

No. 826,561.

PATENTED JULY 24, 1906.

L. G. GARRETT.
TYPE WRITER.

APPLICATION FILED SEPT. 26, 1904.

4 SHEETS—SHEET 1.

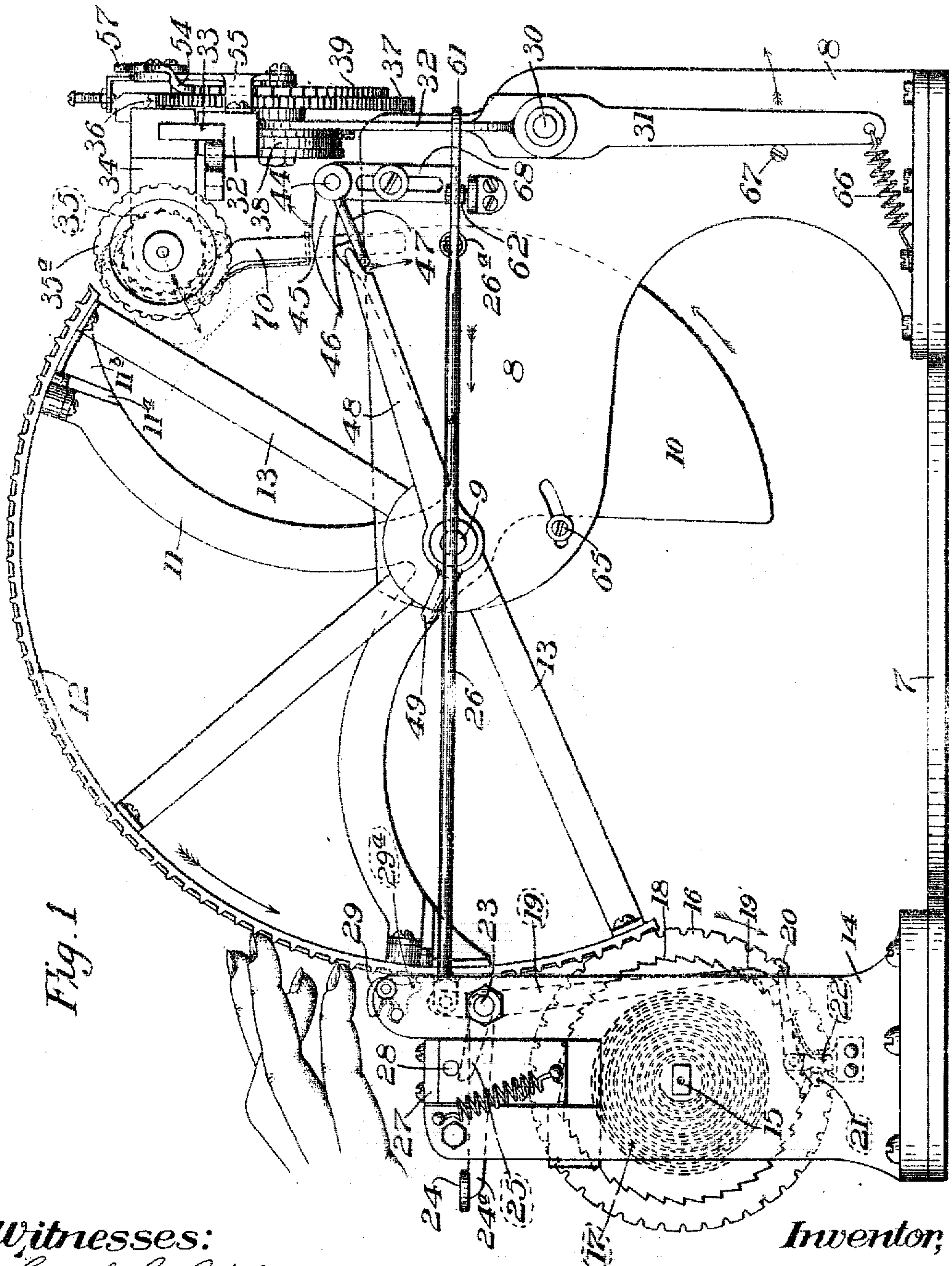


Fig. 1

Witnesses:
Cyril C. Crick
Archworth Martin

Inventor,
Lebbeus G. Garrett.
per *F. W. H. Clay*
Att'y.

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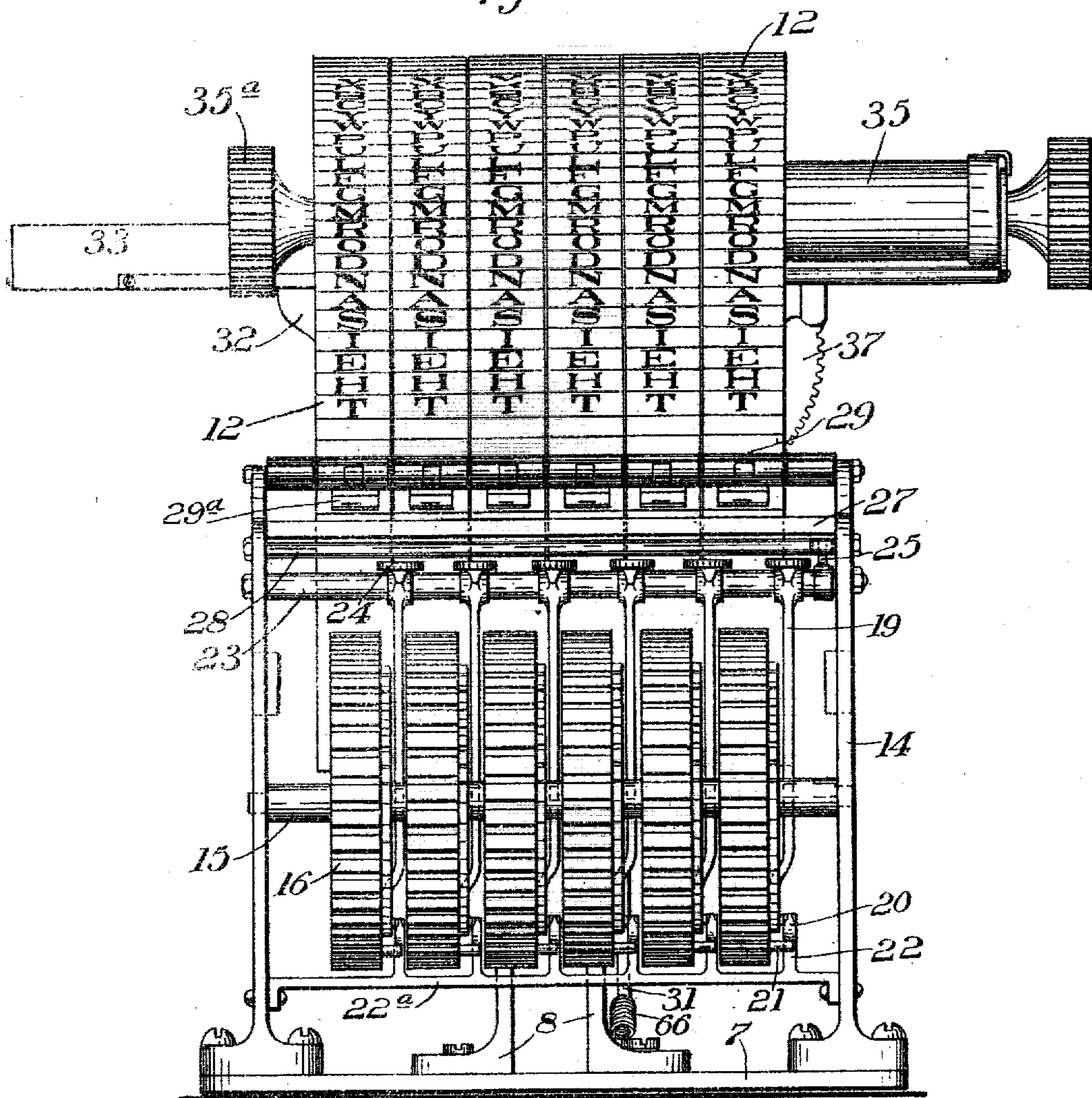
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APPLICATION FILED SEPT. 26, 1904.

4 SHEETS—SHEET 2.

Fig. 2.



Witnesses;

Cyril C. Quirk,

Archworth Martin

per

Inventor,

Lebbeus G. Garrett,

J. W. H. Clay

Att'y.

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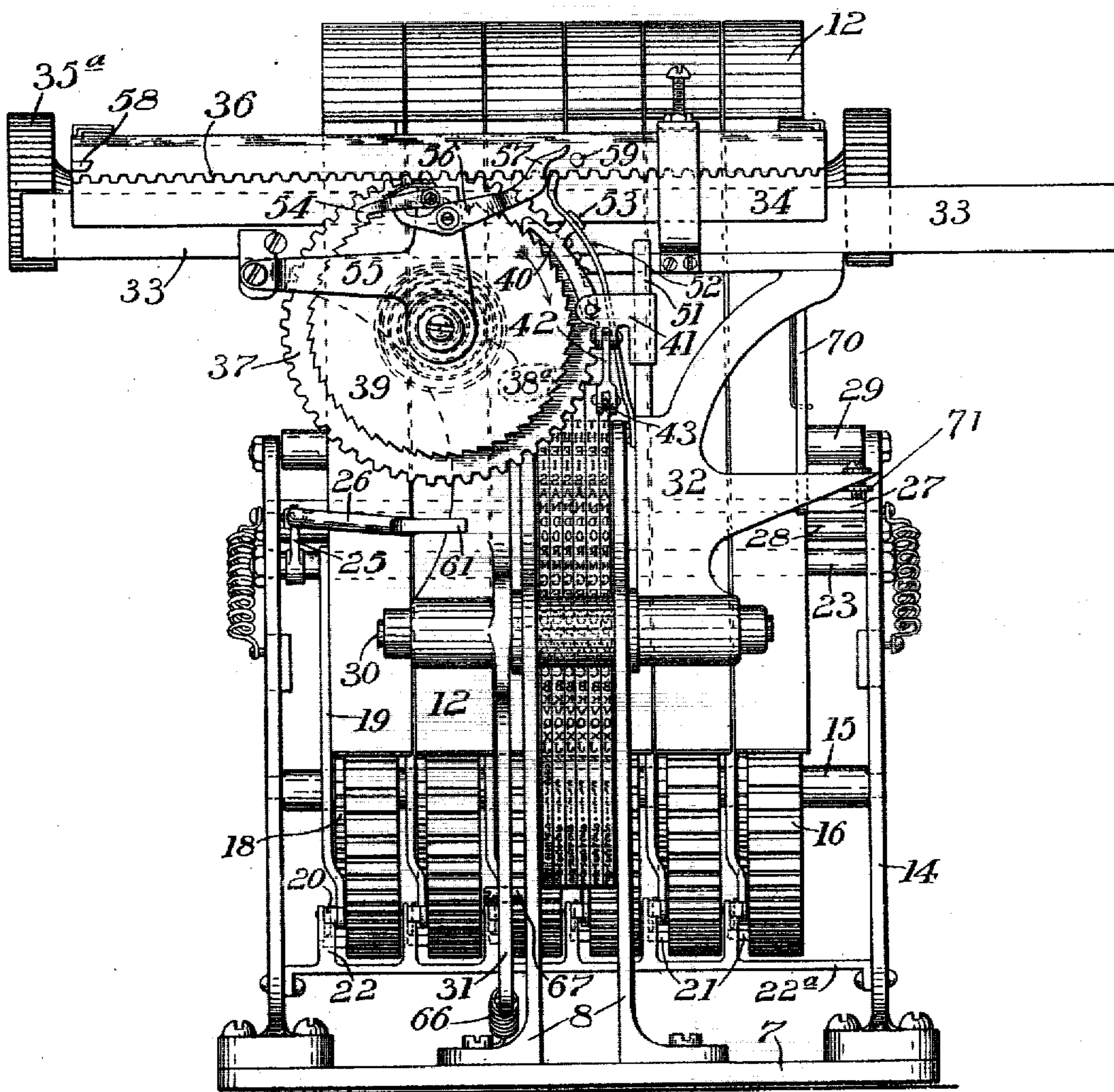
L. G. GARRETT.

TYPE WRITER.

APPLICATION FILED SEPT. 20, 1904.

4 SHEETS—SHEET 3.

Fig. 3.



Witnesses;

Cyril C. Crick,

Archworth Martin

per

Inventor,

Lebbeus G. Garrett,

F. W. H. Clay

Att'y.

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PATENTED JULY 24, 1906.

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APPLICATION FILED SEPT. 26, 1904.

4 SHEETS—SHEET 4.

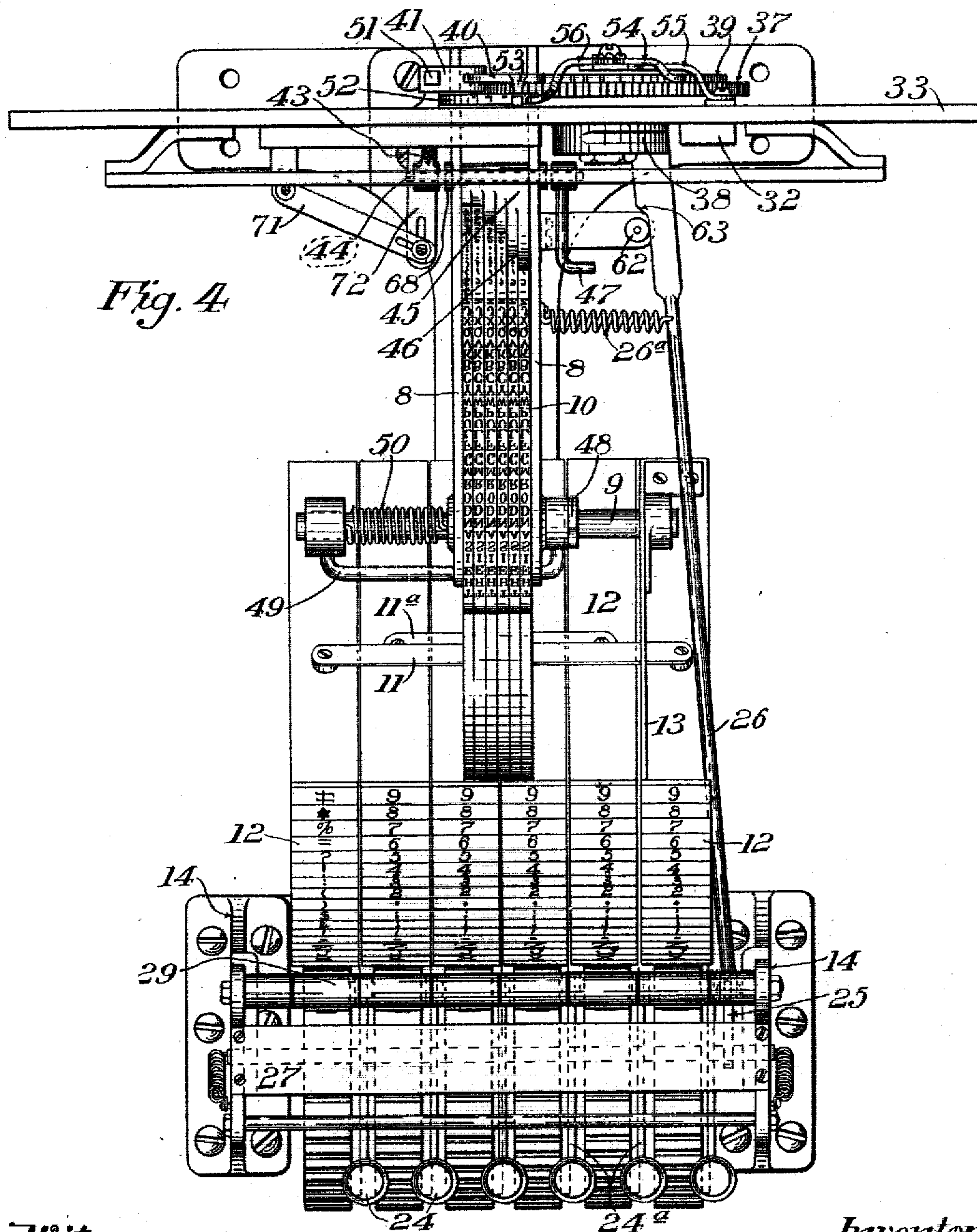


Fig. 4

Witnesses:

Cyril C. Cricks.

Archworth Martin per

Inventor:

Lebbeus G. Garrett,

F. H. Clay
Att'y

UNITED STATES PATENT OFFICE.

LEBBEUS G. GARRETT, OF WASHINGTON, PENNSYLVANIA.

TYPE-WRITER.

No. 826,561.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed September 26, 1904. Serial No. 225,887.

To all whom it may concern:

Be it known that I, LEBBEUS G. GARRETT, a citizen of the United States, residing at Washington, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification.

My invention relates to machines for manually writing with type, and particularly to the class of such machines in which a whole word, syllable, or group of letters are first set up in position and then impressed on paper at once.

The principal objects of the invention are to simplify the structure and render more rapid the operation of type-writing machines, to provide convenient means for collecting in position for printing several letters at the same time, to provide a superior form of movable keyboard and means for returning the same after use, to provide superior spacing devices and an automatic return of the paper-carriage, and to generally simplify and cheapen the structure and improve the operation of type-writers. These objects and other advantages, which will hereinafter appear, I attain by means of the construction illustrated in a typical form in the accompanying drawings, wherein—

Figure 1 is a side elevation of the operative parts of the machine removed from the protecting-casing and stripped of various unessentials of mechanism. Figs. 2 and 3 are respectively a front and a rear elevation of the machine shown in Fig. 1; and Fig. 4 is a top plan view of the machine with the paper-carriage and platen-roll removed, showing the revolving key-sectors partly thrown back and the type-sectors in view.

The essential or elemental feature of the machine is a combined type-sector and key-sector pivoted to revolve together upon a single shaft, and in the machine shown in the drawings for illustration I have simplified the machine as much as possible and shown but six of these sectors. It will be understood, however, that the machine may use any desired number of these parts in order that whole words may be set up together before printing, the operation of all being essentially the same.

Referring first to Fig. 1, it will be seen that upon a base 7 are upright supports 8, which have rearwardly-extending arms carrying a

main shaft 9. Upon this shaft 9 I place a series of combined key and type sectors, each having a solid portion 10, which carries the type upon the face or edge, and integral arms 11, which carry at their outer periphery an annular key sector or ring 12, bearing upon its face the various letters separated by ridges of sufficient height to give a secure hold upon the key-sector for the fingers. The outer sector 12 is shown in the drawings as provided with extra strengthening-arms 13 in order to give stiffness; but it will be understood that I may provide any required means for supporting sector-rings 12. At the front of the machine upon the base are uprights 14, between which, mounted upon a fixed shaft 15, is a series of actuating-drums 16, which are preferably made of wood or like material and are notched to engage the ridges on the peripheries of the key-sectors. Each is provided with a coil-spring 17, fixed upon the shaft 15 and adapted to revolve the drum 16 in the opposite direction to that indicated by the arrow in order to return the key-sector 12 to its normal position when released. As indicated in Fig. 1, when the key-sector is drawn downward, as shown by the arrow, the drum 16 is revolved. It is provided with a circular ratchet 18, which engages the hooked head 19^a of dog 19, so as to hold the drum, and consequently the key-sector 12, in whatever position it may be left by the action of the fingers. The normal position of the drum 16 of course corresponds to the normal position of the key and type sectors, and in the position shown the pin 21 on the drum 16 engages the stud 22 on cross-bar 22^a, as indicated in dotted lines at the lower left-hand corner of Fig. 1. When the catch 19^a is raised out of mesh with the rack 18, it will engage the notch in the head of the tripping-lever 20, allowing the drum to revolve backward, and when the pin 21 returns to its original position it will trip the lever 20 and release the catch 19^a to engage the drum again.

Referring to Figs. 1 and 2, it will be clear that when any particular letter on the key-sector 12 is brought down to a determinate position the type on type-sector 10 on the opposite side will be brought to a position, as indicated in dotted lines at the right of Fig. 1, where it will be engaged by the platen-roller 35, carrying the paper, for the purpose of printing. The various type are lined up

to form a word by bringing down the key-sectors 12 with the separate fingers, and all the fingers are released from contact therewith by means of the stop 29 when they reach a fixed position corresponding to the correct alinement of the type. The word having thus been set up, the finger depresses the cross-bar 27, and the rod 28, carried therewith, will first engage the bell-crank lever 25, which is connected with rod 26, to depress the platen upon the type and release, as will be hereinafter described. After the platen and paper have been depressed upon the type and released the further depression of the bar 27 and rod 28 will cause it to strike the arm 24^a of the bell-crank lever or dog 19, which carries the catch 19^a, disengaging it from the ratchet on the return-drum and engaging the notched lever 20. Under the influence of the coil-spring 17 the drum then returns to its original position, where the pin 21 on the drum strikes its support and stops the movement, in the meanwhile replacing catch 19^a by knocking up the trip-lever 20, as heretofore described. In case any one of the key-sectors is desired to be returned independently this can be done by depressing the individual key 24, of which there is one for each of the drums, as will be seen from Figs. 2 and 4.

The stop 29 is preferably made to perform the double function of releasing the fingers all at the same position and also of instantly stopping the movable keyboard or sector 12 promptly at the right position. As shown in dotted lines in Fig. 1, the stops or guards 29 comprise a finger-piece having a depending nose 29^a, which is in position to engage the sector 12 and stop its movement immediately upon contact of the finger with the top portion of the guard. The guard is held in normal position by second cross-rod and a small spring, as indicated.

It will be understood, of course, that the relative positions of the keyboard and the type upon the sector may be modified so that the selecting or the gathering of the type will be accomplished by pushing the key-sector forward rather than pulling it back, and while the particular arrangement of the letters upon the key-sector is not material to my invention I prefer the arrangement shown in the drawings as convenient for rapid work. In drawing the keys down to position it will generally be convenient to touch the one which is farthest off first, and thus a whole syllable or word may be brought down at once. It will be understood that after the rising of the sector 10 has raised the spacing-lever 45 the latter remains up until the return of all the key-sectors to normal position ready for the next word. As the sectors 10 are raised the respective arms depress the rod 49, Fig. 4, against the tension of spring 50 and elevate the lever 48 off the arm 47 of lever 45.

When the last sector is returned to normal position, the lever 48 engages arm 47 and throws the lever 45 back, placing the dog 40 in its normal position ready for the next word. The positions of type-sectors 10 may be adjusted by the stop-bar 65, Fig. 1.

Referring now more especially to Fig. 3, the uprights 8 carry a horizontal shaft 30, upon which is pivoted the platen-carriage, the whole being held in upright position normally by means of the downwardly-extending arm 31, which engages the stop 67 and is kept in place by the spring 66. Above the shaft 30 the frame 32 carries a supporting-bar 33, upon which reciprocates the carriage 34 for supporting the paper. The particular construction of this latter is not material to my invention; but I have shown a roller 35, having the knobs 35^a for manipulation, as is ordinary. The movable carriage has a rack 36, which engages a circular toothed wheel 37, mounted upon a shaft in the frame 32. As appears more clearly from Fig. 4, this shaft has on its rear side a drum 38, within which is a coil-spring 38^a, (shown in dotted lines in Fig. 3,) adapted to return the wheel to its original position after the carriage has revolved it toward the right, as shown by the arrow. The wheel has a circular rack 39, which is operated by means of the spring-dog 40, and this latter is reciprocated to engage and move it by means of the vertically-reciprocating block 41, riding on post 51 and operated by link 42 and a lever 43, fixed upon a shaft 44, which also carries the spacer-lever 45. This lever 45, as shown in Fig. 4, is provided with a series of teeth or dogs 46, one for each of the type-sectors, they being of different length, so that the amount of motion imparted to the spring-dog 40 and rack 39 is dependent upon the one of the type-sectors which is raised. It will be seen that as each type-sector is raised (see Fig. 1) one of the dogs 46 of the lever 45 is engaged, which turns the rock-shaft 44 and by the mechanism heretofore described draws downward the catch 40, revolving the wheel 47 and carrying over the carriage and platen-roll 35 a distance to make proper spacing for the letters thus lined up for printing. The dog 40 is provided with a backwardly-extending arm 53, which engages a circular-shaped spring 52. There is a retaining-catch 54 for wheel 37, mounted upon the arm 55 and held downward by a spring, as shown in Fig. 3. Mounted also upon the arm 55 is a lever 56, having a jaw 57, which when pressed down will thrust outward the spring 52 and lift the dog 40 out of engagement and meanwhile, by a notch on its face, as shown, will engage and retain said spring 52 in the relief position. This lever is moved down for this purpose by means of the pin 58 on the carriage, engaging the head 57 of the lever when the carriage reaches its extreme position to the right. It

will be understood that thus the step-by-step revolution of the wheel 37 in the direction of the arrow will be made by reason of the rising of the type-sectors and will gradually push the paper-carriage along in the process of writing until it reaches the end of the line. The spring 38^a is thus wound up, and by it the carriage will be returned to its original position when freed, and when it arrives at this position the pin 59 upon the carriage 34 will strike the end 57 of the lever 56, raising it and releasing the spring 52, the dog 40, and the catch 54.

Referring more particularly to Figs. 3 and 4, it will be seen that the platen-roll has a depending arm 70, which as the carriage returns to its original position engages the inclined guide 71 and revolves the arm to turn the platen-roll and bring the paper up in position for writing a new line. The arm 71 is adjustable by its engagement with stud 72, as shown in Fig. 4, in order to turn the platen-roll one or more spaces, as may be desired. The turning of the platen, as well as the return of the carriage, is thus done automatically, and the power necessary for these two actions is stored up in the spring 38^a in the process of setting up the line of type as the writing proceeds.

From Figs. 1 and 4 it will be seen that the actuating-rod 26 heretofore described as being drawn backward in the direction of the arrow in Fig. 1 when the spacing and printing bar 27 is depressed has a notch which engages an edge or other part of the pivoted carrier-frame 32 and draws it backward, so the platen-roll 35 is depressed in the direction indicated by dotted lines at the top of Fig. 1 and brings the paper down with a sharp blow upon the type which has been set up. Just at this point of its motion the end 61 of the rod 26 strikes with its inclined portion 63 upon the roller 62 and releases from the pivoted carriage 32, allowing the carriage to spring back to its original position before the catch 19^a is released to allow return of the drum 16 and the key-sector. Any desired inking mechanism may be used for the type.

The operation is as follows: The several letters of a word being selected on the key-sectors 12 and drawn downward until the fingers are lined up on the stop-brake 29, the type will be alined properly in position to engage the platen-roll 35, and the carriage will have been meantime moved over by wheel 37 the proper number of spaces for the word, since each type-sector 10 as it rises operates the lever 45 through the proper arc to space in proportion to its relative position in the word—that is, if the word has four letters the last letter will be chosen on the fourth sector 12 and its corresponding dog 46 will move the carriage four spaces, as will be clear from Fig. 4. The space between words may be

doubled or trebled, as desired, by simply beginning the word on the second or third sector 12. The type having been lined up, each sector stays where placed by the catch 19^a engaging rack 18; the drum 16 holding the sector in position. The bar 27 is now depressed, which throws down the platen on the type by means of rod 26, and as soon as this is again released by the roller 62 the continued depression of rod 28 engages all the levers 24^a and releases all the drums 16, so that all the key-sectors 12 return to normal position, while notched levers 20 hold up the catches 19^a until released by the return of pins 21 striking levers 20, as heretofore described. When the end of the line is reached, the pin 58 depresses lever 57 and releases catches 54 and 40 and the carriage is brought back by coil-spring 38^a, whereupon pin 59 releases lever 57 and allows catches 40 and 54 to engage again. Also on the return movement of the carriage the platen-roll is turned by lever-arm 70 striking guide 71.

It will be seen that by this machine any number of letters, syllables, words, or a whole line may be "gathered" and set up at once, the matter may be seen before printing and an error may be corrected; the spacing is done automatically at the same time with the gathering, the operation requires very little power and few motions of the hand and is very rapid, the alinement cannot get out of order, the printing is noiseless and is even and easy, the shifting of the platen and paper for each new line and return of the carriage are automatic, and the striking of one letter over another is impossible.

Having thus described my invention and illustrated its use, what I claim as new, and desire to secure by Letters Patent, is the following:

1. In a type-writer the combination of a set of pivoted members having each a set of finger-keys adapted for direct manual operation by the fingers placed thereon for selection, on one side, and on another side a corresponding set of type, means to stop said keys, operated by the fingers on the keys, and means for printing the type, substantially as described.

2. In a type-writer a pivoted type and key sector having a set of type arranged on one side thereof and a set of character-keys adapted for direct engagement and movement by the fingers arranged on the other side, combined with means operated by the fingers on the said keys in their movement for stopping the keys and type in alinement for printing, substantially as described.

3. In a type-writer a pivoted sector having on one part of its periphery a set of type and on another part of the periphery a set of corresponding character-keys adapted to be moved by the fingers placed thereon, stops also operated by said fingers, means to ad-

just the type in line for printing by moving the keys, and means to print the type on the paper.

4. In a type-writer a plurality of type-sectors each having an integral circular finger-key sector, means to gather or compose and aline a group of the type on said sectors for printing all at once, means operated by the fingers on the keys to lock the keys in place and means to impress the type on the paper.

5. In a type-writer a revoluble key-sector, a revoluble keyboard carried on the sector, means to hold the keys and type in position for printing, mechanism operated by the motion of the sector to space the writing, and means to impress the type on the paper.

6. In a type-writer a movable type-sector, spacing mechanism operated by the sector, mechanism for printing the type and simultaneously releasing the sector and returning it to normal position.

7. The combination with a set of revoluble members carrying sets of type and a set of keys, of means to aline the type, mechanism operated by the type-sector to space the paper, and means for returning the type to normal position after printing, operated by the moving key-sector.

8. In a type-writer a set of movable key-boards and type-sectors carried thereon, and means for lining up and printing the type comprising a bar in the path of motion of the finger when moving the key-sector, said bar having connected mechanism to first impress the type and release it and then to actuate return mechanism to replace the key-sectors.

9. In a type-writer, the combination with a movable keyboard and type-sector, of spring return mechanism operated by the movement of the key-board, a presser-bar and connected mechanism to print the type, said presser-bar having a stop device to engage the keyboard and means for releasing the return mechanism after the printing.

10. In a type-writer, substantially as described, a movable keyboard and a return mechanism for the movable keyboard comprising a spring-actuated drum engaging the keyboard, and means for simultaneously printing the type and releasing the return mechanism.

11. In a type-writer a set of pivoted sectors having type and finger keys on their peripheries, means to aline the type for printing, and automatic mechanism operated by the several sectors as they are alined, for spacing the paper with respect to the type, substantially as described.

12. In a type-writer a paper-carriage, a series of type-sectors having integral parts with finger-keys to select the type, means op-

erated by the type-sectors for moving and spacing the paper-carriage, a spring for returning the paper-carriage wound by the action of the type-sectors during the printing, and an automatic release for said spring to return the carriage, and automatic mechanism for turning the paper-platen for another line as the carriage returns.

13. In a type-writer the combination with a set of type-sectors having a portion provided with finger-keys to select the type, and a paper-carriage having a rack, of a driving-wheel engaging the rack, means to revolve the wheel the proper distance to space the number of sectors alined for printing, automatic means for returning the carriage when the end of the line is reached, and for moving the paper in position for the next line.

14. In a type-writer, the combination with a set of revoluble type-sectors, of a paper-carriage and means for moving it comprising a lever having arms of different length of throw, one engaging each of said type-sectors, whereby the series of type-sectors progressively operate the lever and move the carriage a progressive number of spaces corresponding to the number of type-sectors used.

15. In a type-writer a series of type-sectors provided with selecting-keys thereon and means for alining several type in position to print a word, and means operated by the type-sectors for automatically spacing the paper for the letters and making a blank space between words, substantially as described.

16. In a type-writer the combination with a circular keyboard, of a spring-actuated return-drum for the keyboard, a rack on the drum, a catch for retaining the drum in position, and a tripping-lever for holding said catch, and a stop-pin on the drum adapted to stop it at a fixed position and also to release the tripping-lever and the catch when the drum returns to normal position.

17. In a type-writer, the combination with a set of revoluble keyboards and integral type-sectors thereon, of means to aline and print the type, means to shift and space the paper over the type, means to depress the paper on the type and means to return the type-sectors to normal position, all said means being actuated by a single member in the path of the finger as it moves the keyboard to position, substantially as described.

In testimony whereof I have hereunder signed my name in the presence of the two subscribed witnesses.

LEBBEUS G. GARRETT.

Witnesses:

WILLIAM F. WISE,
F. W. H. CLAY.