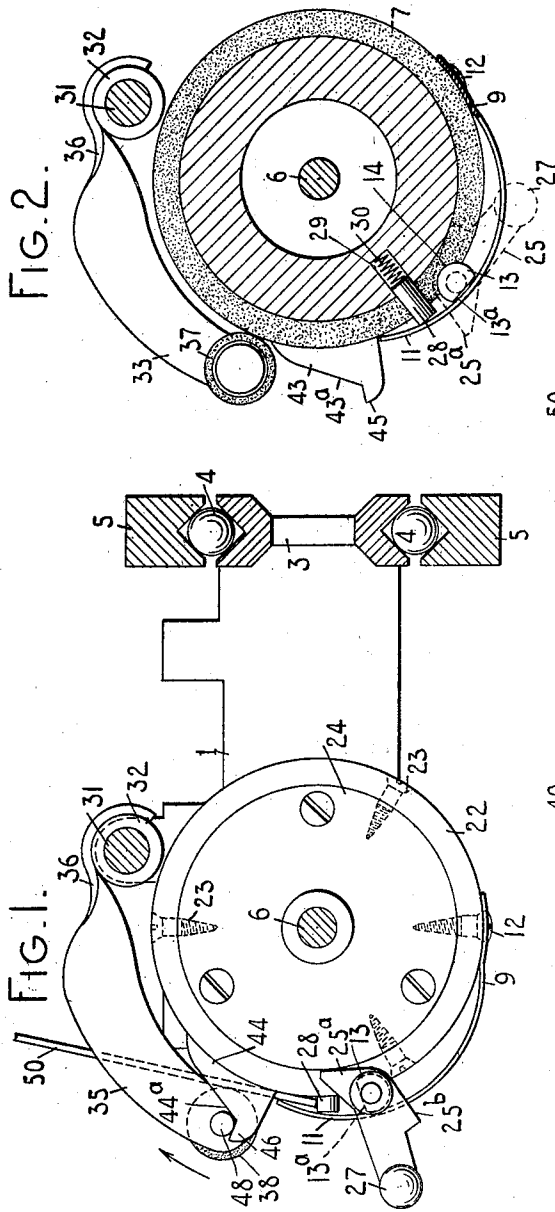


Patented Mar. 12, 1912.

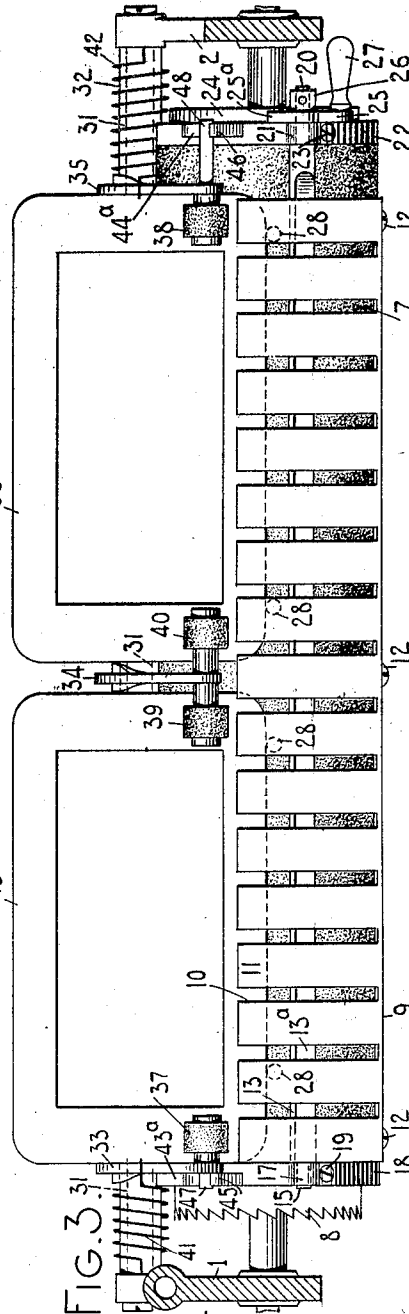
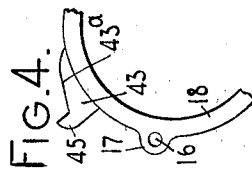
2 SHEETS—SHEET 1.

1,020,227.



WITNESSES:

E. M. Wells.
M. W. Pool



INVENTOR:

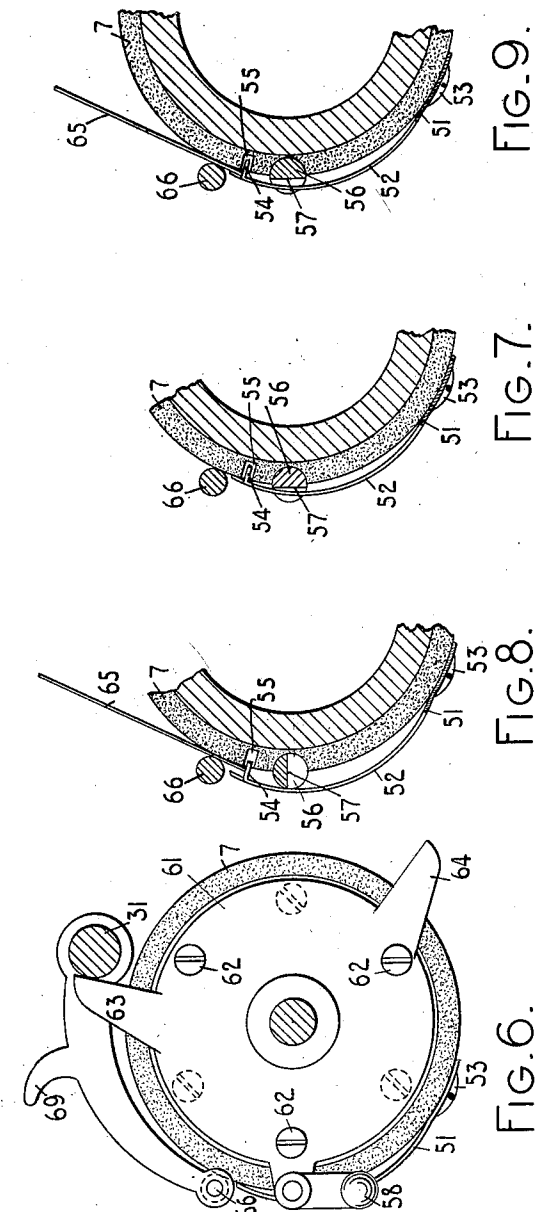
H. H. Steele

By Jacob F. Felt

HIS ATTORNEY

1,020,227.

Patented Mar. 12, 1912.
2 SHEETS—SHEET 2.



WITNESSES:

E. M. Wells.
m.w. Pool

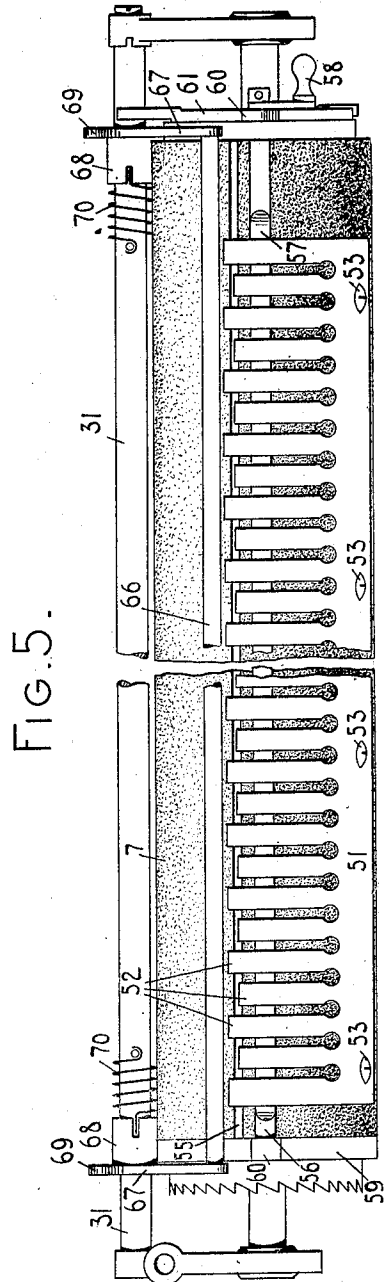


FIG. 5.

INVENTOR:

Herbert H. Steele
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HIS ATTORNEY

UNITED STATES PATENT OFFICE.

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

TYPE-WRITING MACHINE.

1,020,227.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed October 30, 1911. Serial No. 657,439

To all whom it may concern:

Be it known that I, HERBERT H. STEELE, citizen of the United States, and resident of Marcellus, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to paper controlling mechanism for typewriting machines and its general object is to provide improved paper clamping, paper feeding and paper stop devices which are especially adapted for use in connection with heavy or thick work sheets, such as stencil sheets.

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

Several forms of my invention are illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation, partly in section, of the carriage of a Monarch typewriting machine embodying my invention. Fig. 2 is a transverse sectional view taken through the platen of Fig. 1, some parts shown in Fig. 1 being omitted and other parts being in different relationships. Fig. 3 is a fragmentary front elevation, partly in section, of the form of my invention illustrated in Fig. 1, some parts being shown in different relationships. Fig. 4 is a fragmentary, detail view, showing in side elevation a part hereinafter referred to as a bearing ring or support. Fig. 5 is a fragmentary front elevation of a modification applied to the carriage of a Monarch typewriter. Fig. 6 is a side elevation, partly in section, of the form of the invention shown in Fig. 5. Fig. 7 is a fragmentary transverse sectional view, taken through the platen of Fig. 6. Figs. 8 and 9 are operating views corresponding to Fig. 7.

Referring first to the form of the invention shown in Figs. 1-4, the platen frame or carrier comprises end bars 1 and 2 and a connecting rear or slide bar 3 which co-operates through anti-friction balls 4 with fixed trackways 5. An axle 6, journaled in the end bars, carries a rotary platen 7 and connected to the left-hand end of which is a line spacing ratchet wheel 8. The line

spacing pawl and lever which coöperate with said ratchet wheel for rotating the platen are omitted from the drawings, as are also the usual finger wheels on the ends of the axle 6, but these or other suitable devices for turning the platen may be provided.

My novel paper clamping devices comprise a plate 9 made preferably from sheet metal, said plate being curved to fit over the surface of the platen and extending partly around the same and substantially throughout the length of the platen. The clamping plate is cut out at intervals transversely, as indicated at 10, thus providing a series of parallel spring tongues or fingers 11 which extend transversely of the platen and normally engage with the surface thereof. The body portion of the plate from which the fingers 11 spring is secured to the surface of the platen, as by screws 12. When the plate is thus secured in place the inherent spring in the tongues 11 is such that they will normally coöperate with the platen surface with a sufficient pressure to securely clamp or hold thereagainst the work sheet, even if the latter be of a heavy material like a stencil sheet. It is of course necessary to move the clamping tongues 11 away from the platen to permit of a work sheet being inserted in a position to be clamped, and for this purpose I provide devices comprising a rod or rock shaft 13, said rod being arranged between the platen and the spring tongues some distance below the free ends of the latter and extending transversely of said tongues and longitudinally of the platen, being seated in a groove 14 in the platen sheath. The left-hand portion of the rod 13 is reduced, as indicated at 15, and the reduced portion is journaled in a bearing opening 16 formed as shown in Fig. 4 in a lug 17 on an annulus 18 which is fitted to the left-hand end of the platen, the sheath thereof being cut away for the purpose, and the annulus being secured in place by screws 19 which enter the platen core. The right-hand end portion of the rod 13 is reduced, as indicated at 20, the reduced portion bearing in a lug 21 on an annulus 22 fitted to and over the right-hand platen head and secured thereto by screws 23. The annulus 22 is shown separate from the right-hand platen

head 24 but if preferred of course may be made of a single piece. The reduced ends of the rod 13 provide shoulders which prevent endwise displacement of said rod. The reduced portion 20 projects beyond the bearing 21 and has secured to it a crank arm 25, said crank arm being provided with a hub 26 which is pinned to the portion 20, the other end of the crank arm carrying a finger piece or handle 27.

A nose or extension 25^a projects from the crank arm and is adapted to cooperate with the periphery of the platen head 24 to arrest the rod 13 in operated position (Fig. 1) while an engaging device 25^b at the opposite side of the axis of the rod cooperates with the platen head 24 to limit movement of the rod in the opposite direction, (see dotted lines in Fig. 2). The rod 13 is cut away or flattened at one side, as indicated at 13^a, and the flat face is turned outward normally to face the tongues 11, as indicated in Figs. 2 and 3, the tongues at this time engaging with the platen or the work sheet thereon because of their inherent spring tension. When the rod 13 is turned or rotated to the position shown in Fig. 1, which may be done by swinging the finger piece 27 forward from the dotted line position of Fig. 2 to the full line position in Fig. 1, the curved or eccentric-like portion of the surface of the rod will engage with the tongues 19, and being further from the axis than is the flat surface 13^a, will force the tongues outward from the platen surface, thus opening the clamp so as to adapt it to the work sheets.

Stop devices are provided to engage with the work sheet or sheets as it is entered into the clamp, said stop devices limiting the extent to which the work sheet is engaged by the clamp and also definitely positioning and alining the work sheet circumferentially of the platen. In the present instance the stop devices are shown separate from the tongues 11, said stop devices comprising short pins 28 which, as shown in Fig. 2, are seated in radial openings 29 in the platen and are constantly pressed radially outward by coiled springs 30 which are arranged in the openings 29 behind the pins. Any desired number of stop devices 28 may be provided, four being herein shown arranged in pairs, one pair at one end of the platen and one at the other, each of the stop devices underlying one of the tongues 11. The tension of these tongues normally overcomes the springs 30 but when the clamp is opened, as in Fig. 1, the springs 30 will force the stops outward, maintaining them constantly in contact with the under faces of the tongues so that the entering work sheet cannot pass below the stop pins 28 but will be arrested and positioned thereby.

While the novel clamping devices above described may be employed alone, I prefer, nevertheless, to associate with them novel feeding devices which cooperate with the side margins of the work sheets and these marginal feeding devices will now be described.

Extending lengthwise of the platen and above the same is a rod 31 which is secured at its ends to the end bars 1 and 2 of the platen carriage. Loosely mounted on the rod 31 is a long sleeve 32 and projecting forward and downward over the platen from said sleeve are arms 33, 34 and 35, said arms at their rear ends being turned or twisted, as shown at 36, the twisted portions being suitably secured, as by soldering, to the sleeve 32. The arms 33 and 35 are arranged near the ends of the platen and each carries at its free end an inwardly projecting or laterally off-set pressure roll 37 and 38 of ordinary construction. The arm 34 is secured to the sleeve 32 midway between the arms 33 and 35 and said arm carries at its free end two pressure rolls 39 and 40, the pressure roll 39 being off-set leftward from the arm 34 and in alinement with the roll 37, while the roll 40 is off-set rightward from the arm 34 and in alinement with the roll 38. Springs 41 and 42 coiled around the sleeve 32 near its ends operate to press the sets of pressure rolls constantly toward the platen. The outer ends of these springs 41 and 42 are secured to the end bars of the platen while their inner ends respectively engage with the arms 33 and 35 and press these arms toward the platen, this pressure being transmitted to the sleeve through the central arm 34.

Springs 41 and 42 are overcome and the pressure rolls are released by means which are preferably automatic and controlled by the platen during its rotative movements. The releasing devices comprise cam plates 43 and 44 which preferably are formed integrally with the annular end pieces 18 and 22 and project outward from the periphery thereof, said cam plates terminating at their lower ends in stops 45 and 46. The inclined or cam face 43^a of the cam plate 43 is adapted to co-act with a pin 47 projecting laterally outward from the arm 33, the pin 47 preferably being an extension of the bearing of the roller 37. Said pin 47 is also adapted to engage with the stop projection 45 to assist in arresting the platen. At the opposite end of the platen a lateral pin 48 projects from the arm 35 in position to cooperate with the cam edge 44^a of the cam plate 44 and also with the stop projection 46.

It will be understood that when the platen is turned forward or in the direction of the arrow at Fig. 1, the cam faces 43^a and 44^a will engage respectively with the pins 47 and 48 and will force the pressure roll sup-

porting frame, comprising the sleeve 32 and the arms 33, 34 and 35, to swing upward against the springs 41 and 42. This swinging movement will carry the pressure rolls away from the platen and when the platen is arrested by the stops 45 and 46 engaging the pins 47 and 48, the rolls will be in the released positions illustrated in Fig. 1. The clamping plate 9, 11 is preferably so arranged with respect to the arresting devices 45, 46, 47 and 48 that when the platen is arrested as described, the clamp, when opened, will be in proper position to receive a work sheet inserted at the front of the machine. Accordingly after the release of the pressure rolls and the arrest of the platen the finger piece 27 is pulled forward to the Fig. 1 position, thus opening the clamp and causing the stop pins 28 to be projected. The parts will now be in position to receive the work sheets which, as shown in the present instance, are stencil sheets or cards 49 and 50. These stencil cards are entered in the machine side by side, being passed down at the front of the platen and between the same and the pressure rolls. As shown in Fig. 3, the side margins of the stencil card 49 will be in register with the left-hand pair of marginal pressure rolls 37 and 39, while the side margins of the right-hand stencil card 50 will be in register with the right-hand pair of marginal pressure rolls 40 and 38. The arms 33 and 35 may be employed as side edge guides to properly aline the stencil cards lengthwise of the platen, the outer edge of the left-hand card 49 engaging the inner face of the arm 33 while the outer edge of the card 50 engages the inner face of the arm 35. The stencil cards are pushed downward until arrested by the end stops 28, the left-hand pair of stops co-acting with the card 49 and the right-hand pair of stops with the card 50, as shown. The parts are related so that when thus arrested the lower edge portions of the cards 49 and 50 will be opposite the free or clamping ends of the spring tongues 11 so that if now the finger piece 27 be pushed rearward from the Fig. 1 to the Fig. 2 position, the tongues 11 will engage the cards, clamping them to the platen. The platen may now be turned rearward and the stencil cards fed or retracted rearward until they are brought into a position to receive the first line of writing, the writing of course taking place at the front of the platen and the printing line being below the line of the pressure rolls. During the retraction of the cards as described, the cam plates 43 and 44 will release the pressure rolls and permit the springs 41 and 42 to force said rolls into cooperation with the side margins of the stencil cards. The margin feed rolls will assist in the feeding of the stencil cards, both backward and forward, and will also hold said cards closely to the platen at their side margins above the printing line, thus assisting to obtain a good impression from the stencil types. After the first lines of the stencils have been written the platen may be turned forward to position the cards for receiving the second and subsequent lines and during this forward feeding the cards will be maintained in clamped relationship with the platen and will be advanced without slipping or displacement, owing to the fact that they are engaged and controlled along their lower edges by the clamping fingers 11 and stops 28 and along their side edges by the margin pressure rolls. While two stencil cards have been shown associated with means for feeding and controlling them, it will of course be understood that one long sheet may instead be handled and controlled by dispensing with the central margin rolls 39 and 40. Also it will be understood that various changes may be made in the construction of the clamping mechanism, as well as in the devices associated therewith. For example, in Figs. 5 to 9, I have illustrated another form of clamping and stop mechanism and this modified mechanism is shown associated with a pressure bail which replaces the margin pressure rolls of the first construction. The modified clamping plate 51 is formed with integral spring tongues 52 and is secured to the face of the platen along the edge of the body of said clamping plate by screws 53. Alternate tongues are bent inward toward the platen at their free ends as indicated at 54, thus providing leading edge stops, which alternate with the straight unbent tongues, the latter serving as clamps. The platen is formed with a longitudinally extending slot 55 which is cut in the sheath thereof and in which the stop ends 54 are adapted to be housed (Fig. 7). Thus is provided a combined clamping and stop plate which is mounted on the platen and which is adapted to be controlled, as in the prior construction, by a cam rod 56, the same having a flat face 57 and being operative by a handle or finger piece 58. The rod 56 is journaled at its left-hand end in an annulus 59 suitably secured to the platen end, and at its right-hand end bears in a lug 60 on a circular plate 61 which is secured by screws 62 to the outer face of the right-hand platen head. The plate 61 is provided with radial extensions or stops 63 and 64 which are adapted to co-operate with the platen frame rod 31. When the stop 63 engages the rod 31, as shown in Fig. 6, the platen is arrested in such position that the clamping and stop plate 61 is at the forward side of the platen, as shown in Fig. 6, so that if the finger piece 58 be pulled forward the clamp will be open, as shown in Fig. 8, so that a card 65, or other work sheet, may be inserted behind the

clamping fingers and alined against the stops 54, after which the finger piece 58 may be pushed rearward, closing the clamp and gripping the card, as shown in Fig. 9.

- 5 Associated with the clamp 51 is a pressure device or spring bail like that disclosed in my prior application Sr. No. 530,394, filed November 29th, 1909, which application also discloses a plate-like member corresponding to the number 61 above described. This pressure device comprises a rod 66 extending lengthwise of the platen and above the printing line and secured at its ends to arms 67 provided with hubs 68 and finger pieces 69, the hubs bearing on the rod 31 and being connected with springs 70 coiled around the rod 31 and secured thereto at their inner ends, said springs tending to maintain the pressure bail in co-
 20 operation with the platen or the work sheet thereon, which of course is entered behind the rod 66, as shown in Figs. 8 and 9. After the card 65 is clamped, as shown in Fig. 9, the platen is turned backward and the card
 25 retracted until the platen is arrested by the engagement of the stop 64 with the underside of the rod 31, at which time the card 65 will be in position for receiving the first line of writing.
- 30 Various other changes may be made without departing from the spirit of my invention.

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

- 35 1. In a typewriting machine, the combination of a platen, paper stops, spring clamping tongues secured on the outer surface of the platen, and a camming shaft arranged in a space between the tongues and platen and
 40 operative to control the tongues.
2. In a front strike typewriting machine, the combination of a platen, a platen frame, paper stops, spring clamping tongues secured on the outer surface of the platen, a
 45 camming shaft arranged in a space between the tongues and platen and operative to control the tongues, and pressure devices on the platen frame coöperating with the work sheet above the clamping tongues.
- 50 3. In a typewriting machine, the combination of a platen, a clamping plate mounted thereon and comprising a plurality of spring tongues integral with said plate, and hand operated means for moving said
 55 tongues away from the platen.
4. In a typewriting machine, the combination of a platen, a clamping device mounted thereon comprising a plurality of spring tongues coöperative with the platen, said
 60 tongues extending transversely of the platen, and a hand controlled cam arranged independently of movement of the platen to move said tongues relatively to the platen.
- 65 5. In a typewriting machine, the combi-

nation of a platen, a clamping device mounted thereon comprising a plurality of spring tongues coöperative with the platen, said tongues being disposed in parallelism transversely of the platen, a cam rod arranged between the platen and said tongues and extending lengthwise of the platen, and means for turning said cam rod.

6. In a typewriting machine, the combination of a platen, a clamping device mounted thereon comprising a plurality of spring tongues coöperative with the platen, said tongues being disposed in parallelism transversely of the platen, a cam rod seated in a depression in the platen, and a finger piece exterior of the platen for turning said cam rod to move said tongues away from the platen.

7. In a typewriting machine, the combination of a platen, paper stops, a clamping plate comprising a body portion from which extend transversely of the platen a series of parallel spring clamping tongues, means for securing the body portion of said plate to the surface of the platen longitudinally thereof, and hand controlled means arranged between the platen and the clamping tongues and operative at will to move the tongues away from the surface of the platen and against their inherent spring.

8. In a typewriting machine, the combination of a platen, spring clamping tongues secured on the outer surface of the platen, a hand controlled device operative to cam said tongues away from the platen, and paper stops coöperating with openings in the platen and controlled by certain only of said spring tongues, said stops being independent of the remaining spring tongues.

9. In a typewriting machine, the combination of a platen carrier, a platen thereon mounted to rotate in fixed bearings on said platen carrier, a feed roller coöperative with the platen, and means operative automatically during movements of the platen to move said feed roller bodily away from the platen surface and bodily toward and into coöperative engagement with the platen surface.

10. In a typewriting machine, the combination of a platen carrier, a platen thereon mounted to rotate in fixed bearings on said platen carrier, a pivotally mounted feed roller adapted to coöperate therewith, and means operative automatically during rotary movements of the platen about its axis as a center to swing said feed roller into and out of coöperative engagement with the platen.

11. In a typewriting machine, the combination of a platen frame, a rotary platen thereon mounted to turn in fixed bearings on said platen frame, a feed roller pivotally supported on said platen frame, and means controlled by the platen during rotary

movements thereof about its axis as a center to swing said feed roller out of and into coöperative engagement with the platen.

12. In a typewriting machine, the combination of a platen frame, a rotary platen thereon, a feed roller pivotally supported on the platen frame, a spring normally maintaining said feed roller in coöperative engagement with the platen, and means on the platen operative to release said feed roller during rotary movements of the platen.

13. In a typewriting machine, the combination of a platen frame, a rotary platen thereon, a feed roller pivotally supported on the platen frame, a spring normally maintaining said feed roller in coöperative engagement with the platen, and a cam mounted on the platen for releasing said feed roller.

14. In a typewriting machine, the combination of a platen frame, a rotary platen thereon, a feed roller pivotally supported on the platen frame, a spring normally maintaining said feed roller in coöperative engagement with the platen, and a releasing device for the feed roller operative automatically thereon at a predetermined point in the rotation of the platen to swing said feed roller away from the platen to inoperative position.

15. In a typewriting machine, the combination of a platen frame, a rotary platen thereon, a spring pressed feed roller pivotally supported on the platen frame, means on the platen operative to release said feed roller during rotary movements of the platen, and stop devices for arresting the platen after the feed roller has been released.

16. In a typewriting machine, the combination of a platen frame, a rotary platen

thereon, a feed roller supporting frame pivoted on the platen frame, a feed roller on said supporting frame, a spring normally maintaining said feed roller in coöperation with the platen, a cam on the platen operative to release said feed roller when the platen is turned in one direction, a stop on the platen, and a coöperating stop on the feed roller supporting frame, said stops arresting the rotation of the platen after the feed roller has been released.

17. In a typewriting machine, the combination of a platen frame, a platen thereon, a rod on the platen frame extending lengthwise of the platen, a sleeve surrounding said rod, arms secured to said sleeve near each end of the platen, a central arm, single margin feed rolls mounted on said first named arms, and a pair of margin feed rolls mounted on said central arm and off-set oppositely therefrom.

18. In a front strike typewriting machine, the combination of a platen frame, a platen thereon, a rod on the platen frame extending lengthwise of the platen, a sleeve surrounding said rod, arms secured to said sleeve near each end of the platen carrying single feed rolls, a central arm carrying a double margin feed roll, means on the platen for automatically releasing said feed rolls, and a clamping device supported on the platen and coöperative with the bottom edges of inserted sheets, said rolls coöperating with the side edges of said sheets.

Signed at Syracuse, in the county of Onondaga, and State of New York, this 24th day of October, A. D. 1911.

HERBERT H. STEELE.

Witnesses:

G. B. BRAND,
FRANK MEIER.