L. SHOLES.

TYPE WRITING MACHINE.

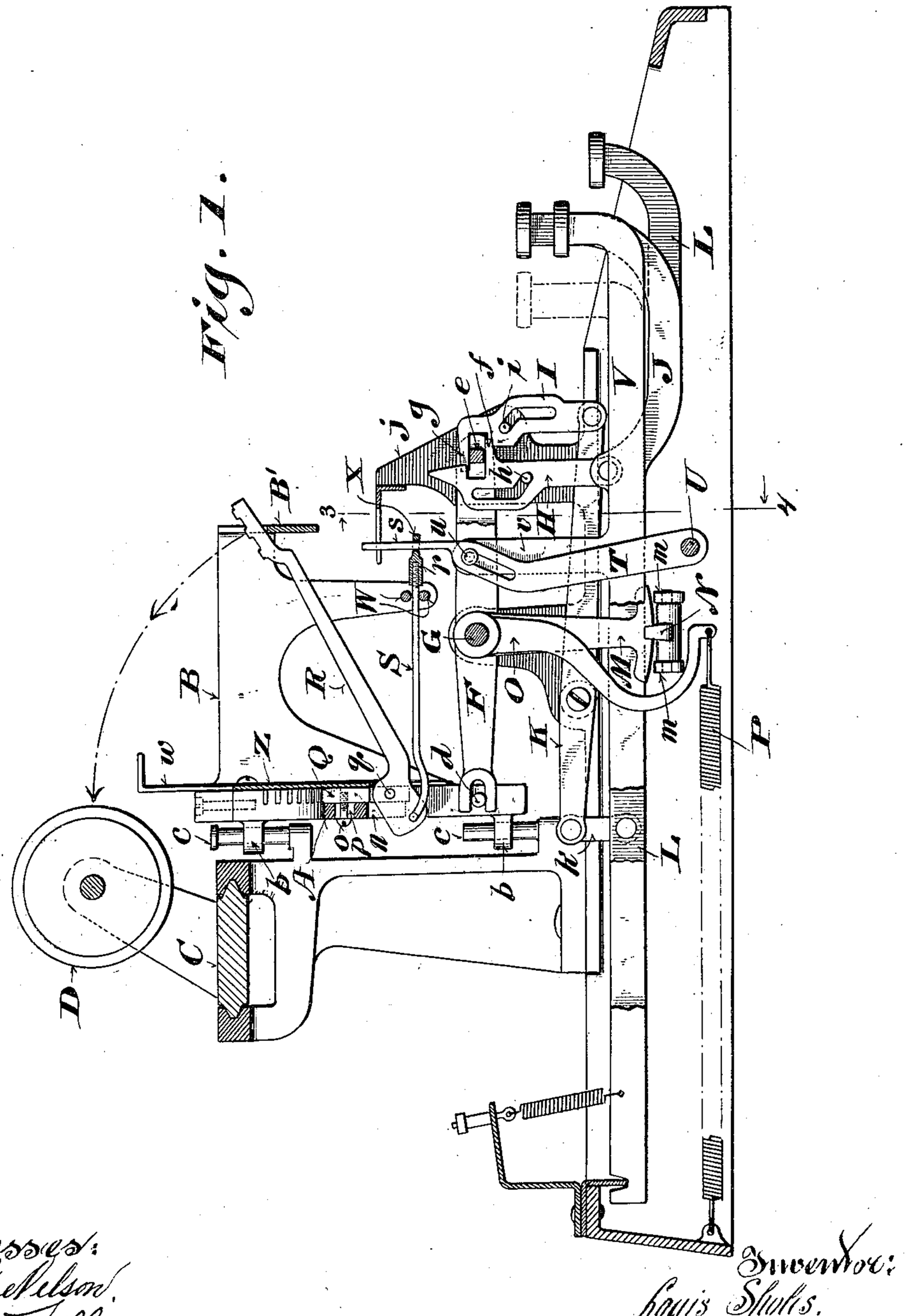
APPLICATION FILED OCT. 5, 1908.

945,987.

Patented Jan. 11, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



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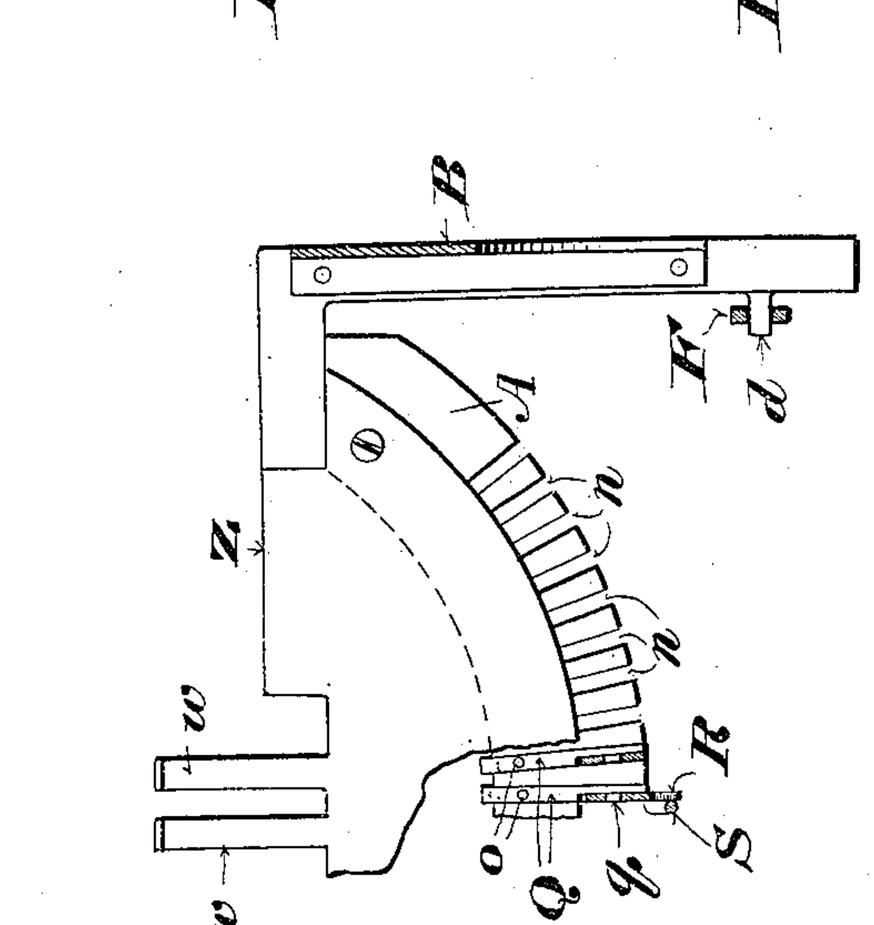
2 SHEETS—SHEET 2.

Fig. 2.



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George Telber

Fig. 3.

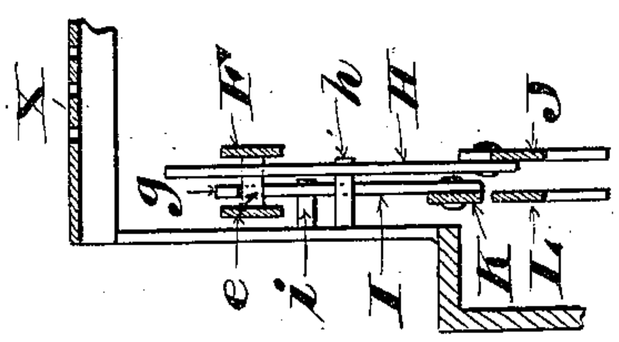


Fig. 4.

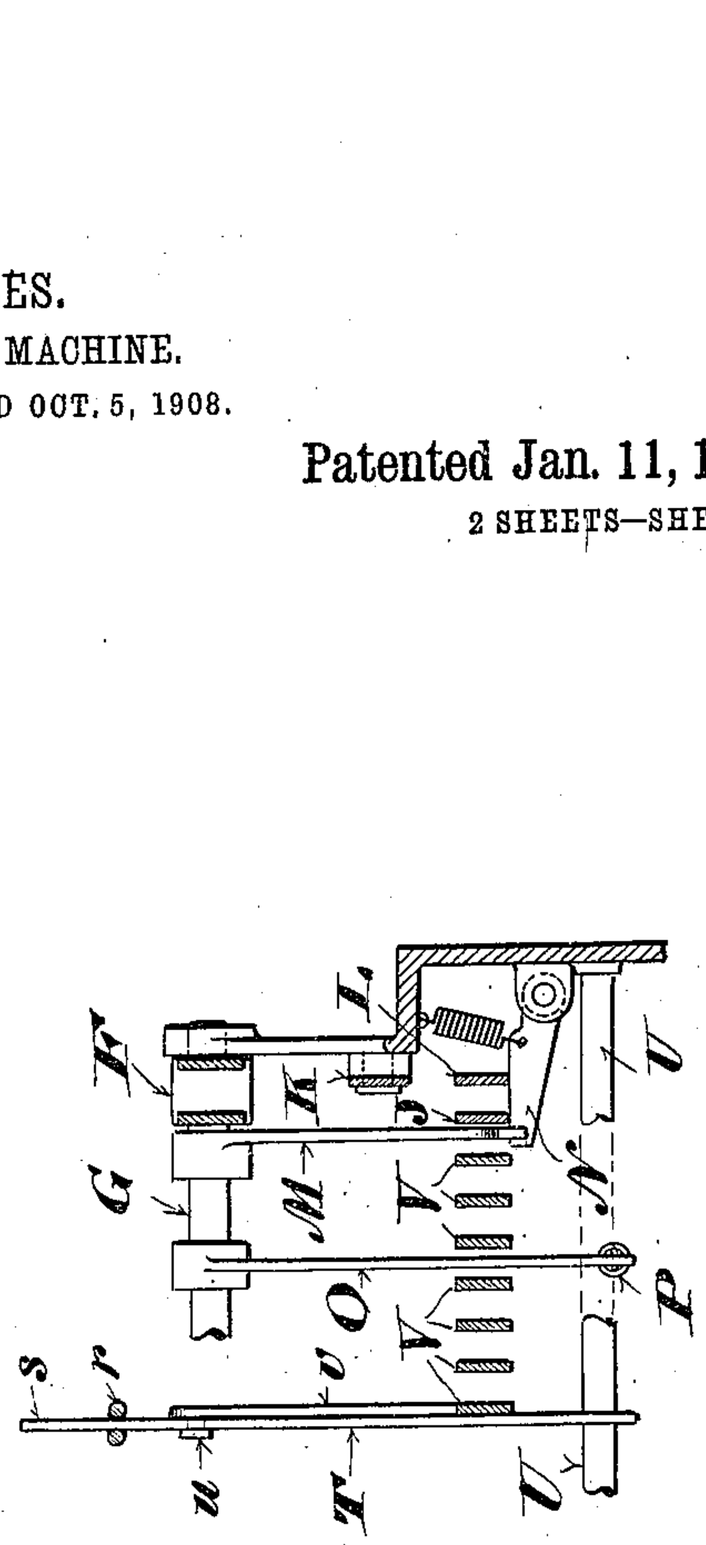
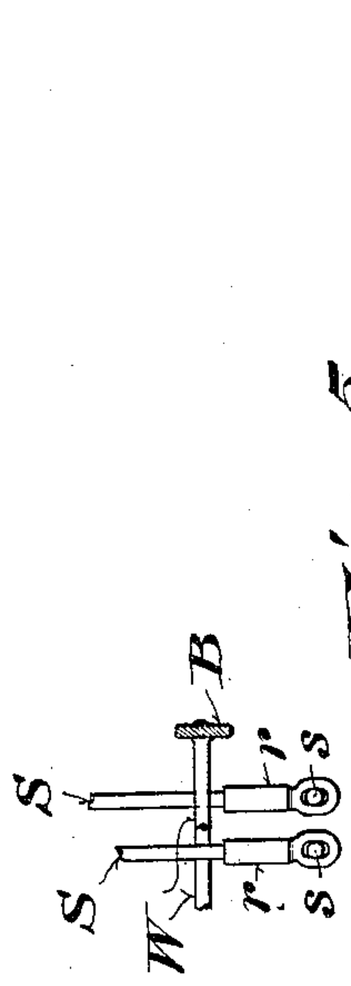


Fig. 5.



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UNITED STATES PATENT OFFICE.

LOUIS SHOLES, OF MILWAUKEE, WISCONSIN.

TYPE-WRITING MACHINE.

945,987. Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed October 5, 1908. Serial No. 456,122.

To all whom it may concern:

Be it known that I, LOUIS SHOLES, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Type-Writing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts herein set forth with reference to the accompanying drawings and pointed out in the claims, its object being to simplify and cheapen the construction of type-writing machines, especially those of the front-strike type-shift species, as well as to provide for perfect alinement of the characters of the writing.

Figure 1 of the drawings is a diagram illustrating so much of a type-shift front-strike type-writing machine as is necessary to illustrate my improvements, various parts of the machine being in section on a vertical plane transversely of the type-bar segment and platen central of same; Fig. 2, a front elevation of a fragment of said machine partly in section; Fig. 3, a detail partly section view indicated by line 3—4 in Fig. 1, looking forward; Fig. 4, a similar view indicated by line 4—3 looking rearward; Fig. 5, a detail plan view of a fragment of the machine partly in horizontal section.

Referring by letter to the drawings, A indicates a type-bar segment rigidly secured in connection with a suitably guided vertically adjustable carrier, the one B herein shown being provided with eye-lugs *b* engaged by vertical guide-pins *c* that are paired in connection with guide-standards of the machine-frame in which the horizontal sliding base C of the carriage for the platen D and other parts of the machine is guided, only one of said standards being herein shown.

Engaging a lateral inner pin *d* of the segment carrier is the forked end of a lever F fast on a rock-shaft G to extend in opposite directions therefrom, the other end of the lever being a yoke in which a cross-pin *e* is provided. This cross-pin is normally in register with oppositely disposed hooks of a pair of vertical cam-slotted fingers H, I, a stop-projection *f* of one of the fingers being normally under, and a similar projection *g* of the other finger being normally over said cross-pin. The obtuse-angle cam-slots of the fingers are engaged by inner lateral pins *h*, *i*, of an arm *j* of the machine-frame and the finger H is in direct pivotal connection with a shift-key lever J, the finger I being in pivotal connection with one end of a lever K that has fulcrum connection with a rock-shaft bearing-arm of said machine-frame, the other end of this lever being connected by a link *k* with another shift-key lever L, said shift-key levers and the several type-key levers of the machine being suitably fulcrumed and spring-controlled as is usual in the art.

Rigid on the rock-shaft G is a depending arm M having a curved and centrally notched lower end normally engaged by a spring-controlled latch N trunnioned in connection with lugs *m* of the machine-frame, this latch being in opposition to the shift-key levers under the same. A crank O of the rock-shaft is connected to a counter-balance spiral-spring P under tension in connection with the machine-frame.

The type-bar segment A is radially recessed and slotted at suitable intervals. Each of its recesses is intersected by a slot *n*, and engaging each recess is a slide Q provided with a threaded aperture engaged by a binding screw *o* movable in a radial guide-slot *p* with which the segment is also provided in rear of said recess open thereto. By tightening the head of the screw against the segment, the slide Q is held in independently adjusted position. Each of the several slides is provided with a lateral pivot lug *o* that serves as a fulcrum for a type-bar R, the fulcrum-end of said bar being engaged with segment-slot adjacent to said guide. A segmental front rack-plate B′ of the carrier B constitutes a support for the upper free ends of all the type-bars of the machine.

While not so appearing in the diagram view Fig. 1, it is to be understood that the rack-bar and the rods W will in practice have sufficient curvature to provide for the proper support and guidance of the type-bars (not shown) that are pivotally supported in connection with the segment A in opposite directions from the one illustrated.

To properly aline a type-bar, the corresponding slide is adjusted in the segment A and secured in adjusted position by its bind-

ing-screw. Each type-bar is connected by a link-rod S with a shackle *r* screw-threaded thereon and engaged by a pin-end *s* of a rocker T loose on a stationary supporting rod U in the machine frame, said rocker being provided with an oblique cam-slot *t* engaged by a lateral pin *u* of an arm *v* of a type-key lever V, whereby there is direct horizontal pull of the link-rod on the type-bar and good impact of said bar when its key-lever is depressed, said link-rod being guided between a pair of parallel stationary rods W with which the segment-carrier B is provided. In practice, the stationary rods W are in pairs at intervals of a circle. The eye of each shackle *r* is elongated as best shown in Fig. 5, to prevent binding of said shackle on the end *s* of the corresponding rocker T when the segment-carrier is adjusted out of normal position either up or down. The pin-ends of the several rockers are guided in recesses of a horizontal plate X connected at each end with an arm *j* of the machine-frame, and the shackles *r* are adjustable on their link-rods to facilitate a proper assembly of the machine.

A majority if not all of the type-bars in the machine are each provided with a plurality of type, ordinarily a lower case letter, an upper case letter and a numeral, punctuation mark or other arbitrary character, the segment carrier being normally in position to have the lower case letter of a type-bar make its impact when a corresponding key-lever is depressed.

By depressing the shift-key lever J, the segment A with its carrier B is lifted from normal position to bring the lower type of the type-bars in position for impacting, and when the shift-key L is depressed, said segment and carrier are lowered from normal position to bring the upper type of the type-bars in position for impacting. The depression of either shift-key results in freeing the latch N from the arm M of the rock-shaft G in order that the desired vertical adjustment of the segment and its carrier may take place through the medium of the lever F, this latch release and a movement of one or the other of the fingers H, I, to hook on the cross-pin of the yoke of said lever taking place during the time the oblique portion of the cam-slot in the finger is moving on its stationary guide-pin. When the segment and its carrier are lifted from normal position, the spring P contracts, and said segment and carrier return to normal position by gravity. When the segment and its carrier are lowered from normal position, the spring P is expanded, and its subsequent contraction causes a return of said segment and carrier to normal position.

A front plate Z is fastened by screws or otherwise to the segment A and provided with central upwardly extending right-angle arms *w* between which the character end of each type-bar is guided when said type-bar is on impact throw.

I claim:

1. In a type-writing machine, the combination of plural character type-bars, a vertically movable segment to which the type-bars are pivotally connected, means for shifting the segment from normal position to which it is automatically returnable, horizontally guided link-rods in connection with the type-bars, rockers having pin-ends on which shackle-ends of the link-rods are vertically guided, and key-lever mechanism for actuating each rocker.

2. In a type-writing machine, the combination of plural character type-bars, a vertically movable segment to which the type-bars are pivotally connected, means for shifting the segment in opposite directions from normal position to which it is automatically returnable, horizontally guided link-rods in connection with the type-bars, rockers having pin-ends on which shackle-ends of the link-rods are vertically guided, and key-lever mechanism for actuating each rocker.

3. In a type-writing machine, the combination of a vertically movable segment and means for shifting the same from normal position to which it is automatically returnable, plural character type-bars each having independently adjustable pivotal connection with the segment, horizontally guided link-rods in connection with the type-bars, rockers having pin-ends on which shackle-ends of the link-rods are vertically guided, and key-lever mechanism for actuating each rocker.

4. In a type-writing machine, the combination of a vertically movable segment provided with intersecting radial recesses and slots, a slide adjustable in each recess of the segment, means for securing the slide in adjusted position, a plural character type-bar in pivotal connection with each slide, a horizontally guided link-rod in connection with each type bar, rockers having pin-ends on which shackle-ends of the link-rods are guided, key-lever mechanism for actuating each rocker, and means for shifting said segment from normal position to which it is automatically returnable.

5. In a type-writing machine, the combination of a segment provided with intersecting radial recesses and slots as well as with other radial slots, slides adjustable in said recesses, binding-screws for the slides engaging the slots that intersect the recesses aforesaid, type-bars engaging the aforesaid other radial slots of the segment and being each in pivotal engagement with a slide, and means for actuating each type-bar.

6. In a type-writing machine, the combination of plural character type-bars, a seg-

ment with which the bars are pivotally connected, a vertically movable carrier for the segment, means for shifting the carrier from normal position to which it has subsequent automatic return, link-rods in pivotal connection with the type-bars, parallel rods in the carrier opposing the link-rods in opposite directions, rockers having pin-ends on which shackle-ends of the link-rods are vertically guided, and a key-lever mechanism controlling each rocker.

7. In a type-writing machine, the combination of plural character type-bars, a vertically movable segment to which the type-bars are pivotally connected, means for shifting said segment from normal position to which it is automatically returnable, horizontally guided link-rods in connection with the type-bars, rockers having pin-ends on which shackle-ends of the link-rods are vertically guided, and means for actuating the rockers.

8. In a type-writing machine, the combination of a vertically movable member, a rock-shaft, a lever connecting the shaft with the member aforesaid, a latch engageable with an arm with which the rock-shaft is provided, a lever-actuating finger, and a latch releasing shift-key lever with which the finger is connected.

9. In a type-writing machine, the combination of a vertically movable member, a rock-shaft, a lever connecting the shaft with the member aforesaid, means in connection with the rock-shaft for counterbalancing the vertically movable member, lever-actuating fingers, and lever-mechanisms in connection with the fingers for shifting said vertically movable member in opposite directions.

10. In a type-writing machine, the combination of a vertically movable member, a rock-shaft, a lever connecting the shaft with the member aforesaid, a lever-actuating finger, a shift-key lever with which the finger is connected, an arm in connection with said rock-shaft, and a latch normally engaging the arm but arranged to be retracted preliminary to a shift of the aforesaid vertically movable member.

11. In a type-writing machine, the combination of a vertically movable member, a rock-shaft in counterbalanced lever connection with the member aforesaid, a pair of shift-key levers, a hook-finger in direct pivotal connection with one of the shift-key levers and having cam-engagement with a stationary lug, a supplementary lever to which the other shift-key lever is coupled, a cam-controlled finger similar to the one aforesaid pivotally connected to said supplementary lever, the initial working throw of one of the fingers being opposite that of the other for engagement with the rock-shaft lever; and a latch automatically engageable with an arm provided in connection with the rock-shaft when said movable member is in normal position, the latch being in the downward path of the shift-key levers.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

LOUIS SHOLES.

Witnesses:
GEORGE FELBER,
N. E. OLIPHANT.