

No. 773,894.

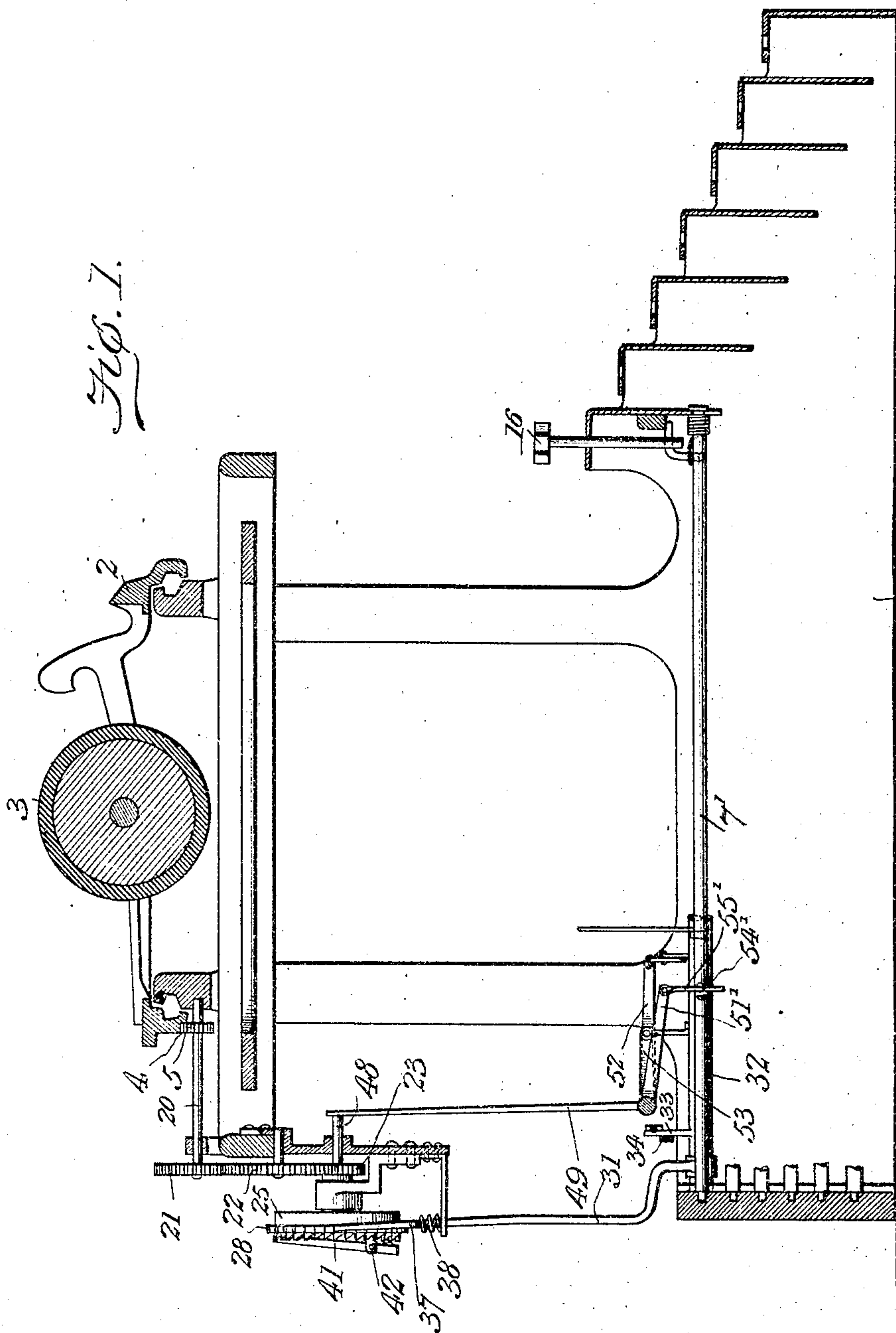
PATENTED NOV. 1, 1904.

C. L. REAMER.
TYPE WRITER.

APPLICATION FILED MAR. 30, 1903.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses
E. F. Stewart
Jno E. Parker

Clement L. Reamer Inventor
by *C. A. No. 106*
Attorneys

No. 773.894.

PATENTED NOV. 1, 1904.

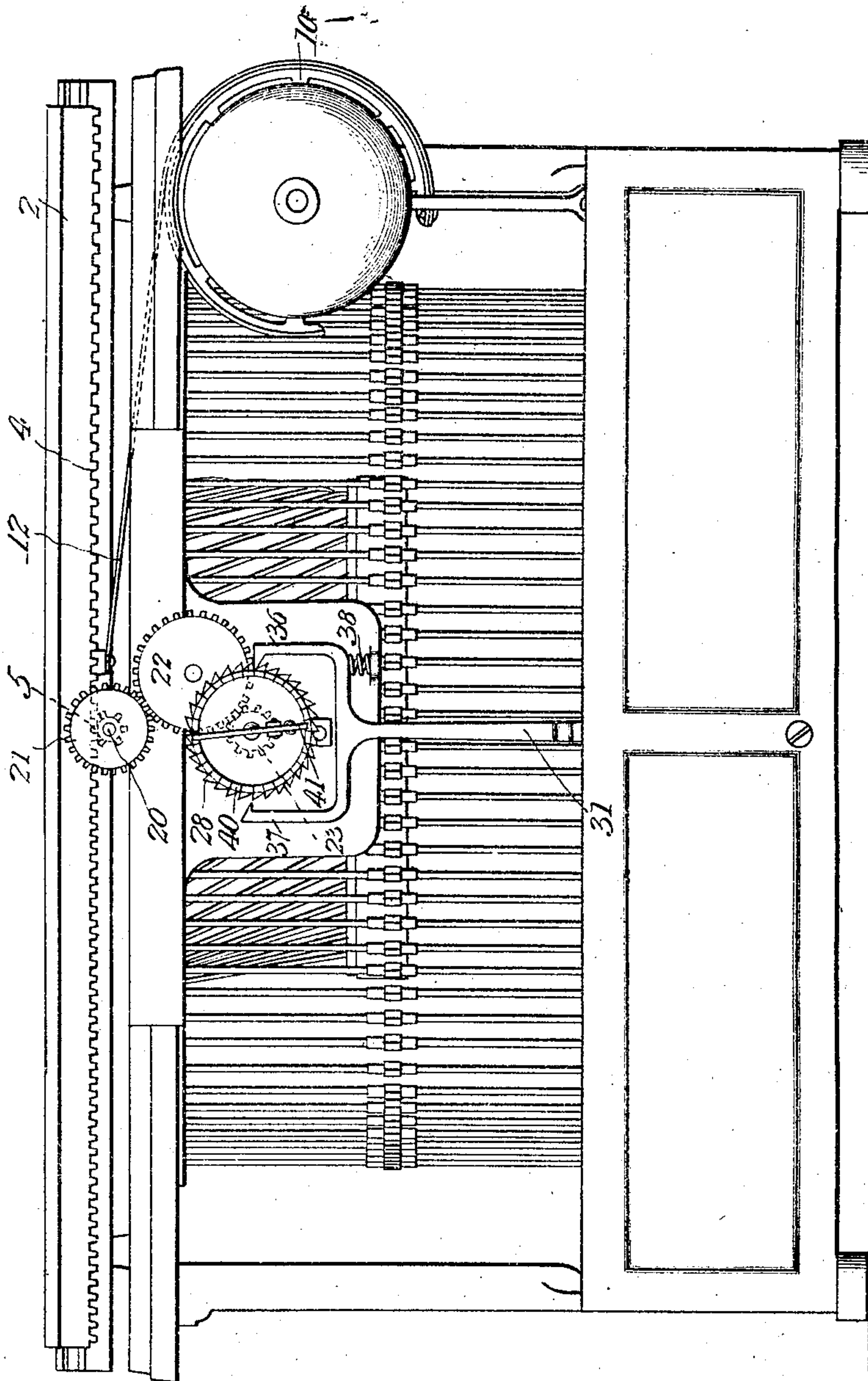
C. L. REAMER.
TYPE WRITER.

APPLICATION FILED MAR. 30, 1903.

NO MODEL.

4 SHEETS—SHEET 2.

Fig. 2.



Witnesses
E. C. Stewart
John C. Parker

Clement L. Reamer Inventor
by *C. A. Snow & Co.*
Attorneys

No. 773,894.

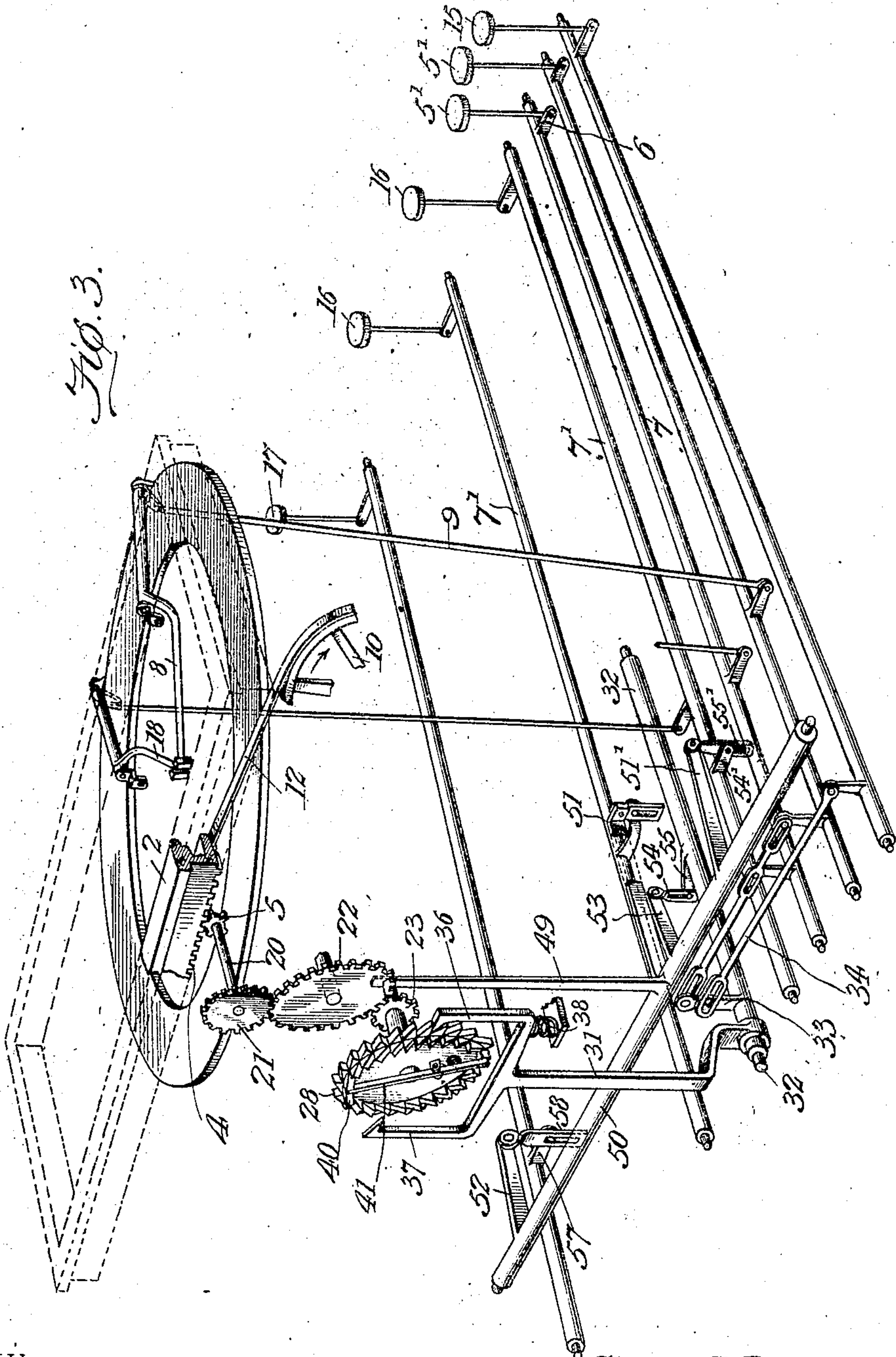
PATENTED NOV. 1, 1904.

C. L. REAMER.
TYPE WRITER.

APPLICATION FILED MAR. 30, 1903.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses
E. C. Stewart
Jno E Parker

Clement L. Reamer Inventor
by *C. A. Snow & Co*
Attorneys

No. 773,894.

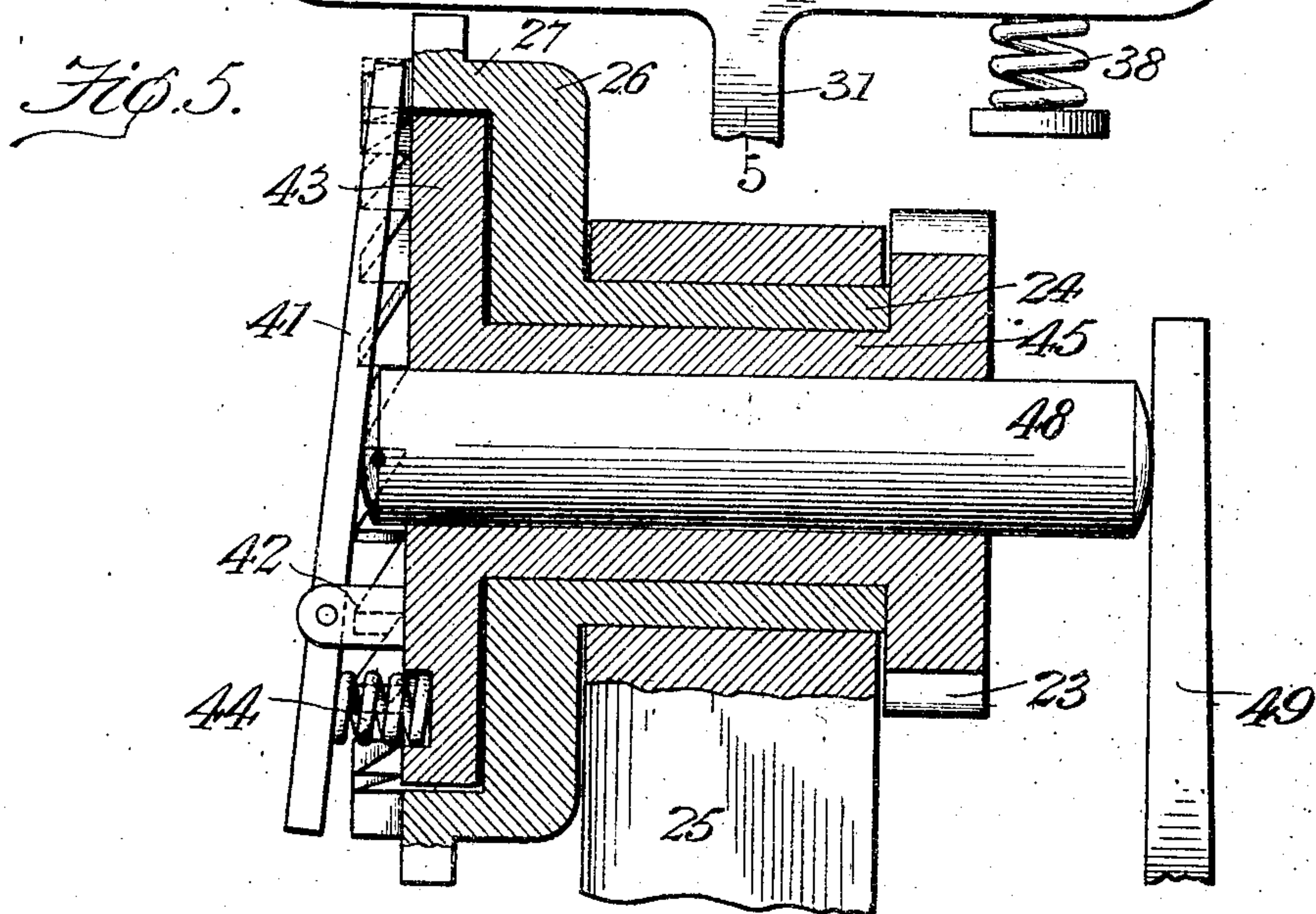
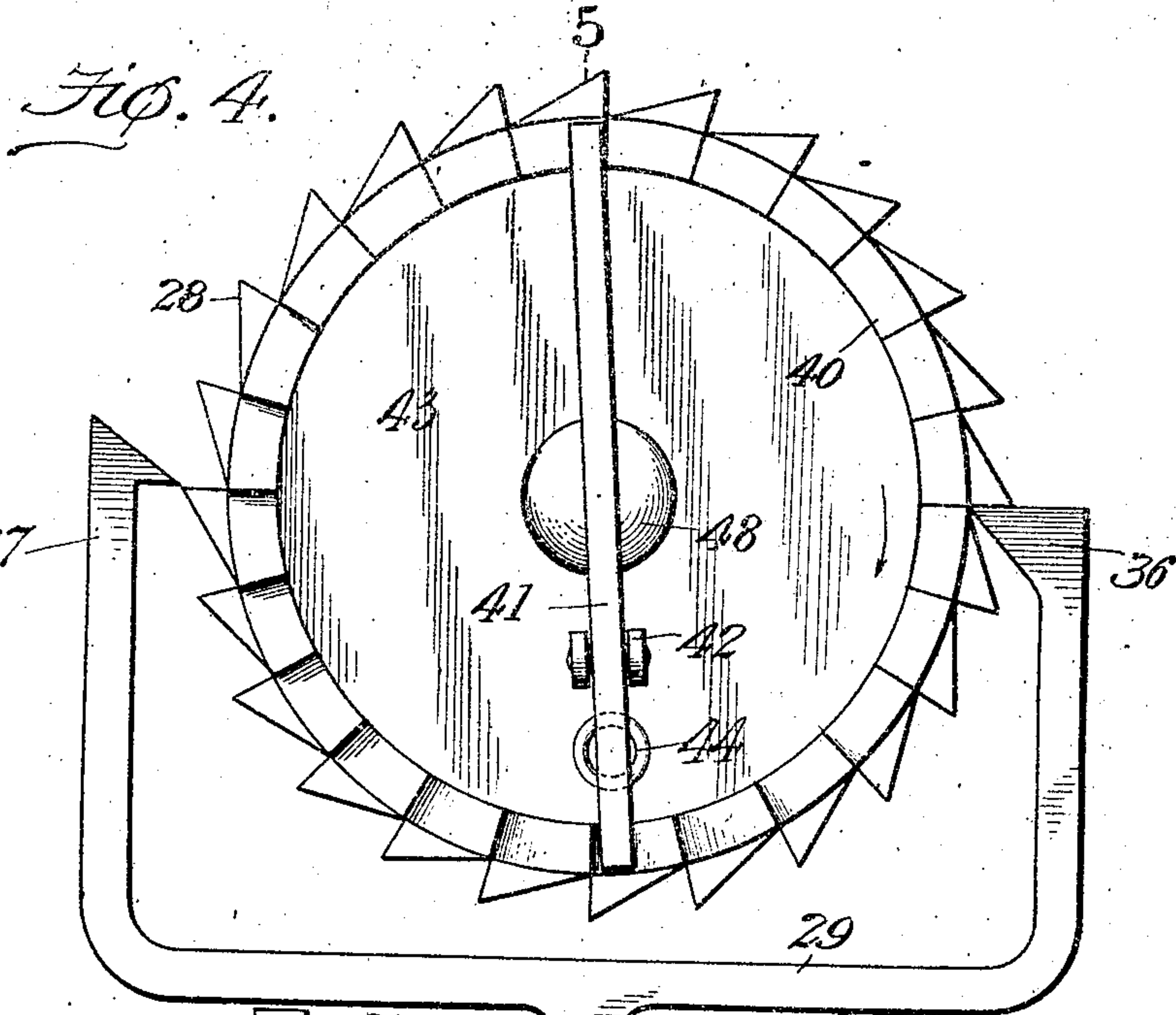
PATENTED NOV. 1, 1904.

C. L. REAMER:
TYPE WRITER.

APPLICATION FILED MAR. 30, 1903.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses
E. F. Stewart
J. W. Parker

Clement L. Reamer Inventor
by *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

CLEMENT L. REAMER, OF NEWARK, OHIO.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 773,894, dated November 1, 1904.

Application filed March 30, 1903. Serial No. 150,302. (No model.)

To all whom it may concern:

Be it known that I, CLEMENT L. REAMER, a citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented a new and useful Type-Writer, of which the following is a specification.

This invention relates to certain improvements in type-writing machines, and has for its principal object to increase the rapidity of operation of the machine by permitting the operator to print two characters at a single stroke and to allow double spacing at the end of a word or sentence without the necessity of striking the spacing-key for each separate spacing movement of the carriage.

In type-writing machines as ordinarily constructed each letter occupies a single space and a single space is formed after each word, while punctuation-marks, such as commas or semicolons, are also followed by a single space, and at the end of a sentence two or three separate spaces occur before the starting of the next sentence. This operation entails considerable loss of time, especially in spacing between words or following punctuation-marks and in cases where the same letter is repeated, as in double "e" or "s."

In carrying out the present invention the machine is provided with two sets of keys, one designed for covering single characters and moving the carriage single spaces at each stroke, while the other is intended to permit the printing of two characters and to permit double spacing at each stroke, and in this connection both sets of keys may be depressed simultaneously to print any desired combination of letters or a letter or character in connection with an additional spacing.

With these and other objects in view the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, and minor details of construction may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a longitudinal

sectional elevation of a type-writing machine constructed in accordance with the invention, unnecessary parts of the mechanism having been omitted in order to more clearly illustrate the construction. Fig. 2 is a rear elevation of the machine. Fig. 3 is a detail perspective view, partly in the nature of a diagram, illustrating the general arrangement of parts. Fig. 4 is a rear elevation of an escapement mechanism constructed in accordance with the invention. Fig. 5 is a longitudinal sectional elevation of the same on the line 5-5 of Fig. 4.

Similar numerals of reference indicate corresponding parts throughout the several figures of the drawings.

The frame 1 of the machine, which may be of the usual construction, is provided at the top with suitable rails for the transversely-movable carriage 2, carrying the impression-platen 3 and provided at its rear edge with a rack 4, with which intermeshes an escapement-controlled pinion 5 for permitting movement of the carriage at the conclusion of each imprinting operation.

The machine shown in the drawings is similar to that in commercial use and known as the "Smith Premier," wherein vertically-disposed finger-keys, as 5', are connected by rocker-arms 6 to rock-shafts 7, which in turn are connected to type-carriers 8 by means of approximately vertical rods 9, so that on the depression of a key the connected type-bar will be operated and imprint the desired letter or character on the paper. In machines of the class it is usual to employ a carriage-actuating spring tending to draw the carriage to the left, and a portion of such mechanism is shown at 10 in Figs. 2 and 3, said mechanism being connected to the carriage by a flat band 12, formed of metal or other suitable material. In the machines of ordinary construction the downstroke of the finger-key moves an escapement mechanism to such position that after the imprinting operation and the release of the finger-key said escapement mechanism in reassuming its initial position will permit the carriage to travel to the extent of a single tooth or space, leaving a blank portion of the paper at the imprinting-point

in readiness for the next operation. This general mechanism being common to a number of machines in commercial use is well known and does not require further detailed description.

By the employment of the escapement mechanism hereinafter described each downstroke of one of the character-keys 5' or similar stroke of a single-space key will result in the travel of the carriage to the extent of a single tooth or space; but in addition to this set of single character or space keys I employ a second set of keys, as shown at 16 in Fig. 3, and an auxiliary double-space key 17, the depression of any of these latter keys permitting a movement of the carriage to the extent of two teeth or spaces. Each of the "double-character" keys, as they are termed for convenience, is connected to a type-bar 18, having its imprinting-type at a point one space to the rear of the usual printing-point, as shown in Fig. 3.

In practice the double-character keys may be of a number equal to the number of single-character keys 5', or they may be so arranged as to provide only for the imprinting of a number of frequently-occurring characters, as "ee," "ss," "oo," "an," "is," "to," &c., and in addition to these a number of keys may be employed for the minor punctuation-marks—such as commas, semicolons, and colons—where each is followed by a space, so that the operator at a single-stroke may print a multiple character or may print the desired punctuation-marks and at the same time effect a double spacing, so that the writing of the next word may start without rendering it necessary to actuate the spacing key or bar. Where the entire set of finger-keys is employed in the double-character arrangement, each will have but a single printing-type and this arranged one space to the rear of the impression-point of the single-character keys, so that any one finger-key of the double set may be simultaneously depressed with any one key of the single set to imprint any desired combination of characters.

The escapement mechanism employed is best shown in Figs. 3, 4, and 5, wherein the pinion 5, which engages with the carriage-rack, is carried by a shaft 20, on which is secured a small wheel 21, connected by an intermediate gear 22 to a pinion 23 on the main shaft of the escapement mechanism.

The shaft 24 is mounted in a suitable bearing in a bracket 25 and at one end is provided with an escapement-wheel 26, having a peripheral flange 27, on which are two sets of escapement-teeth equal in number and when actuated permitting movement of said shaft to an equal extent. The radiating teeth 28 are engaged by pallets formed at the ends of an anchor 29, which is operated after the manner of a dead-beat escapement-anchor, having its depending arm 31 connected to a

rock-shaft 32, carrying rocker-arms 33 of a number proportioned to the number of single-character keys. The single-character keys, as well as the single-space keys, are connected by their individual rock-shafts and rocker-arms to the arm or arms 33 of the main rock-shaft 32, the connection being in the form of slotted links or bars 34, which will permit a positive movement from any one key to the rock-shaft 32 without affecting the position of any other key and which will also allow movement of the rock-shaft 32 without corresponding movement of any of the single-character keys.

In the operation of the mechanism thus far described downward pressure on any of the single-character keys 5' or on the single-space keys 15 will result in the usual printing operation in the case of the character-keys and at the same time the shaft 32 will be rocked to an extent sufficient to move the pallet 36 out of engagement with one of the escapement-teeth 28 and to move the opposite pallet, 37, into engagement with another of said teeth. This occurs during the imprinting operation and without permitting any movement of the carriage. When the key is released and the parts are returned to position by the spring or other mechanism employed for this purpose, the pull of the carriage-spring will force the pallet 37 outward, while a spring 38, arranged under the anchor, will assist this movement and release the escapement-wheel, so that the latter may rotate to the extent of a single tooth before it is caught by the pallet 36. This movement is transmitted from the carriage through the several gear-wheels.

On the annular face of the flange 27 are crown escapement-teeth 40, with which may engage controlling devices represented in the present instance by a diametral escapement-bar 41, pivoted between the spaced lugs of a small bracket 42, which projects from an escapement-disk 43, arranged within the flange 27. The longer end of the diametral escapement-bar is normally in engagement with one of the crown-teeth, being held in this position by a small compression-spring 44, extending between the escapement-bar and the disk 43, and said disk 43 is secured to or formed integral with a hollow shaft 45 constituting the main shaft of the escapement, and provided at its opposite end with the small pinion 23. The shaft 45 is hollow and receives a longitudinally-movable spindle 48. The spindle 48 bears at one end against the central portion of the escapement-bar 41 and at its opposite end is engaged by a rocker-arm 49, so that when moved in the direction of the escapement-bar the longer arm of the latter will be moved out of engagement with one of the crown-teeth, while the shorter arm will be moved into engagement with a diametrically opposite tooth without, however, permitting rotative movement of the ratchet-wheel.

Extending transversely of the rear portion of the machine is a rock-shaft 50, carrying the rocker-arm 49 and provided with a plurality of rocker-arms, as 51 52, and a central rocker-arm 53, the latter being connected by a slotted link 54 to a rocker-arm 55, carried by the main rock-shaft 32.

The several double-character keys 16 are carried by rock-shafts 7' and near their rear ends have rocker-arms 54', which are connected by slotted links 55' to the rocker-arms 51', projecting from rock-shafts 50. In similar manner the rock-shaft of the double-spaced key 17 is connected by a rocker-arm 57 and slotted link 58 to the rocker-arm 52 on shaft 50.

When a double-space key 17 or a double-character key is depressed, the movement is imparted first through one or other of the links and rock-shafts to rock-shaft 50 and thence by rocker-arm 49 to the spindle 48. This results in an outward movement of escapement-bar 41, moving the longer arm of the latter out of engagement with one of the crown-teeth and the shorter arm of said bar into engagement with a diametrically opposite tooth. During this movement the connection between the rock-shaft 50 and rock-shaft 32 through arms 53 and 55 and link 54 causes the previously-described preliminary movement of the anchor 29, the pallet 37 moving into engagement with one of the radial teeth 28, while the mating pallet moves out of engagement with a corresponding tooth.

The printing operation takes place during the downward movement of the key or keys, and as the imprinting-type of the double-character keys are arranged at a point to the rear of the imprinting-point of the single-character keys one of each set may be operated to print any desired combination of characters. On the release of the key or keys the anchor-escapement acts first and permits rotative movement of the escapement-wheel 25, this quick movement being transmitted through one of the crown-teeth and the shorter arm of the escapement-bar 41 to the disk 43 and thence to the gearing. When the finger-key has nearly resumed its initial position, the spindle 48 has been forced inward or in the direction of the keyboard under the influence of spring 44, and as the shorter arm of the escapement-bar moves from engagement with its tooth the longer arm arrives at initial position in time to catch the next succeeding tooth, so that at the completion of the operation the carriage has been moved two spaces.

The number of escapements may be increased in order to permit spacing movement to the extent of two, three, or more teeth, if desired, in order to properly space between sentences at a single stroke, or a third or fourth set of keys may be employed having an imprinting-point at the proper distance from the normal in order to provide for the

simultaneous printing of three or four or more characters.

The arrangement in the present instance permits the printing of any two characters or the printing of a single character or punctuation-mark and a simultaneous additional spacing movement of the carriage, as well as the printing of single characters and the movement of the carriage for either a single or double spaces, by the depression of the proper keys.

Having thus described the invention, what I claim is—

1. In type-writing machines, an escapement-wheel, having a plurality of sets of teeth, independent releasing members therefor, and a single actuating means for successively operating said releasing members.

2. In type-writing machines, an escapement-wheel having a plurality of sets of escapement-teeth, a single-character-key mechanism held in operative relation to one set of teeth for permitting single-spacing movement and a plural-character-key mechanism for permitting successive spacing movements of the several sets of teeth.

3. In type-writing machines, an escapement-wheel having radial and crown escapement-teeth, an anchor for engagement with the radial teeth, a single-character-key mechanism connected to the anchor, an escapement-bar engaging the crown-teeth, and a double-character-key mechanism connected to both the anchor and the bar.

4. In type-writing machines, an escapement-wheel having both radial and crown escapement-teeth, an anchor engaging the radial teeth, a single-character-key mechanism connected to the anchor, a diametral escapement-bar engaging the crown-teeth, a disk mounted concentric with the wheel and having an operative connection with the carriage, said bar being supported by the disk and serving to transmit the rotative movement thereof to the escapement-wheel, and a double-character-key mechanism connected to both the anchor and the auxiliary bar.

5. In type-writing machines, an escapement-wheel having both radial and crown teeth, a revoluble disk mounted concentric with the wheel, a diametral bar pivoted to the face of the disk and having one arm normally engaging one of the crown-teeth, mechanism connecting said disk to the carriage, an anchor engaging the radial teeth, single-character-key mechanism connected to the anchor, and double-character-key mechanism connected to both the anchor and the bar.

6. In type-writing machines, the combination with the carriage and key mechanism, of a pair of concentrically-disposed escapements having an operative connection with the carriage-shifting mechanism, the inner escapement being normally locked to and rotating

with the outer escapement, and independent releasing members for said escapements.

7. In type-writing machines, the combination with a carriage, of a plural escapement mechanism, a set of single-character keys connected to one of the escapements and serving to effect a single-space movement of said mechanism, and a set of plural-character keys connected to and operating the plural escapement thereby to effect a plural spacing movement of said escapement mechanism.

8. In type-writing machines, the combination with a carriage, of a plural escapement mechanism, a double set of finger-keys, rock-shafts connected to the finger-keys, a main rock-shaft connected to the primary escape-

ment mechanism, means for connecting the key-shafts to the main rock-shaft, a secondary rock-shaft connected to the secondary escapement, means for operatively connecting the shafts of the second set of finger-keys to said secondary rock-shaft, and means for operatively connecting said main and secondary rock-shafts.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses:

CLEMENT L. REAMER.

Witnesses:

OWEN A. NASH,
J. B. JONES.