Nov. 18, 1924. 1,515,663

K. DIETRICH

POCKET TYPEWRITING MACHINE

Filed Sept. 4 1923 3 Sheets-Sheet 1

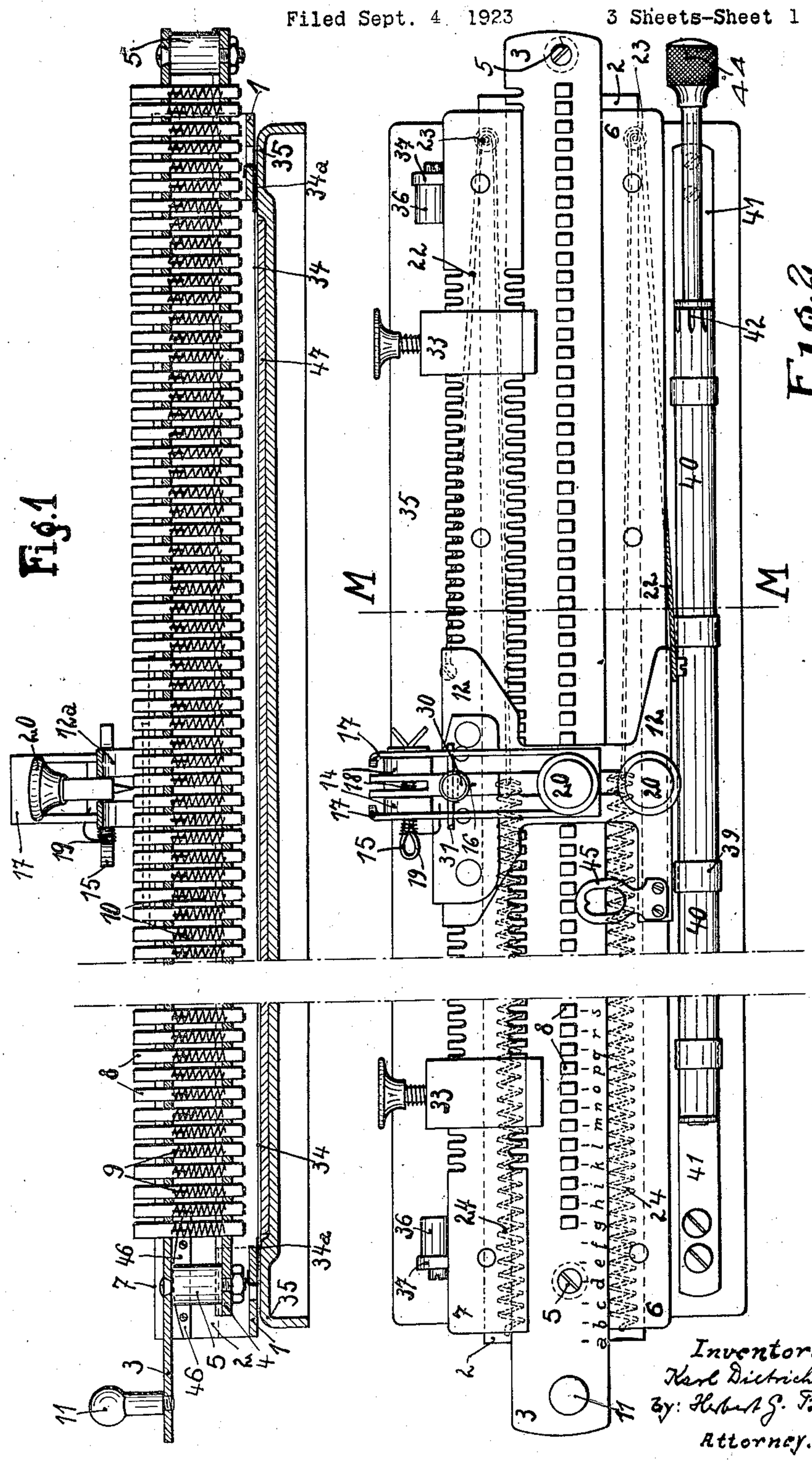

Fig.1

Fig.2

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K. DIETRICH

POCKET TYPEWRITING MACHINE

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Fig. 3

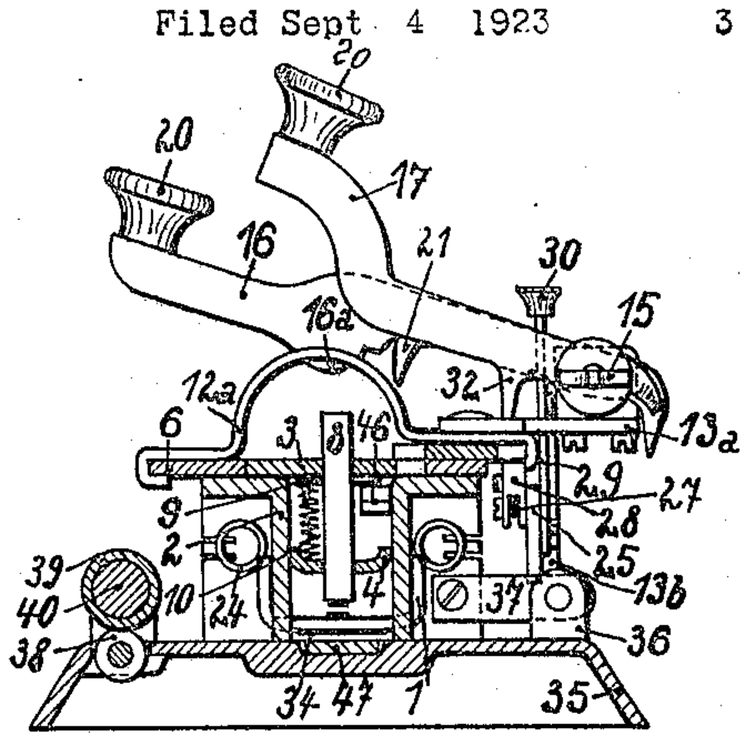


Fig. 4

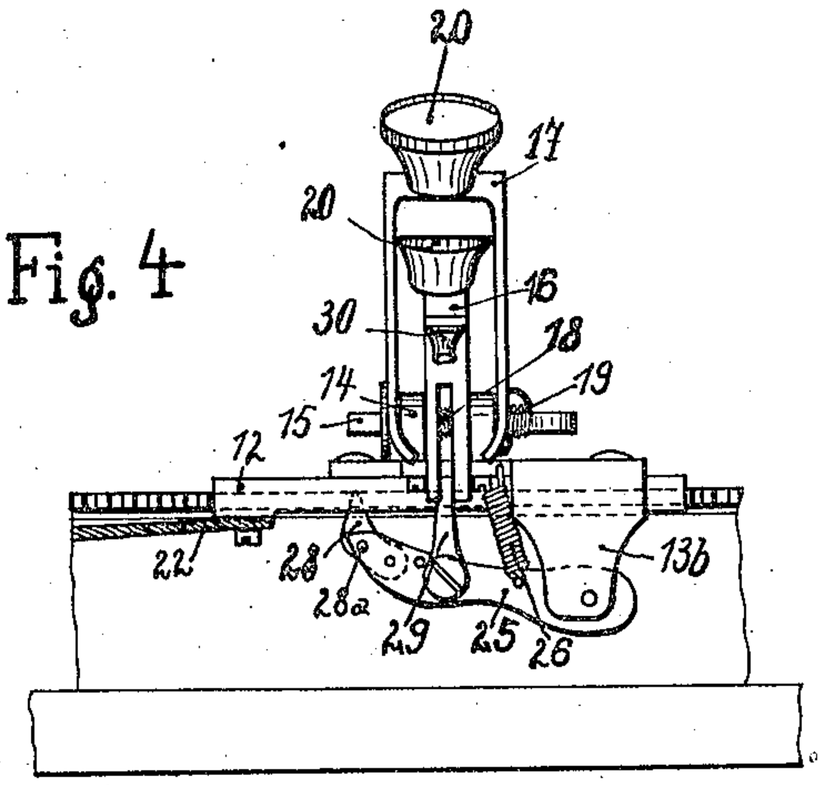
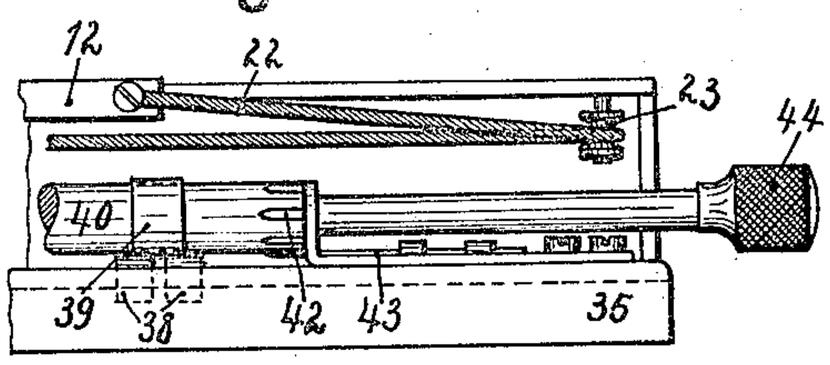


Fig. 5



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POCKET TYPEWRITING MACHINE

Filed Sept. 4 1923 3 Sheets-Sheet 3

Fig. 6

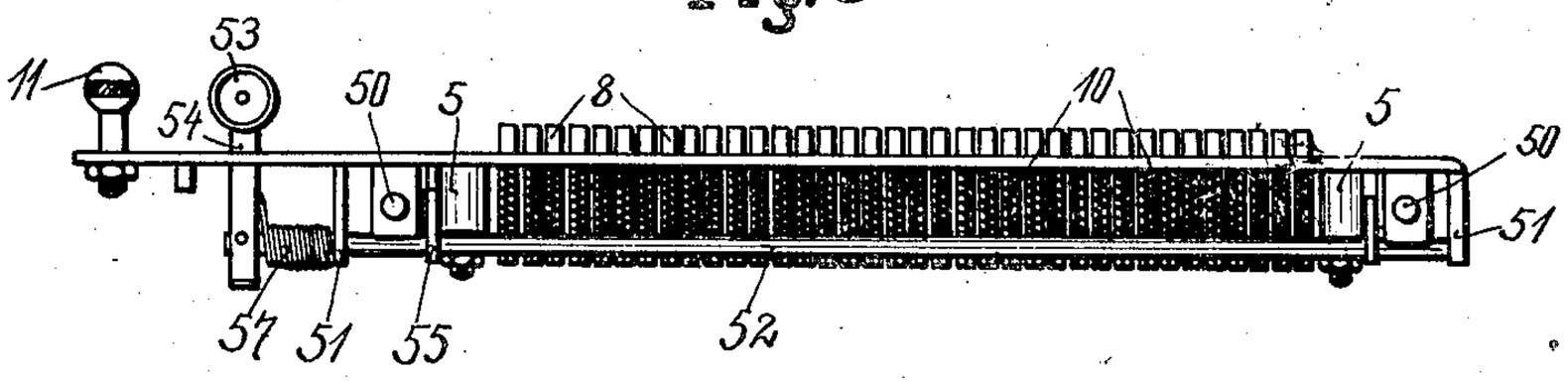


Fig. 7

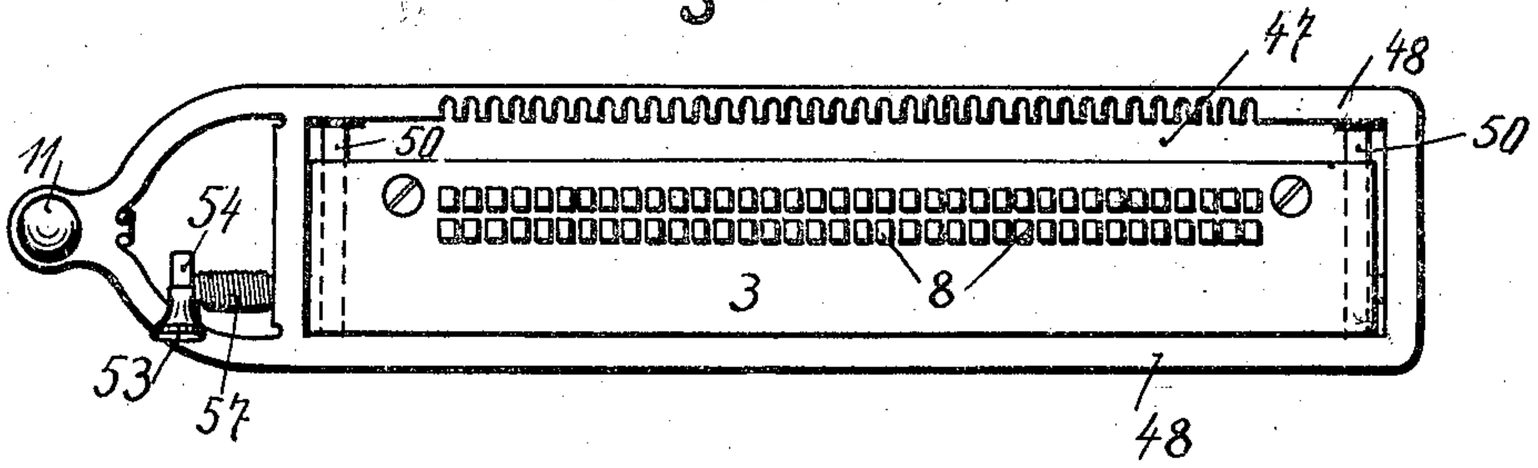
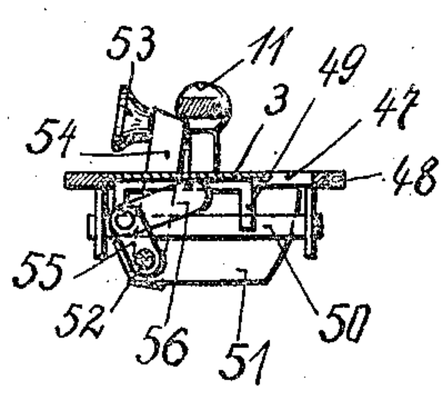


Fig. 8



Inventor:
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Patented Nov. 18, 1924. 1,515,663

UNITED STATES PATENT OFFICE.

KARL DIETRICH, OF LEIPZIG, GERMANY.

POCKET TYPEWRITING MACHINE.

Application filed September 4, 1923. Serial No. 660,820.

To all whom it may concern:

Be it known that I, KARL DIETRICH, a citizen of the German Republic, and a resident of Leipzig, Germany, have invented a new and useful Improved Pocket Typewriting Machine, of which the following is a specification.

My invention relates to a type-writing machine in which ordinary book printing types are used which are housed resiliently in a frame lengthwise shiftable between two ledges, and in which said types can be caused to print on a sheet of paper by means of keys apt to be shifted intermittently, and with the aid of a suitably arranged ink tape, as is all fully described hereinafter.

My invention is illustrated by way of example in the accompanying drawing, in which Figure 1 is a vertical longitudinal section through the machine, Figure 2 a plan thereof, Figure 3 a cross section in line M—M of Fig. 2, Figure 4 a rear view of the keys, etc., and Figure 5 a plan of the machanism for the paper feed. Figure 6 is a longitudinal section of a modification, drawn to a smaller scale, Figure 7 is a plan thereof, and Figure 8 a cross-section.

The frame of the machine consists of a stationary part composed of two parallel vertical ledges 2 connected at their ends by bows 1, and of a movable part composed of a ledge 3 located on the upper edge of the ledges 2 and of a rail 4 located between the ledges and having its rims or edges bent upwards, as shown in Fig. 3. The plate 3 and the rail 4 are connected with each other by vertical bolts 5 located near the ends of these parts, and the entire movable frame part can be shifted longitudinally within and on the stationary one. To each of the vertical ledges 2 is secured a horizontal ledge lying flush with the ledge 3 of the movable frame part, which is guided thereby, and to the rear ledge 6 is affixed another ledge 7 which is cogged at its two rims, and forms, therefore, a double rack. This member of the machine is broader than the rear ledge 6 and its rear cogs extend freely over the rear edge of said ledge, whereas its front cogs extend over the ledge 3.

This latter ledge (3) is provided with a row of holes, and a corresponding row of holes is provided in the rail 4, and book printing types 8 are inserted into the two rows of holes, as shown in Figures 1–3. The entire row of types contains the small letters, the capital ones, and the signs of punctuation and the like. Each type is provided with an angularly bent arm 9 located between it and one of the vertical plates 2 and having its vertical end directed towards the rail 4 and provided with a spiral spring 10 which tends constantly to hold the respective type raised.

Shifting the movable frame part 3/4/5 is facilitated by a grip 11 provided at the left end.

The two ledges 6 form guides for lengthwise shiftable slides 12 connected with each other by bows 12^a and having downwardly and inwardly bent rims, of which the front rim engages the front rim of the front ledge 6 and the other engages the cogged rear rim of the rack 7. Affixed to the rear slide 12 is a flat member 13 forming two lugs 13^a and 13^b, of which the first extends horizontally rearwards, whereas the other extends downwards at the side of the lug 13^a. This lug carries two small bearings 14 carrying in their turn a spline 15 supporting two levers 16 and 17, of which the first is located between the two bearings, whereas the other which forms a fork is so arranged that the two prongs of the fork lie one at the left side of the lefthand bearing, the other at the right side of the righthand bearing, the lever 16 being, thus, located between the two prongs. The two levers are connected with springs 18 and 19 which tend constantly to lift the levers, or keep them lifted respectively, and each lever is provided with a key 20 located at its front end. The lever 16 has at its lower edge a rounded projection 16^a which depresses the type 8 just below it when the lever 16 is depressed. The breadth of the lever 16 corresponds to the breadth of the types so that always only one type can be depressed after the movable frame with the types has been accurately adjusted.

In order to obtain the accurate adjustment in a positive manner, the lever 16 is provided with a downwardly extending tooth 21, and at the rear edge of the plate 3 are provided recesses into each of which the tooth 21 can enter. These recesses lie just behind the types, and the tooth 21 can enter the respective recess only if the respective type is in proper position relatively to the lever 16. The rack formed by the recesses mentioned at the rear of the ledge 3 corresponds to the rack at the front edge of the ledge 7, and

the tooth 21 which at any rate passes into the respective gap between two cogs of said latter rack can pass into and through the gap below it (of the ledge 3) only if this ledge (3) has been accurately shifted in which case the lug 16ª of the lever 16 will push upon, and depress, the type to be printed. The tooth 21 is pointed or wedge-shaped at its end in such a manner that it assists in adjusting accurately the movable frame of the type-writing machine.

The slides 12 are connected at their right-hand side with cords 22 guided each over a small roll 23 attached to the stationary vertical ledges 2. The other end of each cord is connected with one end of a horizontal spiral spring 24 extending parallelly to its adjacent ledge 2 outside the same. The lefthand ends of the spring 24 are secured to the lefthand ends of the ledges 2. The springs tend constantly to pull the slides 12 to the right, if they have been shifted from the right to the left. Pulling the slides back after such movement is, however, prevented, by a checking device consisting of a lever 25 suspended at the lug 13ᵇ and being under the pull of a spiral spring 26 causing a pawl 28 attached to the free end of the lever 25 to engage the gaps between the cogs at the rear edge of the ledge 7. Owing to the pull which the springs 24 exert on the slides 12 by the intermediary of the cords 22 the pawl is turned, but this movement is limited by a pin 28ª located in the lever 25 and passing through a slot provided in said pawl.

The lever 25 is connected with a vertical rod 29 which extends upwards through the forked end of the lever 16 and is provided with a knob 30. If the rod 29 is depressed, the lever 25 is turned and the pawl 28 is moved off the ledge 7 so that the slides 12 can follow the pull of the springs 24. Immediately below the levers 16 and 17 a transverse member 31 is attached to the rod 29, and this latter is, therefore, depressed also when one or the other lever is depressed so that the pawl 28 is withdrawn and the slides 12 are released also in these cases. But as, when the lever 16 is depressed, its tooth 21 enters into one of the gaps at the front edge of the rack 7, and as, when the lever 17 is depressed, teeth 32 provided thereon enter into two gaps at the rear edge of said ledge, the slides 12 cannot follow the pull of the springs 24 although being no more checked by the pawl 28. This latter is acted on directly by a spring 27 attached to the lever 25 and tending to cause the pawl to engage the next gap of the rear rack of the ledge 7 when it is no more under the pull of the springs 24. When then the lever 16, or 17 respectively, is pressed back into its upper or normal position by the spring 18, or 19 respectively, the pawl 28 engages the gap, situated above it, of the rear rack of the ledge 7 as the lever 25 has been drawn upwards by the spring 26 corresponding to the raising of the lever 16, or 17 respectively. Only after this engagement the tooth 21, or the teeth 32 respectively, get disengaged from the respective gap or gaps, and in the same or in the next moment the spring 24 can draw the slides 12 farther to the right as much as allowed by the length of the slot in the pawl 28 through which the pin 28ª passes, the pawl being now again turned, as already described. The extent of this feed movement corresponds to the distance between two characters of the writing, or the spacing respectively.

The object of the lever 16 is to depress the type situated below it, as already explained, and the object of the lever 17 is to effect the feed movement of the slides 12. When these latter have arrived at the end of their path, in the direction to the right, they may be drawn back to the left, into their extreme lefthand position, without actuating any lever as the pawl 28 is inactive in this direction. The extent of motion to the right and to the left may be limited, if desired or preferred, by adjustable abutment members 33.

Below the types 8 is stretched between the vertical ledges 2 an inking tape 34 provided at its ends with hook 34ª attached to the end bows 1. The ledges 2 are secured at their ends to a foot 35 into which is inserted a strip 47 of leather or rubber located below the ink tape 34. A sheet of paper placed between the ink band and the strip of leather, etc., will receive the imprints of the types when they are depressed successively by the lever 16. The stationary frame in which the movable frame is shifted during the writing is not absolutely stationary, but hinged by connecting members 37 to short standards 36 secured to the foot 35 at the rear thereof. The stationary frame, or, more precisely, the two frames combined, may, thus, be swung on these standards in order to place a sheet of paper below the frames in general and the types and the inking band in particular. The written characters may be rendered visible by lifting the frames, similarly to lifting the carriage of an old Remington type writing machine.

At the front side of the foot 35 is a plurality of rubber rolls 38, and above them is a long roller 40 which is provided with a corresponding number of rubber rings 39. The roller 40 is supported by two flat springs 41 provided at their ends, and the sheet of paper passed through between the rubber rings 39 and the rubber rolls 38 is held fast by the pressure which said springs exert. At the righthand end of the roller 40 is a plurality of equally distributed recesses co-operating with small flat springs

42 forming parts of a stationary angular member 43 whereby part rotations of equal length are ensured, these part rotations being effected by a grip 44.

When using the machine, first the sheet of paper is inserted between the rolls 38 and the rings 39, as well as between the inking tape 34 and the strip 47, whereafter the slides 12 are withdrawn until contacting with the lefthand abutment 33. Then the shiftable frame is so adjusted that the type to be written or printed is located below the lever 16. To facilitate this adjustment, the characters are repeated on the upper surface of the ledge 3, the arrangement being such that the type or character located below the lever 16 is indicated by an ear-like index 45 at the row of characters on the ledge 3, the adjusted character appearing in the ear.

The ledge 3 is shoved to and fro according as the characters are required, but the slides 12 are shifted automatically for one gap after every depression of the lever 16. The extra space between two words is obtained by depressing the lever 17.

46 are horizontal members attached to the inner side of the rear vertical frame ledges 2 and having sloping ends, especially where they are directed towards the other end of the machine. The object of these members is to lift the approaching types shifted together with the ledge 3 if any one of the spiral springs 10 keeping the types raised should have slackened, the respective type having then a lower position and there existing consequently the danger that its lower end strikes against the horizontal part of the bow 1 at one or the other end of the machine. The sloping end of the respective member 46 engages from below the horizontal part of the spring holding 9 of the respective type and lifts this latter to normal height so that it does not contact with the respective bow 1.

Arranging all types in one row, entails, of course, a pretty great length of the typewriting machine. But it is not indispensably requisite to arrange them all in one row. They may be divided into, or distributed upon, two or more rows, whereby the further advantage is obtained that the slide need not be displaced so much to the right and to the left, as in such a case correspondingly more types are in a favorable position with respect to the key concerned, and, furthermore, the writing speed is considerably increased.

A type-writing machine embodying my invention in which the types are arranged in two rows is illustrated by way of example in Figures 6, 7, and 8.

The plate 3 carrying the types 8 is inserted into the large opening 47 of the frame 48 and can be shifted transversely thereto. The frame 48 is supported on the ledges 2 of the main frame and may be shifted between them. At the lower side of the plate 3 are forks 49 which ride on ledges 50 extending transversely with respect to the frame 48. Below the plate 3 is arranged also a shaft 52 extending in the longitudinal direction of the frame 48 and having secured to one of its ends an arm 54 provided with a button 53. To the shaft 52 is affixed also an arm 55 located below the plate 3 and connected with this latter by a link 56. On the shaft 52 is a spring 57 which is connected at one end with this shaft and at its other end with the arm 52 and tends constantly to turn this arm in such a direction that the plate 3 is drawn over the shaft (to the left in Figure 8).

The shaft 52 can be rotated by a pressure on the button 53 whereby the plate 3 is shifted to the right (Fig. 8), away from the shaft. While in the former position of the plate 3 the types of one row have been so located that the key 16 could depress the adjusted key of this row, now the other row of types is in such a position. The button 53 is preferably arranged near the button 11 by which the frame 48 is shifted, in order to facilitate operating the machine and to render it possible to perform the just-described operations.

The arrangement of the types in the two rows is preferably such that the small letters which are mostly used are located in the rear row (Fig. 7), whereas the capital letters and the other signs are printed by the types in the other or front row.

I claim:

1. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a shiftable frame located between said ledges, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set forth.

2. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, two superposed spaced horizontal ledges arranged between the ledges of said stationary frame, and members connecting said other ledges at their ends to form a shiftable frame together with them, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set forth.

3. A type-writing machine, comprising, in combination, two edge-wise arranged hori-

zontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, two superposed spaced horizontal ledges arranged between the ledges of said stationary frame, and members connecting said other ledges at their ends to form a shiftable frame together with them, vertically movable types in said superposed ledges, springs supported by the lower of these ledges and being each connected at its upper end with one type so as to support it resiliently in such a way that the upper end of the type is above the upper surface of the upper of said superposed ledges and the lower end of the type, i. e. the type proper, is below the lower surface of the lower of the said superposed ledges, an inking band below said types, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set forth.

4. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a shiftable frame located between said ledges, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, a key lever on said slides, an intermittently acting checking device connected with said lever and said slides and being adapted to effect the intermittent motion of the latter when the said lever has been depressed, as set forth.

5. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a shiftable frame located between said ledges, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, a key lever on said slides, an intermittently acting checking device comprising a lever pivoted to the rear slide, a pawl pivoted to the free end of this lever and being restricted in its motion, a spring so arranged at said slide as to be adapted to draw the pawl upwards, and means adapted to be engaged by, and cooperating with, the pawl so as to effect the intermittent motion of the slides when the said lever has been depressed, as set forth.

6. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a horizontal rack having its teeth at its rear rim and being connected with the rear ledge, a shiftable frame located between said ledges, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, a key lever on said slides, an intermittently acting checking device comprising a lever pivoted to the rear slide, a pawl pivoted to the free end of this lever and being restricted in its motion and adapted to engage, and cooperate with, said rack teeth so as to effect the intermittent motion of the slides.

7. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a shiftable frame located between said ledges, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, a key lever on said slides, an intermittently acting checking device comprising a lever pivoted to the rear slide, a pawl pivoted to the free end of this lever and being restricted in its motion, a spring so arranged at said slide as to be adapted to draw the pawl upwards, means adapted to be engaged by, and co-operating with, the pawl so as to effect the intermittent motion of the slides when the key lever has been depressed, an upwardly extending bar hinged at its lower end to the pawl-carrying lever, a knob on the upper end of this bar, and a transverse pin therethrough, this pin being located below the key lever so as to be actuable thereby, as set forth.

8. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a shiftable frame located between said ledges, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, a key lever on said slides, an intermittently acting checking device comprising a lever pivoted to the rear slide, a pawl pivoted to the free end of this lever and being restricted in its motion, a spring so arranged at said slide as to be adapted to draw the pawl upwards, means adapted to be engaged by, and co-operating with, the pawl so as to effect the intermittent motion of the slides when the key lever has been depressed, an upwardly extending bar hinged at its lower end to the pawl-carrying lever, a knob on the upper end of this bar, a transverse pin therethrough, this pin being located below the key lever so as to be actuable thereby, and another key lever arranged on the slides at the side of the first-mentioned key lever and being also adapted to act on the transverse pin when being depressed, as set forth.

9. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connect-

ing them at their ends to form a stationary frame together with them, a horizontal rack having teeth at both rims and being connected with the rear ledge, a shiftable frame located between said ledges, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftabe slides upon the stationary frame, a key lever on said slides, an intermittently acting checking device comprising a lever pivoted to the rear slide, a pawl pivoted to the free end of this lever and being restricted in its motion, a spring so arranged at said slide as to be adapted to draw the pawl upwards, means adapted to be engaged by, and co-operating with, the pawl so as to effect the intermittent motion of the slides when the key lever has been depressed, an upwardly extending bar hinged at its lower end to the pawl-carrying lever, a knob on the upper end of this bar, a transverse pin therethrough, this pin being located below the key lever so as to be actuable thereby, and another key lever arranged on the slides at the side of the first-mentioned key lever and being also adapted to act on the transverse pin when being depressed, and downwardly extending pins at the two key levers, the pin of the first-mentioned key lever being adapted to enter the cog gaps at the front rim of the cogged ledge, and the pins of the second key lever being adapted to enter the cog-gaps at the rear rim of said ledge, as set forth.

10. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, two superposed spaced horizontal ledges arranged between the ledges of said stationary frame, and members connecting said other ledges at their ends to form a shiftable frame together with them, the rear rim of the upper ledge forming a rack, and resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, a ledge forming a rack at its front rim and a rack at its rear rim and being so arranged and supported that the gaps of the front rack lie over the gaps of the first-mentioned rear rack, key levers attached to said slides and downwardy extending pins at said levers, the pin of one thereof being adapted to enter into the superposed gaps, and the pins of the other key lever being adapted to enter into the rear gaps of the last-mentioned ledge, as set forth.

11. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, two superposed spaced horizontal ledges arranged between the ledges of said stationary frame, and members connecting said other ledges at their ends to form a shiftable frame together with them, vertically movable types in said superposed ledges, a foot carrying the stationary frame with the therein housed movable one, hinges by which the stationary frame is connected with said foot and which are located at the rear thereof, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set foth.

12. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, two superposed spaced horizontal ledges arranged between the ledges of said stationary frame, and members connecting said other ledges at their ends to form a shiftable frame together with them, vertically movable types in said superposed ledges, a foot carrying the stationary frame with the therein housed movable one, hinges by which the stationary frame is connected with said foot and which are located at the rear thereof, a plurality of rolls at the front of the foot, a roller located above said rolls and extending parallelly along the said ledges, rings on this roller and located above the said rolls so as to be apt to co-operate with them, and an inking band below the said types, as set forth.

13. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, two superposed spaced horizontal ledges arranged between the ledges of said stationary frame, and members connecting said other ledges at their ends to form a shiftable frame together with them, vertically movable types in said superposed ledges, a foot carrying the stationary frame with the therein housed movable one, hinges by which the stationary frame is connected with said foot and which are located at the rear thereof, a plurality of rolls at the front of the foot, a roller located above said rolls and extending parallelly along the said ledges, rings on this roller and located above the said rolls so as to be apt to co-operate with them, spring carrying the roller and pressing its rings against the rolls, and an inking band below the said types, as set forth.

14. A type-writing machine comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, two superposed spaced horizontal ledges arranged between the ledges of said stationary frame,

and members connecting said other ledges at their ends to form a shiftable frame together with them, vertically movable types in said superposed ledges, a foot carrying the stationary frame with the therein housed movable one, hinges by which the stationary frame is connected with said foot and which are located at the rear thereof, indentations at one end of the roller, and springs adapted to engage said indentations, and an inking band below the said types, as set forth.

15. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, two superposed spaced horizontal ledges arranged between the ledges of said stationary frame, and members connecting said other ledges at their ends to form a shiftable frame together with them, vertically movable types in said superposed ledges, springs supported by the lower of these ledges and being each connected at its upper end with one type so as to support it resiliently in such a way that the upper end of the type is above the upper surface of the upper of said superposed ledges and the lower end of the type, i. e. the type proper, is below the lower surface of the lower of the said superposed ledges, horizontal members attached to said spaced ledges at their ends and being tapered in the direction towards the connections between the said springs and the springs keeping them raised, an inking band below said types, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set forth.

16. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a shiftable frame located between said ledges, and a plurality of rows of resiliently supported vertical types in this frame, an inking band below said types, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set forth.

17. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a longitudinally shiftable frame located between said ledges, a transversely shiftable plate in said frame, and a plurality of rows of resiliently supported types in said plate, an inking band below said types, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set forth.

18. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a longitudinally shiftable frame located between said ledges, a transversely shiftable plate in said frame, and a plurality of rows of resiliently supported types in said plate, means to shift said plate transversely, an inking band below said types, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set forth.

19. A type-writing machine, comprising, in combination, two edge-wise arranged horizontal parallel spaced ledges, bows connecting them at their ends to form a stationary frame together with them, a longitudinally shiftable frame located between said ledges, a transversely shiftable plate in said frame, and a plurality of rows of resiliently supported types in said plate, a shaft below said plate, a connection between the latter and said shaft, an arm with a button on an outwardly projecting end of the said shaft, an inking band below said types, intermittently shiftable slides upon the stationary frame, and a key lever on said slides, as set forth.

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

KARL DIETRICH.

Witnesses:

RUDOLPH FRICKE,

ALFRED ZUCCKLER.