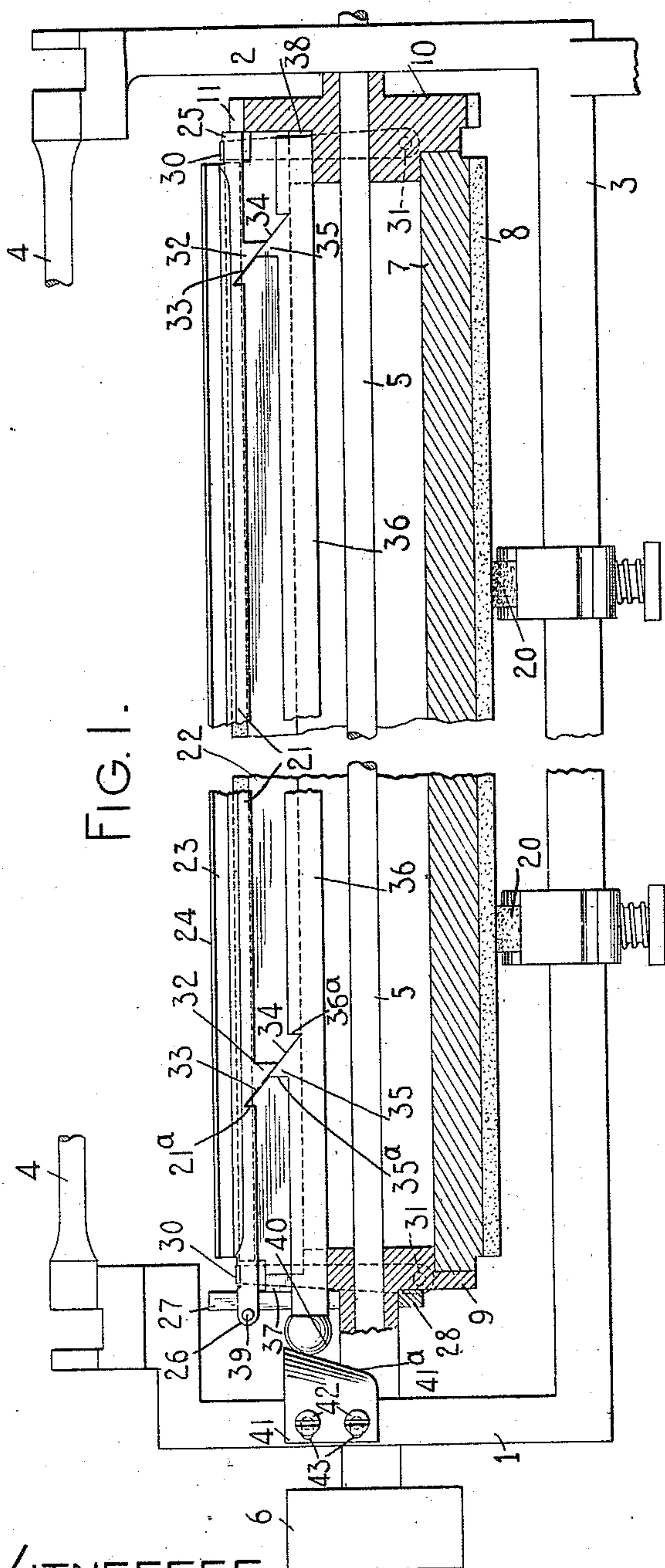


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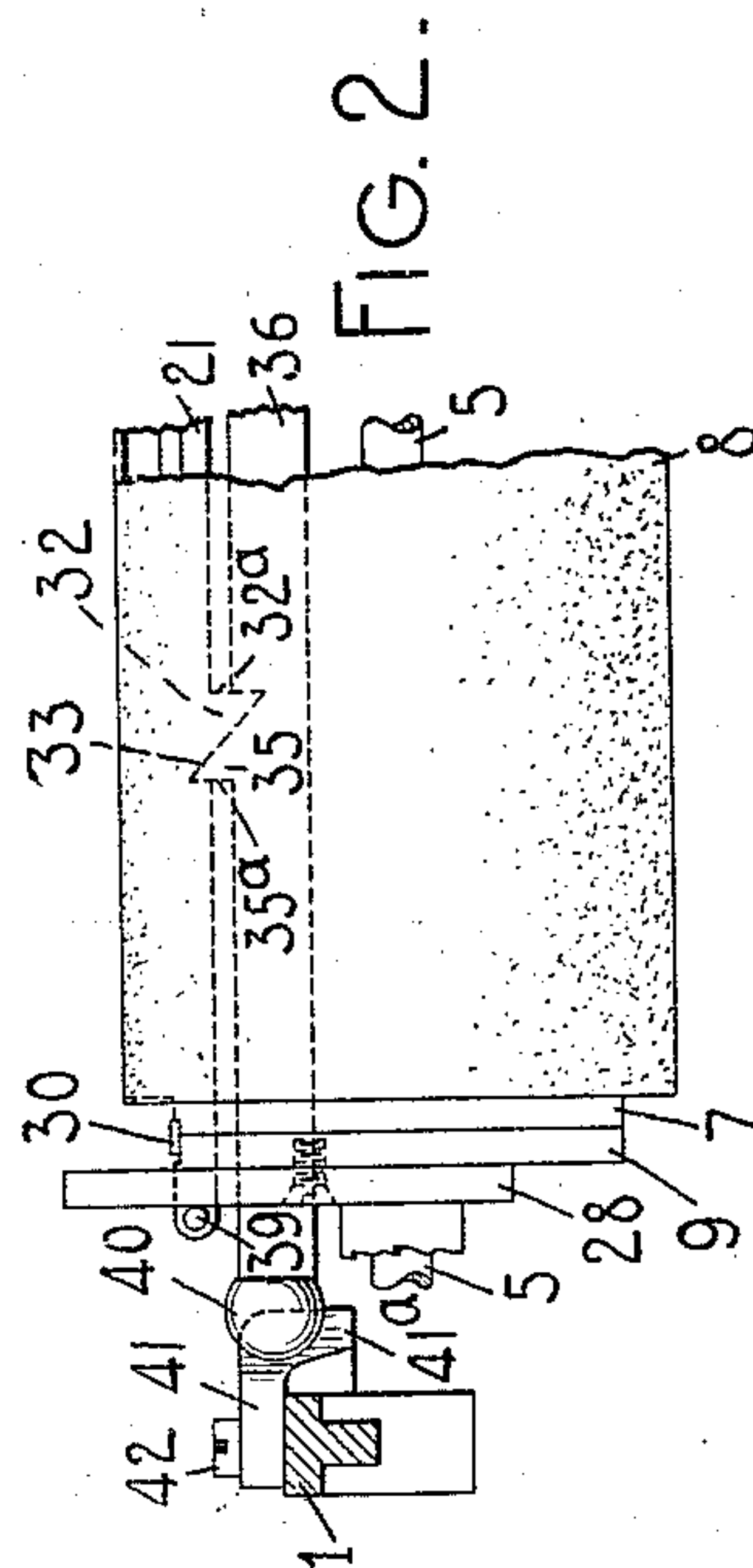
2 SHEETS—SHEET 1.



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WITNESSES:

J. B. Reeves.
M. W. Paul



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INVENTOR:

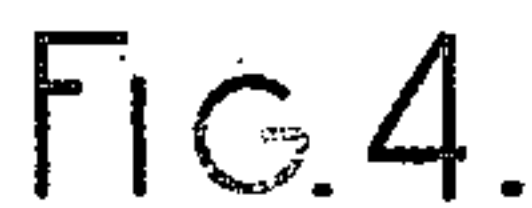
Chas B. Yaw

By Jacob Feld

HIS ATTORNEY

995,514.

2 SHEETS—SHEET 2.



J. B. Reeves
Mrs. Pool

Bliss B. Yaw
By James Falbot
HIS ATTORNEY

UNITED STATES PATENT OFFICE.

CLIO B. YAW, OF ARLINGTON, NEW JERSEY, ASSIGNOR TO REMINGTON TYPEWRITER COMPANY, OF ILION, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

995,514.

Specification of Letters Patent. Patented June 20, 1911.

Application filed June 5, 1908. Serial No. 436,939.

To all whom it may concern:

Be it known that I, CLIO B. YAW, citizen of the United States, and resident of Arlington, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to paper feeding mechanism for typewriting machines and especially to an automatic clamping device which is particularly adapted to clamp or grip cards or stiff paper or work sheets.

Various automatic card clamping devices heretofore constructed have been designed for use with cards which were shorter in length than the distance around the circumference of the platen, the clamps being so designed that they projected from the face of the platen and did not therefore provide a proper backing for a work sheet or card which was long enough to extend over or cover said clamps.

In the present instance I have designed a card clamp which is especially suited to cards or work sheets which are so long that it is necessary to turn the platen through more than a complete revolution in order to write on said cards throughout their lengths. The clamp is arranged in a radial opening extending lengthwise through the platen and the top of the clamp is adapted to conform, in what may be termed normal position, to the surface of the platen, so that at that time the entire surface of the platen is unbroken and uniform. The clamp is adapted to be moved radially outward through the opening in the platen and is provided with a slot which receives an edge of the card, whereupon the clamp or clamping device is retracted, thus clamping the card. These movements of the clamp take place as the platen is being rotated. The card being clamped to the platen is fed forward or line spaced and written upon in the usual way until a predetermined position is reached where the clamp is automatically actuated and releases the clamped edge of the card; after which, during subsequent line feeding operations, the clamp is retracted again so that its top registers with the surface of the platen and provides a suitable backing for the lower or bottom portion of the card during the writing thereof.

The object then of the invention may be stated to be to provide an automatic clamping device which is particularly adapted for use with long cards or work sheets.

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

The invention is shown as applied to the platen of a Remington typewriting machine but its nature is such that it may be adapted to other styles of writing machine.

In the accompanying drawings, Figure 1 is a horizontal, sectional view, taken centrally of the platen of a Remington typewriting machine having my invention applied thereto, part of the platen frame or carrier also being shown. Fig. 2 is a fragmentary front elevation of the left-hand end portion of the platen, the platen frame or carrier being shown in section. Fig. 3 is a sectional view taken transversely of the platen carrier. Fig. 4 is a transverse sectional view of the platen showing the clamp in clamping position. Fig. 5 is an end view of the platen, the platen finger wheel being sectioned away. Fig. 6 is a transverse sectional view of the platen showing the parts in different relations from those in which they appear in Fig. 4.

Referring first to Figs. 1, 2 and 3, the platen frame is shown as comprising end bars 1 and 2, a front bar 3 and a rear bar 4. The end bars provide bearings for an axle or shaft 5 having finger wheels 6, one finger wheel only being shown. The axle carries a platen comprising a wooden core 7 and a sheath or cover 8 of rubber or the like. Connected with the platen in the usual or in any other suitable way are metal platen heads 9 and 10, the platen head 10 being provided with suitable ratchet teeth 11 which coöperate with a line spacing pawl 12, when the latter is operated in the usual manner, to turn or rotate the platen in line spacing direction. A detent 13, carried on a spring arm 14, secured by a screw 15 to the platen frame, coöperates with the ratchet teeth 11 to maintain the platen in one or another of its line spacing positions. Arms 16, pivoted to the platen frame, carry a main feed roller 17, the sections whereof coöperate with the platen through open-

ings in a paper apron or scale plate 18 pivoted on a rod 19 secured at its ends to the end bars 1 and 2. The usual or suitable feed rolls 20 are provided at the front of the platen at the opposite side of the printing point from the main feed roller 17, the printing point being on the bottom face of the platen directly beneath the axle.

The clamping devices comprise a clamp proper or clamping bar 21 arranged in a kerf or radial opening 22 extending lengthwise of the platen. The clamping bar is provided with a longitudinal card-receiving slot 23, forming at the top of the bar a clamping lip 24. The clamping bar has end portions 25 and 26 projecting beyond the ends of the platen, the end portion 25 abutting against the platen head 10 and the end portion 26 being received in a radial slot or guide-way 27 formed in a guide plate 28 secured by screws 29 to the platen head 9 (Figs. 1, 2 and 5). The guide plate 28 is formed with a round hole which enables it to be fitted over the outwardly projecting hub of the platen head. The end portions 25 and 26 are notched to receive the free ends of band springs 30, said band springs curving partially around the platen heads and being secured thereto by headed screws 31. Near its ends the clamping bar 21 is provided with projections 32 extending inward toward the center of the platen and formed with inclined or cam edges 33. The springs 30 tend constantly to press the clamping bar radially inward and maintain the cam edges 33 in contact with corresponding cam or inclined edges 34 formed on projections 35 extending radially outward from an actuating member or cam bar 36. Said cam bar is arranged between the clamp and the center of the platen and is seated in radial slots 37 and 38 formed respectively in the platen heads 9 and 10, the slot 37 registering with the slot 27 in the guide plate 28. The projection 26 on the clamping bar receives a cross pin 39 which is adapted to cooperate with the outer face of the guide plate 28 to prevent endwise motion of the clamping bar when it is actuated. Said clamping bar is adapted to be automatically actuated by the cam bar 36 during rotary movements of the platen. The automatic actuation is caused by the co-operation of a ball-like or spherical end 40 fixed to the left-hand end of the bar 36 outside the guide plate 28, said ball-like end cooperating with a cam plate 41 secured by screws 42 to the left-hand end bar 1 of the platen frame. The stems of the screws 42 pass through slots 43 in the cam plate 41 and enter in tapped holes in the end bar 1. On loosening the screws the slots 43 permit the cam plate 41 to be adjusted so that it will cooperate properly with the ball end 40. Normally the springs 30 maintain the

clamp 21 and cam bar 36 in the relation shown in Fig. 2. From an examination of this figure it will be noted that the cam or inclined edges 33 and 34 on the projections 32 and 35 are in engagement throughout their lengths and that the straight or vertical faces 32^a and 35^a respectively of said projections are in engagement with stop faces 21^a and 36² formed respectively on the clamp 21 and cam bar 36. These stop faces are most clearly shown in Fig. 1. When the platen is rotated in line spacing direction the ball-end 40 is brought into engagement with the inner cam edge 41^a of the plate 41 and is gradually forced inward thereby against the tension of the springs 30. The movement of the ball-end 40 effects a longitudinal movement of the cam bar 36 lengthwise of the platen, causing the edges 34 thereon to act against the corresponding edges 33 of the clamp 21. Said clamp is prevented from longitudinal movement at this time by the engagement of the cross pin 39 with the outer face of the guide plate 27. Consequently said clamp is forced radially outward through the opening 22 against the tension of the springs 30 by the co-action of the faces 34 and 33. The outward movement of the clamp projects the lip 24 outside the platen and brings the slot 23 out into position to receive the edge of the card or work sheet. The position of the clamp 21 at this time is illustrated in Fig. 3. The cam plate 41 is arranged on the platen frame to cause the clamp to be projected outward into position to receive the card or work sheet when said clamp has been bodily turned into a position at the rear or receiving side of the platen and before the projected clamp has been brought into contact with the face of the paper apron 18. This will be understood from a consideration of Fig. 3. If now a card or stiff work sheet, as 44, be entered in the slot 23, as shown in Fig. 3, and the platen be turned in the direction of the arrow in Fig. 3, the ball-end 40 will pass out of contact with the cam plate 41 before the projected clamp has been moved downward into contact with the paper apron 18 by the turning of the platen. As a result, the springs 30 will operate to force the clamp radially inward and will press the leading edge of the card 44 firmly against the platen.

In Fig. 4 the parts are shown in a position suitable for writing on the card 44, the clamping bar 21 being shown clamping the card against the platen and as having been moved to a position past the printing point, which point is designated by the dotted line *x*. It will be understood that in moving from the position shown in Fig. 3 to that shown in Fig. 4 the clamp, shortly after the start of its downward rotary movement from the Fig. 3 position, which rotary move-

ment of course is caused by the movement of the platen, will be released from the control of the cam plate 41 and forced radially inward by the springs 30 until arrested by the leading edge portion of the card 44. When so arrested, the lip 24 of the clamp or clamping bar 21 is still outside the surface of the platen, but the thickness of this lip is comparatively slight so that as line spacing movements are continued and the lip is brought into contact with the feed roller 17, it requires only a slight yielding of said feed roller, which is as usual spring-pressed toward the platen as by springs 17^a, to permit the rotary movement of the platen and clamp and the advance of the card 44 to be continued. After passing the feed roller 17 the lip 24 will engage with the paper apron 18, said paper apron being also spring-pressed toward the platen as by springs 18^a, and this turning of the platen and advance of the card is stopped when the lip 24 has passed forward beyond the printing point. Rotary movements of the platen to clamp the card and bring it from the position shown in Fig. 3 to that shown in Fig. 4 may be caused by operating the line spacing pawl 12, but preferably this rotation of the platen is continuous and may be effected by one of the finger wheels 6. After the first line of the card is written, the platen may be turned step-by-step by operating the line spacing pawl 12 or in any other desired manner and the various lines may be written on the card or the various blanks spaces thereon filled in by operating the printing instrumentalities (not shown). During the line spacing advance of the platen the projecting lip 24 of the clamping bar passes the front feed rolls 20 which yield slightly and thereafter the card will be under the control of the feed rolls 20 and the main feed rollers 17 and will be held tightly and smoothly against the under side of the platen between said feed rolls and said feed roller.

I have found in practice that the chief difficulty in feeding cards or stiff work sheets occurs in the entering of the card in the machine and in the initial advance thereof to the first printing position; and a clamping device is chiefly valuable in properly accomplishing this entering and initial feeding. After the clamping device has brought the card into the control of the usual paper controlling or feeding devices, such as the feed rolls 20 and the feed roller 17, I have found that these devices can properly take care of the card and that a clamping device is really not essential in the subsequent feeding of the card through the machine. Accordingly the present clamping device is adapted to free the card after it has passed into the control of said paper controlling devices. After the clamp has passed the front feed rolls 20 it moves up-

ward and the ball-end 40 again contacts with the cam plate 41, re-opens the clamp and releases the card. When released, the leading edge portion of said card will spring away from the platen, as shown in Fig. 5, leaving the card in the slot and within the control of the usual paper controlling devices 17 and 20. As has been stated, I find that these devices will operate to properly continue the line spacing advance of the card through the machine. As the line spacing advance is thereafter continued the ball-end 40 passes along the cam face 41^a of the cam plate 41 and finally separates from said cam plate, allowing the springs 30 to force the clamp inward. At this time the leading edge of the card is not in the path of the lip of the clamp and consequently the inward radial movement of said clamp will continue until it reaches what may be termed normal position; at which time the outer surface of the lip 24 will be in register with or conform with the surface of the platen and will substantially bridge, fill or close the opening or kerf 22, presenting practically a continuous platen surface. This movement of the clamp radially inward to normal position occurs after the clamp has been rotated for the second time, slightly beyond the position shown in Fig. 3; so that said clamp is retracted within the platen before it can contact with the bottom portion or lower end portion of the card. Consequently the latter will not be abraded, torn or otherwise injured by the projecting corner of the clamp. After the clamp has been moved inward, as just explained, the line spacing movements of the platen may continue until the clamp reaches the position shown in Fig. 6 directly above the printing point so that the lip 24 may serve as a backing or platen face for the printing of one of the lines on the card. Of course thereafter the line spacing advance of the card may be subsequently proceeded with until the writing on the card has been completed. If the card is so long as to require another complete rotation of the platen, the clamp as it reaches the top of the platen will begin to be projected radially outward by the cam plate 41 and will be forced radially inward by the springs 30 after said cam plate ceases to act. This radial inward and outward movement of the clamp occurs during about a quarter of a revolution of the platen and while the clamp is turning from about the top of the platen to about the horizontal position at the rear side of the platen, after which the clamp will remain within the platen during the subsequent three-quarters of a complete revolution thereof. Consequently whenever the clamp is at the bottom of the platen it is wholly within the platen and may serve as a backing for the work sheet.

It will be noted that by my present invention I provide a clamping device for a card or stiff work sheet, which device is of a particular construction, being mounted in an opening in the platen and adapted to move radially in and out through said opening; that when the device is wholly within the platen it conforms to the surface thereof and presents an unbroken writing surface for the work sheet; that this particular construction of clamping device is combined with a means for automatically operating it, said means comprising a relatively fixed cam on the platen frame for moving said device in one direction and a pair of springs for moving it in the opposite direction; that a particular arrangement of the automatic clamp-operating means is provided whereby it co-acts with said clamping device so that the latter may clamp a card or work sheet and advance it into the machine, bringing it into coöperation with the usual or suitable paper controlling or feeding devices; that after the card has been brought within the control of said paper controlling devices which are arranged at opposite sides of the printing point on the platen, the automatic clamp-operating means above referred to operates the clamping device to release the card so that during further line spacing advance thereof said card is controlled only by said paper controlling devices; that said clamp-operating means after operating the clamping device to release the card as just described, subsequently causes the clamping device to be returned within the platen to normal position, thereby substantially bridging or filling the entrance to the clamp-receiving opening in the platen; that this return to normal position of the clamping device occurs before said clamping device reaches the printing point, so that when said clamping device reaches the printing point it may provide a backing for writing on the cards without forcing the card away from the platen or otherwise distorting it; that said clamping device is particularly adapted for employment with a long card or stiff work sheet, and that during the first movement of said card or work sheet past the printing point it is clamped by said clamping device at its leading edge, but that after the platen has been revolved to bring the clamping device a second time to the printing point, said clamping device is inoperative as a clamp, lying wholly within the surface of the platen.

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 platen, a paper clamping device connected with said platen so as always to

rotate therewith, and means operating automatically as the platen rotates in one direction to actuate said paper clamping device to clamp the work sheet to the platen and to release the work sheet from the platen during further rotary movement thereof in the same direction, said clamping device thereafter during still further rotary movement of the platen having its outer face substantially even with the surface of the platen and providing a back for said work sheet.

2. In a typewriting machine, the combination of a platen, a spring-pressed paper clamping device connected with said platen so as always to rotate therewith, and means for automatically actuating said paper clamping device at a predetermined point as the platen rotates in one direction to clamp the work sheet to the platen and for automatically releasing the work sheet from the platen at a predetermined point during further rotary movement thereof in the same direction, said clamping devices thereafter during still further rotary movement of the platen having its outer face substantially even with the surface of the platen and providing a back for said work sheet.

3. In a typewriting machine, the combination of a platen provided with a longitudinal opening, a clamping device within said opening and adapted to substantially fill the entrance to said opening so as to provide an unbroken, substantially smooth and continuous writing surface around the platen, and means for automatically actuating said clamping device so as to move it radially of the platen both into and out of clamping position during rotary movement of the platen in one direction.

4. In a typewriting machine, the combination of a platen provided with a longitudinal opening, a clamping device within said opening and adapted to substantially fill the entrance to said opening so as to provide an unbroken, substantially smooth and continuous writing surface around the platen, and means for automatically actuating said clamping device so as to move it radially of the platen into and out of clamping position, said means including a fixed cam for moving the device in one direction and spring means for moving it in the opposite direction, said cam and said spring means both operating during rotary movement of said platen in one direction.

5. In a typewriting machine, the combination of a platen frame, a platen rotatable thereon, paper controlling devices mounted on the platen frame and coöperative with the platen to control a work sheet or card on opposite sides of the printing point, a clamping device on the platen, means for automatically actuating said clamping device to clamp a work sheet or card to the

platen so that it may be fed into the control of said paper controlling devices, said means being adapted to subsequently move said clamping device to release the paper, and into a position conforming to and substantially continuous with the surface of the platen to provide a backing for the work sheet during subsequent movements of rotation of the platen.

6. In a typewriting machine, the combination of a platen frame, a platen revolvably mounted thereon, a paper feed roller mounted on said platen frame and coöperative therewith at one side of the printing point, a paper feed roll or roller mounted on said platen frame and coöperative with the platen at the opposite side of the printing point opposite from said feed roller, a paper clamping device mounted on the platen, means for automatically actuating said clamping device to clamp the work sheet or card to the platen so that it may be fed into the control of said paper feed rollers when the platen is further rotated, said means subsequently automatically actuating said clamping device to release the card or work sheet and to move said clamping device to a position where it will conform to the surface of the platen and serve as a backing for the card or work sheet during subsequent movements of rotation of said platen.

7. In a typewriting machine, the combination of a platen, a paper clamping device mounted in an opening in the platen, spring means constantly tending to press said clamping device within the platen, means for automatically moving said clamping device outward against said spring means to receive a card or work sheet during rotary movement of said platen in one direction, said clamping device being further adapted to conform to the surface of the platen and provide a backing for said card or work sheet during subsequent rotary movement of the platen in the same direction.

8. In a typewriting machine, the combination of a platen provided with a radial opening, a clamping bar arranged in said opening, and means for automatically actuating said clamping bar during rotary movements of the platen, said means comprising a bar mounted within said opening and movable lengthwise of the platen, and a relatively fixed cam plate for moving said last recited bar.

9. In a typewriting machine, the combination of a platen provided with a radial opening, a clamping bar mounted in said opening and provided with inclined edges, and means for automatically actuating said clamping bar, said means comprising a cam bar provided with inclined edges which act on the inclined edges of the clamping

bar, and a relatively fixed device for sliding said cam bar endwise and causing said inclined edges to co-act.

10. In a typewriting machine, the combination of a platen provided with a radial opening, a clamping bar provided with a lip adapted to substantially fill the entrance to said opening and with a longitudinal card-receiving slot, spring means constantly tending to maintain said lip in said entrance, means for automatically actuating said clamping bar at a predetermined point during the rotation in one direction of the platen, whereby said clamping bar is moved outward into position to receive the work sheet or card, and means for causing said clamping bar to engage and clamp the work sheet or card during subsequent rotation of the platen in the same direction.

11. In a typewriting machine, the combination of a platen provided with heads and having a radial opening extending substantially throughout its length, a clamping bar formed with a longitudinal slot and adapted to bridge or close the opening in the platen, band springs secured to said platen heads and coöperative with the end portions of said clamping bar to maintain it within the platen, and automatic means for actuating said clamping bar to move it outwardly against said springs into position to receive a card or work sheet within said slot, said springs operating during the subsequent rotation of the platen in the same direction to cause said clamp to engage and hold said card or work sheet.

12. In a typewriting machine, the combination of a platen provided with a radial slot extending longitudinally of said platen, a clamping bar arranged within said slot, spring means tending to maintain said clamping bar within the surface of the platen, automatic means comprising an endwise movable bar for operating said clamping bar during rotation of said platen in one direction, and means for preventing endwise movement of said clamping bar when it is acted on by said endwise movable bar, said spring means acting during subsequent rotation of said platen in the same direction to restore said clamping bar after its actuation by said automatic means.

13. In a typewriting machine, the combination of a platen provided with a radial slot extending longitudinally of said platen, a clamping bar arranged within said slot, spring means tending to maintain said clamping bar within the surface of the platen, automatic means comprising an endwise movable bar for operating said clamping bar during rotation of said platen in one direction, and means for preventing endwise movement of said clamping bar when it is acted on by said endwise movable bar, said last recited means comprising a

guide plate on the platen and a cooperating pin on said clamping bar said spring means acting during subsequent rotation of said platen in the same direction to restore said clamping bar after its actuation by said automatic means.

14. In a typewriting machine, the combination of a platen frame, a platen thereon formed with a radial opening extending substantially throughout its length, a clamping bar within said opening provided with a card-receiving slot and with a lip adapted to close said opening at the surface of the platen, said clamping bar being also provided with inclined camming edges, a cam bar provided with cooperating camming edges and arranged within said opening between said clamping bar and the center of the platen and spring means constantly pressing the camming edges into engagement.

15. In a typewriting machine, the combination of a platen frame, a platen thereon formed with a radial opening extending substantially throughout its length, a clamping

bar within said opening provided with a card-receiving slot and with a lip adapted to close said opening at the surface of the platen, said clamping bar being also provided with inclined camming edges, a cam bar provided with cooperating camming edges and arranged within said opening between said clamping bar and the center of the platen, spring means constantly pressing the camming edges into engagement, and means for moving said cam bar endwise to operate said clamping bar, said means comprising a cam plate secured to said platen frame and operative on said cam bar at a predetermined point in the revolution of the platen.

Signed at the borough of Manhattan, city of New York, in the county of New York, and State of New York, this 4th day of June A. D. 1908.

CLIO B. YAW.

Witnesses:

CHARLES E. SMITH,
E. M. WELLS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
