

No. 648,578.

Patented May 1, 1900.

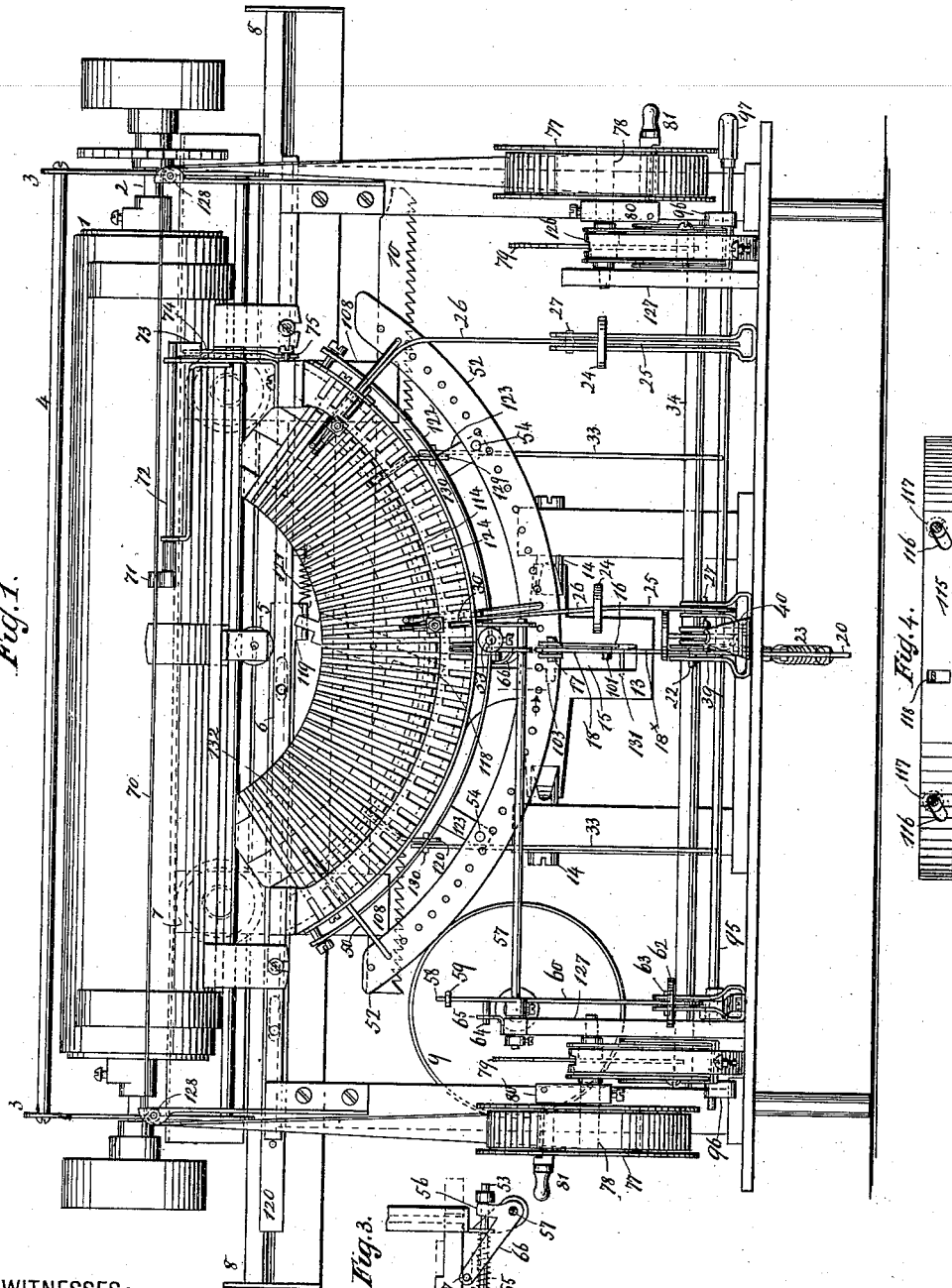
H. L. & F. L. WAGNER.  
TYPE WRITING MACHINE.

(Application filed July 9, 1898.)

(No Model.)

5 Sheets—Sheet 1.

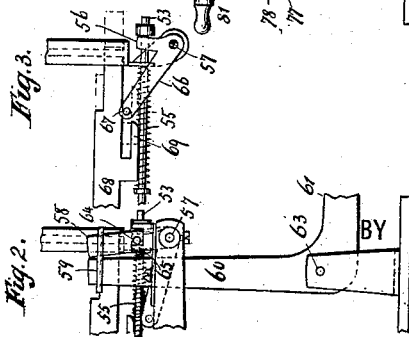
Fig. 1.



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Fig. 2.



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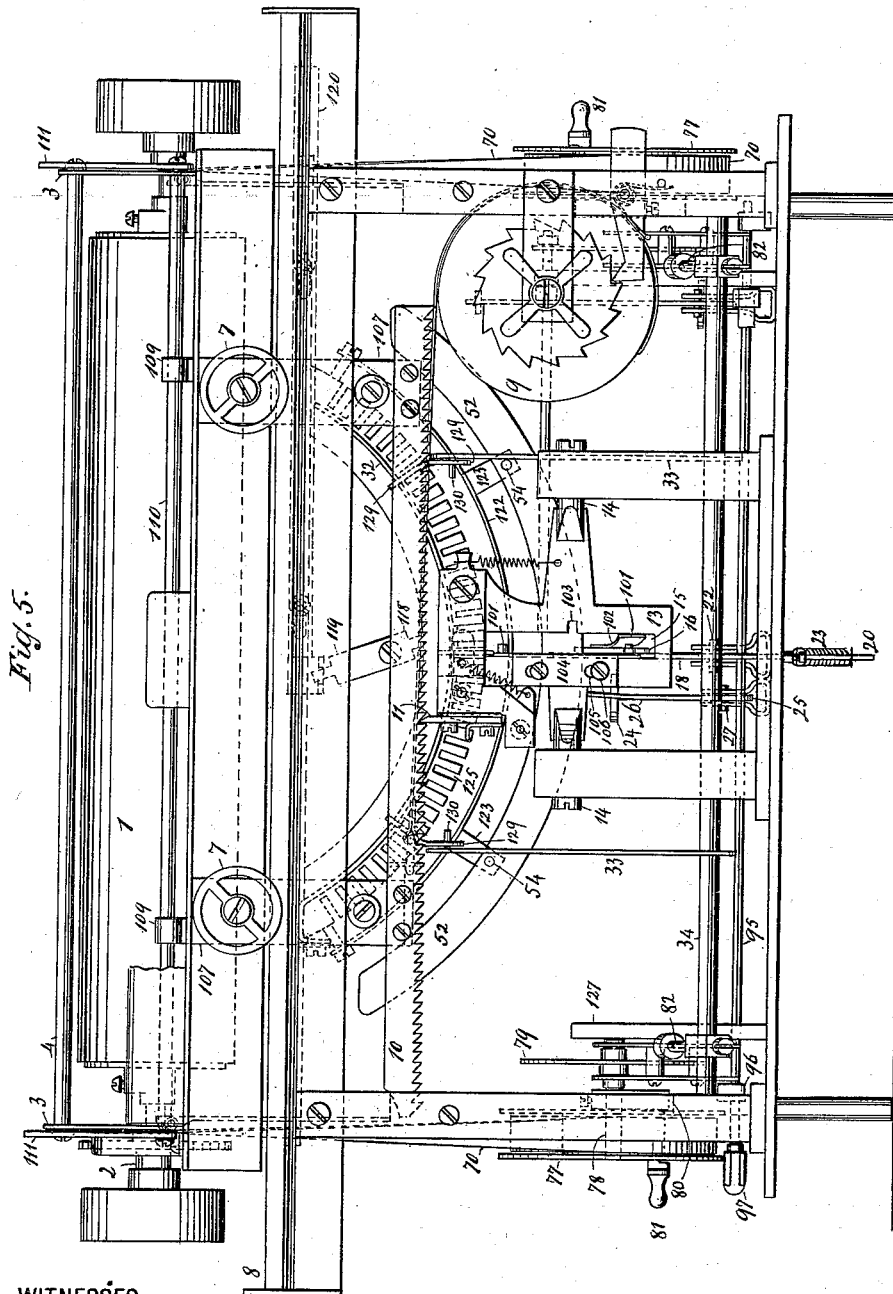
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(No Model.)

5 Sheets—Sheet 2.



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5 Sheets—Sheet 3.

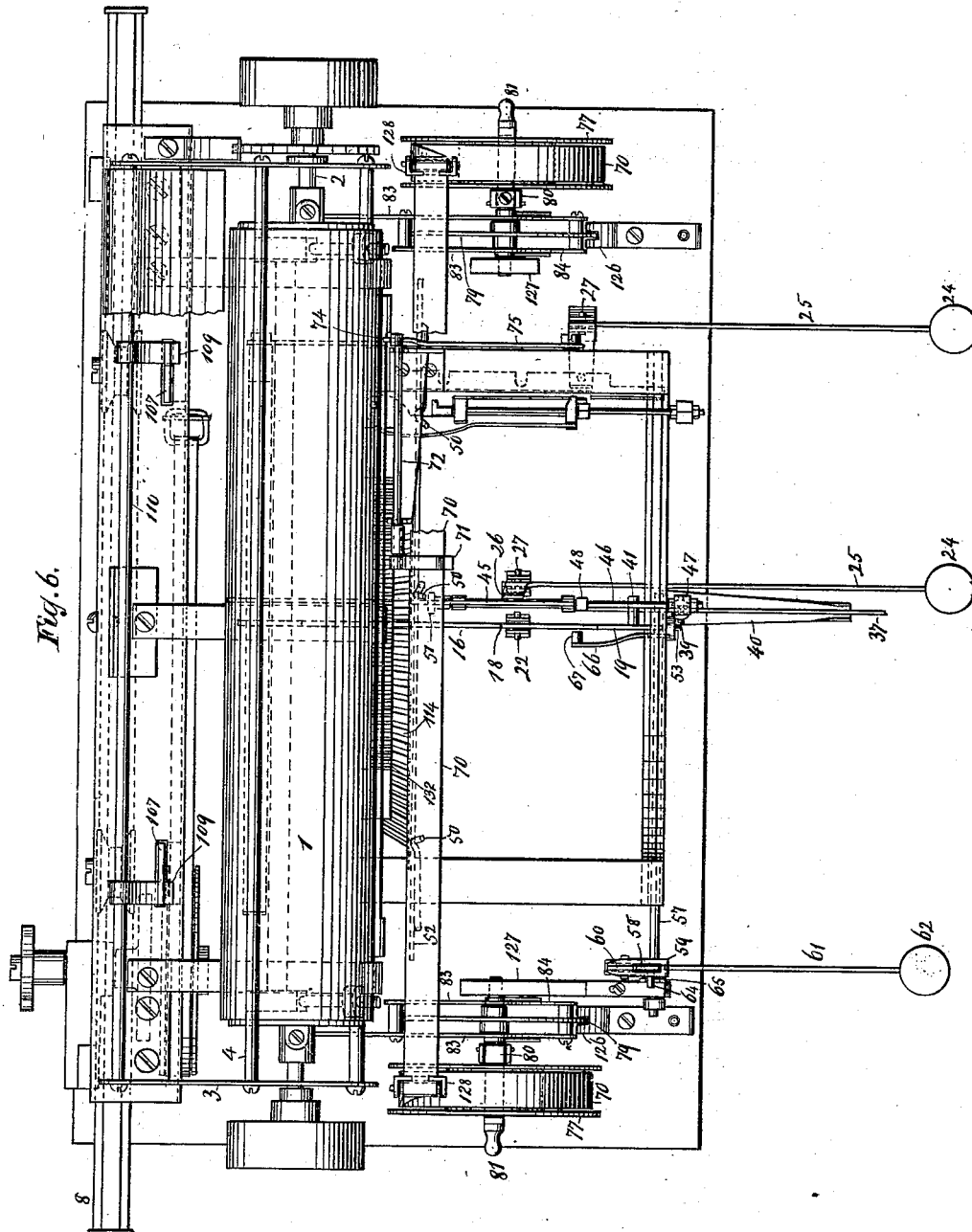


Fig. 6.

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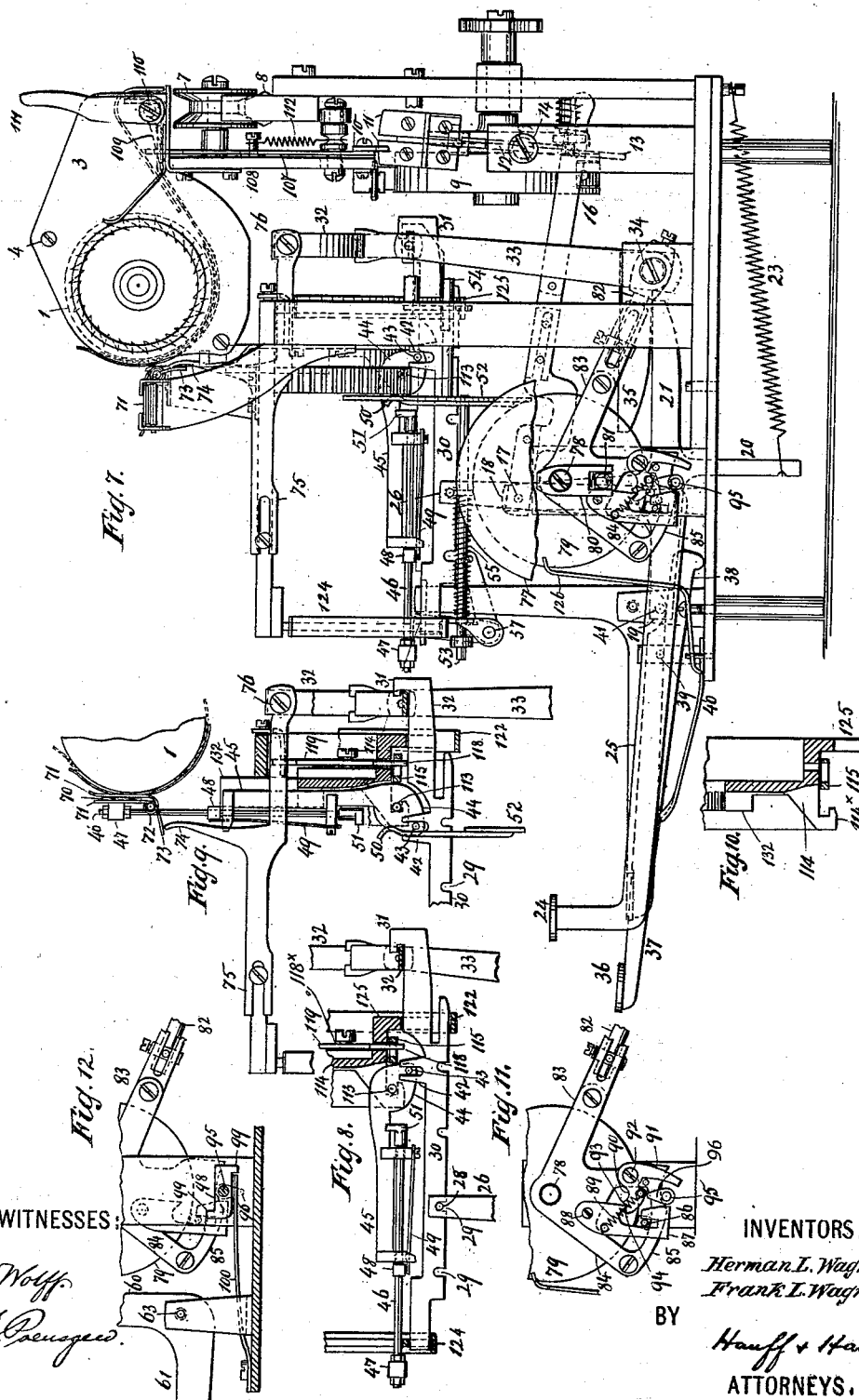
H. L. & F. L. WAGNER.  
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(No Model.)

5 Sheets—Sheet 4.



No. 648,578.

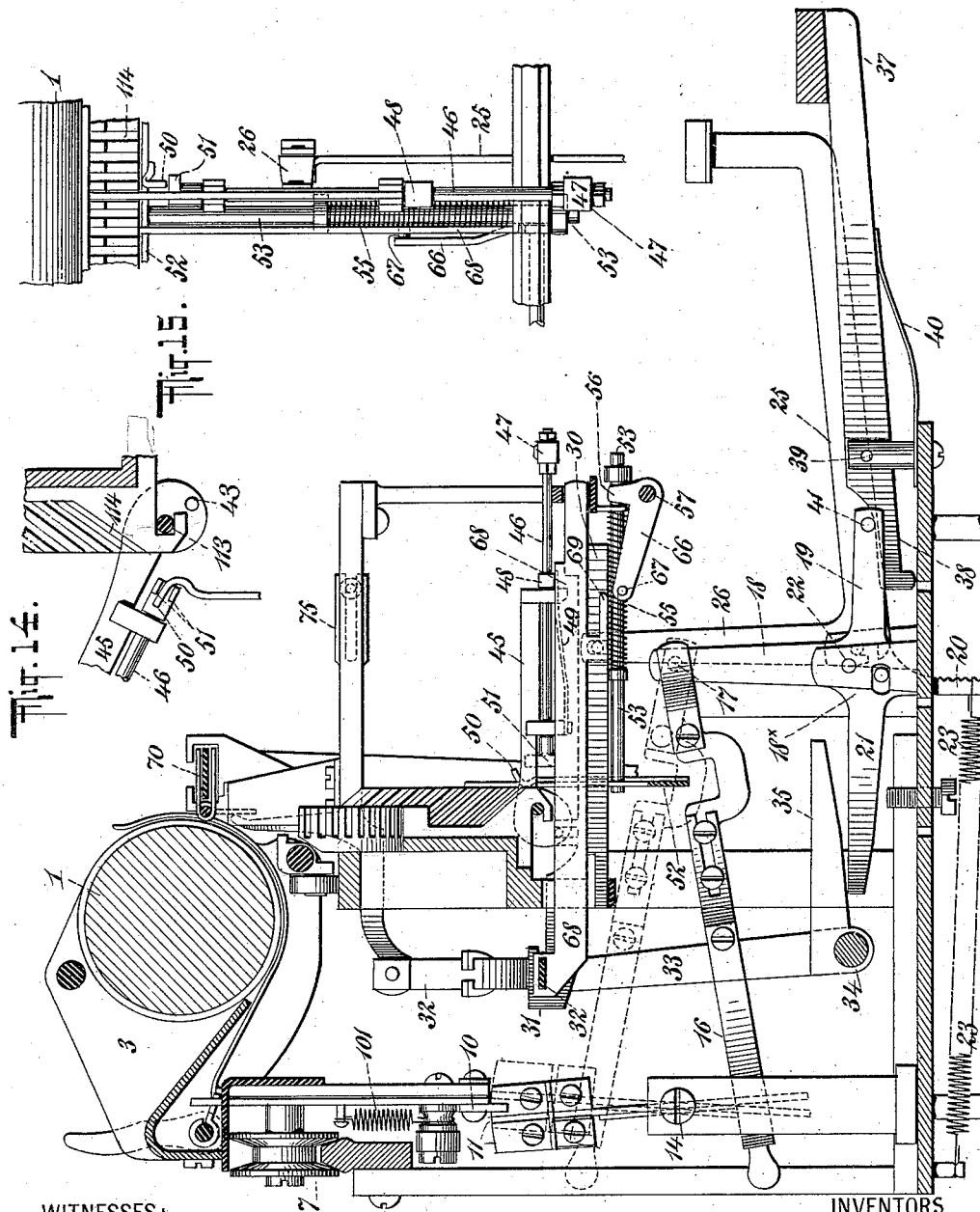
Patented May 1, 1900.

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TYPE WRITING MACHINE.

(Application filed July 9, 1898.)

(No Model.)

5 Sheets—Sheet 5.



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Fig. 13.

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# UNITED STATES PATENT OFFICE.

HERMAN L. WAGNER AND FRANK L. WAGNER, OF NEW YORK, N. Y., ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE WAGNER TYPEWRITER COMPANY, OF SAME PLACE.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,578, dated May 1, 1900.

Application filed July 9, 1898. Serial No. 685,512. (No model.)

*To all whom it may concern:*

Be it known that we, HERMAN L. WAGNER, a resident of New York, (Brooklyn,) Kings county, and FRANK L. WAGNER, a resident of New York, in the borough of Manhattan, State of New York, citizens of the United States, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

Our invention relates to type-writing machines; and the object of said invention is to provide a machine of the character described wherein the parts coöperate and contribute to the production of an efficient "front-strike" machine, though obviously the various features of the invention may be employed in machines of different type.

To these ends our invention consists in the novel construction and arrangement of parts and to the features hereinafter described and claimed.

Reference is made herein to the accompanying drawings, showing one form or embodiment of our invention, and wherein—

Figure 1 is a front elevation of the machine. Fig. 2 is a detail fragmentary side view of the case-shifting key. Fig. 3 is a like view of the lock arrangement for the case-shifting mechanism. Fig. 4 is a detail face view of the strip or bar for holding the type-bar carriers in their seat. Fig. 5 is a rear elevation of the machine. Fig. 6 is a plan view of the machine with parts removed for the purpose of clearer illustration. Fig. 7 is a side elevation of the machine. Fig. 8 is a fragmentary detail side view of a type bar and carrier at rest, together with some of its coöperating mechanism. Fig. 9 is a detail side view of the type bar and carrier, together with some of its coöperating mechanism, the type-bar being shown in the printing position. Fig. 10 is a transverse sectional view of the strip or retainer for holding the type-bar carriers to their seat. Fig. 11 is a fragmentary detail side view of a ribbon-feed or spool-driver. Fig. 12 is a like view of the same, showing the locking-spring for the shift of the spool-driving mechanism. Fig. 13 is a central transverse sectional view of the machine. Fig. 14

is an enlarged detail fragmentary side view of a type-carrier and some of the parts which coöperate therewith. Fig. 15 is a top view of the same.

The machine is shown with a platen or paper-roller 1, whose axle or bearing 2 is supported by the side plates 3, united by rods 4, shown with a front wheel 5, Fig. 1, adapted to run on track or rail 6, and rear wheels 7, Fig. 5, adapted to run on track 8. A spring or feed drum 9, Fig. 5, tends to move the carriage, the latter being held or freed for the step-by-step travel by rack 10, engaged by a feed-dog or other suitable equivalents thereof, preferably having the teeth 11, Fig. 7, of which one is yielding or spring-pressed, while the other tooth is rigid, as known. The teeth 11 are shown in the present instance as being carried by a frame or lever 12 13, fulcrumed at 14 and having slot 15, Fig. 5. The link 16, Fig. 7, oscillates the dog, and this link can be shifted along slot 15 to one side or another of fulcrum 14 to engage either lever-arm 12 or 13 for a purpose presently explained. The link 16 is jointed at 17, Fig. 7, to an arm 18 of a vibrating piece or cruciform lever 18<sup>x</sup>, whose forwardly-extending arm is shown at 19, the downwardly-extending arm at 20, and the rearwardly-extending arm at 21. This lever 18<sup>x</sup> is fulcrumed at 22, Figs. 1, 5, and 13, and its arm 20 is engaged by spring 23, which returns or normally holds the upper arm 18 with link 16 forward.

The key-levers have the usual finger-buttons 24. A number of key-levers are omitted for the sake of clearness. The key-levers are shown in form of bell-crank levers, the different arms of each of which are designated at 25 26, Fig. 7, with fulcrum at 27, Figs. 1 and 5. The arm 26 by the stud or catch 28, Fig. 8, engages one of notches 29 on link or slide 30, the rear or hook part 31 of which engages the universal bar 32, pivoted to arms 33, secured to rock-shaft 34, Figs. 7 and 13, having a forwardly-extending arm 35, adapted to be moved by an arm 21 of the cruciform lever 18<sup>x</sup>. When a writing-key is depressed, the arm 26 thereof pulls its slide or hook 31, with universal bar 32 and arms 33, forward,

so as to dip or depress arms 35 and 21 and to swing arm 18, with link 16, backward. The link 16 being oscillated by the alternate action of depressing a key and of the returning-spring 23, when the operator releases the key will oscillate the feed-dogs 11 to permit the escape or feed of the carriage the distance of one space. The slides 30, as before stated, each have a series of notches 29, so as to be adapted for engagement by variously-arranged keys or key-banks. The hook 31 of each slide 30 engages the universal bar at the rear and is open toward the front of the machine, so that when a hook is moved forward it pulls with it the bar 32; but the forward movement of the bar does not transmit movement of the remaining slides 30. The bar merely passes out of the hooks or out of each hook whose key is not depressed, so that such remaining hooks, with their keys, remain at rest. When released, the bar 32, with the actuated hook, returns or swings back, so as to again enter or be engaged by all the hooks 31.

The spacing key or bar is shown at 36, Fig. 7, the lever 37 38 of said spacing-key being fulcrumed at 39, and the arm 38 engages a laterally-projecting pin 41 on arm 19. When key 36 is depressed, the arm 38 swings arm 19 upward and arm 18 backward to give a thrust to link 16. It is thus seen that each of the four arms 18 to 21 of the vibrating piece 18<sup>x</sup> has a function, arm 18 engaging link 16, arm 19 is engaged by the lever of the spacing-key, the arm 20 effects the return of the parts through the spring 23, and arm 21 is operated upon by the universal bar through the arm 35. The spacing-key has a returning-spring 40 for normally holding the lever 37 38 in the elevated position.

The slides 30 each actuates its type-bar carrier 45. Each slide has a fork 42, Figs. 8 and 9, engaging a stud 43 on the arm or hub portion 44 of the lever or type-bar carrier 45, carrying the independently pivoted or swiveled type-bar 46 with type-block 47, the axis of rotation of said type-bar being at right angles to the pivot of the carrier 45. When the slide 30 moves forward from the position shown in Fig. 8 to that shown in Fig. 9, the type-bar carrier 45 swings bar 46 to carry type 47 to the paper or platen. The square or flat faced type-block 47 can be fixed to the bar 46 and made with a plurality of faces about such bar, two being shown in the present instance, each face having its type or character. By swiveling the type-bars in the manner described the case-shift is effected—that is to say, one or another of the plurality of type upon each bar may be made to face the platen and to imprint its character. Each bar has an angular or locking block 48, the faces of which conform to the type-block, and a spring 49, pressing against the block 48, prevents accidental rotation of the type-bar and holds the latter so that the required type will squarely face the sheet or platen when printing. The spring 49 likewise forces the type-bar around to the

proper position when it is given a partial movement by the means to be hereinafter described. This spring 49, lying along the bar or carrier or parallel to the bar, allows the bar 46 to be turned when required for the case-shift. The swiveled type-bar 46 may thus have a partial rotary motion independent of the motion of the carrier 45. Such shift is effected by a shift finger or pin 50, Figs. 6 and 9, which normally lies back far enough or behind the type-bar carrier 45 to be cleared by the type-bar; but when shifted or slid forward into the path of the fork 51, Fig. 9, at the rear end of bar 46 this fork is carried into contact with the finger 50 when the type-bar makes its printing-stroke (see Fig. 14) and also during its return swing—that is to say, one prong of the fork contacts with the finger when the carrier moves toward the printing-point and the other prong of the fork contacts with the finger when the carrier moves back to a position of rest, thus restoring the type-bar to the normal position, as is clearly represented in Figs. 14 and 15. The spring 49 assures the proper positioning of the type-bar, as the finger 50 moves the type-bar only a portion of the distance through the quarter-turn that it has to make to change case. The bar normally has, say, its small letters in position to print; but when caught by finger 50 during the movement of the type-carrier to the printing-point the bar is turned and the capital or upper-case letter or character faces the sheet or printing-point. As a finger 50 thus not only shifts its type-bar to write upper-case characters when required, but also returns or restores the type-bar to its normal case as the bar returns to rest, a finger 50 after having been shifted into action must be locked when the type-bar has started toward the printing-point, so that said finger will restore the bar to the normal case position when the bar returns and not pass out of action till the bar has returned to rest. The shifting and locking of the fingers 50 can be suitably effected, as will hereinafter appear. These fingers are shown mounted on a plate or carrier 52, Figs. 1 and 5, suitably supported so as to slide—as, for instance, by means of a forwardly-extended slide and guide rod 53, Fig. 7, and backwardly-extended slide and guide rods 54. This sliding carrier 52 is normally held back with its fingers 50 out of action by a spring 55, Fig. 3. An arm or fork 56, engaging the slide 53, extends from rock-shaft 57, having arm 58, Figs. 1, 2, and 6, engaged by loop or strap 59, extending from arm 60 of shift-key lever 61, which is provided with finger-button 62 and is fulcrumed at 63. A depression of key-arm 61 causes arm 60 to move the arms 58 and 56 with rod 53, carrier 52, and all of the fingers 50 forward to a position where they are adapted to catch the forks or tails 51 of the type-bars. The play of the arm 58 can be confined in suitable limits by a stud 64, Fig. 2, on said arm 58, the stud having its movement or play con-

finished by the fork or stops 65. The rock-shaft 57 also has an arm 66, Figs. 3, 13, and 15, which is provided with stud 67. The universal bar 32 has connected therewith a locking-slide 68, Fig. 3, which is provided with a catch or hook 69, and which moves forward and back with the universal bar at each depression of a writing-key. Suppose the shift-key 62 has been depressed and the arm 66 thus swung upward and a writing-key then depressed. The universal bar moving the slide 68 forward causes the finger 69 to pass under the raised end or stud 67 of arm 66 and to hold arm 56 with rod 53 and fingers 50 forward or in action until by the release of the writing-key, when the universal bar with slide 68 will move sufficiently far back to allow the hook or shoulder 69 to clear stud 67 and permit the arms 66 and 56 to return to rest.

The ink-ribbon 70, as seen in Figs. 1 and 6, lies normally down or with an edge presented to platen 1, so as not to obstruct the view of the writing or roller 1. When, however, a type is printing, as seen in Fig. 9, the ribbon 70 is automatically turned or twisted, so that the type strikes a face of the ribbon, the movement of the ribbon being around an axis substantially coincident with an edge of the ribbon. This turning of the ribbon is effected by a holder or fork with branches 71, Fig. 9, between which the ribbon passes. This fork is carried by rock-shaft 72, Fig. 1, an arm 73 of which is engaged by finger 74, Figs. 7 and 9, of a slide 75, connected to universal bar 32, as indicated at 76, to move therewith. As a type prints and the slide 30 and bar 32 move forward the shaft 72 is rocked to turn the ribbon so that the latter presents a face to the platen or paper, as seen in Fig. 9. A return of the universal bar and slide 75 will cause the fork 71, with the front edge of the ribbon, to drop back to the position shown in Figs. 1 and 7, so as to expose the writing.

The ribbon-spools are shown at 77, Fig. 1, one on each side of the machine, and by having the spools alternately actuated the ribbon is made to wind or travel back and forth, as known. The actuation and release of one spool will explain the arrangement of both. Each spool is loosely carried upon a stem or stud 78, Fig. 1, fixed to a disk 79. The stud 78 carries a lug 80, with a spring catch or hook 81, which passes through an eccentrically-arranged hole in spool 77 and compels the latter to rotate with disk 79 and stud 78; but such catch or hook can be caused to release the spool when the latter is to be removed.

From the rock-shaft 34, which, as before stated, is actuated by the universal bar, projects an arm 82, Figs. 7 and 11, which engages a lever arm or fork 83, that swings loosely on the stud 78 and carries a depending part 84, Fig. 11, the rim part 85 of which carries a clutch-roller 86. In other words, the parts 84 86 form a roller-clutch, which when in action, will give a step-by-step rotation in one

direction to disk 79 and spool 77 as the lever-arm 82 swings back and forth. In order that the clutch-roller 86 can be moved or set out of action when required, this roller or its axle ends are engaged by hook 87, swinging on pivot 88 on the depending part 84 of the lever-arm 83. A spring 89 normally tends to hold hook 87 in position for roller 86 to clutch or engage the rim of disk 79. The spring 89 is also connected to an arm 90 of a lever 91, whose fulcrum 92 is also mounted on depending part 84. The arm 90 has the step-shaped part 93 and 94. A rotary shaft 95 carries a lug 96, and when the shaft 95 is turned from the position shown in Fig. 11 the lug 96 will press forward the hook 87, and the step or longer part 94 of arm 90 is drawn by spring 89 into contact with hook 87, so as to hold the latter forward in a position where the clutch-roller 86 lies idle or out of engagement with its cooperating disk. A further half-turn of shaft 95 causes lug 96 to press back arm 91, so that the step 94 is moved clear of hook 87, which being now drawn or moved by spring 89 backward or to the step or shoulder 93 brings the roller 86 into active position or into engagement with the rim of disk 79. The parts 90 93 94 thus form a combined lock and release lever or mechanism for the part 84.

The shaft 95 extends through the machine from side to side, as seen in Figs. 1 and 5, and has a finger-button or handle 97 for convenient rotation. By fixing the two lugs 96 on the shaft in alternate positions or at an angle of one hundred and eighty degrees to one another the rotation of the shaft can be made to cause the spool at one side of the machine to be clutched or actuated for winding the ribbon thereon, while the opposite spool, being released, is free to have the ribbon unwound or drawn therefrom. The shaft 95 is arranged to rotate in only one direction and to be locked in the proper positions. Thus fixed to said shaft is the lug 98, Fig. 12, with oppositely-extended shoulders 99. A spring 100 abuts against one or another of the shoulders and prevents a rotation of shaft 95 in one direction, and such spring pressing against one face or another of lug 98 holds the shaft 95, with lugs 96, out of action or in vertical position, extending, respectively, up and down from the shaft.

The link 16, it is noted, can be engaged to support the feed-dog at either side of the pivot thereof, accordingly as the feed is to occur either just before or just after a type reaches the printing-point—that is to say, during the printing or return stroke of the type-bar to produce a speed-feed or ordinary feed, as required. The dog-support has studs 101, Fig. 5, projecting within the slot 15 thereof, and the link by its spring 102 is held in engagement with one stud or another above or below fulcrum 14, as required. The slot 15 has an enlarged part 103, which enables the link 16 to be withdrawn or readily disengaged from the dog-support when required. The studs



101 are shown adjustable, being mounted on a plate 104, held to the dog by slot-and-screw connection 105 and 106.

The feed-rack 10 is illustrated in the present instance as supported by vertically-moving arms 107, Fig. 7, guided along the fixed vertical hangers 108 and engaged by arms 109 on rock-shaft 110, having finger-pieces or handles 111, by which the rock-shaft can be swung to move rack 10 out of engagement with the dog, so that the carriage may be moved at will by hand to any desired point. A returning spring or springs 112 tend to hold the rack in a position where it can be engaged by the dog.

The type-bar carriers 44 45 are mounted independently of one another, so that each can be removed without disturbing others, and these carriers have each its fulcrum-stud or lugs 113, Fig. 9, mounted or slipped into the segmental fulcrum-support 114, Fig. 10, extended across the machine and open to the rear. The hub 44 of each of the type-bar carriers is held forward, with lugs 113, projecting therefrom, resting in seats 114<sup>x</sup>. The locking-strip 115, which, as seen in Fig. 4, has oblique slots 116, into which engage the supporting-studs 117, by which the strip 115 is carried. A proper lateral movement imparted to the strip will cause it to move back sufficiently far to clear or release the type-bar carriers, which can then be individually slipped or pushed back out of their seats 114. The strip 115 is engaged by arms 118, Figs. 1 and 5, of lever 118<sup>x</sup>, whose arm 119 is connected to the slide or handle 120, extended laterally in order that it may be within the reach of the operator. Moving the slide 120 longitudinally to swing lever 118 will cause the locking-strip 115 to move to releasing position, while a spring 121 tends to move lever 118 back to the normal position, so as to press and hold the strip 115 in locking position.

When the universal bar 32 moves forward and away from a number of the hooks 31, such hooks are held from dropping out of place by the fixed supporting-strip 122, Fig. 8, supporting the rear ends of slides 30. This strip 122 is carried by the fulcrum-support 114 and has lugs 123, Fig. 1, which support and guide the rearwardly-extending slide-rods 54 of the shift finger-carrier 52. By having the fulcrum carrier or support 114 arranged in the form of a segment of a circle and the type-bars arranged so that the types are in line with one another or at uniform distance from the end of the bar each type can be made to strike the printing-point or the center of such circle, so that satisfactory work is obtained. Each of the type-bars 46 being held against longitudinal movement by its block 48 and fork 51, the block 47 will remain a constant distance from pivot 113. The strip 115, the supporting-strip 122, and the carrier 52 are shown of segmental shape corresponding to and parallel or concentric with the fulcrum-carrier.

The front ends of slides 30 are adapted to move in or through a guide or support 124, Figs. 1 and 8, corresponding in its segmental form to the fulcrum-carrier, and the rear ends of these slides are shown guided in the radiating slots of the guide 125, Figs 8 and 10, which guide is preferably cast in one piece with carrier 114.

To prevent too free or a retrograde rotation of disks 79, a brake or friction spring 126, Fig. 6, can be applied to each such disk. The studs 78, Fig. 1, of these disks are shown fixed in or carried by suitably-mounted posts 127. The ribbon 70, running from spool to spool, passes over suitable seats or guides 128, Fig. 6, into which the ribbon can be slipped in order to support it normally in a horizontal position where it extends across the machine, as indicated in Fig. 1 of the drawings.

The segmental universal bar 32 can be suitably connected to the arms 33 by lugs 129, fixed to the bar 32 and pivoted at 130 to said arms 33 of rock-shaft 34.

The motion imparted to the arms 21 and 35, it has been found, is eased by having the contacting face of one of these arms convexed, so as to rock on the contact-face of the other. As the arms 21 and 35 merely contact with one another and are not positively connected, the feed-dog-actuating lever 18<sup>x</sup> can be vibrated by space-key 36 without imparting movement to the arm 35 or while leaving the universal bar 32 at rest.

The link 16, engaging the feed-dog carrier, has a laterally-projecting pin 131, Fig. 1, which catches or straddles the carrier to hold the latter during writing and during the shifting of the link to opposite sides of the pivot 14 of the carrier, but the cut or passage 103 allows the pin 131 to be withdrawn from the carrier when required, as has before been explained.

Each ribbon-spool catch 81, Fig. 1, when suitably extended beyond its spool 77, can be made to serve as a handle for winding or rotating such spool, as well as a means for maintaining the spool in place.

A practical way of mounting the disks 79 is to provide each disk with a long hub or sleeve, which slips over a stud 78 on a post 127, and loosely mounting the spool 77 and clutch-driver or roller-carrying bracket 84 on such hub. The type-bar support 114, as seen in Fig. 10, is also provided with or has cast therewith an overhanging or forwardly-projecting slotted comb-like guide 132, and as each bar-carrier 45 enters this comb or guide 132 at the time of making the printing stroke a blur of the print by reason of a vibration of the type-bar carrier is avoided.

The link 16, as seen in Fig. 7, is made extensible or of parts adjustably secured together, and the link, being lengthened or shortened, can be made to secure proper extent of movement required for the feed action.

The feed of a ribbon-spool or the play of a

lever 83 can be regulated by making the connection between the arms 82 and 83 adjustable, so that a longer or shorter throw can be imparted to the lever 83.

5 From the foregoing description it is thought the operation of the machine will be obvious and that no further description of the operation is necessary.

The improvements forming the subject-matter of our invention may be applied to a type-writer of any suitable or preferred construction. In the present instance we have illustrated our invention as applied to a "front-strike" machine having some of the characteristics of the well-known "Underwood" machine; but we would have it understood that various changes in construction and arrangement may be made to adapt our invention to machines of different types without departing from the spirit of our invention.

Certain of the features shown and described are not claimed herein, but form the subject-matter of a divisional application filed by us on the 2d day of September, 1899, Serial No. 729,295.

Having described the invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of type-bars, carriers on each of which a bar is movably mounted, a writing-key and a slide for actuating each of the carriers, a universal bar, a lock actuated by the universal bar, shifting mechanism, for moving the type-bars on the carriers, a key for operating said shifting mechanism, and means carried by said shifting mechanism for the engagement of the lock.

2. A type-bar, a carrier on which the bar is movably mounted, a writing-key and slide for actuating the carrier, a universal bar actuated by the slide, a shifting pin for the type-bar, a slide and rock-shaft connected to and operated by the universal bar for controlling the pin, said rock-shaft having an arm or stud adapted to be automatically engaged by a locking projection for holding the shifting pin in action until the bar has printed substantially as described.

3. A type-bar, a carrier on which the bar is movably mounted, a writing-key and slide for actuating the carrier, a universal bar actuated by the slide, a locking-slide having a hook or shoulder, a shifting pin for the type-bar, a key-actuated rock-shaft connected to the shifting pin, and an arm or stud carried by the rock-shaft and moved by the latter into the path of the hook of the locking-slide to be locked or engaged by the latter substantially as described.

4. A type-writing machine provided with a type-bar carrier, a rotatable type-bar carried by said carrier and a locking-spring mounted upon the carrier and adapted to maintain the type-bar in either one of a plurality of positions by frictional contact substantially as described.

5. A type-writing machine provided with a

type-bar carrier, a movable type-bar, carrying a plurality of type and a locking-spring, said bar and spring being mounted parallel to one another along the carrier and said spring being made to engage the bar for locking the same against accidental movement and for maintaining by spring-pressure any type thereon facing the platen substantially as described.

6. A type-writing machine provided with a type-bar carrier, a type-bar carried by said carrier and movable with relation thereto, a type-block on the bar, said type-bar carrying a plurality of type, a locking-spring, and a locking-block carried by the type-bar and made to conform to the type-block and cooperating with the locking-spring to hold any one of the type in printing position substantially as described.

7. A type-writing machine provided with a type-bar carrier, a type-bar adapted to turn on the carrier, the axis of rotation of said type-bar being at right angles to the pivot of the type-bar carrier, a support or bearing to which the carrier is pivoted, and a movable shift-plate between the pivot and the type-bar and adapted to interpose an abutment in the path of a portion of the type-bar to turn the same, substantially as described.

8. A type-writing machine provided with a universal bar, a type-bar, a shifter for the type-bar, and a lock for the shifter, said lock being actuated or slid by the universal bar, substantially as described.

9. A type-writing machine provided with a type-carrier, a writing-key, a slide directly connected to and actuated by the key and jointed directly to the carrier, a universal bar engaged by the slide and carriage-feed mechanism operated by said universal bar substantially as described.

10. A type-writing machine provided with a type-carrier, a writing-key, a slide directly connected to and actuated by the key and jointed directly to the carrier, a universal bar, said slide being made to engage the universal bar at the rear and being free from engagement at the front thereof so that the universal bar can move forward independently of the slide and carriage-feed mechanism operated by said universal bar, substantially as described.

11. A type-writing machine provided with type-carriers, writing-keys, and slides actuated by the keys and jointed directly to the carriers, said slides each having a series of pivot-receiving notches so that the slides are interchangeable and can be respectively engaged by various keys or banks substantially as described.

12. A type-writing machine provided with a type-bar, a writing-key, a slide between the key and the bar, a segmental universal bar at the back of the slide, a segmental guide for the front of the slide and carriage-feed mechanism operatively connected to said universal bar substantially as described.

13. A type-writing machine provided with a type-bar, a writing-key, a type-bar-actuating slide moved by the key, a shift-key, a locking-slide for the shift-key, a guiding-segment 5 for the front of the slides, and a universal bar back of this segment and made to move the locking-slide forward substantially as described.

14. A type-writing machine provided with 10 a universal bar, a writing-key and a slide for moving the bar forward, a spacing mechanism, substantially as described, a spacing-key and actuating-lever for operating the spacing mechanism independently of the writing-key, 15 said universal bar being connected to a forwardly-projecting rocking arm operated by the universal bar and made to engage the actuating-lever substantially as described.

15. A type-writing machine provided with 20 a universal bar, an actuating-key for the bar, a four-armed lever, an arm actuated by the universal bar and made to actuate one of the four arms, a returning-spring for another of the four arms, a spacing-key for another of 25 the four arms, and spacing mechanism substantially as described actuated by another of the four arms.

16. A type-writing machine provided with a universal bar, a writing-key for actuating 30 the bar, a spacing mechanism substantially as described, an actuating-lever for the spacing mechanism, and which is adapted to operate the same independently of the writing-key, and a forwardly-projecting arm connect- 35 ed to the universal bar made to overlie and engage an arm of the actuating-lever of the spacing mechanism, one of said arms having a contacting face convexed or made to rock along the contact-face of the other arm sub- 40 stantially as described.

17. A type-writing machine provided with a universal bar, a writing-key for actuating the bar, a spacing-mechanism lever for actuating said spacing mechanism, said lever 45 having an arm loosely engaged by a part operated from the universal bar, and a spacing-

key made to loosely engage another arm of the spacing-mechanism-actuating lever so as to actuate the latter independently of the universal bar and while the same is at rest 50 substantially as described.

18. A type-writing machine provided with a universal bar, a writing-key for actuating the bar, feed-dog and its coöperating rack, a 55 four-armed lever for operating said spacing mechanism, a spacing-key, and a spacing-dog, said universal bar, spacing-key and spacing-dog being made to engage or connected to the four-armed lever substantially 60 as described.

19. A type-writing machine provided with a universal bar, a writing-key adapted to actuate the bar, a lever fulcrumed in front of the universal bar and having a forwardly 65 and a backwardly extending arm, a feed-dog actuated by said lever, a rack coöperating with the feed-dog, an arm connected to be operated by the universal bar and made to engage the rearwardly-extending arm of the 70 lever, and a spacer-key made to engage the forwardly-extending arm of the lever substantially as described.

20. A type-bar carrier having lugs, a support for the carrier having a seat for the lugs, and a hand-operated movable retaining-strip 75 adapted to be seated against the rear of the carrier to hold the latter to its seat substantially as described.

21. A type-bar carrier, a support having a rearwardly-open seat for the carrier, a retain- 80 ing-strip for the carrier an inclined way or slot for moving the strip to and from the seat, and an actuating lever and slide for the strip substantially as described.

In testimony whereof we have hereunto set 85 our hands in the presence of two subscribing witnesses.

HERMAN L. WAGNER.  
FRANK L. WAGNER.

Witnesses:

W. C. HAUFF,  
E. F. KASTENHUBER.