

(No Model.)

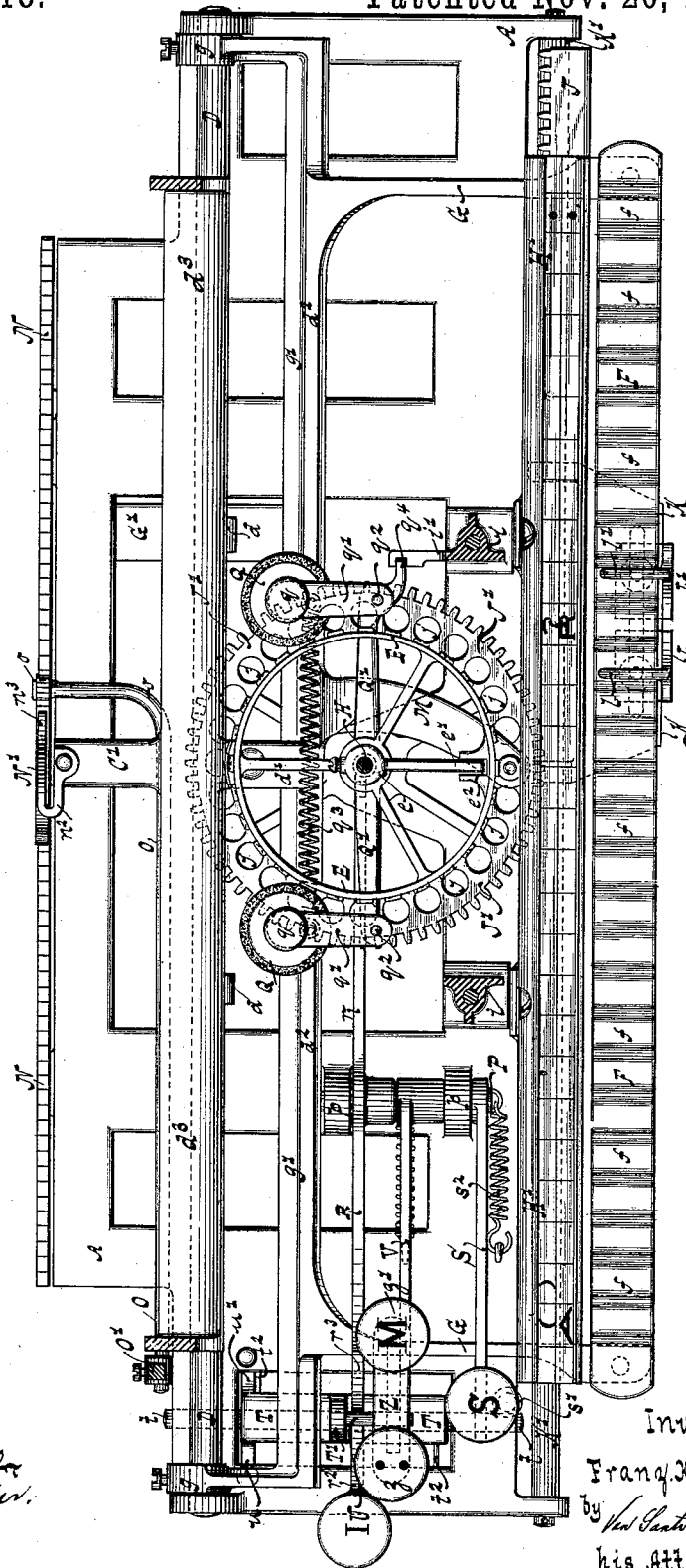
4 Sheets—Sheet 1.

F. X. WAGNER.
TYPE WRITING MACHINE.

No. 393,318.

Patented Nov. 20, 1888.

Fig. 1.



Witnesses:
A. Faber du Faur
William Miller.

Inventor:
Franz X. Wagner.
by Van Bentwood & Clark
his Attorneys.

(No Model.)

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Fig. 2.

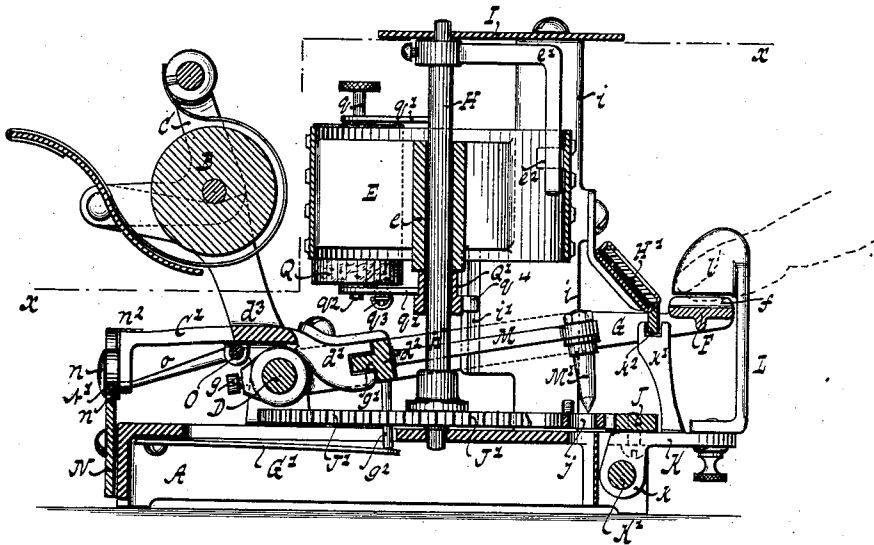
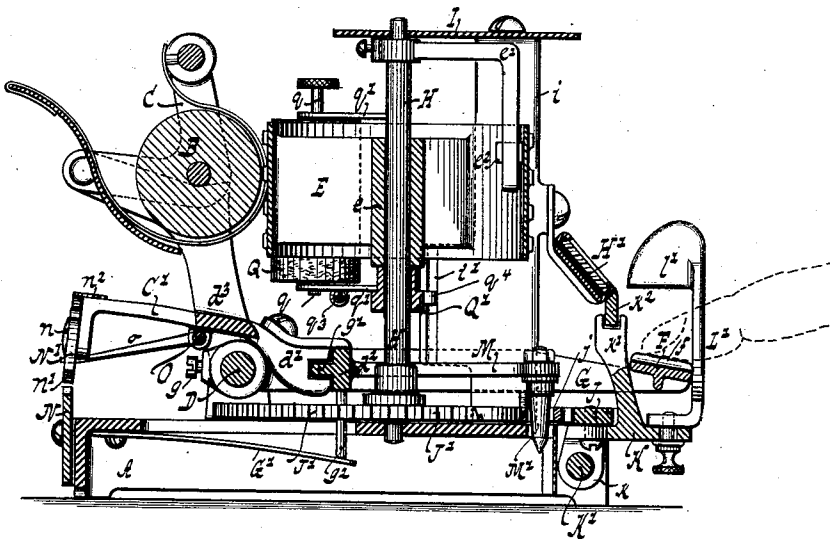


Fig. 3.



WITNESSES:

Adrian du Fauf.
William Miller.

INVENTOR,

Franc X. Wagner.

BY

Van Santvoord & Hauff.

his ATTORNEYS.

(No Model.)

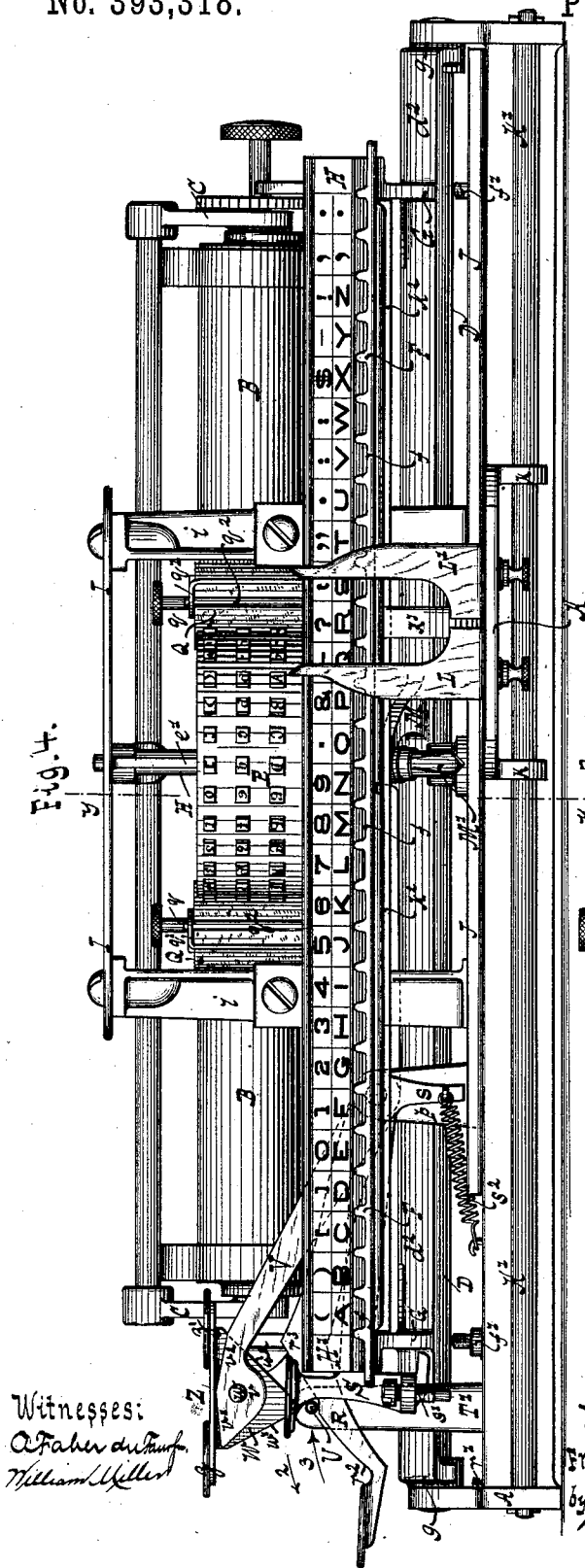
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F. X. WAGNER.

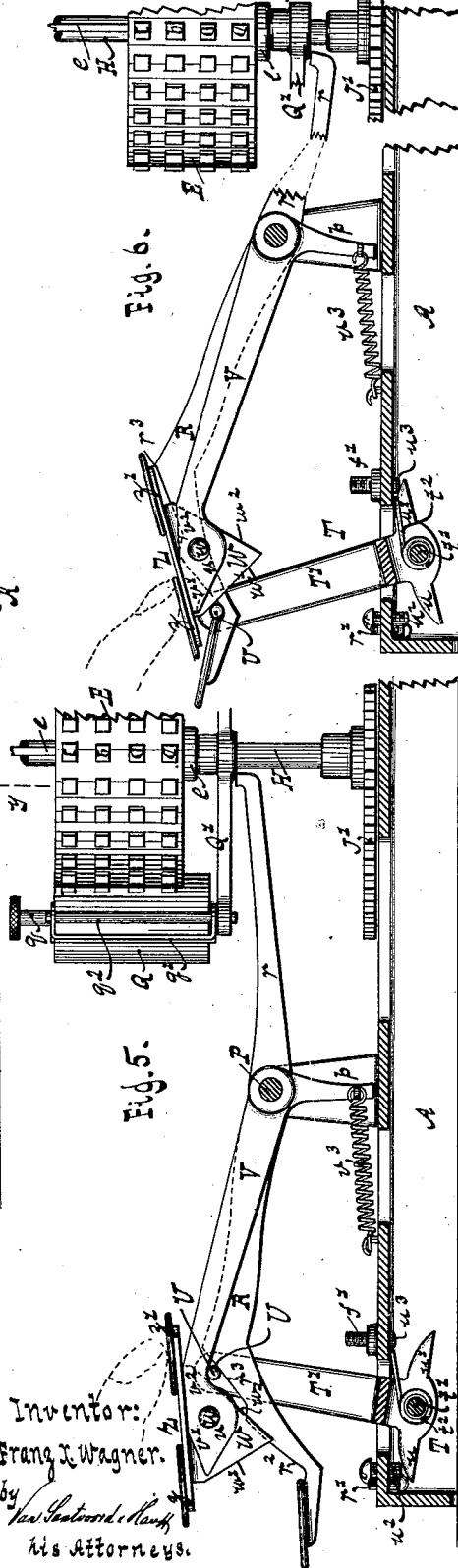
TYPE WRITING MACHINE.

No. 393,318.

Patented Nov. 20, 1888.



Witnesses:
A. Fisher du Ruy.
William Miller.



Inventor:
Frank X. Wagner.
by Van Schoonhoven & Clark
his Attorneys.

(No Model.)

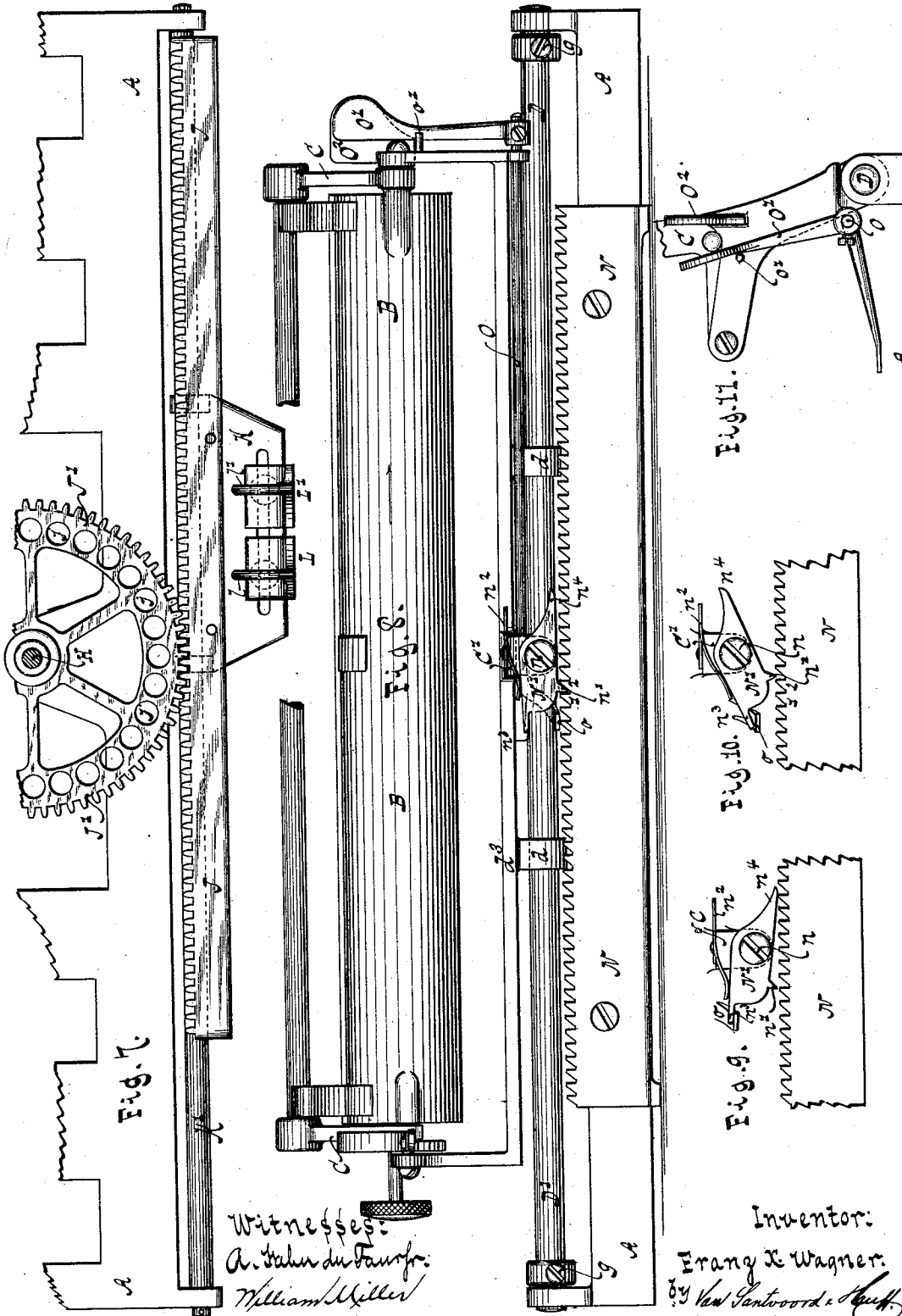
4 Sheets—Sheet 4.

F. X. WAGNER.

TYPE WRITING MACHINE.

No. 393,318.

Patented Nov. 20, 1888.



Witnesses:
A. Baker du Fresnoy
William Miller

Inventor:
Erang X. Wagner.
By Van Santvoord & Huff
his Attorneys.

UNITED STATES PATENT OFFICE.

FRANZ X. WAGNER, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 393,318, dated November 20, 1888.

Application filed January 20, 1887. Serial No. 224,909. (No model.)

To all whom it may concern:

Be it known that I, FRANZ X. WAGNER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to improvements in type-writing machines; and it consists, essentially, in the combination, with a platen and its vibrating carriage, of a key-bar connected with the latter, a type-carrier, a gear on the same, a rack-bar engaging with said gear, finger-pieces on said rack-bar extending over the key-bar, and an index-board above the key-bar. In combination with the above elements are spacing devices for letters and words, and when the type-carrier is provided with two or more rows of type representing the alphabet and other signs levers are provided for adjusting the type-carrier to bring the individual rows of type to the level of the printing-line, all of which is more fully pointed out in the following specification and claims and illustrated in the accompanying drawings, in which—

Figure 1 represents a horizontal section in the plane *x x*, Fig. 2, of a type-writer embodying my invention. Fig. 2 is a vertical section thereof in the plane *y y*, Fig. 4. Fig. 3 is a similar section showing the key-bar depressed as when an impression is taken. Fig. 4 is a front elevation. Fig. 5 is a sectional elevation of the levers for adjusting the type-carrier to bring different rows of type to the level of the printing-line. Fig. 6 is a similar view showing the levers in a position different from that shown in Fig. 5. Fig. 7 is a sectional elevation of the gear and rack-bar for rotating the type-carrier. Fig. 8 is a rear elevation showing the letter-spacing device. Figs. 9 and 10 are detail views of the feed-dog, showing the same in different portions. Fig. 11 is a detail end elevation of the mechanism for throwing the feed-dog clear of the rack when the platen-carriage is to be turned to its starting position.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the base-plate of the machine.

B, Figs. 2, 3, 4, and 8, is a platen which has journal-bearings in side levers, C C, of the

platen-carriage. The platen-carriage can swing about a rock-shaft, D, to which it is hinged at *d d*, Figs. 1 and 8, and it can also move in the direction of its length upon the said shaft. The side levers, C C, are pivoted to the standards of said carriage, in order that the platen B can be turned upward about the pivots for inspection of the work. Clamps for retaining the paper on the platen and a ratchet-wheel and pawl are provided as means for feeding the paper line by line, as usual.

E is the type carrier, which in this example is in the form of a wheel, and has several rows of type arranged upon its periphery. The platen-carriage is vibrated about the rock-shaft D to bring its platen C in contact with the type on the type-carrier E by the depression of a bar, which I shall hereinafter term the "key-bar" F, Figs. 1, 2, 3, and 4. This key-bar F is connected with the platen-carriage by a lever-frame, which is rigidly secured at *g g* to the rock-shaft D, but is not movable laterally. The rock-shaft has bearings in the base-plate A. The lever-frame embodies in its construction two horizontal arms, G G, to which is secured the key-bar F, two short arms, by which said frame is hinged, and a traverser, *d'*, which has thereon a guide, *g'*, extending parallel to the rod D, and in engagement with the same is a recessed arm or lug, *d'*, Figs. 1, 2, and 3, extending from the traverser *d'* of the platen-carriage. It will be observed that the depression of the key-bar F vibrates the platen-carriage toward the type-wheel, but that the platen-carriage is free to move in the direction of its length, as when it is fed for word and letter spacing, the connection between the lever-frame G G and the carriage not being a rigid one. A spring, G', Figs. 2 and 3, in engagement with a pin or stud, *g''*, projecting from the lever-frame, in conjunction with the weight of the platen, returns the latter to its normal position after each depression of the key-bar F.

The type-carrier E, Figs. 1, 2, and 3, is provided with a hub, *e*, that encompasses a vertical shaft, H, having bearings at either end in the base-plate A and in a top-plate, I, secured to standards *i i*, rising from the base-plate, so that said shaft H can freely rotate. The hub *e*, together with the type-carrier, can move verti-

cally upon the shaft H, and the said type-carrier is rotated as the shaft H rotates by means of a coupling-bar, e' , which is rigidly attached at one end to the shaft, while its other end enters a socket, e^2 , Figs. 1, 2, and 3, formed in the rim of the type-wheel. The socket e^2 allows the type-wheel to be raised or lowered.

To the lower end of the shaft H is rigidly secured a gear-wheel, J' , which is engaged by a rack, J, that is attached at its center to a slide, K, having lugs $k k$, which encompass a guide-rod, K' , secured at both ends in the base-plate A. This slide can be moved longitudinally on the guide-rod K' in either direction, and carries the rack J with it, whereby the gear-wheel J' is rotated, and in consequence, also, the type-carrier E. The slide is prevented from rotating about the guide-rod K' , Figs. 2 and 3, by a post, k' , which engages a longitudinal guideway, k^2 , secured in the proper position.

To the slide K are secured at a proper distance apart two upright finger-pieces, $L L'$, each of which is provided with an ear or projection, $l l'$, that extends over the key-bar F. By introducing a finger between said finger-pieces $L L'$ the slide can be moved. Above and behind the key-bar F, Figs. 2, 3, and 4, is secured to the standards $i i$ an index-board, H' , upon which are marked the letters, numbers, and other characters employed in writing, the numbers, punctuation-marks, &c., being arranged in an upper tier and the letters constituting the alphabet in a lower tier in alphabetical order. Each character is allotted an equal space or division on the index-board, and the key-bar F is provided with depressions f on its horizontal face corresponding in position and number to the spaces in the index-board. When the finger-pieces $L L'$ are moved by the operator until his finger points to the desired letter, as R, Fig. 4, and the key-board is depressed, an impression of the said letter R is obtained, the types on the type-carrier being located to this effect, and the said letter is brought into the printing-line.

In order that the letters and other characters may come exactly into the printing-line, I provide a proper adjusting and locking device, which brings the type-carrier exactly into the correct position, although the finger-pieces may have been moved to bring said character only approximately into the printing-line. In the example shown in the drawings I employ for this purpose an arm, M, which projects from the traverser d^2 of the lever-frame G G, and carries a taper pin, M' , that is adapted to enter any one of a circular series of holes, j , Figs. 1, 2, and 3, formed in the gear-wheel J' , when the key-bar F is depressed, whereby the gear-wheel J is locked. The pin M' , having a comparatively sharp point, will enter a hole, j , although said hole may be presented eccentrically to the center line of the same, and its shank, being approximately equal in diameter to the holes, will turn the gear to the proper position, and before the impression is taken.

The type on the type-carrier are arranged with reference to the said holes, and therefore accurate printing is insured.

In order that the key-bar can only be depressed sufficiently to secure an impression, I provide adjustable stops, which may consist of screws $f' f'$, Figs. 4, 5, and 6, that are screwed into the base A and are impinged upon by the arms G G of the lever-frame.

To feed the platen-carriage in the direction of its length after each impression of a letter, I provide a feeding device constructed as follows: At the rear of the base A is attached a rack, N, Figs. 8, 9, 10, and 11 especially, which is engaged by a feed-dog, N' , pivoted at n , so as to swing freely, to an arm, C' , which extends laterally from the traverser d^2 of the platen-carriage. The feed-dog is provided with a single tooth, n' , located to one side of a vertical line drawn through the pivot n . A spring, n^2 , engages the top of the dog above the tooth n' , and has a tendency to turn said dog about its pivot in a direction which would keep the tooth in engagement with the rack N. The feed-dog is provided on the same side of the pivot n as the tooth n' is situated, with a projection or nose, n^2 , which is adapted to be engaged by the end of a lateral arm, o , of a clearing rod or lever, O. This clearing rod or lever has bearings in lugs in the platen-carriage, and is provided on its outer end with an adjustable thumb-piece, O' , Figs. 8 and 11, that extends upwardly and opposite to a stationary abutment, O^2 , formed on the corresponding standard of the platen-carriage. By moving the thumb-piece O' toward the abutment O^2 , the end of the lateral arm o is raised, and when the thumb-piece is released the arm falls, owing to gravity, until the thumb-piece O' engages a stop, o' , on the standard. When the platen-carriage is in its normal position, Figs. 2 and 8—that is, when the platen is out of contact with the type-carrier E, the tooth n' of the feed-dog is in engagement with a tooth, 1, Fig. 8, on the rack, and the dog occupies the position shown in Fig. 8. When the platen-carriage is vibrated toward the type-carrier, the dog is raised until the tooth n' is clear of the rack, and immediately turned about its pivot n by the spring n^2 , and continues to turn until the nose n^2 engages with the arm o of the clearing-rod O, when it is in the position shown in Fig. 10. The feed-dog, on turning about its pivot n , has advanced its tooth n' so as to bring it in front of the next tooth, 2, Fig. 10, and when the platen-carriage falls back to its normal position it is moved to a space equal to the pitch of the teeth, which forms a space between the letters. When it is desired to shift the platen carriage through a large space, as when a new line of printing is to be taken up, the thumb-piece O' is forced against the abutment O^2 , whereby the arm o thereof is caused to engage with the nose n^2 of the feed-dog and raise this end thereof. The dog then turns about its tail n^4 as a fulcrum and turns the platen-carriage about its pivot

sufficiently to clear the tooth n' from the rack. The tail n' of the dog being well rounded, the carriage can be moved in either direction. If the feed-dog is pivoted to one side of its center of gravity, the tooth side being the overweighing, as shown in the drawings, the dog will turn by gravity alone and the use of the spring n' can be dispensed with; but to insure a reliable action of the dog it is well to provide a spring, as n'' .

For word-spacing I provide a spacing-lever, S s, Figs. 1 and 4, which is secured to a rock-shaft, P, having bearings at each end in lugs p p , formed on the base-plate A. This lever S s extends over and comes into engagement with one arm G of the lever-frame G G, so that when said lever is depressed the arm G, and consequently the platen-carriage, is vibrated and its attached feed-dog N' causes the same to be moved through one tooth. In this vibration of the platen-carriage the platen must, however, not come into contact with the type on the carrier E, and for this reason I provide an adjustable stop, s' , Fig. 4, which may be a screw that extends through a lug on the arm S of the lever and comes into contact with the base-plate A when said lever is depressed. By properly setting the adjusting-screw s' , the platen-carriage can be caused to vibrate sufficiently to allow the feed-dog N' to operate without the platen coming into contact with the type. The second arm, s , of the lever is bent downward and connected with one end of a spring, s'' , the other end of which latter is secured in the base, so that the lever S s is normally held in its elevated position. By repeatedly depressing the spacing-lever any desired length of space is obtained.

To ink the type on the carrier E, I provide two ink-rolls, Q Q, Figs. 1, 2, 3, 4, and 5, which are in contact with the type and can rotate about their spindles q q as the carrier rotates. The spindles q q are removably secured in frames q' q' , that are pivoted by rods q'' q'' to the ends of a bracket, Q', which has a hub that encompasses the shaft H, so that the said bracket can be moved up and down on the shaft with the type-carrier. A spring, q^3 , Fig. 1, stretched between the frames q' q' , holds the ink-rolls Q Q against the type-carrier. To prevent the bracket Q' from turning (see Figs. 1 and 2) about the shaft H as an axis, I extend one end of the same to form a guide, q^4 , which extends into a guideway, z' , formed in a projecting position of the standard I. However, other simple means may be used for this same purpose. The spindles q q are held in place by friction, and are provided with heads, so that they can be easily drawn out when the ink-rollers are to be removed to be replenished; or, if desired, the rolls, together with their frames q' , can be withdrawn from the rods q'' q'' , which latter are fast in the bracket Q'.

As before stated, the type carrier E is provided with several rows of type, and in this example I have shown four such rows—name-

ly, the small letters of the alphabet, capital letters, and italics, each in a separate row, and the numerals, marks of punctuation, and other characters in a fourth row. The small letters, for convenience, are arranged in a row second from the top, and when the machine is in its normal position, as shown in Fig. 2, this row of type is on the level of the printing-line, and a depression of the key-bar F will print one of such letters. A few of the most frequently-used punctuation-marks—such as the comma and the period—are also arranged in this and all the other rows of type. The italics are arranged in the bottom row, and to elevate the type-carrier to bring this row to the level of the printing-line a lever, R, is provided, which is loosely pivoted to the rock-shaft P. One arm, r , of said lever carries the bracket Q', so that when the other arm, R, Figs. 1, 4, 5, and 6, is depressed the type-carrier, together with the ink-rolls, are elevated. An adjustable stop, r' , screwed in the base-plate A limits the sweep of the lever R r , and the stop is so adjusted that when the arm R impinges upon it the row of italics is in the printing-line. To bring either the first row (punctuation, &c.) or the third row (capitals) of type into the printing-line, I make use of the same lever, R, with the following additional means: To the base-plate A is pivoted at t t , Fig. 1, a rocking frame, T, from which extends a vertical arm, T'. The shaft t' , to which the frame is rigidly secured, can turn in its bearings, and is subjected to the action of a coiled spring, t'' , which normally keeps the frame in such a position that the arm T' is in a true vertical line, Fig. 4. From the upper end of the arm projects a horizontal pin, U, which normally rests in a shallow recess or space between two inclined cam-faces, u'' u'' , formed on the arm R of the lever R r . It will be observed that if the frame is rocked the arm T' is vibrated in the direction of arrow 3, Fig. 4, toward the position shown in Fig. 5, the lever-arm R is depressed, and the type-carrier elevated, and if the arm is vibrated in the direction of arrow 2 to the position shown in Fig. 6 the arm R is allowed to rise, and it is raised by the weight of the type-carrier without further means for accomplishing this purpose.

On the rocking frame T are two laterally-projecting noses, u u' , Figs. 5 and 6, one on each side, which alternately engage, as the frame is vibrated, with adjustable stops u'' u'' in the base to limit the length of the vibration. The stops are so adjusted that when the nose u is in contact with the stop u'' , Fig. 5, the third row of types (capitals) is on the level of the printing-line, and when the nose u' is in engagement with stop u'' the first row (punctuation, &c.) is on the level of the printing-line, Fig. 6. To thus vibrate the arm T', I provide a lever, V, which is loosely pivoted on the rock-shaft P, and is provided on its free end with a head, v , having two inclined faces, v' v'' , meeting in the center and sloping therefrom in the form of a roof. To one side of this head is pivoted at w a wedge-

shaped cam, W, having two working-faces, w' w'' , either of which can engage with the pin U on the arm T'. Rigidly secured on the top of this cam W is a plate, Z, having two buttons or heads, z z' , and the said plate extends over the head v , so that if the finger depresses the button z , Fig. 5, the cam W turns, together with the plate Z, until the said plate rests on the inclined face v' of the head v . The depression of the button throws the point of the cam W to one side of the pin U, and on further depression of the button the cam-surface w' engages with said pin and the arm T' is vibrated over cam-face w'' , which allows the type-carrier E to descend, and the first row of type (punctuation, &c.) is brought to the level of the printing-line, Fig. 6. When button z' is depressed, as shown in Fig. 5, the third row (capitals) is brought to the level of the printing-line.

The finger-pieces L L' are adjustably secured to the slide K by a slot-and-screw connection, and can therefore be set to suit the finger of the operator. The depressions in the key-bar serve as a guide for the finger; but other means for serving the same purpose can be employed.

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

1. The combination, with a hinged platen-carriage, of a key-bar having a lever-connection with the carriage for vibrating the same, a type-carrier, a gear connected with the same and having guide-holes j , a lock, M', attached to the lever-connection and adapted to enter a guide-hole when the key-bar is depressed, a rack-bar engaging the gear, and means, substantially as set forth, for actuating the same, substantially as shown and described.

2. The combination, with a platen-carriage and a type-carrier, of a key-bar connected with the carriage, a series of depressions on said key-bar, each depression corresponding to a character on the carrier, a rack-bar geared to the type-carrier, and a slide carrying said rack-bar and having finger-pieces extending in proximity to the key-bar, substantially as shown and described.

3. The combination, with a vibratory platen, of a type-carrier, a rack-bar geared to the same, a key-bar connected by a lever-frame with the platen to vibrate the same when depressed, a slide carrying the rack-bar and containing finger-pieces which extend above the key-bar, and an index-board, substantially as shown and described.

4. The combination, with a platen carriage and a feeding device therefor, of a key-bar connected with the carriage by a lever-frame, a type-carrier, a rack-bar geared to the type-carrier, a lever, S s, engaging the lever-frame for word-spacing, and a stop for the lever to prevent the contact of the platen with the type, substantially as shown and described.

5. The feeding device herein described, consisting of a feed-dog pivoted to the vibratory

platen-carriage, a tooth on said dog, and a rack adapted to be engaged by the tooth, said dog being constructed to turn about its pivot to engage a new tooth of the rack when the carriage is vibrated, substantially as described.

6. The combination, with the vibrating platen-carriage, of the feed-dog N, pivoted to the carriage and provided with a tail, n' , a rack, a tooth on the dog adapted to engage the rack, and a clearing-lever, O, engaging with the tooth end of the dog for freeing the same from the rack, substantially as shown and described.

7. The combination, with the vibrating platen-carriage, of the feed-dog N, pivoted to the carriage, a rack, a tooth on the dog constructed to engage the rack, and a lever, O, engaging with one end of the dog to act as a stop to its rotation about its pivot, substantially as shown and described.

8. The combination, with the vibrating platen-carriage, of the feed-dog N, pivoted to the carriage, a rack, a tooth on the dog, a lever, O, the finger-piece on said lever, the abutment O', and the stop o' , substantially as shown and described.

9. The combination, with a type-carrier movable in the direction of its depth, of a lever, as R r, engaging said type-carrier, an auxiliary lever, as V, and an intermediate oscillating arm, T', engaging with the lever R r and actuated to vibrate by the lever V, substantially as shown and described.

10. The combination, with a shaft and a rotary type carrier movable longitudinally on said shaft, of the lever R r, engaging said type-carrier, an auxiliary lever, as V, an intermediate rocking frame, T, and a vibratory cam on the lever V, adapted to engage with the rocking frame, substantially as shown and described.

11. The combination, with a shaft, of a type-carrier movable longitudinally on the same, a lever, as R r, engaging the type-carrier, an auxiliary lever, as U, a rocking frame, T, and a vibratory cam, W, on the lever V, having inclined faces w' w'' , adapted, respectively, to engage the rocking frame to oscillate the same in different directions, substantially as shown and described.

12. The combination, with a type-carrier constructed to move in the direction of its depth, of a lever, as R r, engaging the same, an auxiliary lever, a rocking frame having a projecting pin, U, and a cam, W, pivoted to the lever V, and having inclined meeting faces w' w'' , the point being normally over the pin, substantially as shown and described.

13. The combination, with a type-carrier constructed to move in the direction of its depth, of a lever, R r, engaging the same, an auxiliary lever, V, a rocking frame having a projecting pin, U, engaging the lever R r, stops for the frame, a cam, W, pivoted to the lever, inclined meeting faces w' w'' on said cam, inclined faces v' v'' on the lever V, and a

ledge or plate, Z, on the cam, adapted to engage the faces on the lever V, substantially as described.

14. The combination, with a type-carrier 5 constructed to move in the direction of its depth, of a lever, R r, engaging the same and having working-faces r^2 , r^3 , a rocking frame engaging said faces, and an auxiliary lever, V, having an oscillating cam engaging the rocking frame, substantially as shown and described. 10

15. In a type-writer, a vibratory platen-carriage, in combination with a depressible key-bar connected to the platen by a lever-frame, a guide, g' , on the lever-frame, and an arm on the carriage engaging said guideway for permitting the feed of the carriage, substantially as shown and described. 15

16. In a type-writer, a vibratory platen, in combination with a depressible key-bar connected with the platen by a frame, an index-board, depressions in the key-board corresponding to the characters on the same, a rotary type-wheel, a gear on the same, a rack-bar engaging said gear, a slide connected with 25 the rack, and finger-pieces on said slide extending over the key-bar, substantially as shown and described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses. 30

FRANZ X. WAGNER. [L. s.]

Witnesses:

W. HAUFF,

A. FABER DU FAUR, Jr.