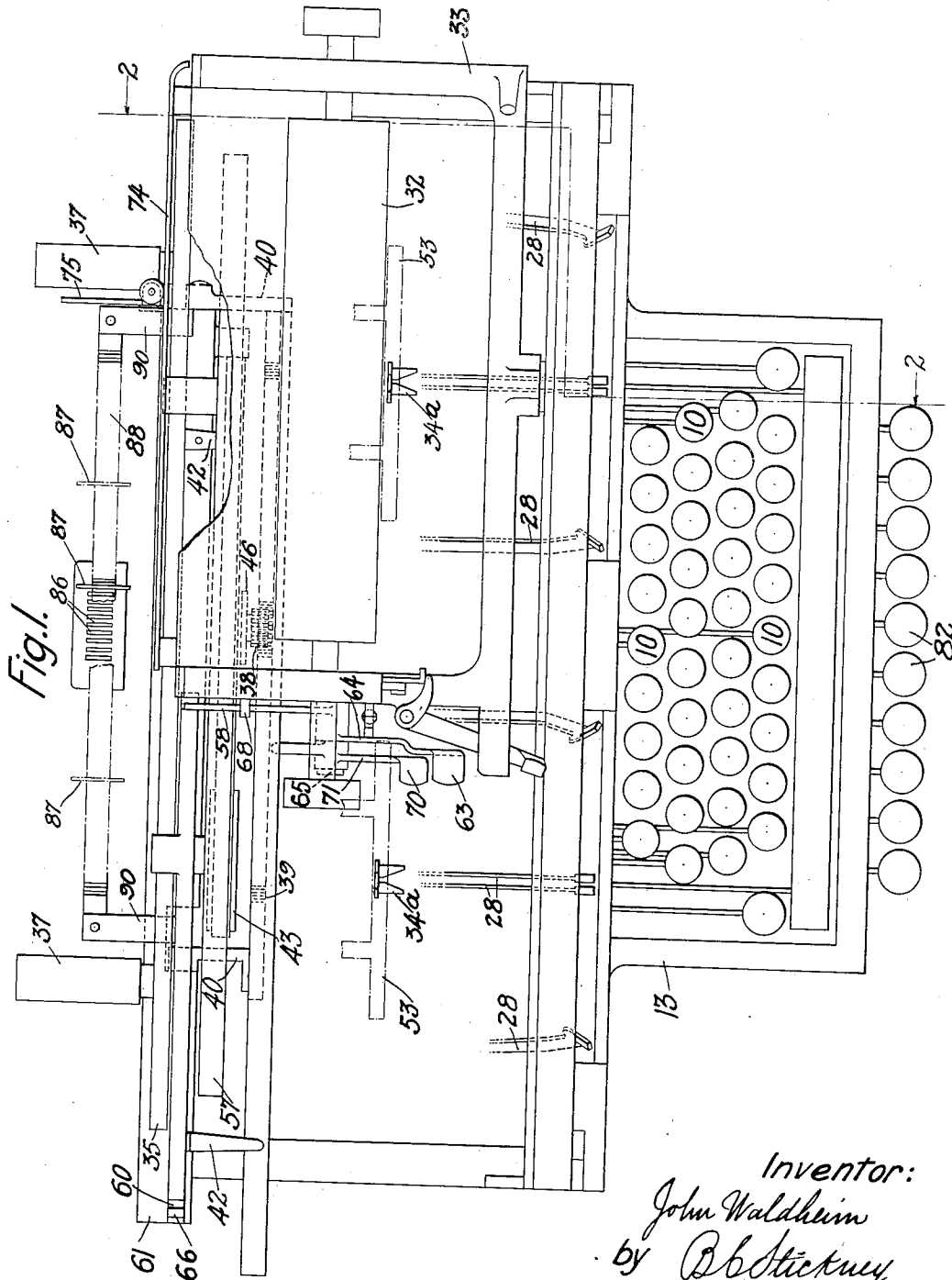


J. WALDHEIM,
TYPEWRITING MACHINE.
APPLICATION FILED MAR. 13, 1919.

1,349,864.

Patented Aug. 17, 1920.
3 SHEETS—SHEET 1.



Inventor:
John Waldheim
by *B. B. Stickney*
Attorney

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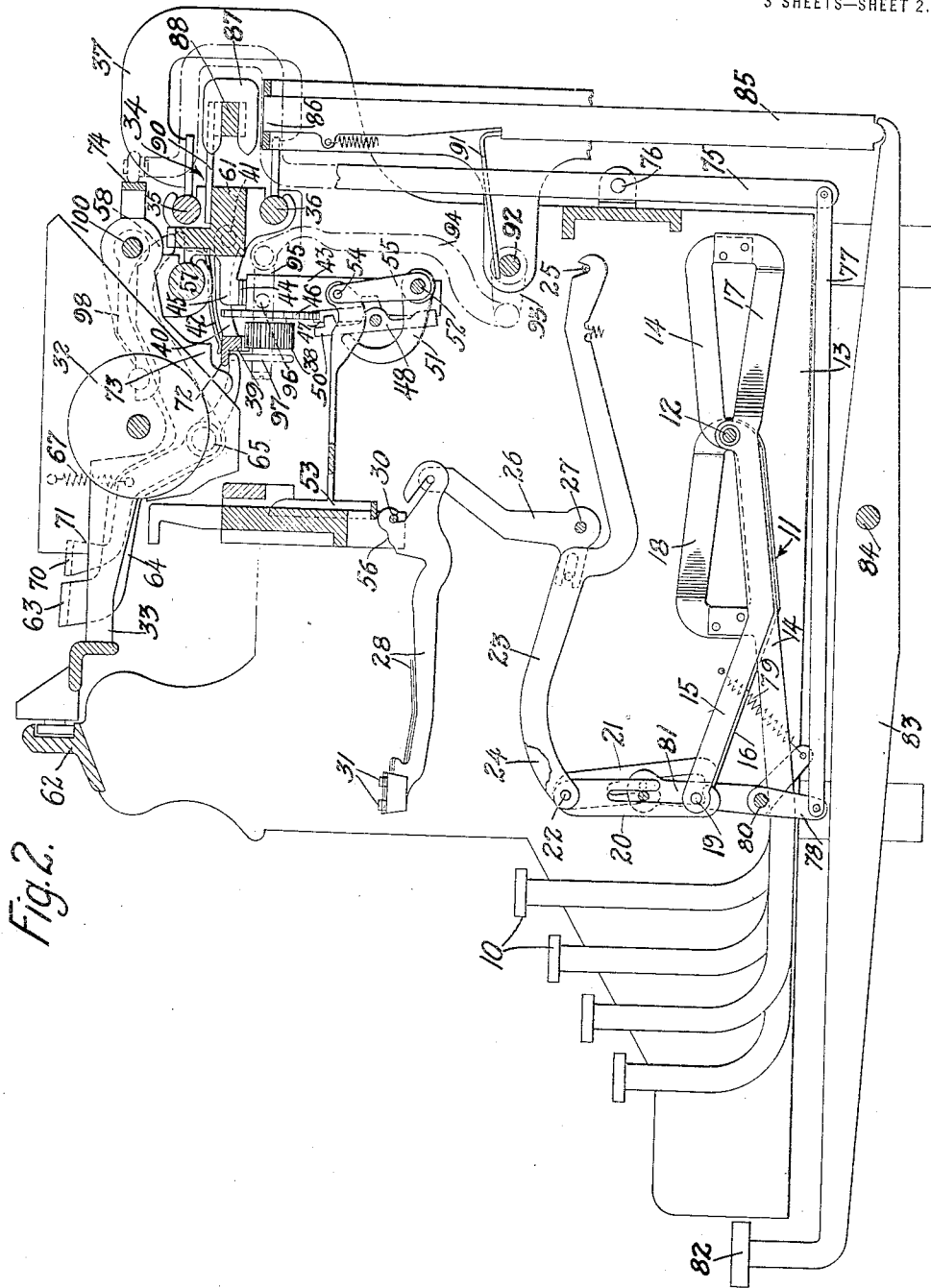
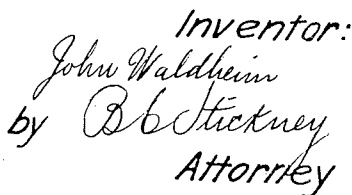


Fig. 2.

Inventor:
John Waldheim
by B. B. Stickney
Attorney

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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

JOHN WALDHEIM, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO UNDERWOOD TYPE-WRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPEWRITING-MACHINE.

1,349,864.

Specification of Letters Patent. Patented Aug. 17, 1920.

Application filed March 13, 1919. Serial No. 282,306.

To all whom it may concern:

Be it known that I, JOHN WALDHEIM, a citizen of the United States, residing in Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Typewriting-Machines, of which the following is a specification.

This invention relates to typewriting machines, and more particularly to the kind in which a plurality of type-sets are located side by side, and in which the platen may be moved from one type-set to another to enable different kinds of typing to be done upon a single work-sheet.

In such machines, it has been proposed, when making excursions of the platen from one type-set to another, to reposition the platen carriage by means of a scale and pointer.

An object of the present invention, which shows certain features that are disclosed in my co-pending applications, Serial Nos. 196,797 and 199,722, is to provide means whereby the platen may be readily and quickly positioned when making the excursions from one type-set to another.

Another object of the present invention is the provision for making excursions of the platen carriage, from one type-set to another, without disturbing certain mechanisms, including a carriage escapement and a tabulating mechanism.

In carrying out the invention, there is preferably provided a primary carriage under the control of escapement devices and tabulating mechanism. There is also provided a secondary or platen carriage to be connected to, and travel with, the primary carriage during typing operations; the secondary carriage being adapted to be moved with the platen relatively to the primary carriage from one type-set to another; suitable stops being provided on the primary carriage to properly position the secondary carriage when it is moved from one type-set to another.

A single set of type-keys is preferably used, which may be connected to either type-set by means actuatable by the secondary carriage.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a top plan view of the machine,

showing the relative arrangement of the type-sets, the platen, the escapement mechanism, and the tabulating mechanism; the platen being in its effective relation with the type-set at the right-hand side of the machine.

Fig. 2 is a sectional view, taken substantially on the line 2—2 of Fig. 1, and looking in the direction of the arrows on said line.

Fig. 3 is a perspective view, as seen from the back of the machine, showing the main frame of the machine, the primary carriage supported thereby, and the secondary carriage which is partly supported by the primary carriage.

Fig. 4 is a diagrammatic top plan view of the machine, and shows the platen carriage in its effective relation with the type-set at the left-hand side of the machine.

Keys 10, when depressed, actuate key levers or pivoted frames 11 to swing about a fulcrum rod 12, supported on the machine frame 13. Each key lever may comprise an intermediate body portion 14, and two arms 15 and 16, also fulcrumed on the rod 12 and joined to the body portion 14 by a rightwardly-extending branch 17 and a leftwardly-extending branch 18, respectively. The free ends of the arms 15 and 16 are provided with studs 19, which, during the depression of the keys 10, may engage with connectible hook-shaped links or pendants 20 and 21, pivotally mounted at 22 on sub-levers 23 and 24 to swing the sub-levers about a fulcrum 25. The sub-levers, when actuated, rock bell-cranks 26 about their fulcrums 27 to swing type-bars 28 about fulcrum 30 and cause the types 31 to print through a suitable ribbon (not shown), against a rotatable platen 32 supported in a platen carriage 33; the platen being rotatable by line-space mechanism, which may be similar to that in the Underwood machine, including a handle 29 (Fig. 4).

By an inspection of Fig. 1, it will be seen that two type-sets are provided and located side by side, each having a guide 34^a to guide the type-bars at the printing point. It should be understood that the sub-levers 23 are associated with the right-hand type-set, and that the sub-levers 24 are associated with the left-hand type-set, only one set of sub-levers being connected to the keys 10 at a time.

The platen 32 is adapted to be brought into coöperative relation with either type-set, and to be fed from one letter-space position to another, relatively to the effective type-set. For this purpose, the platen carriage 33, which, for convenience, will be referred to as a secondary carriage, may be connected to a primary carriage 34. The primary carriage is slidably supported for its traveling movements on two guide-bars 35 and 36, rigidly secured to goose-necked brackets 37 extending from the machine frame 13, and is connected to an escapement mechanism, comprising a pinion 38, by means of a feed rack 39 carried by arms 40 and pivotally mounted at 41 on the primary carriage; the rack 39 being held in mesh with the pinion 38 by means of one or more springs 42. The primary carriage 34 is constantly urged toward the left of the machine by a spring drum 43 connected to the primary carriage by a strap 44 attached to a bracket 45 on said primary carriage. This tends to rotate the escapement pinion 38 and escapement wheel 46 by the usual one-way connection (not shown) between the pinion 38 and said escapement wheel 46, as in the Underwood machine. The escapement wheel is normally held against rotation by a loose dog 47, pivotally mounted on a dog rocker 48, said dog rocker having also a fixed dog 50. The dogs 47 and 50 are caused to reciprocate, during typing operations, between the teeth of the escapement wheel 46 to effect the letter-spacing movements of the carriage. To reciprocate the dog rocker, there is provided, in addition to suitable return springs (not shown), a finger 51, engaging with the dog rocker 48, and secured to a rock shaft 52 which is adapted to be actuated by any one of two universal bars 53, of which there is one for each type-set; each universal bar being pivotally mounted at 54 on upwardly-extending arms 55 secured to said rock shaft 52; the universal bars being actuated by heels 56 on the type-bars 28, as the type-bars approach the printing point.

The secondary carriage 33 is supported on a rod 57 secured to the primary carriage 34, and is connected with said carriage by means of a latch 58, which may engage in any one of two slots or notches 60, formed in a cross-bar 61 of the secondary carriage (Fig. 3), so as to cause the secondary carriage to travel with the primary carriage to effect letter-feeding movements of the platen 32. The forward part of the secondary carriage is guided during such movements by a fixed rail 62 on the machine frame 13.

When it is desired to render the platen 32 effective with the type-set at the left of the machine, the secondary carriage may be released from the primary carriage by depressing a finger-piece 63 on a lever 64 piv-

otally mounted on a stud 65 on the secondary carriage to raise the latch 58, which forms part of said lever 64, out of the notch 60. The operator then moves the secondary carriage toward the desired type-set until it is arrested by a stop 66 on the primary carriage which is engaged by the latch 58, thus properly positioning the platen relatively to the desired type-set, (Fig. 4). The latch is then permitted to drop into the notch 60 near the left-hand end of the cross-bar 61 to secure the secondary carriage in position on the primary carriage. A spring 67 is connected to the lever 64 to hold the latch in the slot 60. Any convenient form of stop 68 (Fig. 1) may be provided to limit the upward movement of the latch 58, so as to prevent its being lifted out of coöperative relation with the stops 66.

To quickly position the platen 32 relatively to the printing point of the type-set which happens to be in use, there is provided a carriage release comprising a finger-piece 70 of a lever 71, which, when actuated, swings about the stud 65 to engage with a ledge 72 on the feed rack 39 to raise the latter out of mesh with the escapement pinion 38 and against the tension of the spring 42. The platen is then moved to the position desired, and the release handle is permitted to return to its normal position, to let the feed rack 39 reengage the escapement pinion 38. It will be seen that, during such an operation, the primary carriage and the secondary carriage are moved as a single unit. A projection 73 on the secondary carriage may limit the upward swinging movement of the feed rack 39.

From the foregoing, it will be understood that two finger-pieces 63 and 70 are provided and preferably carried by the secondary carriage, one of said finger-pieces being effective to release the secondary carriage, so that it may be positioned relatively to the primary carriage, the other finger-piece being provided to release the primary carriage, so that the two carriages may be moved as a single unit to position the platen relatively to the printing point of the type-set in use.

The changing of the connections of the keys and either type-set is controlled by the secondary carriage 33 and preferably by a rail or bar 74 secured to said carriage. When the platen is in coöperative relation with the right-hand type-set (Fig. 1), the rail engages with the upper end of a level 75 pivoted at 76, on the machine frame 13. The lower end of said lever is connected by a link 77 to an arm 78 extending downwardly from a shaft 80. When the carriage is moved to the left-hand type-set, the rail moves therewith and out of effective relation with the lever 75. A spring 79 then becomes effective to rock said shaft 80 to swing a

bail 81 secured thereto. Both sets of links straddle the bail, so that they may be swung about their pivots 22 to render ineffective the set of links 20 connected with the sub-levers 23 of the right-hand type-set, while the set of links 21, connected with the other set of sub-levers 24, are rendered effective with the keys 10. This connection-changing mechanism, comprising the lever 75, is shown and described in my said co-pending application 196,797, and it is thought that a more lengthy description thereof in the present case is unnecessary.

A single tabulator is provided whereby the platen may be readily located in any columnar position, relatively to either one of the type-sets. This tabulator may be similar to that used in the Underwood machine, and may comprise a plurality of decimal tabulator keys 82 arranged preferably in front of the keys 10, (Fig. 1). Each key 82, when actuated, swings an associated key lever 83 about a fulcrum 84 to move an associated plunger 85, and raise a decimal-tabulator stop 86, forming the upper end of the plunger 85, into the path of one or more column-stops 87, on a stop-bar 88, secured to the primary carriage 34, by suitable brackets 90. The carriage is released after any one of the plungers 85 is actuated, said plungers being, for this purpose, effective to cooperate with a universal bar 91, to rock a shaft 92 provided with an arm 93, to pull downwardly on a connecting link 94 and swing a lever 95 about its pivot 96; said lever having at its forward end a roller 97 engaging with the ledge 72 of the feed rack 39 to raise the latter out of engagement with the escapement pinion 38. The carriage is then drawn leftwardly by the spring drum 43 until it is arrested by one of the column-stops 87 coming into engagement with the projected decimal-tabulator stop 86. The operator then removes the finger from the key 82, thus permitting the feed rack 39 to reengage the escapement pinion 38.

It will be understood that with this construction the platen is movable from one type-set to another without disturbing the escapement mechanism or the tabulating mechanism, since both mechanisms are associated with the primary carriage, and that a single escapement mechanism is effective to feed the platen relatively to either type-set, and that a single decimal-tabulator is effective to position the platen in any columnar position relatively to either type-set.

The platen may be shifted to its upper case position on the secondary carriage and may be guided by arms 98 on a rock shaft 100. To shift the platen, the case-shift mechanism, disclosed in my said co-pending application, Serial No. 196,797, may be used.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. In a typewriting machine, the combination with a plurality of type-sets spaced from each other transversely of the machine, of a carriage having a limited range of movement in a direction transverse of the machine, a letter-space escapement mechanism for said carriage, a platen movable with said carriage, and means whereby said platen may be set along said carriage at different positions in a direction transverse of the machine, so as to cooperate with any desired type-set.

2. In a typewriting machine, the combination with a plurality of type-sets spaced from each other transversely of the machine, of a primary carriage having a limited range of movement from side to side of the machine, a secondary carriage movable in a direction parallel to that of the primary carriage, a platen on said secondary carriage, and means whereby the secondary carriage may be connected to the primary carriage at different points therealong to travel therewith, the position of the secondary carriage relative to the primary carriage determining the type-set with which the platen may cooperate.

3. In a typewriting machine, the combination with a plurality of type-sets arranged side by side, each type-set having a distinctive kind of type of a primary carriage, a secondary carriage, a platen rotatively supported on said secondary carriage, guiding means for said primary carriage, guiding means for said secondary carriage, to enable movement of the platen to effective position for any one of said type-sets to cooperate therewith, said last-mentioned guiding means comprising a fixed guide-bar, and a guide-bar on said primary carriage.

4. In a typewriting machine, the combination with a plurality of type-sets arranged side by side, transversely of the machine, of a carriage, a platen movable transversely of the machine, to different positions, relative to said carriage, to cooperate with the type-sets corresponding to the different positions, and escapement mechanism for said carriage, whereby letter-space feeding of said platen with reference to any type-set with which it is positioned to cooperate may be effected.

5. In a typewriting machine, the combination with a plurality of type-sets, of a primary carriage, a secondary carriage, an escapement for said primary carriage, said escapement comprising a pinion, a rack on said primary carriage engaging with said pinion, a platen on said secondary carriage, the latter being movable to take the platen

from one type-set to another with the primary carriage at rest, and a finger-piece on said secondary carriage to release said rack from said pinion.

5 6. In a typewriting machine, the combination with a plurality of type-sets, of a primary carriage, a secondary carriage, a platen mounted on said secondary carriage, said secondary carriage being movable with
10 reference to the primary carriage to take the platen from one type-set to another, escapement mechanism for said primary carriage, a finger-piece on said secondary carriage, and means actuated by said finger-
15 piece, for releasing said primary carriage from said escapement mechanism.

7. In a typewriting machine, the combination with a plurality of type-sets arranged side by side, of a primary carriage,
20 a secondary carriage, a platen on said secondary carriage, the latter being movable to take the platen from one type-set to another with the primary carriage at rest, a plurality of universal bars, one for each
25 type-set, and an escapement for said primary carriage actuable by either universal bar to feed the platen when in effective relation with any one of said type-sets.

8. In a typewriting machine, the combination with a plurality of sets of type-bars, said sets being arranged side by side, across
30 the machine, of a platen, means, including a carriage movable transversely of the machine, to effect a letter-space movement of said platen, said platen being movable
35 along said carriage to positions to cooperate with different sets of type-bars, and means to maintain said platen in position relative to said carriage when positioned to cooperate with one of said sets of type-bars.

9. In a typewriting machine, the combination of a plurality of type-sets, spaced
40 apart transversely of the machine, a revoluble platen, a primary carriage mounted for movement across the machine, a secondary carriage, whereby said platen may
45 be moved longitudinally of itself to positions to cooperate with selected type-sets, and means to connect said secondary carriage to said primary carriage, to enable
50 said platen to be fed with said primary carriage, irrespective of the type-set with which said platen is positioned to cooperate.

10. In a typewriting machine, the combination with a plurality of sets of type-bars, said sets being spaced apart across the
55 machine, of a revoluble platen, means whereby said platen may be moved longitudinally of itself to positions to cooperate with any selected set of type-bars, a single set of
60 character-keys, means whereby said keys may be connected with the type-bars of any one of said sets to operate the same, a single set of decimal tabulating keys, and

means whereby said tabulating keys may effect tabulating movements of said platen, irrespective of the type-set with which said platen is positioned to cooperate.

11. In a typewriting machine, in combination, a plurality of sets of type-bars,
70 arranged transversely of the machine, a revoluble platen, a carriage for said platen, movable across said machine, an escapement mechanism including a rack, to which letter-space movements are given when said
75 escapement mechanism is actuated, and means whereby said carriage may be connected with said rack when in different positions longitudinally thereof, so as to
80 operate with selected sets of type-bars.

12. In a typewriting machine, in combination, a plurality of type-sets, spaced
85 from each other transversely of the machine, a carriage having a limited range of movement in a direction transverse of the machine, a letter-space escapement mechanism for said carriage, tabulating means
90 for said carriage, a platen, and means whereby said platen may be set along said carriage at different positions in a direction transverse of the machine, so as to cooperate with any desired type-set.

13. In a typewriting machine, in combination, a plurality of type-sets spaced apart
95 transversely of the machine, a primary carriage movable transversely of the machine, a secondary carriage movable in a direction parallel to that of the primary carriage, a platen on said secondary carriage, and
100 means whereby said secondary carriage may be connected to said primary carriage at certain predetermined points so as to travel therewith, said points being so determined that when said secondary carriage is
105 connected with said primary carriage at one of said points, the platen will be positioned to cooperate with a corresponding type-set, and when the secondary carriage is moved from one of said points to another, the
110 platen will be in the same letter-space position relative to the second type-set that it was to the other before such movement.

14. In a typewriting machine, in combination, two sets of type-bars, each of said
115 sets having a single printing point, and the printing points of the two sets being spaced apart transversely of the machine, a primary carriage, escapement mechanism therefor, a platen, a secondary carriage on
120 which said platen is mounted, means to position said secondary carriage with respect to said primary carriage including stops spaced apart the same distance as said
125 printing points, and means whereby said secondary carriage may be held fixed relatively to said primary carriage in either one of the positions determined by said stops.

15. In a typewriting machine, in combination, two sets of type-bars, each of said
130

sets having a single printing point, and the printing points of the two sets being spaced apart transversely of the machine, a primary carriage, escapement mechanism therefor, tabulating mechanism for said primary carriage, a platen, a secondary carriage on which said platen is mounted, means to position said secondary carriage with respect to said primary carriage including stops spaced apart the same distance as said printing points, and means whereby said secondary carriage may be held fixed relatively to said primary carriage in either one of the positions determined by said stops.

16. In a typewriting machine, in combination, a revoluble platen, a carriage in which said platen is mounted, means for supporting said carriage including a rail on which said carriage is slidably mounted, means whereby said carriage may be fixed to said rail at different points, and escapement mechanism for effecting letter-space movements of said rail.

17. In a typewriting machine, in combination, a revoluble platen, a carriage in which said platen is mounted, means for supporting said carriage including a rail on which said carriage is slidably mounted, means whereby said carriage may be fixed to said rail at different points, escapement mechanism for effecting letter-space movements of said rail, and tabulating mechanism for said rail.

18. In a typewriting machine, the combination with a plurality of type-sets arranged side by side, of a single set of keys, means to connect said keys to either type-set, a primary carriage, a secondary carriage movable in the same direction as said primary carriage, a platen rotatably supported on said secondary carriage, means controlled by said secondary carriage, to actuate the connecting means to connect the keys with the type-set to which the platen is moved, and means whereby said secondary carriage may be connected with said primary carriage to travel therewith.

19. In a typewriting machine, in combination, a platen, a carriage in which said platen is mounted, supporting means for said carriage including a transversely extending rail slidably supported at the rear of the machine, escapement mechanism for effecting

letter-space movements of said rail, a finger-piece on said carriage, and means controlled by said finger-piece for connecting said carriage to said rail to travel therewith.

20. In a typewriting machine, in combination, a platen, a carriage in which said platen is mounted, supporting means for said carriage including a transversely extending rail slidably supported at the rear of the machine, escapement mechanism for effecting letter-space movements of said rail, a finger-piece on said carriage, and means controlled by said finger-piece for releasing said rail from said escapement mechanism.

21. In a typewriting machine, in combination, two sets of type-bars, each of which has a separate point, the printing points of the two sets being spaced apart transversely of the machine, a single set of keys, a primary carriage, key-controlled escapement mechanism therefor, a platen, a secondary carriage on which said platen is mounted, said secondary carriage being movable in a path parallel to that of the primary carriage, means to connect said secondary carriage to said primary carriage in either of two positions to cooperate with the corresponding set of type-bars, and means whereby, on movement of the secondary carriage to one of the positions to cooperate with the set of type-bars, said single set of keys will be rendered effective to actuate the selected set of type-bars, and ineffective to actuate the other set.

22. In a typewriting machine, in combination, a plurality of sets of type-bars, said sets of type-bars having printing points individual thereto and spaced apart transversely of the machine, a revoluble platen, means whereby said platen may be moved longitudinally of itself to positions to cooperate with any selected set of type-bars, escapement mechanism to effect letter-space movements of said platen irrespective of the type-set with which it is positioned to cooperate, a single set of decimal tabulating keys, and means whereby said tabulating keys may effect tabulating movements of said platen irrespective of the type-set with which said platen is positioned to cooperate.

JOHN WALDHEIM.

Witnesses:

EDITH B. LIBBEY,

CATHERINE A. NEWELL.