channel 16 when the platen is in normal locked position as shown in Figs. 1, 2 and 12.

A tearing off knife or blade 82 extends longitudinally of the platen with its rear shearing edge located just above the folding and feeding roller 80, said blade lying flatwise substantially at the level of the transverse portion of frame bar 19 in the outwardly projected position of the radially shiftable frame on the platen. This blade and a front horizontal cross-bar 83 of the carriage located forwardly of the blade serves to support the leading portion of the web and the carbons in the straightened out or flattened condition thereof and guide them during the folding back thereof to keep them clear of the type basket, ribbon spools and other usual working parts on the main frame of the machine forward of the platen. The shearing blade is secured on the upper ends of a pair of brackets 84 which are secured at their lower ends to the carriage, as shown.

A rear paper table 86, hinged on the carriage at 87 and resting on supports 88 on the carriage, extends forward from the rear of the main frame and slightly downward, terminating at its forward edge near the rear upper part of the platen approximately at the level of and slightly to the rear of the transverse horizontal portion of frame bar 19 of the radially shiftable frame on the platen, to guide the fanfold web from a transversely folded and stacked supply (or other form of supply such as a roll) of the continuous fanfolded web at the rear of the main frame of the machine to the top of the platen. A pair of side edge gauges 89 for the fanfold web are adjustably held to the top of paper table 86 by friction clamping stud and nut fastenings 90 and a similar pair of side edge gauges 91 for the web are similarly held by stud and nut fastenings 92 to the top of front cross-bar 83 of the carriage, the gauge fastening studs on each gauge bar passing through slots 93 and 94 in the table and cross-bar respectively, which extends transversely of the machine.

While a seven-ply fanfolded work web 95 is shown in the drawings, it will be obvious that the machine may be used to type webs of superposed disconnected plies. The carbon sheets 96 are folded over and sealed along one transverse edge to afford loops 97 of a size to conveniently slip over the carbon holding or anchoring bars. The loop 97 of each carbon sheet is cut away from each end at the transfer-material-carrying face of the sheet for a short distance to facilitate entering a carbon anchoring bar in the sheet loop, said cut outs 98 also serving to indicate the proper placing of the sheet on the bar. The carbons are cut out midway their free ends at 99.

The carbon sheets are slipped on the bars with their free ends extending toward the front of the machine and their transfer material carrying faces uppermost, and the plies of the fanfold or other work web are threaded through the frame 19—73 between the transverse frame bars with the impression receiving faces (or printed faces in the case of a web having a series of successive printed bill forms or other forms) down, the "original" ply being next to the platen and a carbon sheet extending from each bar between each two plies to the leading or front edge of the web, as shown in Fig. 12. It will be understood that the carbons may be threaded on the gangs of bars while detached and that bar 73 is swung to one side to initially place the carbons in the machine and facilitate the initial threading, and then the bar 73 is swung into place and locked. It is unnecessary to unlock the bar or handle the carbons again until either the carbons are worn out or the web supply is exhausted, or it is desired to thread a different web into the machine.

With the parts of the machine positioned as in Figs. 1, 2, 3 and 12 and the work web and carbon sheets threaded as above just described and extending substantially horizontally over the machine across the top of the platen, the leading portion, form, or printing area of the web is ready for positioning around the platen preparatory to typing thereon. The operator then grasps either finger wheel 18 and turns it backward or in the reverse direction from that in which it turns when the platen is rotated by the usual line spacing mechanism 3—4. The platen remains locked stationary until the radially shiftable frame is drawn into platen channel 16 to form a bight in the work and clamp it to the platen, whereupon the frame is locked in and the platen is unlocked and begins to turn backward as shown in Fig. 4. This turning of the platen is continued until the platen has been rotated through slightly more than one full revolution and automatically arrested in the position shown in Figs. 5 and 14. As the platen begins this backward rotation the forwardly extending interleaved form plies and carbons are drawn down by bar 73 behind roller 80 thus folding or doubling the same backward over the bar upon the next succeeding portion of the web which is drawn by the clamping frame around the platen next to the platen surface without interleaved carbon sheets, as shown in Fig. 13 until the web and platen are positioned as in Figs. 5 and 14 with the "original" ply outermost and the leading or free edges of the plies at the shearing knife above the printing line. The leading individual form portion or printing portion of the multiple ply web is thus introduced bottom first downward at the front of the platen, so that it is ready to be typed and line spaced forwardly in the same manner individual short sheets are commonly typed and line-spaced.

The first form or printing area is then typed and the platen turned in line-space direction step by step by the line space mechanism, and finally by the finger wheel if necessary after completing the required typing, until restored to normal position or the starting position of Figs. 1, 2, 3

and 12. The operator then grasps the leading or forward edge of the flattened web at the medial point where the carbon sheets are cut away at 99 and pulls the web forward or strips the web past the carbons until the first form is clear of the free ends of the carbons and the second form is interleaved with the carbons, as shown in Fig. 15. This stripping and re-interleaving is facilitated by the flat and loosely interleaved condition of the web plies and carbons due to the automatic outward projection of the carbon anchoring and web-clamping frame upon restoration of the platen to the position of Figs. 1, 2, 3 and 15. To position the second form for typing and the first or typed form for tearing off, the finger wheel is again turned backward until the platen is again arrested in Fig. 5 position when the rear or bottom edge of the typed form will be at the shearing edge of knife 82 and may be torn off, as indicated diagrammatically in Fig. 16 where the typed form is shown partly torn off and the next form shown positioned around the platen ready for typing.

By repeating one of the above described cycles two or more times without tearing off the leading portion of the web, successive areas of long forms or long lengths of a web may be typed.

What I claim is:

1. In a typewriting machine having a traveling platen carriage and types, the combination of a platen journalled on the carriage, and carbon-sheet holding and work-web clamping means rotatable with the platen and shiftable radially of the platen toward and from the platen axis to respectively lock a work web to the platen and release the web.

2. In a manifolding front strike typewriting machine having a platen carriage and typing means, the combination of a roller platen journalled on the carriage, a carbon sheet holding bar extending longitudinally of the platen and supported therefrom to turn therewith and for shifting of the bar radially of the platen, line spacing means for rotating the platen, a finger wheel for rotating the platen in the reverse direction, means for arresting rotation of the platen in both directions at two positions of maximum oscillation in both of which the holding bar is above the printing line and in passing from one to the other of which said bar crosses the printing line once only.

3. A typewriting machine as claimed in claim 2, wherein a frame mounted on the platen to shift radially of the platen supports a plurality of carbon holding bars each connected at one end only to said frame, the bars being spaced radially of the platen and extending inward from their points of connection alternately from opposite ends of the platen.

4. In a manifolding typewriting machine having a platen carriage and typing means, the combination of a platen journalled on the carriage and having a longitudinal channel therein, carbon sheet anchoring means, a frame supporting said anchoring means mounted to turn with the platen and to shift radially of the platen, work clamping means shiftable radially of the platen with said frame located outward beyond the carbon sheet anchoring means, said frame being movable from a position in which said anchoring means is drawn into the channel to a position in which said means is clear of the channel.

5. A typewriting machine as claimed in claim 4, wherein means are provided for limiting rotation of the platen in both directions to approximately one full turn from a position in which said frame supports the carbon sheet anchoring means and work-clamping means approximately at the top of the platen above the printing line.

6. A typewriting machine as claimed in claim 4, wherein line-spacing means are provided for rotating the platen in the usual line-spacing direction, a finger wheel is provided for retracting said frame and rotating the platen in the reverse direction, and means are provided for arresting rotation of the platen in line space direction with the anchoring and clamping means above the printing line and arresting reverse rotation of the platen after said means passes the printing line and before said means again registers with the printing line.

7. In a front strike manifolding typewriting machine, the combination with the platen carriage thereof of a platen oscillatable between fixed limits and having a longitudinal channel therein movable past the printing line and located above the printing line at both limits of rotation of the platen, and means rotatable with the platen and shiftable radially thereof for supporting one or more carbon sheets interleaved with work web plies and drawing the work web plies into the channel, said means and channel forming a web ply clamp for locking the plies to the platen with the carbon sheets and leading portions of the plies extending forward from the top of the platen.

8. A typewriting machine as claimed in claim 7, wherein line spacing means are provided for the platen and means are provided coactive with the platen above the printing line to fold the carbons and the leading portions of the web plies upward and back upon the following portions of the plies upon rotation of the platen in the direction opposite to the direction of line-spacing rotation.

9. In a front strike typewriting machine, the combination of a platen carriage, a pressure roller contactive with the platen above the printing line, line spacing means for the platen, a finger wheel for turning the platen in a direction opposite to the direction of line spacing rotation, means rotatable with the platen and shiftable radially thereof having a work web engaging portion to clamp to the platen behind a leading portion of the web a work web passed over the top of the platen, anchoring means for the rear ends of carbon sheets mounted on said radially shiftable means for holding the carbon sheets interleaved between the plies of a multi-ply web passed over the platen, said platen being oscillatable between fixed limits at both of which said carbon sheet anchoring means and the web-engaging portion of said clamping means are located above said pressure roller, the extent of oscillation of the platen being such that said anchoring means and web-engaging portion of the clamping means pass the printing line a substantial distance when the platen is reversely rotated by the finger wheel from one limit of its oscillation.

10. A typewriting machine as claimed in claim 9, wherein the radially shiftable means is spring urged outward and is connected with the finger-wheel for retraction by reverse rotation of the finger wheel.

11. A typewriting machine as claimed in claim 9, wherein the radially shiftable means is spring urged outward and is connected with the finger wheel for retraction by reverse rotation of the finger wheel; and wherein means are provided

for automatically locking the platen against reverse rotation when turned to the limit of oscillation in line spacing direction and automatically unlocking the platen upon retraction of said radially shiftable means.

12. A typewriting machine as claimed in claim 9, having a tear-off knife mounted on the carriage above and close to said pressure roller with its shearing edge adjacent the platen and extending longitudinally of the platen.

13. A typewriting machine as claimed in claim 9, wherein the carbon sheet anchoring means comprises two sets of anchor bars, the bars of each set being held to said radially shiftable means at one end only and adjacent one end of the platen, the bars of one set extending longitudinally of the platen from the left hand end of the platen toward the opposite end of the platen and those of the other set extending longitudinally of the platen from the right hand end of the platen and alternating with the bars of the first set radially of the platen, and wherein said work web engaging and clamping portion of the radially shiftable means comprises a hinged bar normally latched at its free end in parallelism with the platen and close to the outermost carbon sheet anchor bars, said platen having a longitudinal channel to and from a clamping position at the mouth of which said hinged bar is shiftable and into and out of which the carbon sheet anchoring bars are shiftable by radial movement of said radially shiftable means.

14. A typewriting machine as claimed in claim 9, wherein means are provided for automatically locking the platen against reverse rotation and shifting the radially movable means outwardly when the platen is turned to the limit of its oscillation in line-spacing direction and for first retracting said radially movable means and then unlocking the platen and reversely rotating it when the finger wheel is rotated in reverse direction, a paper table is provided on the carriage extending forwardly from the rear of the machine to a point close to the top of the platen at a point located in rear of said radially shiftable means and carbon sheet anchoring means in the locked position of the platen, and a paper supporting cross-bar is provided on the carriage substantially at the level of the top of the platen and above the type bars of the machine.

15. In a front strike typewriting machine, the combination of a rotative platen, line spacing means for rotating the platen in one direction, means for limiting rotation of said platen by the line spacing means, means for automatically locking the platen at said limit of rotation, manually operable means for first clamping between its ends a web passed over the top of the platen in said locked position and then unlocking and rotating the platen in the reverse direction, and means for folding the leading portion of said web upward and backward and directing the web fold-first downward and rearward about the platen upon reverse rotation of the platen from locked position.

16. A typewriting machine as claimed in claim 15, wherein said platen has a longitudinal channel, and said manually operable means comprises a web clamping member between which and the platen the web is adapted to be passed and also comprises anchoring means for the rear ends of carbon sheets interleaved with web ply portions extended forwardly of the clamping members in the locked position of the platen, said anchoring means moving into and out of said channel and said clamping member moving to and from a position close to the mouth of the channel.

17. A typewriting machine as claimed in claim 15, wherein said manually operable means comprises a finger wheel rotatable about the platen axis, a U-shaped frame member having a transverse portion parallel with the platen axis and end portions perpendicular to the platen axis guided on the platen adjacent to the ends of the platen to move radially of the platen, a web clamping member hinged to said U-shaped member at one end and latched thereto at its opposite end parallel with the platen axis and spaced radially outward from the transverse portion of the U-shaped member, and wherein said platen has a longitudinal channel into and out of which the said transverse portion of the U-shaped member is shiftable and means are supported from one of the members between said transverse portion of the U-shaped member and the web-clamping member for anchoring carbon sheets at one end with their anchored ends located at different distances from the platen axis.

18. In a typewriting machine, the combination of a rotatable platen, a line space-ratchet wheel, a handle operated line spacing pawl for rotating the ratchet wheel in line spacing direction, a finger wheel for reversely rotating the platen, a detent coactive with the ratchet wheel to prevent accidental rotation thereof, and means for automatically disengaging and locking the detent from the wheel when the platen is rotated in line spacing direction a predetermined extent and effecting re-engagement of said detent with said wheel when the platen is reversely rotated a predetermined extent.

19. In a typewriting machine having a platen, pawl and ratchet line spacing means for rotating the platen in one direction, a finger wheel for reversely rotating the platen, and a yieldable detent normally coactive with the ratchet, the combination of means for positively limiting the extent of rotation of the platen in both directions, and means controlled by rotation of the platen for disengaging and locking out the detent as the platen reaches its limit of rotation in line-space direction and releasing the detent as the platen reaches its opposite limit of rotation.

20. In a continuous manifolding typewriting machine, the combination of a platen having a channel therein extending transversely of the direction of travel of work plies through the machine, means mounted on the platen to extend both over and under a set of superposed work plies to be typed, said means being connected with the platen for shifting movement relatively to the platen to carry such plies into and out of said platen channel at a point intermediate their ends, and means carried by said first-mentioned means for anchoring carbon sheets in interleaved relation with a set of superposed work plies threaded through the first-mentioned means.

21. In a continuous manifolding typewriting machine, the combination of a platen having a channel extending transversely of the path of travel of work plies through the machine, a plurality of carbon sheet anchor bars, a support for said plurality of anchor bars shiftably mounted on the platen to carry said bars bodily from positions in which all said bars are located wholly within the confines of said platen channel to po-

sitions in which all said bars are wholly displaced from within said channel, and work ply clamping means shiftable with said support and anchor bars for engagement over the outermost ply of a plurality of superposed work plies extending across the platen channel with the anchor bars extending between successive ones of said plies.

22. In a continuous manifolding typewriting machine, the combination of typing means, a platen carriage, a platen roller journalled on the carriage for co-action of said typing means therewith, means shiftably mounted on the platen to clamp a set of superposed work web plies to the platen intermediate their ends and unclamp said plies, and a carbon pack support shiftable with said shiftably mounted means.

23. A continuous manifolding typewriting machine, comprising typing means, a platen carriage, a platen roller journalled on the carriage for coaction of said typing means with said platen roller, said platen having a longitudinal channel therein, and a pair of spaced members extending longitudinally of the platen roller for passage therebetween of a set of superposed work web plies, said members being connected with the platen to partake bodily of rotary movements of the platen and also shift as a unit relatively to the platen for forcing such superposed work web plies into and out of the platen channel intermediate the ends of the plies, one of said members being provided with means for anchoring one end of a carbon pack thereto.

24. In a continuous manifolding typewriting machine, the combination of a platen carriage, a roller platen journalled on the carriage, a carbon pack anchorage device mounted on the platen to rotate therewith, a member mounted on said device to extend longitudinally of the platen and engage over the outermost one of a plurality of work web plies with which the carbon sheets of a carbon pack anchored to said anchoring means are interleaved, and means mounted on the carriage to coact with said member to fold the superposed web plies back upon themselves when the platen is rotated in reverse line spacing direction.

25. In a continuous manifolding machine having a rotatably mounted roller platen, the combination with said platen of means for confining rotation thereof in both directions around its axis to an extent substantially less than two revolutions, and a device mounted on the platen to rotate therewith, said device being shiftable transversely of the platen and provided with means for holding a plurality of carbon sheet anchor bars substantially parallel with the platen to shift transversely of the platen with said device, said platen having a longitudinal channel for receiving anchor bars held by said device at one limit of the transverse shifting movement of said device relatively to the platen, said device including means for receiving therebetween a plurality of superposed work web plies passed across the platen and shifting said plies intermediate their ends into and out of said platen channel.

26. In a front strike continuous manifolding typewriting machine, the combination of a platen carriage, a roller platen journalled on the carriage and having a longitudinal channel, a device mounted on the platen to rotate therewith, said device being provided with means for holding a plurality of carbon sheet anchor bars parallel with the platen and being shiftable transversely of the platen to carry said bars into and out of the platen channel, said device including means for receiving therebetween a plurality of superposed work web plies passed across the platen and coactive with said channel to clamp and unclamp such superposed plies at opposite limits of the transverse shifting movement of said device relatively to the platen, means for arresting rotation of the platen in both directions around its axis with the platen channel facing upwardly, and means on the carriage at the front of the platen for folding backwardly over said device, upon turning of the platen in reverse line spacing direction, the leading portion of a set of superposed work plies passed over the platen between said work ply receiving means of the device and clamped in the platen channel.

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