P. DE CLAMECY.

TYPE WRITING MACHINE.

APPLICATION FILED MAR. 4, 1916.

1,278,872.

Patented Sept. 17, 1918.

5 SHEETS—SHEET 1.

Fig. 1.

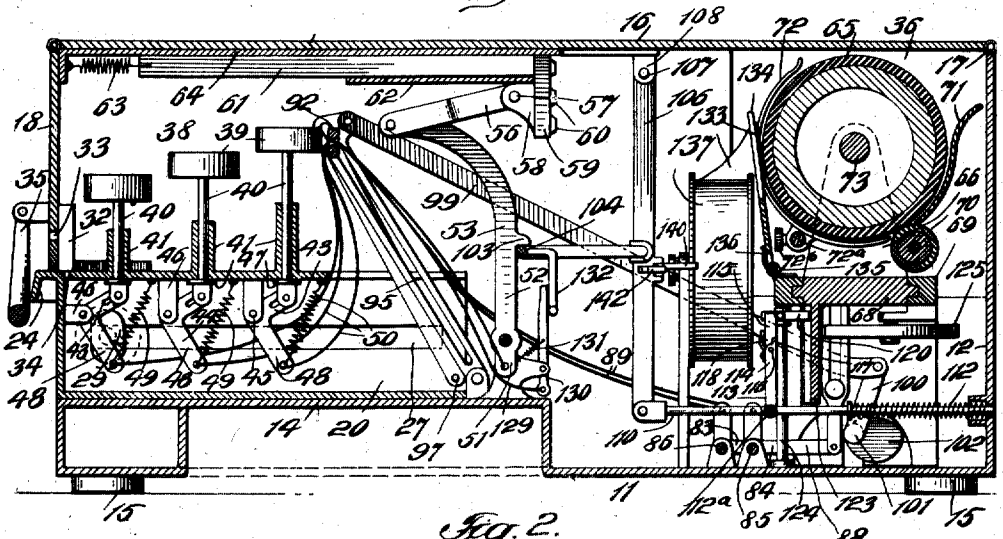


Fig. 2.

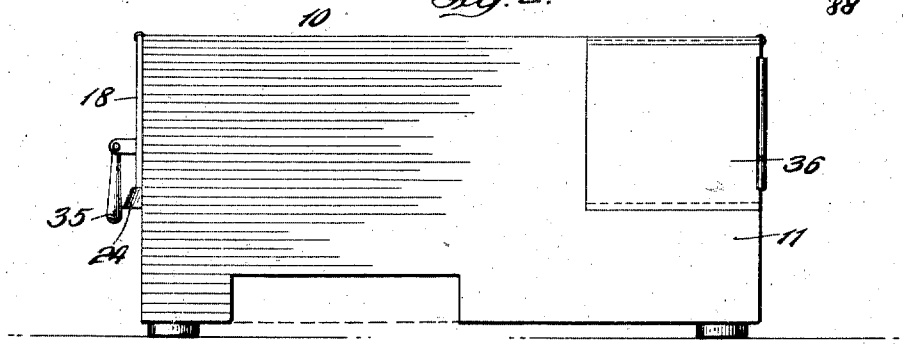
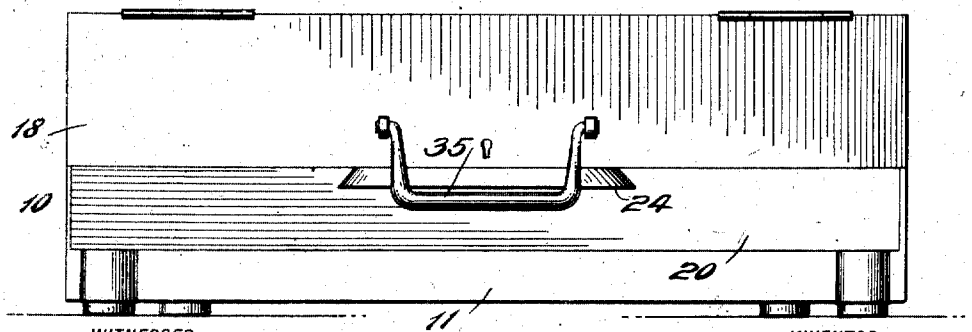


Fig. 3.



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5 SHEETS—SHEET 2.

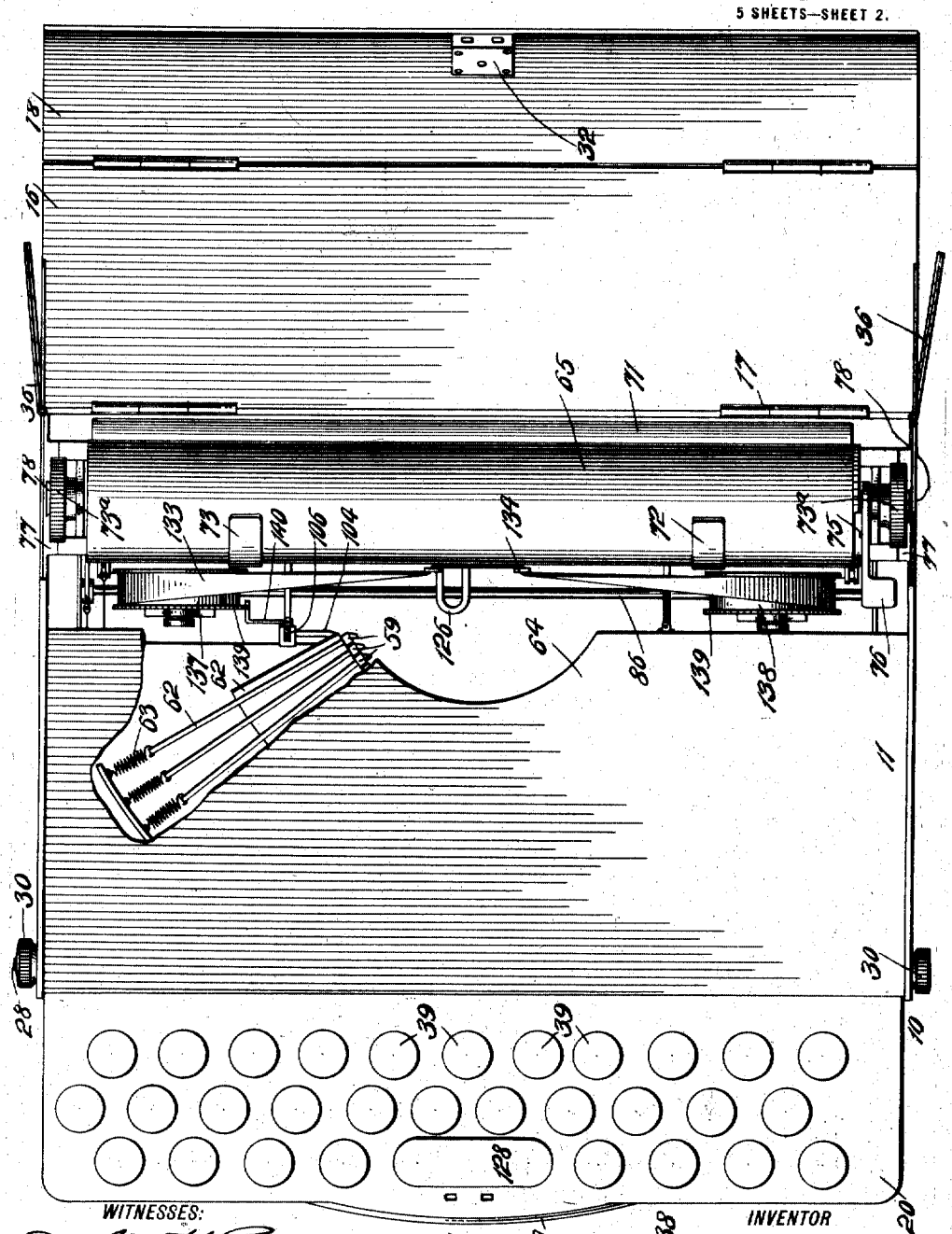


Fig. 4.

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5 SHEETS—SHEET 3.

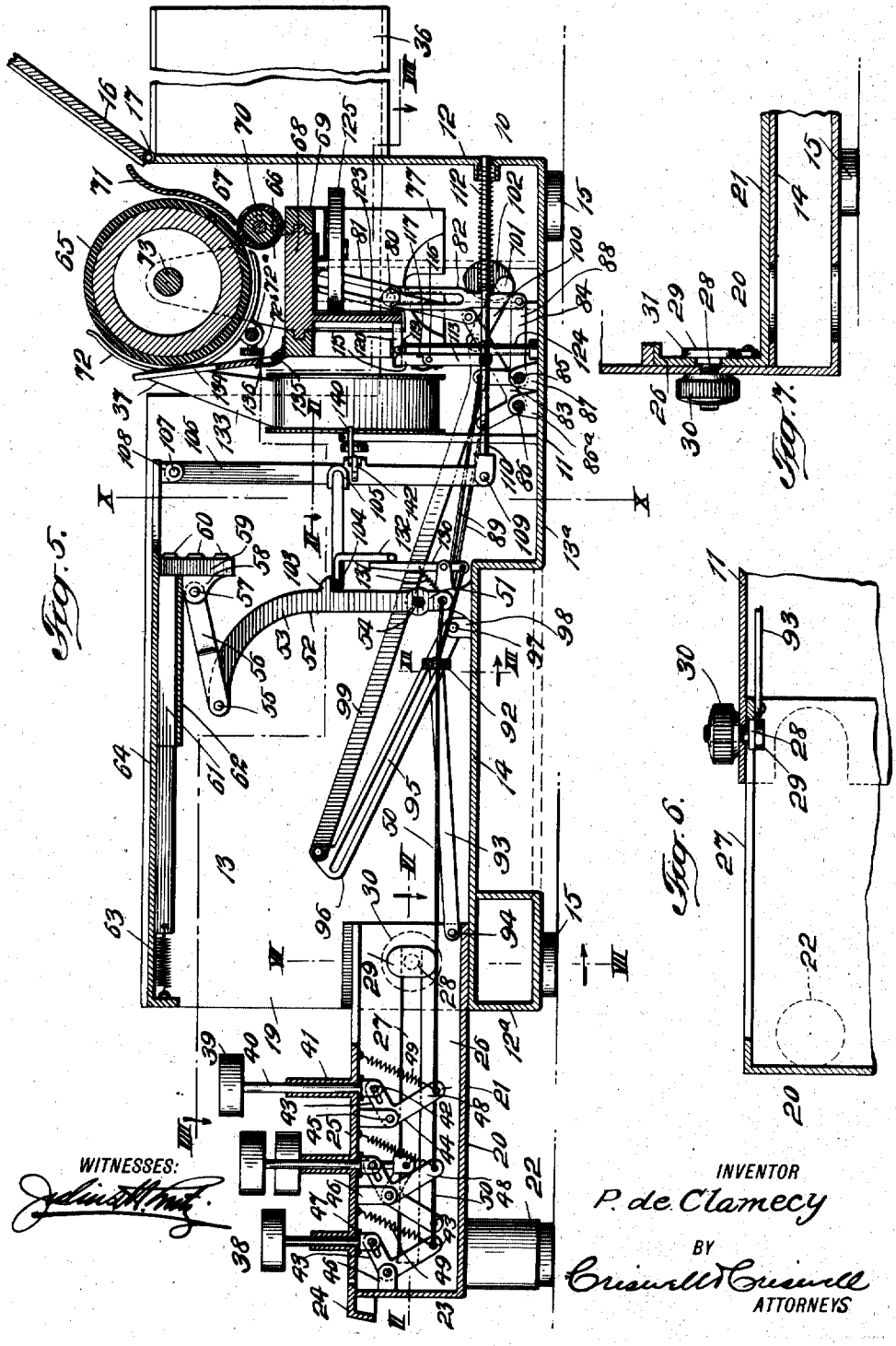


Fig. 5.

Fig. 4.

Fig. 6.

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5 SHEETS—SHEET 4.

Fig. 9.

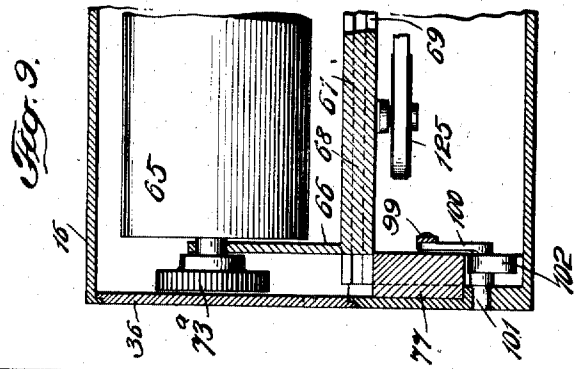
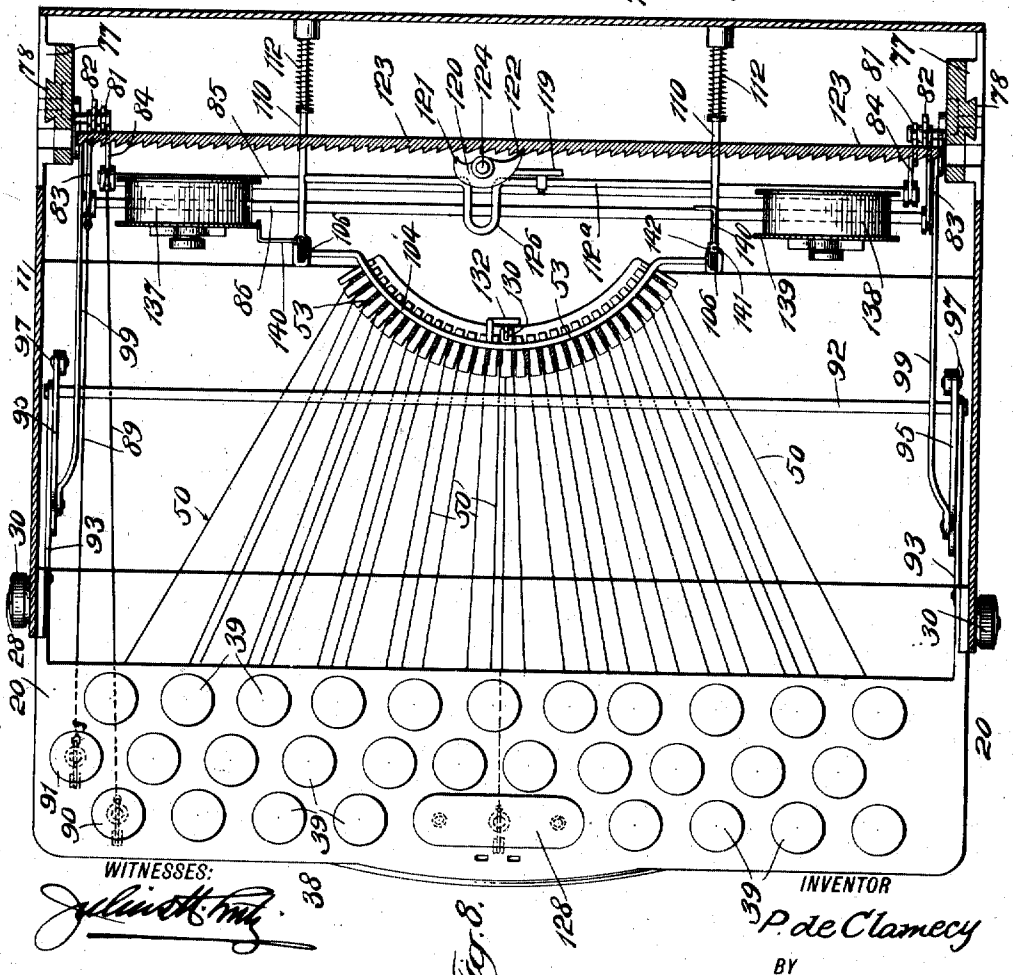


Fig. 8.



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5 SHEETS—SHEET 5.

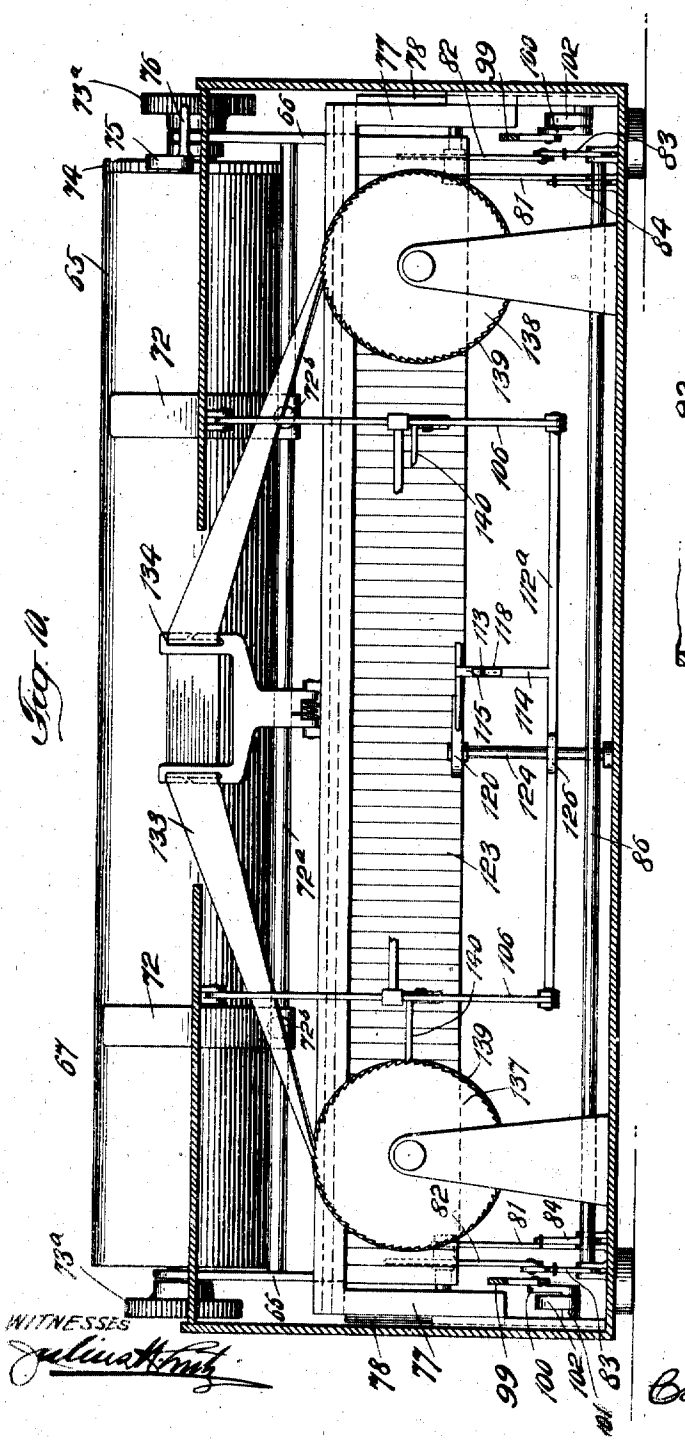


Fig. 10.

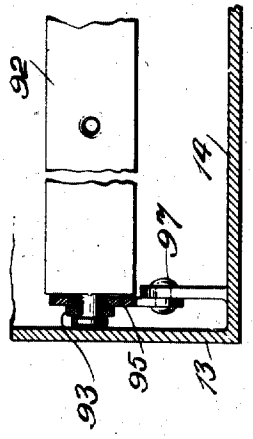


Fig. 12.

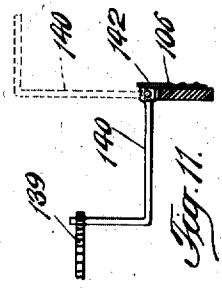


Fig. 11.

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UNITED STATES PATENT OFFICE.

PHILIPPE DE CLAMECY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO CORONA TYPEWRITER COMPANY, INC., A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

1,278,872. Specification of Letters Patent. Patented Sept. 17, 1918.

Application filed March 4, 1916. Serial No. 82,130.

To all whom it may concern:

Be it known that I, PHILIPPE DE CLAMECY, a citizen of the United States, and a resident of Boston, county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a full, clear, and exact description.

This invention relates more particularly to a front strike or other visible typewriting machine which may be made compact when not in use to adapt the same for transportation and other purposes.

One of the principal objects of the invention is to provide a small compact portable typewriter in which the keyboard is mounted upon a frame part or member which is slidably held to the main frame part or member and is movable from a normal operative or extended position to an abnormal and more compact one when not in use, and at the same time so construct the frame or support that it may form an inclosing case for all of the typewriter mechanism when in a closed condition, and which may be opened to adapt the typewriter and the parts to be readily accessible for operation in the usual way.

Another object of the invention is to provide a typewriter which is very compact when not in use and which is so constructed that it may be readily transported as a part of a person's luggage, or for other purposes.

Other objects of the invention are to provide a typewriter in which the support may be variously constructed whether as a case in which all the mechanism is mounted in order that a separate carrying case may be dispensed with, as is usually employed in connection with small portable typewriting machines, or wherein the frame may be constructed simply as a mounting for the different mechanisms so that the typewriter may be placed in a separate and independent carrying case, if desired; to provide a writing machine wherein the platen carriage may be given different elevations for different type carried by the different type-bars, and an additional movement given to the platen carriage to place the platen in an inoperative and more compact position with respect to the type; to provide simple mechanism for shifting the platen and carriage; to provide an effective key action in which key-operated levers may have their connection maintained between said levers and the type-bars in both the operative and compact positions; to provide type-bars wherein a sliding radial movement with respect to the printing point may be employed; to provide simple and effective escapement mechanism for controlling the feed of the carriage, and to provide means whereby an abnormal throw of the platen carriage to an inoperative position may be automatically effected when the keyboard is moved from its normal operative position to a compact position.

A further object of the invention is to provide means whereby the inclosing case for the typewriter mechanism may be locked and the parts so constructed that the mechanism is entirely protected and inaccessible when not in use.

A still further object of the invention is to provide a typewriter wherein the platen carriage and the keyboard in their operative and in their compact position are always maintained in an upright position.

A still further object of the invention is to provide a typewriter which is simple in construction, may be readily made and assembled, and which is effective in use.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawings, which form a part of this application, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a longitudinal section, partly in elevation, of one form of machine embodying the invention, showing the parts in a compact transportable condition.

Fig. 2 is a side elevation on a smaller scale of the inclosing casing.

Fig. 3 is a front elevation showing the inclosing casing and the handle for transporting the machine.

Fig. 4 is a plan view, partly broken away, showing the top and front portions of the casing, and the end sections thrown to an open position.

Fig. 5 is a longitudinal section partly in elevation, of the machine in position for use, certain parts of the casing being broken away in order that the invention may be illustrated on a somewhat larger scale, and

of a size corresponding to that shown in Fig. 1.

Fig. 6 is a fragmentary sectional plan taken on the line VI—VI of Fig. 5.

Fig. 7 is a fragmentary vertical section taken on the line VII—VII of Fig. 5.

Fig. 8 is a fragmentary sectional plan taken on the line VIII—VIII of Fig. 5.

Fig. 9 is a vertical section showing the means whereby the platen is moved to a normal operative position or to an abnormal inoperative position.

Fig. 10 is a vertical transverse section taken on the line X—X of Fig. 5.

Fig. 11 is a fragmentary sectional plan taken on the line XI—XI of Fig. 5; and

Fig. 12 is a fragmentary vertical section taken on the line XII—XII of Fig. 5.

While the invention is shown as applied to a particular kind of typewriter in which the keyboard is mounted and connected to the type-bars in a particular way and the different mechanisms are shown of a particular construction, it will be understood that many of these parts may be changed, and that some of the parts may be dispensed with or others substituted therefor without changing the nature or character of the invention.

The inclosing case 10 or other frame or support for the different parts of the typewriter may be variously constructed. As shown, the case or frame 10 comprises a main substantially box-like frame part 11, having a base, a rear wall 12, a partially open front wall 12^a and side walls 13. The base may be continuous or may have two offset parts 13^a and 14, as shown in the drawings, said offset parts being provided with the usual supporting rubber feet 15, if desired. A top or cover member 16, is hinged at 17 to the upper part of the rear wall 12, and at the end opposite the hinge 17 of said cover member or top 16 is a front plate or member 18. This member 18 is hinged at the forward edge of the top 16, and is adapted to inclose the open front or space 19 of the main part, member or section 11. At the front portion of the main frame part is a keyboard member or frame part 20. This frame part 20 is slidably held to move horizontally within the main member 11 from a normal operative and extended position, as shown in Fig. 5, to an abnormal compact one, as shown in Fig. 1. The frame part of member 20 may have a substantially box-like form of considerable less height and length than the main frame part 11, and said frame part has a base 21 on which may be supporting feet 22, a front wall 23 having an extended portion, as 24, by which the frame part 21 may be moved inwardly and outwardly and a top portion or plate 25. The base 21 of the frame part 20 is adapted to slide forwardly and rearwardly on the offset base part 14 and has its side walls 26 provided with slots 27. These slots 27 are each adapted to be engaged by the shank 28 of a pin or bolt 29, and engaging the threaded end of the shank 29 of each bolt is a thumb nut 30. The shank of the bolt 28 has a square portion to fit the slot 27 and forms a bearing portion and guide for the sides of the frame part 20 during its horizontal sliding movement. Each bolt has an enlarged head 31 so that by tightening the thumb nuts 30 at each side of the machine the extensible and slidable frame part 20 may be held either in its extended normal position or in its compact abnormal position. The front plate 18 of the inclosing case is adapted to rest against the upper surface of the top 25 of the frame part 20 when in a compact condition, and mounted upon the part 18 is a lock 32, as for example a lock such as is employed on desks and which is accessible by a key through an opening or keyhole 33 whereby the tumblers of the lock may be disengaged from or engage a slot 34 or other holding means in the top 25 of the frame part 20 to lock said frame part against access except by means of the key. The front part 18 may be also provided with a handle, as 35, for carrying purposes, and at the rear portion the case may have end pieces, as 36, to adapt the platen carriage, as will be presently described, to have free movement transversely of the machine when in use. The side or end pieces or members 36 are hinged to the rear wall 13 and are adapted to inclose the cutaway portions 37 of the side walls of the main frame part 11. The side pieces 36 have beaded or rabbeted edges and the top member 16 may also be provided with a rabbeted or beaded edge so as to lock the end pieces or members 36 in a closed position when in the position shown in Figs. 1, 2 and 3.

On the frame part 20 is mounted the keyboard 38. The keyboard may be of the usual standard or universal kind wherein a plurality of banks or groups of keys are arranged each operating individual type, such banks being in three or more sets, according to the number of printing characters, and whether or not a single case or double case shift is employed. The keys 39 are each arranged upon a vertically movable stem or rod 40. Each stem 40 is guided in a bushing or tubular part 41 extending upwardly from the top 25 of the keyboard frame part 20, and at the lower end of each stem 40 is a yoke or head 42 to which is pivotally connected the arm 43 of a bell-crank lever 44. The bell-crank lever 44 is pivoted at 45 to a lug or bracket 46 extending inwardly from the frame part 20, said part 46 extending inwardly from the top 25 for two banks

or rows of key-operated levers and from the front plate 23 of the frame part 20 for the third row of key-operated levers. The key-operated levers 44 have a pin-and-slot connection with the stems 40 and under each head 42 is a rubber or other strip 47 to take the shock due to the return movement of the rods 40. The arms 48 of the key-operated bell-crank levers are connected to springs 49, there being a spring for each lever and each spring being connected at one end to a part of the frame part 20 and at its other end to one of said levers. A link or connection 50 extends from each key-operated lever and has one end held to the short arm 51 of a lever 52. The links or connections 50 may be of wire, as piano wire, or of any other desired form, and each link or connection is adapted when its associated key is depressed to force the upper arm 53 of one of the levers 52 inwardly. The levers 52 are all mounted on a common pivot rod 54 which is curved according to the arrangement of the levers 53 and the parts actuated thereby. The arm 53 of each lever 52 is pivoted at 55 to a link 56, said link 56 being pivoted at 57 to a lug 58 of a type block or head 59. Each type block has a plurality of characters or type 60 thereon, in this case three characters because there is double case shift, as will be presently described, one of said characters representing the lower case type, another character the upper case type, and the third character or type, figures, punctuation marks, etc., this arrangement being varied according to the construction of the machine. The type heads or blocks 59 are held to bars 61. Each bar 61 is guided to slide in a bearing 62 and is normally forced in one direction by a spring 63, one end of which is held to the forward end of said bar and the other end to a part of the main casing or frame. The bars 61 are held in slots and over the bars is a finishing and a retaining plate 64. The bars 61 are arranged in a curved path so that as they are propelled or forced inwardly they will move toward the printing point to impress a character upon the work held upon the platen 65. The bars 61 are thus substantially radially arranged with respect to the printing point so that all the type of all the bars as each one is forced inwardly through the movement of the levers 52, links 56 and bars 61 on the depression of the keys 39 will strike at the same point on the work sheet. This arrangement of the type-bars is not broadly new. Instead of the type-bars having a horizontal sliding movement they may have an upward and rearward movement as is common in most standard visible writing machines.

The platen 65 is rotatably mounted upon end pieces or brackets 66 of a carriage 67. The platen carriage 67 has a base 68 which is grooved or otherwise constructed to move transversely of the machine and may be guided in grooves in a carriage bed 69. The carriage bed 69 is held to move vertically at its ends for case shift as will be presently described. The platen carriage may have the usual parts mounted thereon which cooperate with the platen, such as line-spacing, ribbon vibrating mechanism and other features usually employed in connection with typewriting machines. Some of the parts which are common to the ordinary typewriter are not shown and some features are shown in part and others simply suggested. There may be one or more feed-rolls, only one being shown, as roll 70, and adapted to guide the paper or work-sheet about the platen is a paper apron 71. Paper fingers 72 are held upon a transversely extending rod 72^a which may be graduated or not, as desired, and these paper fingers are adapted to be held in various positions by means of thumb-screws 72^b so that different widths of paper may be properly guided about the platen 65. The platen may be of usual construction and has its shaft 73 projecting beyond the end bracket 66, and on each end of said shaft may be a knob 73^a by which the platen may be rotated independently of its line-spacing mechanism in the usual way. The platen may have a ratchet wheel 74 at one end thereof and adapted to engage the teeth of the ratchet wheel is pawl 75, the latter being pivotally held to a finger lever 76. The lever 76 and pawl 75 is adapted to rotate the platen in its bearings for line-spacing, and while variable spacing is not provided for it will be evident that the construction may be such that the platen may be moved for single, double or variable spacing as is common in many types of writing machines.

As means for shifting the platen various constructions may be employed. As shown, the platen carriage is given a vertical movement for upper case printing, and in this particular machine the platen carriage has two shift movements to adapt the type heads each to have three characters thereon. The normal operative position of the platen with respect to the type on the blocks 59 is such that the printing point is directly in line with the lower type character on each type block, the normal position of the platen and carriage being obtained by mechanism presently to be described. The carriage bed 69 is held to vertically movable parts or slides 77. These slides 77 have a dovetail connection, as 78, with the enlarged parts or guides 79 located on opposite sides of the main frame part 11, so that the carriage and platen may be moved vertically and uniformly guided at both ends during such vertical movement. A pin 80 extends in-

wardly from each part 77 of the platen carriage and adapted to engage said pins are arms 81 and 82. The arms 81 and 82 are arranged in sets, there being an arm of each set located at opposite sides of the machine to impart uniform vertical movement to the platen carriage. The arms 81 and 82 are slotted to permit relative movement between the arms 81 and 82 and the carriage for the different shift movements of the platen carriage. The arms 81 are connected to bell-crank levers 83 and the arms 82 to bell-crank levers 84. These levers 83 and 84 are arranged in sets, the levers 84 being held to a transversely extending rod 85 and the bell-crank levers 83 to a transversely extending rod 86 whereby the bell-crank levers on opposite sides of the machine may be moved in pairs, said rods 85 and 86 having bearings in lugs 86[a] on the frame base part 13[a]. The arms 87 of the bell-crank levers 83 and the arms 88 of the bell-crank levers 84 are of relatively different lengths and said arms are adapted to impart different shift movements to the platen carriage according to the spacing between the type on the blocks or heads 59. The bell-crank levers 83 and 84 are each connected by a wire link 89 and these wire links are connected to key-operated bell-crank levers in the same way as the links 50 are connected to the bell-crank levers 48. Two shift keys 90 and 91, Fig. 8, are located on one side of the machine, and these keys when depressed will operate the bell-crank levers 83 and 84 to impart different shift movements to the platen carriage as already described.

The links 50 and 89 are guided in a transversely extending bar 92, there being an aperture in said bar for each link so that the links are properly held spaced apart. The bar 92 is held to one end of links 93 and these links at their other ends are pivotally held at 94 to the sides of the frame part 20. The ends of the bar 92 are guided in slots 95 of arms 96. These arms 96 are located on opposite sides of the machine and are pivotally held at 97 to lugs 98 extending upwardly from part 14 of the main frame part 11. The upper ends of the arms 96 are pivoted to links or connecting rods 99 and these links 99 are pivoted at their inner ends to arms 100. The arms 100 are held to studs 101 and on said studs 101 are eccentrics 102 so that as the links 99 are forced inward the arms or cranks 100 will rotate the eccentrics 102. In the compact position of the parts as shown in Fig. 1, the printing point of the platen is below the plane of travel of the lower case type on the type heads or blocks. When the keyboard frame part 20 is moved outwardly to a normal operative position, the transverse bar 92 by reason of its connection with the links 93 will force the arms 95 downwardly from the position shown in Fig. 1 to that shown in Fig. 5. This downward movement of the arms 96 will force the links 99 forwardly and such forward movement of said links 99 will rotate the eccentrics and this will elevate the carriage and platen to its normal operative position wherein the printing point of the platen is in a direct line with the travel or movement of the lower type character of the type-bars. In this position the platen may be shifted for the different type characters as already described, and may be restored to its normal position on the release of the shift keys either by gravity or by spring or springs, not shown, for that purpose. During the compact movement when the keyboard frame 20 is moved inwardly within the case such movement will elevate the bar 92 by reason of the link connection 93, and this will raise the arms 96 and force the links or arms 99 inwardly thereby rotating the eccentrics 102 which will permit an abnormal movement of the carriage and platen allowing the same to drop below the path of the type to an inoperative position. During this compact movement the wire link connections are raised by the bar 92 and are maintained in their proper relation by reason of said bar 92 and without liability of becoming entangled. A connection is thus always maintained between the key-operated levers and the type-bars as well as between the shift keys and the parts operated thereby, and during the extended and compact movement of the keyboard the normal and abnormal position of the platen and carriage is automatically effected through the action of the eccentrics 102 and the connection between said eccentrics and the keyboard frame part 20 as already described.

Any suitable escapement may be employed for controlling the letter-feed movement of the platen carriage. As one means each type-bar operating lever 52 is provided with a projecting part 103 and this projecting part overlies the universal bar 104. The universal bar is curved to conform to the arrangement of the type-bars, and said universal bar at its end is held at 105 to rocking arms 106. These arms 106 are pivoted at 107 to lugs 108 on the top plate 64, and at their lower ends said arms are pivoted at 109 to reciprocatory rods 110. The rods 110 have their outer ends guided in a part of the rear wall 12 of the main frame bar 11 or otherwise, and interposed between said wall and a collar 111 on each rod 110 is a spring 112 tending normally to force each rod 110 forwardly to move the universal bar against the levers 52. The rods 110 are connected together by a rod 112[a] and mounted to move

with said rod is an upright arm 113. This arm 113 is formed in two parts 114 and 115. The part 115 is pivoted at 116 to the part 114 to move therewith, there being a shoulder 117 to prevent movement of the part 115 relative to the part 114 except in one direction, a spring 118 being provided to hold the two parts of the arm 113 normally in alinement. The part 115 is adapted to engage an arm or projecting part 119 on a pivoted escapement dog or detent 120. The detent 120 has teeth or dogs 121 and 122 and is adapted to engage the teeth of a rack 123 extending downwardly from the platen carriage base 68. The dog 120 is pivotally held to a fixed rod 124 and the rack 123 is of a bar-like form and of such a width that the platen carriage may be moved relatively to the escapement dogs in a vertical direction without disengagement of the dogs and rack during the shift movement of the platen carriage. The detent 120 has its teeth or dogs 121 and 122 adapted to engage the teeth of the rack and control its letter-feed movement in the usual or in any preferred way, said carriage being under the tension of the usual spring arranged in a drum 125, there being a flexible connection between said drum and a part of the carriage tending normally to force the carriage transversely of the machine as usual. The escapement dogs, there may be a limber dog and a fixed dog if preferred instead of those shown, are not actuated during the rearward movement of the universal bar, the part 115 of the arm 113 yielding during said rearward movement to pass by the arm 119, but on the return movement of the universal bar the part 115 will actuate the escapement dog to permit the tension mechanism to force the carriage the distance of a letter-space, said part 115 again passing to the front of the arm 119. The purpose of having the escapement operated during the return movement of the universal bar is to avoid the feed movement of the carriage taking place at or about the time the type is making its impression on the work about the platen. The universal bar is as herein stated held to move with the arms 106, and by having said arms located on opposite sides of the longitudinal center of the machine a uniform movement is given to the universal bar no matter which lever 52 is operated, the rod 112^a which connects the rods 110 being bent substantially centrally thereof, as at 126, so as not to interfere with the vertical rod 124 on which the escapement detent 120 is mounted.

The escapement is adapted to be operated by a space bar 128 to letter space the carriage without operating the printing instrumentality. The space bar 128 may be connected to operate a bell-crank lever similar to the levers 44 for operating the typebars, and said bell-crank lever is connected by a wire link 129 or other flexible connection to a pivotally held arm 130, said wire link 129 being guided in the transversely extending bar 92 and in a manner similar to the wire links 50. The lever 130 is pivoted to a bracket on the frame base part 14, and is normally forced in one direction by a spring 131. The upper end of the arm 130 is adapted to engage a downwardly extending bar or part 132. This part 132 is held to the universal bar and when the space bar is depressed so as to move the lever 130, the part 132 will be operated and will force the universal bar rearwardly and operate the escapement as already described.

In the particular construction shown the ribbon 133 is held in a carrier or holder 134 adjacent to the printing point of the platen and is adapted to move forwardly and rearwardly to and from the platen instead of vibrating vertically as is usual in many visible writing machines. The ribbon holder 134 is pivoted at 135 to a part of the carriage base and may be normally forced in one direction by a spring 136, there being a suitable type guide, not shown, to guide the type blocks at the printing point during the writing through the ribbon. The ribbon 133 extends on opposite sides of the ribbon holder and passes about ribbon spools 137 and 138. These spools are adapted to be removable for replacing the ribbon and each spool may be provided with a ratchet wheel or toothed portion 139. A pawl 140 mounted on each arm 106 is adapted to engage the teeth of the ratchet wheel 139 during the rocking movement of said arms so as to impart a step-by-step movement to said arms according to which pawl is in engagement with the spool. Only one pawl is engaged at a time with its coöperating ribbon spool and each pawl is pivoted at 141 to one of the arms 106 and is normally held in either an operative or inoperative position by means of a spring 142, said pawls being moved either manually or otherwise to reverse the direction of travel of the ribbon. The movement of the pawls is in an arc corresponding to the movement of the arms 106, and during such movement will actuate the ribbon spools.

The construction and operation of the invention will be readily understood from the foregoing description when taken in connection with the accompanying drawings. Assuming the parts to be in the position shown in Fig. 5, it will be apparent that on the depression of one of the keys 39, its coöperating bell-crank lever 44 will be actuated and said bell-crank lever will force the link or connection 50 forwardly so as to operate one of the levers 53 to which the link is attached, the links 56 connected to the

lever 53 and to the type-bars 61 during their rearward movement forcing the type to make an impression upon the work about the platen. On the release of the keys the type-bars and parts will be restored to their normal operative position. As each lever 53 is operated the universal bar 104 will be moved and by means of the vertical arm 113 the escapement dog will be operated during the return movement of said arm, thus permitting the carriage to move a letter space under the tension of the drum 125. The platen carriage may be shifted for capitals and figures as already described and during the printing operation and movement of the universal bar the ribbon will be given a step-by-step movement. When the machine is to be made compact the platen carriage is moved along the carriage bed to space the knobs 73 within the side walls 13 of the main frame part, and the keyboard frame part 20 is moved inwardly as shown in Fig. 1. This inward movement of the keyboard frame part will force the transversely extending bar 92 upwardly and will cause the rods or links 99 to rotate the eccentrics 102, thus permitting the platen and carriage to lower to an inoperative position with respect to the type. The ends 36 of the casing or frame may be moved to close the open space 37 in the side walls 13, and the top or cover 16 and front plate or member 18 may be moved to the position shown in Fig. 1. In this position the front plate and cover may be held by means of a lock 32, at which time the machine is in condition for transportation, and the parts concealed and protected.

From the foregoing it will be apparent that a simple and efficient machine is provided wherein a keyboard frame part is slidably held to move within the main frame part, that the frame parts may be made to provide an inclosing casing or said frame parts may be constructed on the lines of the usual typewriter frame adapted to be placed in a separate carrying case or to be used independently of said case, that means are provided whereby the platen carriage may be given different shift movements and in addition have an abnormal movement to make the machine more compact; that an effective key-action is provided whereby a positive connection may be always maintained between the type-bars and the key-operated levers both in the normal operative position and in the compact position of the parts, that the key-action is such and the type-bars are held and travel in such a way that less noise takes place during the printing operation than is the case with the usual rearwardly and upwardly moving type-bars; that means are provided whereby the normal position of the platen carriage and the abnormal position thereof is obtained automatically during the extension and compact movement of the keyboard frame part; that means are provided whereby a wire or other flexible connection may be used between the keys and the type-bars and such flexible connection controlled and prevented from becoming entangled with each other; and that said machine is simple in construction, effective in use and may be readily made and assembled.

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

1. In a typewriting machine, the combination of a main frame part, a platen carriage movable transversely of said frame part, type-bars, a keyboard frame part slidably held to move within the main frame part when the machine is compact and to be extended when in a normal operative position, keys arranged in banks and forming a part of a universal keyboard, said banks always maintaining their same relation, levers operated by said keys, means connecting the levers to the type-bars and adapted to have such connection maintained both in the normal operative position and in the compact position of the keyboard, means operatively connected to the keyboard frame part to permit the platen carriage to move from a normal operative position to an abnormal one when the keyboard frame part is moved in one direction and to automatically move the platen carriage to a normal operative position when the keyboard frame part is moved in the opposite direction, said keyboard and platen carriage being maintained in an upright position during the compact and extended movements of the parts.

2. In a typewriting machine, the combination of a main frame part, a carriage movable transversely of said frame part, type, a keyboard frame part held to move within the main frame part when the machine is compact and to be extended when in a normal operative position, and keys arranged in banks having a fixed relation and forming a part of universal keyboard and operatively connected to the type, said connection being maintained both in the normal operative position and in the compact position of the keyboard.

3. In a visible typewriting machine, the combination of a main frame part, a carriage movable transversely of said frame part, type, a keyboard frame part held to move within the main frame part when the machine is compact and to be extended when in a normal operative position, keys operatively connected to the type and adapted to have such connection maintained both in the normal operative position and in the compact position of the keyboard, and means whereby the carriage may have an abnormal

inoperative and compact position, said keyboard and platen carriage being maintained in an upright position during the compact and extended movements of the parts.

4. In a visible typewriting machine, the combination of a main frame part, a platen carriage movable transversely of said frame part, type, a keyboard frame part slidably held to move within the main frame part when the machine is compact and to be extended when in a normal operative position, keys arranged in banks having a fixed relation to each other, levers operated by said keys, and means connecting the levers to the type and adapted to have such connection maintained both in the normal operative position and in the compact position of the keyboard.

5. In a typewriting machine, the combination of a main frame part, a platen carriage movable transversely of said frame part, type-bars, a keyboard frame part held to move within the main frame part when the machine is compact and to be moved outwardly from said main frame part when in a normal operative position, keys forming a part of the universal keyboard and arranged in banks having a fixed relation to each other, means connecting the keys to the type-bars and having such connection maintained both in the normal operative position and in the compact position of the keyboard, and means operatively connected to the keyboard frame part to permit the platen carriage to move from a normal operative position to an abnormal one when the keyboard frame part is moved in one direction and to move the platen carriage automatically to a normal operative position when the keyboard frame part is moved in the opposite direction.

6. In a typewriting machine, the combination of a main frame part, a platen carriage movable transversely of said frame part, type-bars, a keyboard frame part slidably held to move within the main frame part when the machine is compact and to be extended when in a normal operative position, keys arranged in banks having a fixed relation to each other, and means connecting the keys to the type-bars and adapted to have such connection maintained both in the normal operative position and in the compact position of the keyboard, said keyboard and platen carriage being maintained in an upright position during the compact and extended movements of the parts.

7. In a typewriting machine, the combination of a casing having a main frame part and a keyboard frame part movable relatively to each other from a normal operative extended position to a more compact one, said main frame part having side walls cutaway at a part thereof, a platen carriage adapted to move transversely of the machine through the cutaway parts of said casing, end members forming a part of the casing and hinged to the rear wall, a top hinged to the main frame part at one end and adapted to form a cover for the casing, a front member hinged to the top member and adapted to fit about the front portion of the main frame member, means whereby the front member and top may be locked to the keyboard frame part, key-operated levers mounted upon the keyboard frame part and forming a part of a universal keyboard, type-bars, operative connections between the key-operated levers and the type-bars, and means whereby the platen carriage may move to an abnormal inoperative position.

8. In a typewriting machine, the combination of a casing having a main frame part and a keyboard frame part movable relatively to each other from a normal operative extended position to a more compact one, a platen carriage adapted to move transversely of the machine, a top hinged to the main frame part at one end and adapted to form a cover for the casing, a front member hinged to the top member and adapted to fit about the front portion of the main frame member, means whereby the front member and top may be locked to the keyboard frame part, key-operated levers mounted upon the keyboard frame part, type, and operative connections between the key-operated levers and the type.

9. In a typewriting machine, the combination of a casing having a main frame part and a keyboard frame part slidably held to move relatively to each other from a normal operative position to a more compact one, said main frame part having side walls cutaway at a part thereof, a platen carriage adapted to move transversely of the machine through the cutaway parts of said casing, means for closing said frame parts of the casing, a top hinged to the main frame part at one end and adapted to form a cover for the casing, a front member hinged to the top member and adapted to fit about the front portion of the main frame member, means whereby the front member and top may be locked to the keyboard frame part, keys arranged in banks having fixed relation to each other mounted upon the keyboard frame part and forming a part of a universal keyboard, type-bars, operative connections between the key-operated levers and the type-bars, said operative connections being maintained in all positions of the keyboard and the keyboard frame part, and means whereby the platen carriage may move downwardly to an abnormal inoperative position.

10. In a visible typewriting machine, the combination of a casing having a box-like main frame part and a smaller box-like key-

board frame part movable relatively to each other from a normal operative extended position to a more compact one to place the keyboard frame part within the main frame part, means for holding the frame parts together, a platen carriage adapted to move transversely of the machine, a top hinged to the main frame part and adapted to form a cover for the casing, means whereby the top may be locked to the keyboard frame part, key-operated levers mounted upon the keyboard frame part and partaking of its compact and extended movements, said levers being arranged in groups and having a fixed relation to each other, type-bars, operative connections between the key-operated levers and the type-bars, and means whereby the platen carriage may move to an abnormal inoperative and compact position.

11. In a typewriting machine, the combination of a main frame part and a keyboard frame part slidingly held together to have a relative movement to make the machine compact when not in use, type mounted in the main frame part, keys mounted on the keyboard frame part and operatively connected to the type, and a platen carriage movable away from the type to a more compact position.

12. In a typewriting machine, the combination of type, a keyboard movable as a whole toward the type, and a platen carriage movable away from the type to a more compact position.

13. In a typewriting machine, the combination of type, a universal keyboard movable toward the type, and a platen carriage movable downwardly from a normal operative position to a more compact one and in a substantially vertical direction.

14. In a typewriting machine, the combination of a main frame part, a platen carriage adapted to travel transversely of the machine on said main frame part, printing instrumentalities mounted on the main frame part, a keyboard frame part substantially box-like in form, having slotted side walls, bolts engaging said slots to form a guide for said frame part, means whereby the bolts may be made to lock the frame part in an extended normal operative position or in a compact position within the main frame part, a keyboard mounted on said keyboard frame part and having banks of keys and levers operated by said keys, and flexible connections between the levers and the type-bars.

15. In a typewriting machine, the combination of a main frame part, a platen carriage adapted to travel transversely of the machine on said main frame part, type mounted on the main frame part, a keyboard frame part having slotted side walls, bolts engaging said slots, means whereby the bolt may be made to lock the keyboard frame part in an extended normal operative position or in a compact position, and a keyboard mounted on said keyboard frame part and having banks of keys operatively connected to the type.

16. In a typewriting machine, the combination of a main frame part, a platen carriage adapted to travel transversely of the machine on said main frame part, type mounted on the main frame part, a keyboard frame part slidably held to the main frame part, means for locking the frame parts together, means mounted on the main frame part and coöperating with said frame parts to form an inclosing case for the typewriter mechanisms, and a keyboard mounted on the keyboard frame part and having banks of keys operatively connected to the type.

17. In a typewriting machine, the combination of a main frame part, a platen carriage adapted to travel transversely of the machine on said main frame part, type-bars mounted upon the main frame part, a keyboard frame part, means for locking the frame parts together, a keyboard mounted on the keyboard frame part and having banks of keys and levers operated by said keys, and flexible connections between the levers and the type-bars.

18. In a typewriting machine, the combination of a main frame, type bars supported on said frame, a platen carried movable downwardly within the main frame at the rear of the type-bars from a normal operative position to a more compact inoperative position, and a keyboard movable from a normal operative position to a more compact inoperative position, said keyboard and platen carriage being always maintained in an upright position.

19. In a typewriting machine, the combination of a main frame, a platen carriage supported on the main frame and movable from an extended normal operative position to a more compact inoperative position within the main frame, and a keyboard movable from an extended operative position to a more compact inoperative position within the main frame, said keyboard and platen carriage being maintained in an upright position when moved within the main frame.

20. In a typewriting machine, the combination of a main frame, type bars mounted on said frame, a platen carriage, a support for the platen carriage slidably held to the main frame to move the carriage from a normal operative position downwardly to a more compact inoperative position at the rear of the type-bars, a keyboard support slidably connected with the main frame and movable from a normal operative position

to a more compact inoperative position, and keys mounted on said keyboard support and movable therewith to and from compact position.

21. In a typewriting machine, the combination of a main frame, a platen carriage, a vertically slidable support for the platen carriage mounted in the main frame and adapted to move the platen carriage from a normal operative extended position to a more compact inoperative position within the main frame, a horizontally slidable keyboard support held to the main frame and movable from an extended operative position to a more compact inoperative position within the main frame, and keys mounted on said keyboard support and movable therewith to and from compact position.

22. In a typewriting machine, the combination of a frame, type bars supported on the frame, a keyboard slidably supported in the frame and movable from a normal operative position to a more compact position, and flexible connections between the type bars and keyboard.

23. In a typewriting machine, the combination of type, a platen carriage movable away from the type from a normal operative position to a more compact inoperative position, a keyboard movable toward the type from a normal operative position to a more compact position relatively to the platen carriage, and means for causing said keyboard and platen carriage to move to and from compact position simultaneously.

24. In a typewriting machine, the combination of a main frame, type mounted on said frame, a platen carriage, a support for the platen carriage slidably held to the main frame to move the carriage from a normal operative position downwardly to a more compact inoperative position at the rear of the type, a keyboard support slidably connected with the main frame and movable from a normal operative position to a more compact inoperative position, keys mounted on said keyboard support and movable therewith to and from compact position, and means for causing said keyboard support and platen carriage support to move simultaneously to and from compact position.

25. In a typewriting machine, the combination of a frame, a platen carriage, a keyboard, and means for simultaneously moving said keyboard and platen carriage in paths at right angles to each other from normal operative position to more compact inoperative positions, said keyboard and carriage being always maintained in an upright position.

26. In a typewriting machine, the combination of a frame, a platen carriage movable downwardly from a normal operative position to a more compact position, a keyboard held to the frame and movable from a normal operative position to a more compact position, and means actuated by the movement of the keyboard for automatically moving the platen carriage to and from compact position.

27. In a typewriting machine, the combination of a main frame, a platen carriage, a support for the platen carriage slidably held to the main frame to move the carriage downwardly from a normal operative position to a more compact inoperative position, a keyboard support slidably held to the main frame and movable from a normal operative position to a more compact position, keys mounted on the keyboard support and movable therewith to and from compact position, and means actuated by the movement of the keyboard support for automatically moving the platen carriage to and from compact position.

28. In a typewriting machine, the combination of a frame, a platen carriage, a keyboard held to the frame and movable horizontally from a normal operative position to a more compact position, and means actuated by the horizontal movement of the keyboard for moving the platen carriage vertically from a normal operative position to a more compact inoperative position.

29. In a typewriting machine, the combination of a frame, a key action, type, and a platen carriage movable vertically from a normal operative position to a more compact inoperative position within the frame.

30. In a typewriting machine, the combination of a frame, a key action, type, a platen carriage, a support for the platen carriage slidably mounted within the frame, and means for moving said support to move the platen carriage from a normal operative position to a more compact inoperative position within the frame while upright.

31. In a typewriting machine, the combination of a main frame part, a keyboard frame part movably held on the said main frame part, typebars on the main part, key levers on the movable keyboard frame part, and flexible wire connections between the key levers and the type bars and adapted to be collapsed when the keyboard is moved to compact position, and to be extended when the keyboard is moved to operative position.

32. In a typewriting machine, the combination of a main frame part, a keyboard frame part movably held on the said main frame part, type bars on the main part, key levers on the movable keyboard frame part, flexible wire connections between the key levers and the type bars and adapted to be collapsed when the key board is moved to compact position, and to be extended when the keyboard is moved to operative position, and

means for taking up the slack in said wires when the keyboard is moved to its compact position.

33. In a typewriting machine, the combination of a frame, a platen carriage, type bars, key-operated levers movable bodily toward the type bars from a normal operative position to a more compact position, flexible operating connections between said levers and type bars, and means for automatically taking up slack in said flexible connections when the key levers are moved to compact position.

34. In a typewriting machine, the combination of a frame, a platen carriage, type bars, key-operated levers movable bodily toward the type bars from a normal operative position to a more compact position, flexible operating connections between said levers and type bars, and means engaging said flexible connections intermediate their ends to hold said connections in spaced relation, said means being adapted to automatically take up the slack in said connections when the key-operated levers are moved to compact position.

35. In a typewriting machine, the combination of a main frame, a keyboard support held to the main frame and movable from a normal operative position to a more compact position, key-operated levers mounted on the keyboard support, type bars mounted on the main frame, flexible operating connections between the key-operated levers and type bars, a bar having a guide for each flexible connection, and means for automatically shifting said bar when the keyboard support is moved to maintain said flexible connections taut.

36. In a typewriting machine, the combination of a main frame, a keyboard support held to the main frame and movable from a normal operative position to a more compact position, key-operated levers mounted on the key-board support, type bars mounted on the main frame, flexible operating connections between the key-operated levers and type bars, a bar having a guide for each flexible connection, arms pivotally held to the main frame and having guides in which said bar is slidably held, and links connecting said bar with the keyboard support for automatically shifting the bar when the support is moved.

37. In a typewriting machine, the combination of a main frame, type bars mounted on the main frame, a keyboard support held to the main frame and slidable horizontally from a normal operative position into more compact relation with the type bars, key-operated levers mounted on said support, flexible connections between the key-operated levers and type bars, a transversely extending bar having a guide for each connection, and a link connection between said bar and keyboard support for shifting said bar when the support is moved to take up the slack in said connections.

38. In a typewriting machine, the combination of a frame, type bars mounted on the frame, a keyboard support slidably held to the frame and movable from a normal operative position to a more compact position within the frame, key-operated levers mounted on said support in banks having a fixed relation to each other, and collapsible constantly maintained operating connections between said levers and type bars.

39. In a typewriting machine, the combination of a frame, type bars mounted on the frame, a keyboard support slidably held to the frame and movable from a normal operative position to a more compact position within the frame, key-operated levers mounted on said support in banks having a fixed relation to each other, flexible operating connections between said levers and type bars, and means for automatically taking up the slack in said connections when said support is moved.

40. In a typewriting machine, the combination of a frame, type bars mounted on the frame, a keyboard support slidably held to the frame and movable from a normal operative position to a more compact position within the frame, key-operated levers mounted on said support in banks having a fixed relation to each other, flexible operating connections between said levers and type bars, a bar having a guide for each connection for holding the connections in spaced relation, and means connecting said bar with the keyboard support for automatically shifting said bar when the support is moved to take up the slack in said connections.

41. In a compactible typewriting machine, the combination of a frame comprising relatively slidable parts, type-bars mounted on one of said frame parts, key-operated levers mounted on another of said frame parts and movable therewith from an extended operative position to a more compact position beneath the type-bars, and collapsible constantly maintained operating connections between the key-operated levers and type-bars.

42. In a compactible typewriting machine, the combination of a frame comprising relatively movable parts, type-bars supported on one of said parts, key-levers supported on another of said parts and movable therewith from a normal operative position to a more compact position beneath the type-bars, and means maintaining a mechanical connection between the key-levers and type-bars in both the normal and compacted positions of the key-levers.

43. In a typewriting machine, the combi-

nation of a frame comprising relatively slidable parts, type-bars mounted on one of said frame parts, key-operated levers mounted on another of said frame parts and movable therewith from an extended operative position to a more compact position beneath the type-bars, constantly maintained flexible operating connections between the key-operated levers and type-bars, and means for automatically taking up slack in said flexible connections when said frame parts are moved into compacted relation.

44. In a typewriting machine, the combination of a frame comprising relatively slidable parts, type-bars mounted on one of said frame parts, key-operated levers mounted on another of said frame parts and movable therewith from an extended operative position to a more compact position beneath the type bars, constantly maintained flexible operating connections between the key-operated levers and type-bars, means for spacing and guiding said flexible connections, and means for automatically shifting said spacing and guiding means vertically to take up slack in said connections when said frame parts are moved into compact relation.

45. In a compactible typewriting machine, the combination of a support, type-bars mounted on the support, a keyboard movable while upright from a normal operative position to a more compact position relatively to the type-bars, and constantly maintained operating connections between the keys of the keyboard and the type-bars adapted to flex when the keyboard is moved to compacted position.

46. In a compactible typewriting machine, the combination of a main frame comprising relatively movable parts to adapt the machine to be compacted when not in use, key-operated levers mounted on one frame part, type-bars mounted on another frame part, and flexible constantly maintained operating connections between said key-operated levers and type-bars.

47. In a typewriting machine, the combination of a main frame part, type-bars mounted on said main frame part, key-operated levers, flexible constantly maintained operating connections between the key-operated levers and type-bars, a support for the key-operated levers movable relatively to the main frame part to shift said levers from a normal operative position to a more compact position when the machine is not in use, and means engaging said flexible connections intermediate the ends thereof adapted to flex said connections to take up slack therein when the key-levers are moved to compact position.

48. In a typewriting machine, the combination of a support, type-bars mounted on said support, a keyboard shiftable relatively to said support from a normal extended operative position to a more compact inoperative position, flexible operating connections between the keys of the keyboard and the type-bars, and means for positively flexing said connections when the keyboard is shifted to compact position.

49. In a compactible typewriting machine, the combination of a support, type-bars mounted on the support, a platen carriage movable downwardly at the rear of the type-bars to compact the machine when not in use, a keyboard movable to a compact position beneath the type-bars, and means for simultaneously moving said platen carriage and keyboard to and from compacted position.

50. In a compactible typewriting machine, the combination of a support, type-bars mounted on the support, a platen carriage movable downwardly at the rear of the type-bars to compact the machine when not in use, a keyboard movable to a compact position beneath the type-bars, and means for simultaneously moving said platen carriage and keyboard while upright to and from compacted position.

51. In a compactible typewriting machine, the combination of a platen carriage, a platen mounted on the carriage, type-bars, a keyboard, means for simultaneously moving said platen carriage and keyboard relatively to the type bars to place the platen and keyboard in more compact relation with each other when the machine is not in use, and operating means maintaining a mechanical connection between each type-bar and its related key of the keyboard at all times.

52. In a compactible typewriting machine, the combination of a platen carriage, a platen mounted on the carriage, type-bars, a keyboard, means for simultaneously moving said platen carriage and keyboard relatively to the type-bars while maintained in an upright position to place the platen and keyboard in more compact relation with each other when the machine is not in use, and operating means maintaining a mechanical connection between each type-bar and its related key of the keyboard at all times.

53. In a compactible typewriting machine, the combination with the type-bars, of a platen and a keyboard both movable relatively to the type-bars and substantially at right angles to each other to place the platen and keyboard in more compact relation with each other when the machine is not in use.

54. In a compactible typewriting machine, the combination with the typebars, of a platen and a universal keyboard both movable relatively to the type-bars while in an upright position to place the platen and key-

board in more compact relation with each other when the machine is not in use, and means forming a positive connection between each type-bar and its related key of the keyboard at all times.

55. In a compactible typewriting machine, the combination with a support, of type-bars mounted on the support, a keyboard movable relatively to the type-bars while upright from a normal operative position to a compact position beneath the type-bars, means forming a positive connection between each type-bar and its related key of the keyboard at all times, a platen, and a platen carriage movable relatively to the type-bars while upright to place the platen in more compact relation with the keyboard.

This specification signed this 2d day of March, A. D. 1916.

PHILIPPE DE CLAMECY.