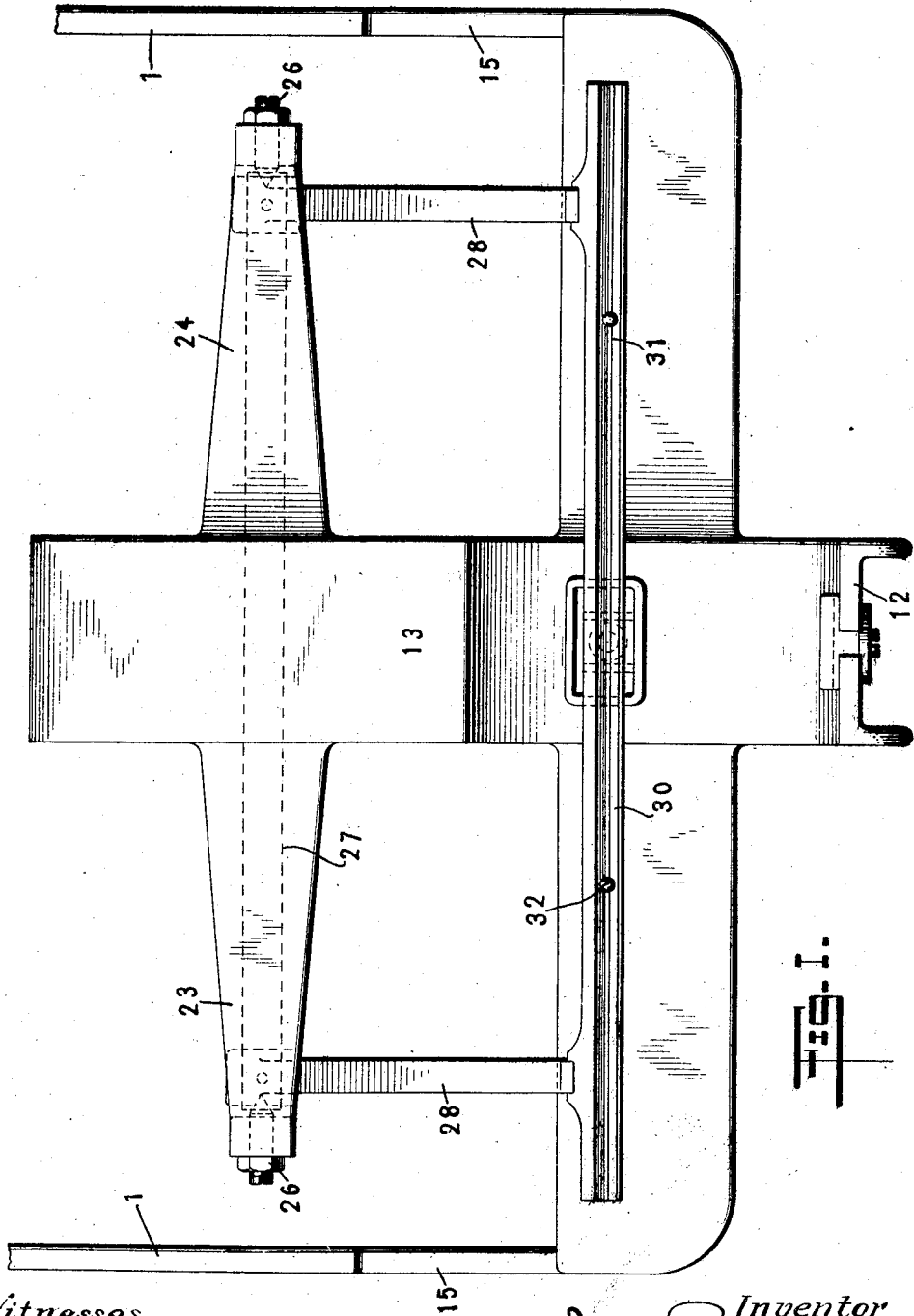


J. A. RONCHETTI.
TYPE WRITING MACHINE.
APPLICATION FILED JUNE 6, 1908.

1,077,941.

Patented Nov. 4, 1913.

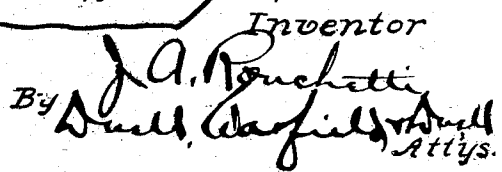
3 SHEETS-SHEET 1.



Witnesses
G. Robert Thomas
Paul A. Wolff

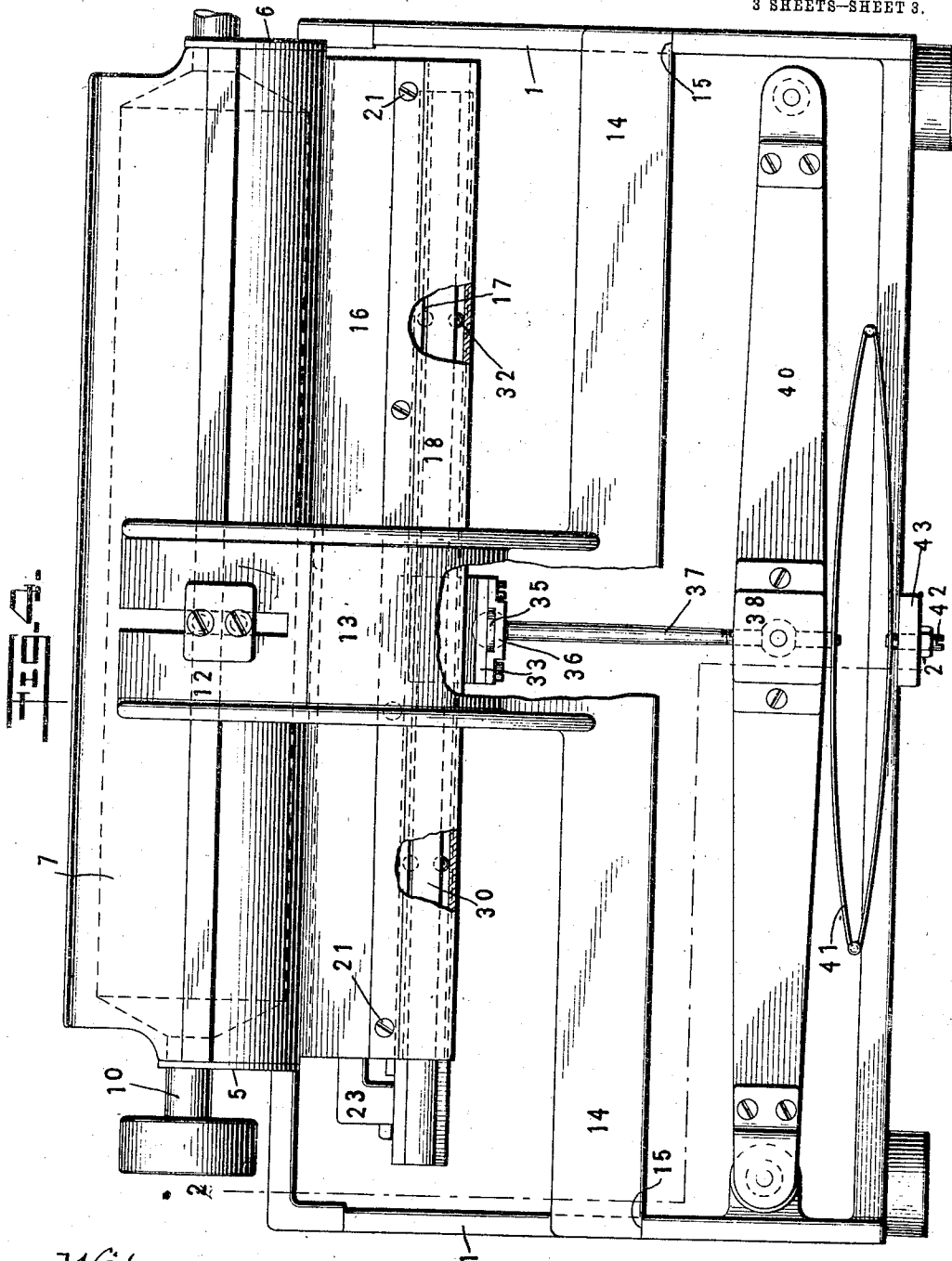
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3 SHEETS--SHEET 2.



1,077,941.

3 SHEETS—SHEET 3.



Witnesses;
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Inventor
By J. A. Ronchetti
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UNITED STATES PATENT OFFICE.

JOSEPH ALBERT RONCHETTI, OF WOONSOCKET, RHODE ISLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NOISELESS TYPEWRITER COMPANY, OF MIDDLETOWN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TYPE-WRITING MACHINE.

1,077,941.

Specification of Letters Patent.

Patented Nov. 4, 1913.

Application filed June 5, 1908. Serial No. 436,752.

To all whom it may concern:

Be it known that I, JOSEPH A. RONCHETTI, a subject of the King of Italy, residing at Woonsocket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to typewriting machines of that class wherein the type-carriers are provided with one or more types and wherein the platen is normally held in position to receive impressions from one of said sets of types, the type carriers and the platen being relatively shiftable to enable the platen to receive impressions from the other set or sets of types.

One of the objects of the present invention is to provide means for guiding the shiftable part which will be simple in construction and noiseless in operation.

Another object of the invention is to provide improved guiding mechanism for shiftable platen carriages of typewriting machines such that the opposite ends thereof will be moved through equal distances when the platen carriage is shifted.

A further object of the invention is to provide an oscillatory support for a vertically shiftable platen carriage of such construction that no binding can take place between the relatively movable bearing parts during the shifting operation.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is shown one of the various possible embodiments of my invention, Figure 1 represents a plan view showing the swinging rail upon which the platen carriage is supported and the means for supporting the former in the machine. Fig. 2 is a side elevation showing the carriage and the oscillatory feed rack. Fig. 3 shows a portion of the mechanism of

Fig. 2, the position of the parts being shown when the platen has been shifted downward from its normal intermediate position. Fig. 4 is a rear elevation of Fig. 2, looking from the right end of said figure.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings, 1 indicates a portion of the frame of a typewriting machine and 2 represents a bed adapted to support a set of printing members which, in the present instance, are constituted by straight thrust type bars, one of which is shown at 3. The type bars are provided with a plurality of printing characters or types, in the present instance three in number, and are adapted to be projected forwardly upon the supporting bed 2 against the platen by means of actuating mechanism not herein shown.

4 represents the platen carriage, which is constituted by side members 5 and 6, respectively, connected by a longitudinally extending member 7 which forms a paper table and extends about the platen roll 8, carried upon a shaft 10 journaled in the side members of the carriage. The platen 11, which, in the present instance, is constituted by a thin strip of metal and has a vertically disposed face for receiving the types and a rear curved face which lies in contact with the paper roll, is supported at its ends by the side members of the platen carriage. The rear portion of the platen carriage slides vertically and longitudinally with respect to an abutment 12, which is formed, in the present instance, by an upstanding portion or horn of a tie-rod 13 extending transversely of the machine beneath the bed 2 and is adapted to slide in supports provided underneath the bed. Tie-rod 13 is also provided with laterally extending portions 14 which ride upon slides 15 provided in the walls of the machine. This tie-rod is adapted to be anchored in the front wall of the framing of the machine by means not shown herein, so that the entire organization, including the platen carriage, may be moved slightly forward or backward to change the disposition of the platen with respect to the faces of the types.

The platen carriage 4, in the present instance, is provided with a depending rail

16 which is fastened thereto and which extends longitudinally thereof, said rail in its lower portion being provided with a substantially V-shaped ball runway 17. A lower rail 18 is attached to the rail 20 as by means of screws 21, and extends below rail 16 and is spaced therefrom, as shown. This rail is provided with a curved bearing face 22, the object of which will be apparent hereinafter. Rail 18 is adjustable with respect to rail 16 to take up any slack in the supporting devices for the carriage, which are interposed between said rails and may be held in any adjusted position by means of the screws 21.

Extending in opposite directions from the upper portion of the center tie-rod 13 are arms 23 and 24, said arms having depending portions 25, through which extend pivot screws 26 which support a rock-shaft 27, to which is attached near either end thereof balancing arms 28. The outer ends of these arms are attached to an oscillating rail 30, which is interposed between rails 16 and 18 of the carriage, said rail being provided with substantially V-shaped ball runways 31 in which are located balls 32. The balls 32 are interposed between one of the runways 31 of the rail 30 and the correspondingly shaped runway of rail 16, and also between the other runway of rail 30 and the curved portion 22 of the rail 18.

Attached centrally of rail 30 and depending therefrom is a bracket 33 having a socket 34 for receiving a ball 35 which is clamped therein as by means of a clamp plate 36, said ball being carried by a vertically disposed rod 37. The opposite end of rod 37 has a ball and socket connection 38 with the shifting mechanism, a portion of which is constituted by the swinging lever 40. A full elliptic spring 41 is interposed beneath rod 37, the tension of this spring being just sufficient to balance the weight of the platen carriage and the rail structure, so that it will be maintained in a normal central position from which it may be readily moved in either direction during the shifting operation. This spring may be adjusted as by means of a set screw 42 threaded through the bracket 43 extended from the frame of the machine.

In the operation of the above described mechanism, when the platen carriage is shifted as by means of the lever 40 to lift or depress rod 37, rail 30 will be oscillated upwardly or downwardly in accordance with the direction in which rod 37 is moved, and the platen carriage will be moved in corresponding directions with respect to the types. Inasmuch as the platen carriage is guided vertically by means of the abutment 12 of the tie-rod, a relative rocking movement will take place between rail 30 and the rails 16 and 18 of the platen carriage. No binding

between these parts can take place, however, since during the shifting operation the balls interposed between these rails 30 and 18 will ride over the curved surface 22 of rail 18, thus permitting a free oscillation of the rail 30. The arms 28, which are fastened upon the rock-shaft 27 and connected to rail 30, will compel an equal movement of the opposite ends of the platen carriage when the same is shifted.

In order that the rack 44 may remain in mesh with the feed pinion 45 of the escapement shaft 46 during the shifting movements of the carriage, said rack is mounted upon swinging arms 47 which are pivotally connected as at 48 to arms 50, which extend rearwardly and downwardly from the carriage rail 16. Rack 44 is supported adjacent the feed pinion upon a roller 51 journaled upon the pin 52 threaded into the tie-rod. During the letter-spacing movements of the carriage, rack 44 rides upon this roller, and during the shifting movements of the carriage, the swinging connection of said rack with the platen carriage allows said rack to remain in mesh with the feed pinion.

It will accordingly be seen that I have provided mechanism well adapted to attain, among others, all the ends and objects pointed out, in an exceedingly simple, yet efficient manner. The guiding mechanism for the platen carriage operates not only to maintain the platen in parallelism with the plane occupied by the face of the type, but also insures that both ends of the platen carriage will move equal distances when the same is shifted either upward or downward from its normal central position. The connection between the oscillatory supporting rail and platen carriages insures against any binding between the bearing portions of these parts when the platen carriage is shifted, and inasmuch as no lost motion exists between these parts all chance of noise produced thereby during shifting of the platen is eliminated.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types and a shiftable platen frame carrying the platen of an oscillating shiftable rail upon which the platen frame is mounted, and upon which it travels for letter-spacing, means engaging

the central portion of said rail for shifting the platen frame, and a pair of oscillatory arms connected with either end of said rail for guiding said platen frame in its shifting movement.

2. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types, of a pair of spaced rails connected with the platen carriage, one of which is provided with a curved bearing portion, a shiftable rail interposed between said first-named rails, balls interposed between said shiftable rail and each of said first-named rails, a rock-shaft and a pair of oscillatory arms connected with said rock-shaft and also connected with said shiftable rail.

3. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types, of a platen carriage shiftable to carry the platen in position to receive any of said types, a pair of spaced rails connected with the platen carriage and depending therefrom, one of said rails being provided with a curved bearing portion, a shiftable rail interposed between said first-mentioned rails and provided with ball runways, balls located in the runways of said shiftable rail and interposed between the same and the rails of said platen carriage, a rock-shaft and an oscillatory arm mounted upon either end of said rock-shaft and positively connected to said shiftable rail whereby an equal movement of either end of the platen carriage will be compelled when the same is shifted.

4. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types, and a platen carriage shiftable in a direction transverse to its length for different case printing, of a pair of spaced rails depending from the platen carriage and extending longitudinally thereof, a shiftable rail interposed between said first-named rails, balls interposed between said shiftable rail and the rails upon said platen carriage, a pair of oscillatory arms, each of which is mounted upon a rock-shaft and positively connected with said shiftable rail and adapted to compel an equal movement of either end of the platen carriage when the same is shifted.

5. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types, and a platen carriage shiftable in a direction transverse to its length for different case printing, said platen carriage being provided with a pair of spaced rails which extend longitudinally thereof, one of said rails being provided with a V-shaped ball runway and the other with a curved bearing portion, a shiftable rail interposed between the rails of said platen carriage and having oppositely disposed ball runways, balls located in the run-

ways of said shiftable rail and interposed between the same and the rails of said platen carriage, a pair of oscillatory arms connected with said shiftable rail, and a common pivotally mounted support for said arms whereby the latter are compelled to move in unison.

6. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types and a platen carriage shiftable vertically to enable the platen to receive impressions from any of the types, of a pair of spaced, relatively adjustable rails mounted upon the platen carriage and extending longitudinally thereof, a shiftable rail interposed between said first-mentioned rails and upon which the latter travel during the letter-spacing movements of the carriage, a pair of oscillatory arms connected to the ends of said shiftable rail, a rock-shaft upon which said oscillatory arms are mounted, and means located centrally of the platen carriage for shifting the same.

7. In a typewriting machine, the combination with the type bars, each of which carries a plurality of types and a platen carriage shiftable for different case printing, of a pair of spaced rails supported upon the platen carriage, said rails being relatively adjustable to change the distance separating them, a substantially V-shaped ball runway in one of said rails, and a bearing surface provided upon the other said runway, a shiftable rail interposed between said first-named rails and upon which the latter travel during the letter-feeding movements of the carriage, said shiftable rail being provided with oppositely disposed substantially V-shaped ball runways, balls located in said runways and engaging the runway and bearing surface provided in the rails fixed upon the platen carriage, a rock-shaft, and an arm mounted upon either end of said rock-shaft and connected with said shiftable rail.

8. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types, a platen carriage shiftable to change the disposition of the platen with respect to said types, said platen carriage being provided in its lower portion with a plurality of spaced rails, the lower of which is adjustably secured to the rail located above the same and is provided with a curved bearing surface, the uppermost of said rails having a substantially V-shaped ball runway, a shiftable rail interposed between said first-mentioned rails and having oppositely disposed ball runways, balls interposed between the runways of said shiftable rail and the runway in the uppermost of the rails of said platen carriage and the curved bearing surface of the lowermost of said latter rails, a

rock-shaft, an arm mounted upon either end of said rock-shaft and connected with said shiftable rail, and means connected with the central portion of said shiftable rail adapted to shift the same to carry the platen carriage to a different shifted position.

9. In a typewriting machine, the combination of the type bars, each of which is provided with a plurality of types and a platen carriage vertically shiftable to change the disposition of the platen with respect to the types, the center tie rod with which the platen carriage engages and which holds the same against recession when the platen is engaged by the types, a pair of spaced rails depending from the platen carriage, means whereby one of said rails may be adjusted with respect to the other to change the spacing of said rails, a shiftable rail interposed between said rails, said shiftable rail being provided with longitudinally extending substantially V-shaped ball runways, a similarly formed ball runway provided in one of said first-mentioned rails and located in adjacency with one of the runways of said shiftable rail, a curved bearing surface formed upon the other of said first-mentioned rails and located in adjacency with another of the runways of said shiftable rail, balls located in the runways of said shiftable rail and interposed between the latter and the bearing portions of said first-mentioned rails, a rock-shaft, a support for said rock-shaft supported in said center tie rod, and an arm mounted on either end of said rock shaft and connected with said shiftable rail.

10. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types, and a platen carriage shiftable in a direction transverse to its length for different case printing, of an oscillatory arm connected with either end of the platen carriage for compelling equal movements of both ends thereof when the same is shifted, and means for shifting the platen carriage connected with the same at its central portion intermediate said oscillatory arms.

11. In a typewriting machine, in combination, type bars, each of which is provided with a plurality of types, a platen carriage shiftable with respect to said type, means for guiding the platen in its shifting movement, a pair of spaced rails carried by the platen carriage, a shift rail interposed therebetween, anti-friction bearings coacting with said shift rail and said first-mentioned rails adapted to permit said shift rail to turn with respect to said first-mentioned rails, and a pair of swinging arms connected with said shift rail adapted to aid in guiding the carriage to a shifted position.

12. In a typewriting machine, the combi-

nation with the type bars, each of which is provided with a plurality of types, of a platen carriage shiftable vertically to change the disposition of the platen with respect to said types, a pair of spaced ball rails carried by the platen carriage, a swinging ball rail interposed between said first-named rails, balls interposed between said rails, arms connected with said swinging ball rail, a common oscillatory support upon which said arms are mounted, and means connected to said swinging rail adapted to swing the same to shift the platen carriage.

13. In a typewriting machine, in combination, a type carrier having a plurality of types thereon, a shiftable platen carriage adapted to move to a shifted position for printing different case characters, a shift rail along which said carriage is adapted to travel, and a coacting rail on the platen carriage, said shift rail being pivotally supported to permit a turning movement thereof with respect to the carriage rail as the platen carriage moves to shifted position.

14. In a typewriting machine, the combination with a vertically-shiftable platen carriage, of an escapement shaft, a feed pinion mounted upon said escapement shaft, a rack meshing with said feed pinion, arms swiveled upon the platen carriage and supporting said feed rack, said arms being adapted to swing when said platen carriage is shifted whereby said feed rack may remain constantly in mesh with said feed pinion, and a roller mounted adjacent said flat surface of said feed pinion upon which the feed rack rides during the longitudinal movements of the carriage.

15. In a typewriting machine, the combination with the platen carriage, which is shiftable vertically for different case printing and movable longitudinally for letter-spacing, of a rail upon which the platen carriage is mounted and upon which it rides for letter-spacing, an escapement shaft, a feed pinion mounted upon said shaft, a feed rack meshing with said feed pinion, arms mounted to swing upon said platen carriage and connected with said feed rack whereby said feed rack may remain constantly in mesh with said feed pinion when the platen carriage is shifted, and a roller upon which a flat surface of said feed rack travels during the letter-spacing movements of the carriage.

16. In a typewriting machine, the combination with the shiftable platen carriage, of an oscillating rail upon which the platen carriage is mounted and upon which the same rides for letter-spacing, said rail when oscillated being adapted to shift the carriage to different printing positions, an escapement shaft, a feed pinion mounted upon said shaft and an oscillatory rack mounted upon the platen carriage which remains con-

stantly in mesh with the said feed pinion when the platen carriage is shifted.

17. In a typewriting machine, the combination with the type bars, each of which is provided with a plurality of types, of a platen carriage vertically shiftable to change the disposition of the platen in respect of said types, a center tie rod having a portion for engaging with the platen carriage and for guiding the same when shifted, a pair of spaced rails mounted upon the platen carriage, means whereby said rails may be relatively adjusted, an oscillating rail interposed between said first-mentioned rails, said rails having ball-bearing portions, balls interposed between said oscillating rail and said first-mentioned rails, a rock-shaft journaled in suitable supports provided in the center tie rod, arms extending from said rock-shaft and connected with said oscillating rail, means for shifting the platen carriage connected with said oscillating rail, an escapement shaft, a feed pinion mounted upon said shaft, a rack meshing with said feed pinion in all positions of the carriage, arms swiveled upon the platen carriage and interposed in the support of said rack, and a roller journaled upon said tie rod upon which said rack travels during the letter-spacing or return movements of the carriage.

18. In a typewriting machine, the combination with the type bars, of a platen frame shiftable from a normal intermediate position, shifting mechanism for said platen frame, a rail upon which said frame travels for letter spacing, and a pair of oscillatory arms one connected with either end of said rail.

19. In a typewriting machine, the combination with the type bars, of a platen frame shiftable from a normal intermediate position, a rail upon which said frame travels for letter spacing, said rail being provided with upper and lower grooves in which ball-bearings are interposed between the rail and the frame, and means for shifting said rail.

20. In a typewriting machine, the combination with the type bars, of a platen frame shiftable from a normal intermediate position, a rail upon which said frame travels for letter spacing, said rail being provided with upper and lower grooves in which ball-bearings are interposed between the rail and the frame, and a pair of oscillatory arms one connected with either end of said rail.

21. In a typewriting machine, in combination, a paper carrier adapted to shift in a straight line, a pivotally mounted shift rail along which said paper carrier is adapted to travel, and means interposed between said shift rail and said carrier whereby the carrier may move in a straight line as the shift rail oscillates.

22. In a typewriting machine, in combina-

tion, a platen carriage adapted to be shifted at right angles to its longitudinal axis, a pivotally mounted rail along which said carriage is adapted to travel, means for shifting said rail and carriage carried thereby, and means interposed between the carriage and the rail whereby the carriage may move in a vertical line as the shift rail oscillates.

23. In a typewriting machine, in combination, a platen carriage having a flat platen carried thereby, a pivotally mounted rail along which said carriage is adapted to travel, means connected with said rail for shifting the same, a carriage carried thereby movable at right angles to its longitudinal axis, and ball bearings interposed between said rail and said carriage whereby the carriage may move in a vertical line as said shift rail oscillates.

24. In a typewriting machine, in combination, a platen carriage having a flat platen associated therewith, a pivotally mounted rail along which said carriage is adapted to travel, shift mechanism associated with one of said parts for shifting the same for upper case printing, an escapement shaft having a feed pinion thereon, and a pivotally mounted rack carried by one of said first mentioned parts adapted to mesh with said pinion at all times.

25. In a typewriting machine, in combination, a platen carriage having a flat platen associated therewith, a pivotally mounted rail along which said carriage is adapted to travel, shift mechanism associated with one of said parts for shifting the same for upper case printing, an escapement shaft having a feed pinion thereon, and a pivotally mounted rack carried by said carriage adapted to mesh with said feed pinion when the carriage is either in normal or shifted position.

26. In a typewriting machine, in combination, a type carrier having a plurality of types thereon, a shiftable platen carriage adapted to move to a shifted position for printing different case characters, a shift rail along which said carriage is adapted to travel, a coacting rail on the platen carriage, said shift rail being pivotally supported to permit a turning movement thereof with respect to the carriage rail as the platen carriage moves to shifted position, and feed mechanism for said platen carriage, comprising a feed pinion, and a rack pivotally supported from said platen carriage adapted to mesh with said pinion in all positions of the carriage.

27. In a typewriting carriage, the combination with a shiftable platen carriage, an escapement shaft, a feed pinion mounted on said escapement shaft, a horizontally disposed rack meshing with said feed pinion, arms swiveled upon the platen carriage and supporting said feed rack, said arms being

adapted to swing when said platen carriage is shifted whereby said rack many remain constantly in mesh with said feed pinion, and means engaging the smooth underside of said rack adjacent said feed pinion for supporting the same during a longitudinal movement of the carriage.

28. In a typewriting machine, in combination, a type carrier having a plurality of types thereon, a shiftable platen carriage adapted to move to a shifted position for printing different case characters, a shift rail along which said carriage is adapted to travel, a coacting rail on the platen carriage, anti-friction devices therebetween, said shift rail being pivotally supported and adapted to permit a turning movement thereof with respect to the carriage rail as the platen carriage moves to shifted position, feed mechanism for said platen, comprising a feed pinion connected with the escapement mechanism, a horizontally disposed rack pivotally supported from said platen carriage adapted to mesh with said pinion in all positions of the carriage, and a roller coacting with the flat side of said rack adapted to support the same.

29. In a typewriting machine, in combination, a platen carriage, a pivotally mounted shift rail adapted to oscillate as the carriage moves to a shifted position, and feed mechanism for the carriage, comprising a feed pinion and a pivotally mounted rack meshing therewith at all times adapted to oscillate when the said shift rail oscillates.

30. A typewriting machine, in combination, a shiftable platen carriage, a shift rail along which said platen carriage is adapted to travel positioned therebeneath, arms pivotally mounted at one side of said platen carriage adapted to support said shift rail and permit the same to oscillate as the carriage moves to a shifted position, and feed mechanism for said platen carriage including a rack pivotally supported at the opposite side of said platen carriage whereby the rack remains substantially stationary as the carriage moves to shifted position.

In testimony whereof I affix my signature, in the presence of two witnesses.

JOSEPH ALBERT RONCHETTI.

Witnesses:

C. H. WILSON,
H. M. SEAMANS.

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