

No. 700,906.

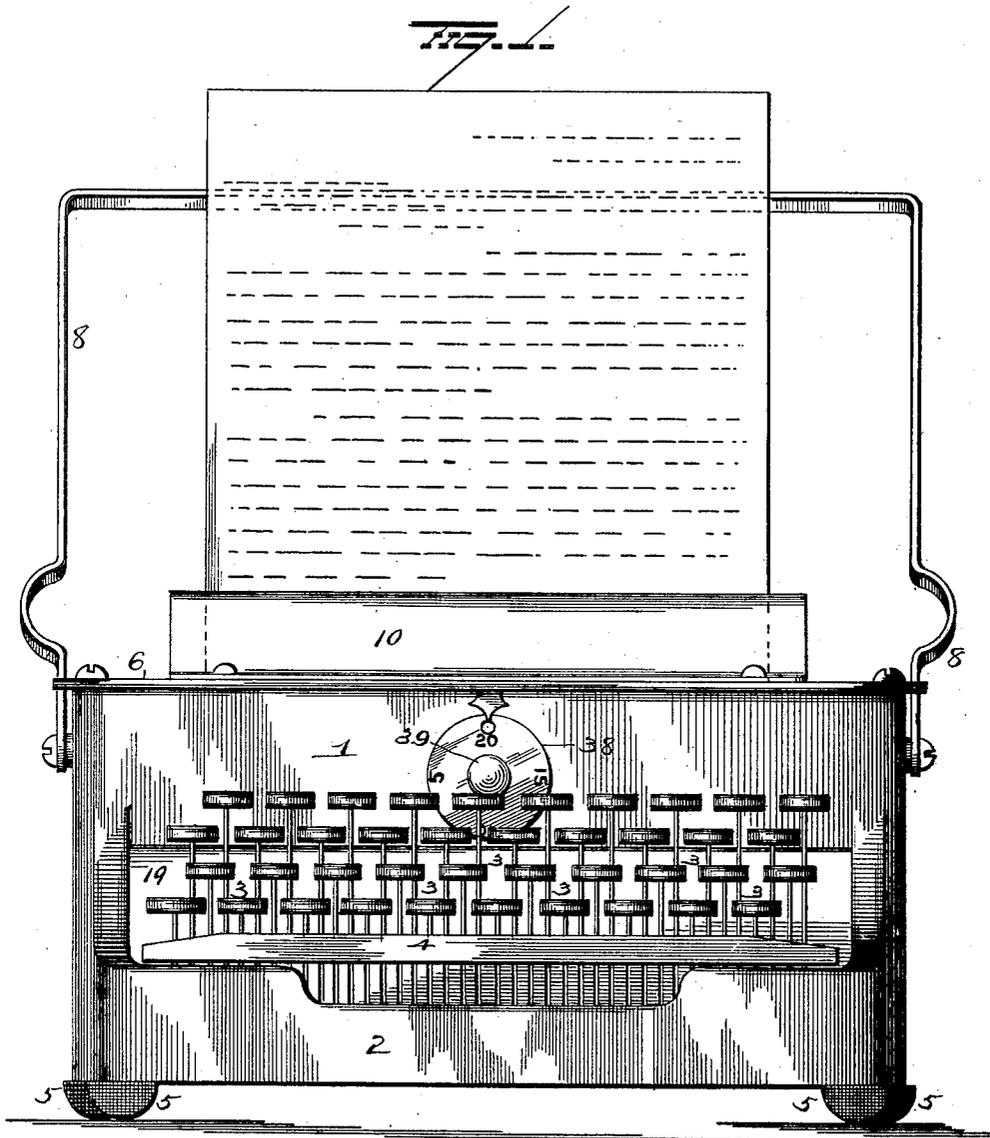
Patented May 27, 1902.

C. EDWARDS.  
TYPE WRITING CLAVIER.

(Application filed Sept. 16, 1901.)

(No Model.)

4 Sheets—Sheet 1.



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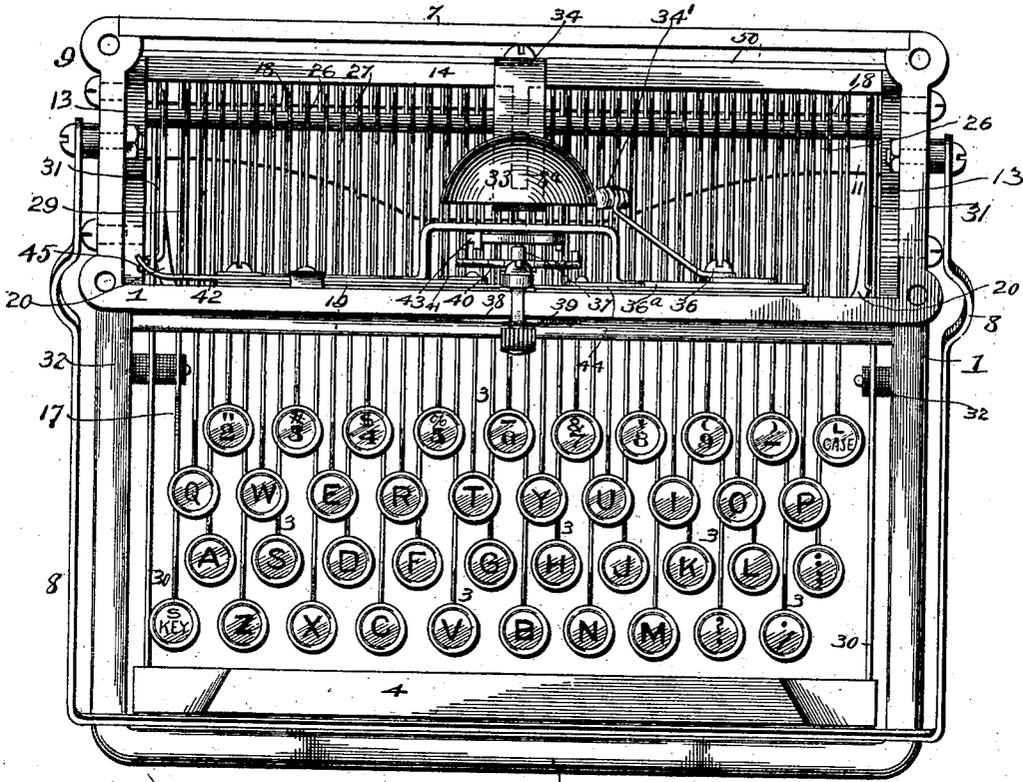


Fig. 2.

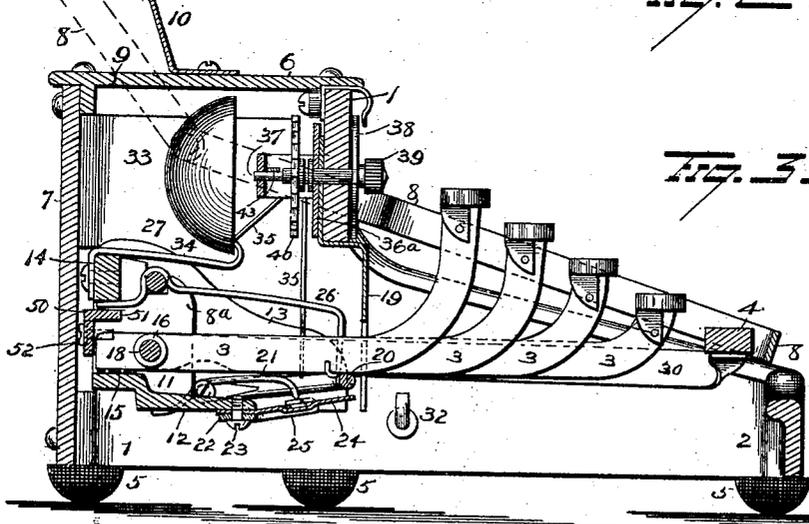


Fig. 3.

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FIG. 4.

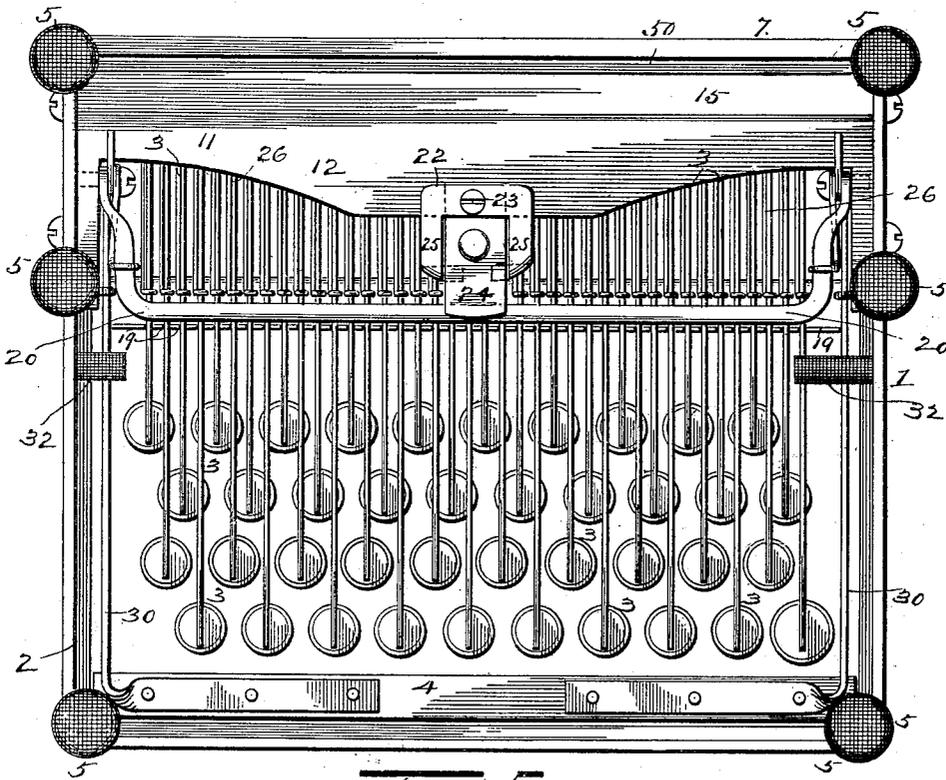
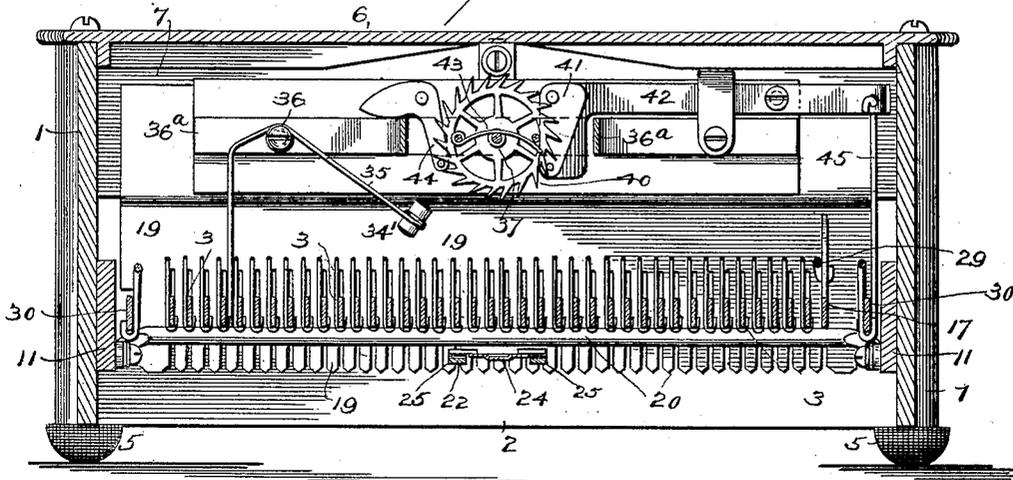


FIG. 5.

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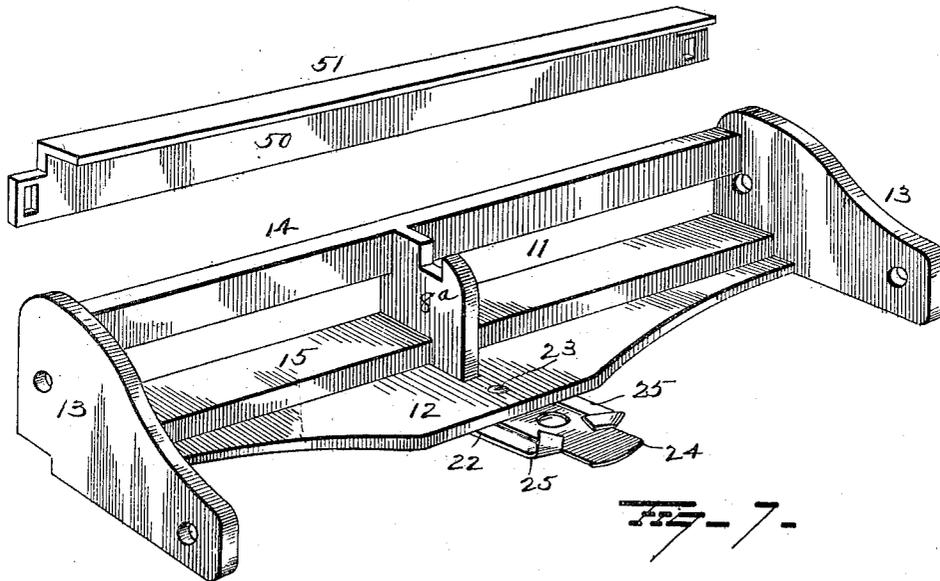
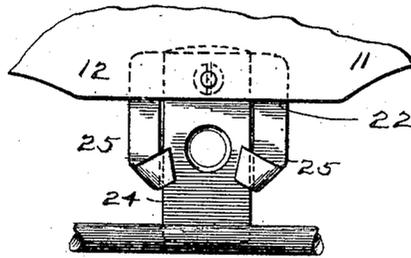
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~~Fig. 5.~~



~~Fig. 7.~~

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# UNITED STATES PATENT OFFICE.

CHARLES EDWARDS, OF BROOKLYN, NEW YORK.

## TYPE-WRITING CLAVIER.

SPECIFICATION forming part of Letters Patent No. 700,906, dated May 27, 1902.

Application filed September 16, 1901. Serial No. 75,533. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES EDWARDS, a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Claviers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved type-writing clavier, the object of the invention being to provide a machine of this character whose touch will be as near as possible identical with the complete machine and which will when a key is struck give forth a sound similar to that of type striking the platen on an ordinary type-writing machine.

A further object is to provide a type-writing clavier which will resemble in all essentials the type-operating mechanism of a typewriter.

A further object is to provide a type-writing clavier with improved mechanism for recording or enumerating the number of words spelled.

A further object is to provide a machine of this character with improved means for supporting the "copy" in convenient and proper position for the operator.

A further object is to provide an improved type-writing clavier in which the working parts are supported and mounted on a single frame or cradle which can be readily removed from the casing when desired.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view illustrating my improvements. Fig. 2 is a top view with a portion of the casing removed. Fig. 3 is a view in longitudinal section. Fig. 4 is a view illustrating the recording mechanism. Fig. 5 is a bottom plan view. Fig. 6 is a detail view of the clicker and its mounting, and Fig. 7 is a view of the cradle or frame with the key-levers and springs removed.

Heretofore it has been necessary in order to enable a beginner to learn the rudimen-

tary art of type-writing to use a complete type-writing machine, which necessitated the subjection of the machine to the hardest kind of usage, to its great injury and to the expense of its owner, and necessitating, particularly in the schools, the purchase or renting of a large number of machines, which are a constant trouble and expense, and to avoid these annoyances and expense and provide a machine of the above-mentioned character which will be not only a source of great benefit to the student, but likewise one of entertainment and encouragement as well, the present invention was devised.

The cost of manufacture of my improved machine is extremely small and places within the reach of all the opportunity of mastering the art of type-writing, and while its simplicity of construction decreases the cost of manufacture, still it is constructed to withstand the hard treatment to which it is subjected by a beginner.

1 represents the casing proper, which is of general rectangular shape and provided with the forwardly-projecting open frame 2, surrounding the forwardly-projecting key-levers 3 and spacing-bar 4, and said casing and frame are preferably supported on cushions 5, secured to the bottom thereof. The general shape of the casing may be varied to suit the taste of the trade, and the frame 2 may be dispensed with, if desired. In fact, the shape and construction of the casing are immaterial and may be varied without departing from my invention.

The casing 1 is preferably composed of cast metal, with removable cover 6 and back 7 to facilitate access to the working parts, and to the ends of the casing a swinging copy-supporting bracket 8 is pivoted and adapted to be folded down onto frame 2 when not in use, but when in use is supported in an inclined position by enlargements forming stops 9 on the rear of cover 6, the side arms of the bracket being bowed between their ends to permit them to freely pass similar enlargements at the forward edge of the cover. A suitable rest or holder 10, which likewise forms the name-plate of the machine, is secured on the cover and assists the bracket 8 to support the copy in proper position for the operator.

Secured in the casing 1 by means of screws projected through the ends of the casing is my improved cradle or frame 11, which serves as a support for all of the working parts of the key-lever action and comprises a base 12, having a raised platform 15 at its rear, ends 13, and a rear connecting-bar 14, connecting the upper rear edges of the ends. A shaft 16 is secured at its ends in the ends 13 and disposed just in advance of platform 15 and has pivoted thereon all of the key-levers 3, likewise the shift key-lever 17, which will be more fully hereinafter described. The key-levers are made with holes or openings near their ends to receive shaft 16, their extreme inner ends resting on platform 15 and alined thereby, and spacing sleeves or washers 18 are located on the shaft 16 to space the levers a proper distance apart. The levers, which are of various lengths to form the several banks of keys, are disposed between and held in proper relation to each other by the teeth of a comb or guide plate 19, secured to the inner face of the front of casing 1 and extending down into the key-lever space and adapted to always maintain the levers in proper position, preventing the striking together of the keys and at the same time permit the removal of the cradle and levers when dropped down through the open bottom of the casing.

A rod 20 is disposed transversely beneath the key-levers and is bent at its ends and pivotally secured to the ends 13 of cradle 8, springs 21 being provided for maintaining the rod normally against the lower edges of the key-levers. A bracket 22, preferably of cast metal, is secured to the base 12 of the cradle by a screw 23, which also serves to secure a spring-clicker 24 in the bracket, which latter is made with parallel arms 25, having inwardly-bent fingers at their ends to limit the upward movement of the clicker, thus maintaining it normally spaced from rod 20 to give to the keys the proper touch, as will be hereinafter explained. This spring serves to sustain the impact on the key-levers and returns them to within a short distance of the normal positions and is made with a central depression to click or sound when a key is depressed, and hence give forth a sound as nearly like that of a type striking a platen as is possible.

Each key-lever 3 is provided with an individual spring 26, whose only function is to lift the key-levers the short distance above the spring-clicker 24 and maintain the remaining keys in their proper positions when the rod 20 is moved from beneath them by the depression of a key. These springs 26 are each preferably composed of spring-wire bowed near their rear ends to fit onto a transverse rod 27, secured in the ends 13 of the cradle. The rear ends of the springs are located beneath the rear bar 14, and the forward ends of the springs or long arms thereof are bent sharply at right angles and made

with hook-shaped ends to receive the lower edge of a key-lever, and it will be seen that owing to this construction and mounting of these springs 26 they can be easily and quickly removed and replaced, and as the strain thereon is distributed throughout the entire length of their long arms they will stand the strain to which they are subjected for an indefinite period; but should one become broken or bent another can be quickly substituted in its place. The frame or cradle 8 is provided centrally between its ends with an integral notched support 8<sup>a</sup> for the rod 27 to maintain the same horizontal and prevent sagging thereof due to the combined strain of all of the springs 26.

The shift key-lever 17 is bowed between its ends to permit it to be depressed without depressing rod 20, and hence not interfere with the proper touch of the keys nor sound the clicker, and an individual spring 29 is provided for this shift key-lever of the same construction as springs 26, save of greater strength.

The spacing-bar 4 is secured on levers 30, fulcrumed on shaft 16 at the respective ends thereof, and are provided with individual springs 31, similar to spring 29, and suitable stops 32 are secured in the ends of casing 1 to limit the downward movement of the levers 30.

A bell 33 is supported above the inner ends of the key-levers by means of a metal arm 34, secured to bar 14, and is adapted to be struck by a knocker 34', carried by the free end of a bell-crank spring-lever 35, fulcrumed between its ends on a screw 36, located at the rear of the front plate of casing 1, and the other end of said spring-lever 35 is made hook-shaped to receive the key-lever 3, on which is mounted the button or key containing the period, as this marks the end of a sentence, and hence is the nearest approach to the end of a written line possible on this machine. By providing this spring-lever 35 it is necessary in order to have the bell sound to strike the key a sharp blow, such as is absolutely essential in correctly operating a type-writing machine, and hence this key gives to the student his example of just how to strike the keys, as he soon becomes accustomed to striking this key so as to sound the bell and unconsciously strikes the other keys just the same, thereby perfecting his touch.

To the inner face of the front plate of casing 1 a frame 36<sup>a</sup> is secured and supports a shaft 37, projecting through the front plate and having secured thereon a dial 38 and a milled knob 39 to permit the manual turning of the dial to "0," as indicated by a fixed pointer secured to the casing. If desired, a pointer may be secured on the shaft and the dial fixed to the casing. A ratchet-wheel is fixed on this shaft 37 behind the front plate and adapted to be operated by a pivoted dog 41 on the free end of a lever 42, pivoted between its ends, a friction-brake 43, compris-

ing a spring secured to the frame 36<sup>a</sup> and bearing on shaft 37, affording ample resistance to the turning of the shaft to prevent its being rotated too far by a single movement of dog 41, while an auxiliary dog 44 is provided to assist dog 41 in preventing the turning of the dial 31 in the wrong direction. A rod or link 45 is connected at its upper end to the end of lever 42 and is made with a hook at its lower end to engage one of the spacing-bar levers, and hence be operated every time the spacing-bar is struck to register on the dial a word spelled. Hence it will be seen that by providing this recording or registering mechanism the operator is enabled to tell just how many words he can write in a given time and can also keep account of the number of times he spells a given word, which is of great value to the student, as all lessons are prepared for spelling certain words a number of times.

The operation of my improvements is as follows: In spelling out the words the keys are depressed in their proper order. The first movement of a key overcomes spring 26, when the key-lever engages rod 20 and forces the same downward, thus bending spring-clicker and making the sound which is similar to a type striking the platen, and when the finger is removed from the key the clicker returns the rod 20 in the direction of its normal position, and hence moves the key-lever back thus far, the spring 26 completely returning it to its normal position and maintaining the perfect alinement of the keys. This motion of the key-lever gives the precise sensation that is received from striking the key of a type-writing machine, and when the word is spelled the operator strikes the space-bar and records a word spelled, as above explained, and when he finishes a sentence he strikes the "period-key" and sounds the bell, if he is using the proper touch; otherwise the bell will not sound, and he knows he must change his blow on the keys in order to secure the proper style of writing.

In order to provide means for permitting the depths of stroke of the key-lever to be varied to suit the varying tastes of operators or the requirements of instructors, I provide at the rear of cradle 8 a plate 50, having slots therein at its ends to receive set-screws 52 and permit its adjustment up and down, and at the upper edge of the plate an inwardly-projecting shoulder or flange 51 is provided, forming a stop extending over the short ends of the key-levers, hence limiting the upward movement of the short ends of the levers and the downstroke of the keys at the long ends thereof.

In the drawings I have illustrated a single-case keyboard; but I would have it understood that I may employ what is known as the "double case," which requires a larger number of key-levers, and can make various changes in the arrangement of the keys to conform to the various type-writing machines on the market.

Various slight changes might be resorted to in the general form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not wish to limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. A type-writing clavier, comprising a series of key-levers and sounding mechanism common to all of said series of key-levers and adapted to be actuated by any one of them.

2. A type-writing clavier, comprising a series of key-levers, and a spring-clicker adapted to be operated by any key-lever of the series and to sustain the force of a blow on the keys.

3. A type-writing clavier, comprising a casing, key-levers supported therein, a copy-holding bracket comprising a yoke having its arms pivoted to the ends of the casing and adapted to be folded down and surround the key-levers, and a stop on the end of the casing for holding the bracket in position to support a copy.

4. A type-writing clavier, comprising a casing, key-levers supported therein, a copy-holding bracket pivoted at its ends to the ends of the casing, a stop projecting from the casing for holding the bracket in an inclined position and a plate or rest upon the casing and cooperating with the bracket to support a copy.

5. In a type-writing clavier, the combination with a frame or cradle, of a key-lever mounted in said cradle, a spring-clicker operated by the lever when depressed and a spring normally holding the lever out of engagement with the clicker.

6. In a type-writing clavier, the combination with a frame or cradle, of a shaft secured in said cradle, key-levers fulcrumed near their ends on the shaft, springs holding the long ends of the levers elevated and a platform on the cradle supporting the short ends of the levers and alining the keys on the long ends of the levers.

7. In a type-writing clavier, the combination with a frame or cradle, of a shaft secured in said cradle, a series of key-levers fulcrumed near their inner ends on said shaft, springs holding the long ends of the levers elevated, a platform limiting the downward movement of the short ends of the levers and hence alining the keys on the long ends of the levers, and adjustable means for limiting the depth of movement of the keys.

8. In a type-writing clavier, the combination with a frame or cradle, of a shaft secured in said cradle, a series of key-levers fulcrumed near their inner ends on said shaft, springs holding the long ends of the levers elevated,

an alining-platform limiting the downward movement of the short ends of the levers, and a stop adjustably secured to the cradle and adapted to limit the upward movement of the short ends of the levers.

9. In a type-writing clavier, the combination with a frame or cradle, of a key-lever fulcrumed near its inner end in said cradle, a rod extending transversely above said lever, a transverse bar on the cradle in rear of said rod, a spring bearing between its ends on said rod, its short end disposed beneath the bar and its long end bent at right angles and provided with a hook engaging the lower edge of the long end of the key-lever.

10. In a type-writing clavier, the combination with a cradle, and a series of key-levers fulcrumed near their inner ends therein, of a spring-clicker secured to the cradle beneath the key-levers, a frame secured to the cradle and limiting the upward movement of the clicker, a rod bent at its ends and pivotally secured to the cradle, springs holding said rod against the lower edge of the levers and individual springs holding the several key-levers above the clicker.

11. In a type-writing clavier, the combination with a cradle, and a series of key-levers fulcrumed near their inner ends therein, of a spring-clicker secured to the cradle beneath the key-levers, a rod bent at its ends and pivotally secured to the cradle and adapted to operate the clicker when a key-lever is operated, springs holding said rod against the lower edge of the levers, individual springs holding the several key-levers elevated and one of said key-levers arched or bowed to avoid contact with the rod.

12. In a type-writing clavier, the combination with a series of key-levers, of a bell, and means intermediate of the bell and one of the key-levers for sounding the bell only when said key-lever is depressed.

13. In a type-writing clavier, the combination with a casing and a series of key-levers supported therein, of a bell in said casing, a spring-lever in said casing, a knocker on one

end of the spring-lever, and a link connecting the other end of said spring-lever with one of said key-levers.

14. In a type-writing clavier, the combination with a casing, of key-levers supported in the casing, spacing-bar levers also supported in the casing and carrying a spacing-bar, a dial on the casing, a ratchet-wheel for turning the dial to register with a fixed pointer, a lever fulcrumed between its ends in the casing, a dog on one end of the casing to turn the ratchet-wheel a distance of one tooth each time the lever is operated, and a link connecting the other end of the lever with one of the spacing-bar levers.

15. In a type-writing clavier, the combination with a casing of a frame therein, a shaft supported in the frame and projecting through the casing, a dial secured on the shaft in front of the casing, a ratchet-wheel on the shaft in the casing, a spring friction-brake engaging said shaft, a lever fulcrumed between its ends in said casing, a pivoted dog carried by one end of the lever and in engagement with the teeth of the ratchet-wheel, a spacing-bar lever projecting out of the casing and a link connecting said levers.

16. In a type-writing clavier, the combination with a casing, of a frame therein, a shaft supported in the frame and projecting through the casing, a dial secured on the shaft in front of the casing, a fixed pointer registering with the dial, a ratchet-wheel on said shaft in the casing, a dog for turning said wheel, a spacing-bar for operating said dog, another dog for preventing the turning of the ratchet in but one direction and a button on the center of the dial for manually turning the same.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CHARLES EDWARDS.

Witnesses:

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R. S. FERGUSON.