

No. 705,409.

Patented July 22, 1902.

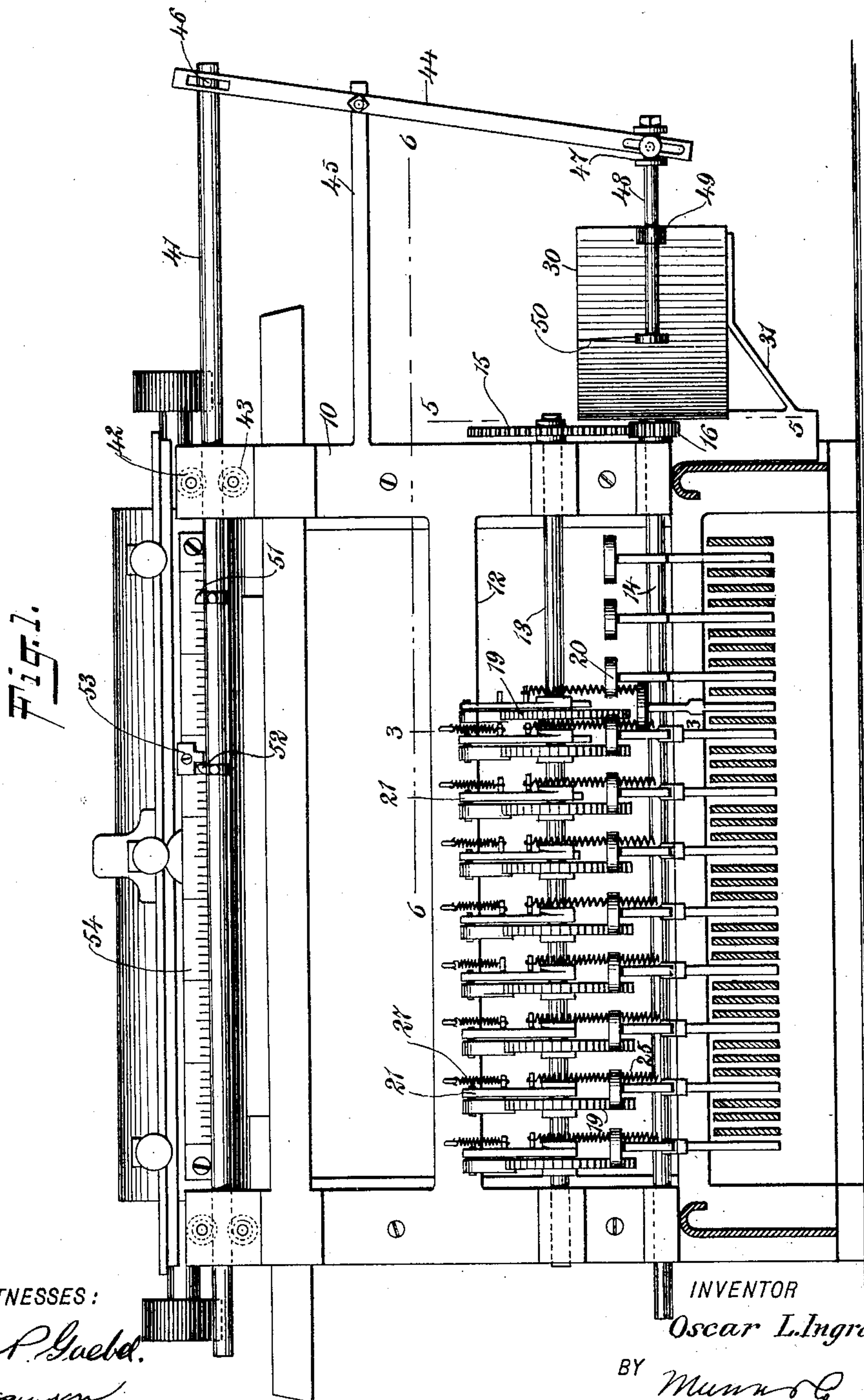
O. L. INGRAM.

ACCOUNTING ATTACHMENT FOR TYPE WRITING MACHINES.

(Application filed Dec. 12, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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ATTORNEYS

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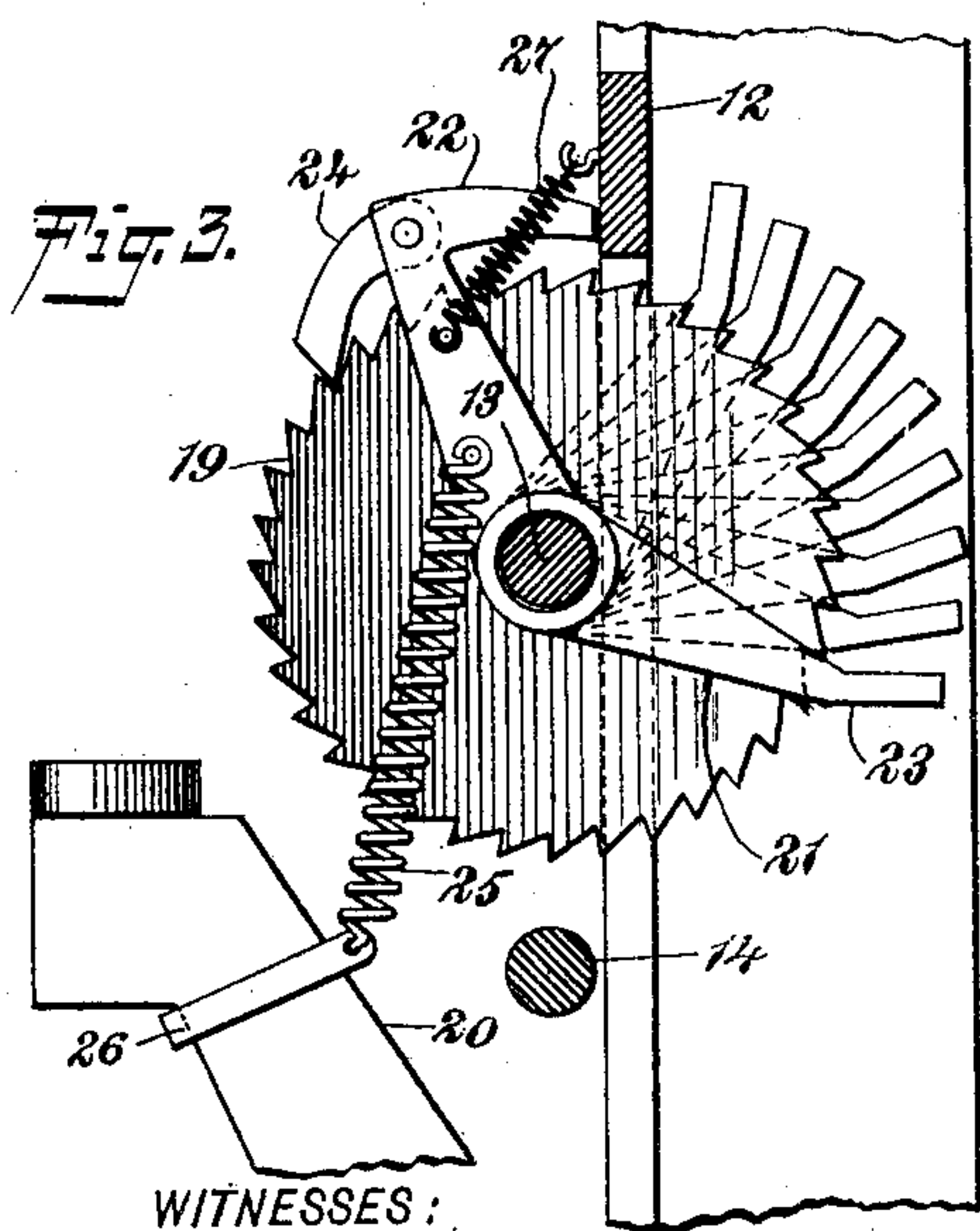
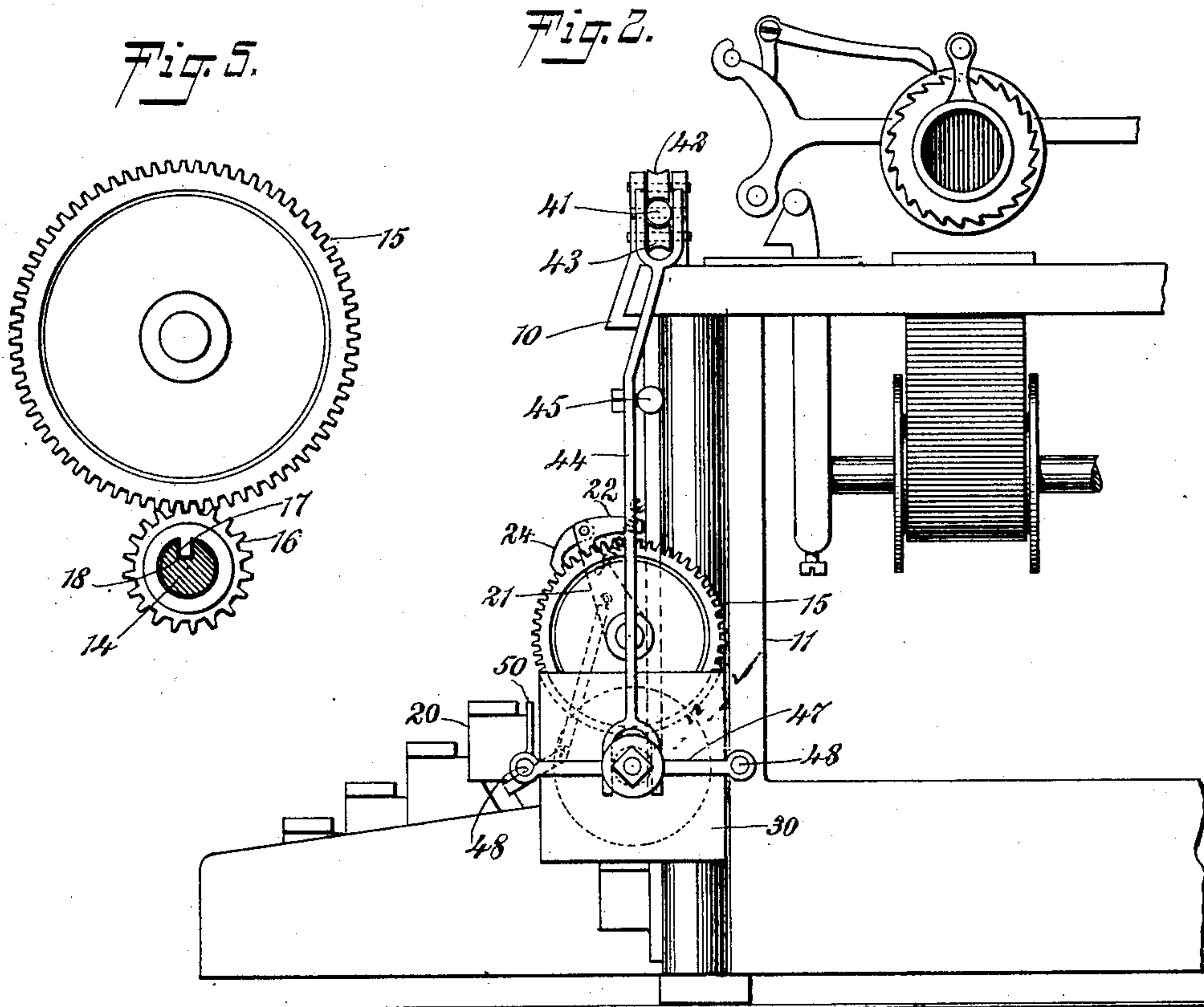
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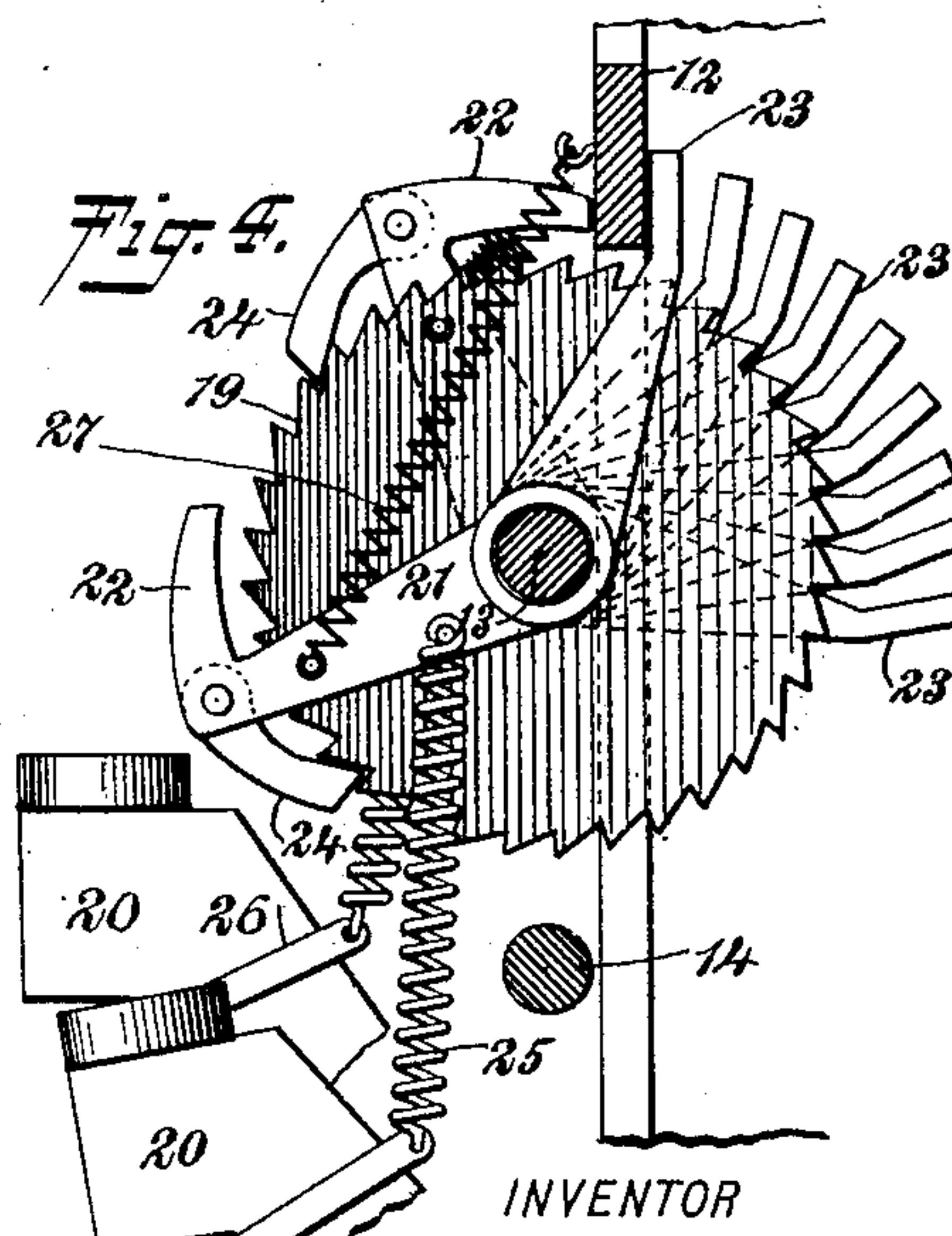
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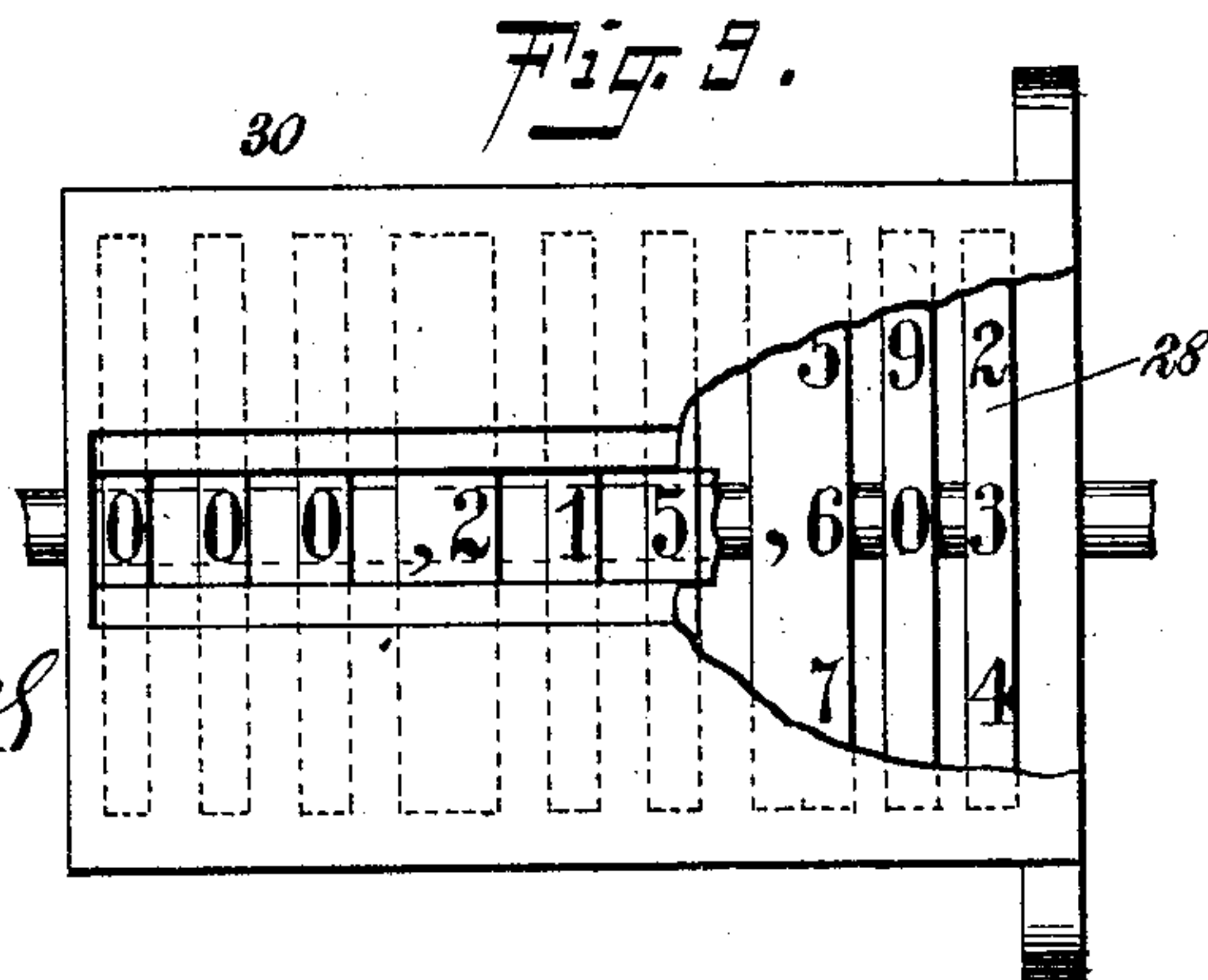
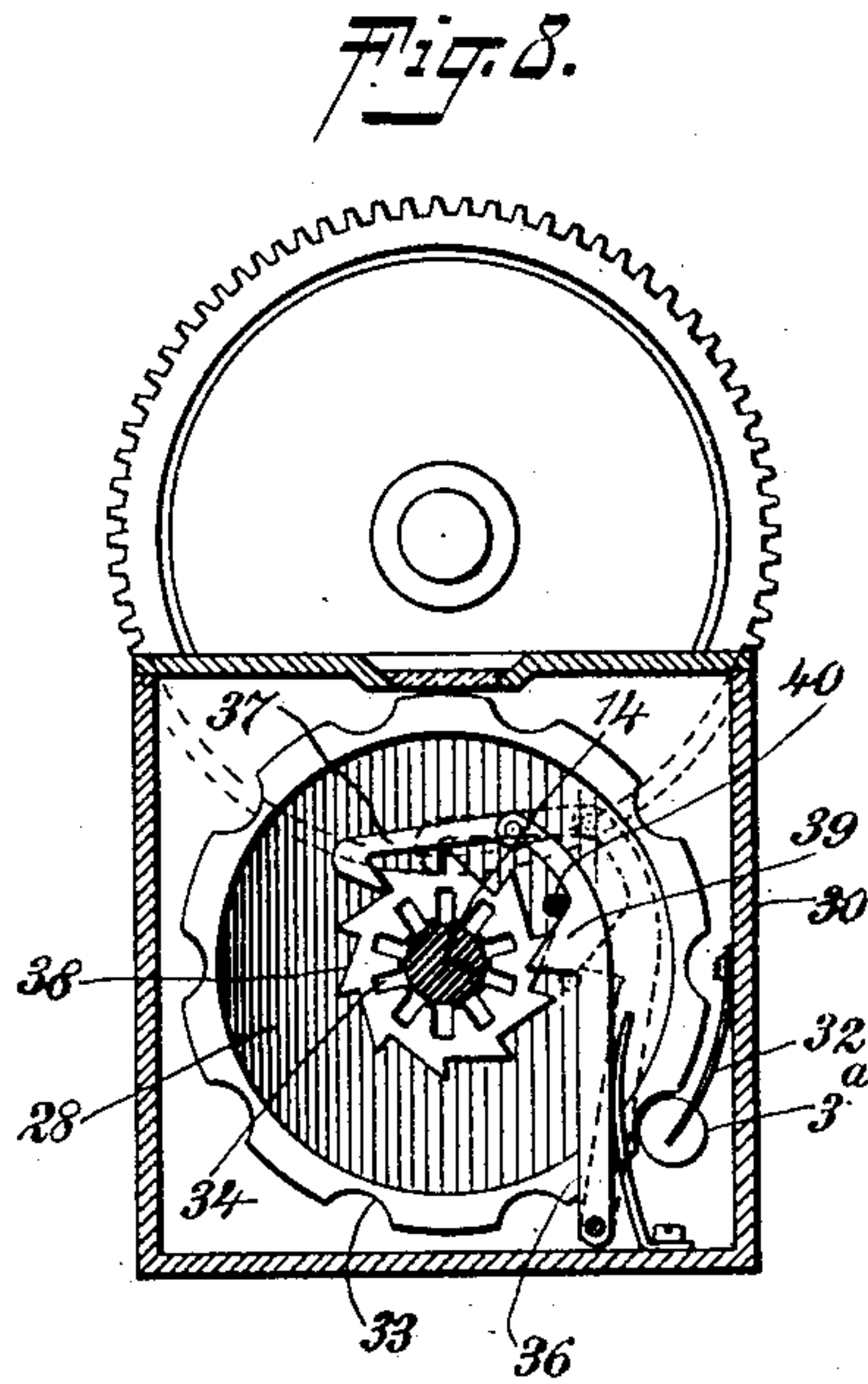
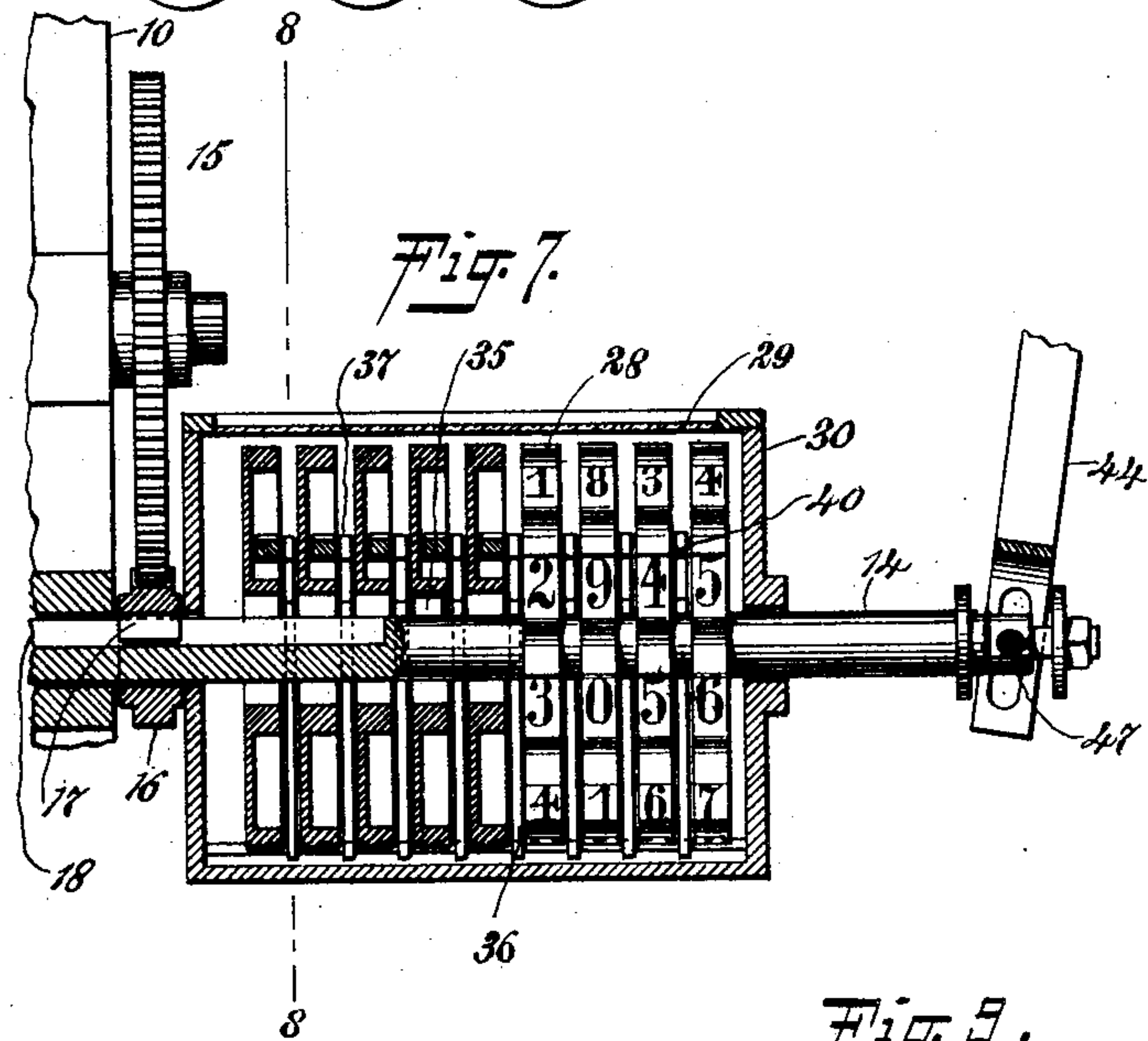
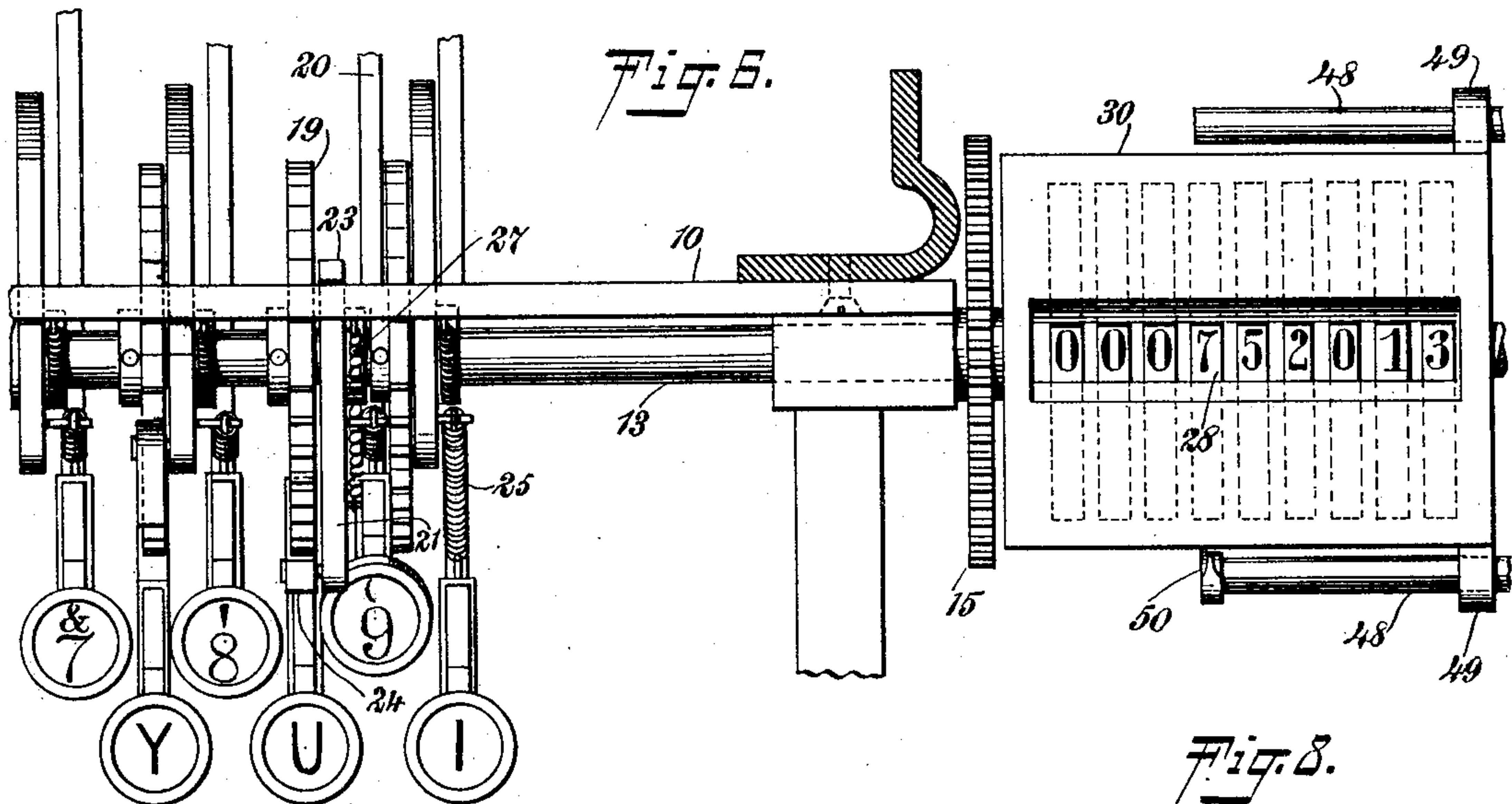
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UNITED STATES PATENT OFFICE.

OSCAR L. INGRAM, OF WALLA WALLA, WASHINGTON.

ACCOUNTING ATTACHMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 705,409, dated July 22, 1902.

Application filed December 12, 1901. Serial No. 85,601. (No model.)

To all whom it may concern:

Be it known that I, OSCAR L. INGRAM, a citizen of the United States, and a resident of Walla Walla, in the county of Walla Walla and State of Washington, have invented new and useful Improvements in Accounting Attachments for Type-Writers, of which the following is a full, clear, and exact description.

This invention relates to improvements in attachments for type-writers for computing or adding purposes; and the object is to provide a device of this character that may be readily secured to a type-writing machine and operated by the numeral finger-levers without in any way interfering with the ordinary work of the type-writer and by means of which the total of any number of columns of figures printed will be accurately indicated, thus making the device particularly useful in tabulating, bill, and invoice work.

I will describe an attachment for a type-writer embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of an accounting attachment for type-writers embodying my invention and showing the same as attached to a type-writer. Fig. 2 is an end view thereof. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a similar section, but showing the parts in different positions. Fig. 5 is a section on the line 5 5 of Fig. 1. Fig. 6 is a section on the line 6 6 of Fig. 1. Fig. 7 is a partial section and partial elevation of the numeral-disks employed. Fig. 8 is a section on the line 8 8 of Fig. 7, and Fig. 9 shows a modification of the arrangement of the numeral-disks.

It may be here stated that when the attachment is used in connection with a Remington machine the actuating mechanism for the numeral "1" may be attached to the finger-lever having the letter "l" or "I."

The attachment comprises a frame 10, designed to be attached by any suitable means to the front portion of the type-writer frame 11, and extended transversely in this frame

is a stop-bar 12, the object of which will hereinafter appear.

Mounted to rotate in the frame 10 is a driving-shaft 13, and arranged below the driving-shaft in said frame is a numeral-disk-actuating shaft 14, which not only has a rotary motion, but has a longitudinal movement in the frame. On the shaft 13 is a gear-wheel 15, meshing with a pinion 16, mounted on the shaft 14. Obviously this pinion 16 is designed to rotate with the shaft; but the shaft has a sliding movement therethrough. For this purpose I provide the pinion with a feather 17, engaging in a longitudinal channel 18, formed in said shaft 14.

Rigidly attached to the shaft 13 is a series of ratchet-wheels 19, these several ratchet-wheels being located over the finger-keys 20, which represent the numeral levers or keys of a type-writer. As before stated, however, one of said ratchet-wheels may be actuated from the finger-lever bearing the letter "l" or "I."

Mounted to swing on the shaft 13 adjacent to each ratchet-wheel is an angle-arm 21, which at its upper end has a rearwardly-extended finger 22, designed to engage with the stop-bar 12 when the said angle-arm is in normal position. The lower rearward extension 23 of the angle-arm is designed to engage with the rear side of the stop-bar 12 when the angle-arm is operated by the depression of a finger-lever. The distance of movement of the several arms 21, however, differs, and therefore the extensions 23 are arranged in different horizontal planes—that is, the lower extension of the arm coacts with the finger-lever having the numeral "9" on the lowest plane, so that the ratchet-wheel actuated by the arm, as will hereinafter appear, may be moved nine points upon the downward depression of the lever when it comes in contact with the stop-bar, and the key carrying the numeral "8" on the writing-machine will have its backward extension at the lower end only eight-ninths as far apart as said extension will be on the arm for the numeral "9," and this will be carried out to the lower numbers.

Mounted on the upper portion of each arm 21 is a pawl 24 for engaging with the ratchet-

wheel 19, and a spring 25 connects said arm above its fulcrum-point with its actuating finger-lever. As here shown, the lower end of the spring 25 is connected to the finger-lever 20 by means of a band or collar 26. Above the spring 25 each arm 21 has a spring connection 27 with the stop-bar 12. It will be noted that the spring 25 is much heavier than the spring 27, so that by a downward depression of the finger-lever the arm will be drawn downward to rotate its ratchet-wheel against the resistance of the spring 27, the spring 27 being designed merely to return the arm to normal position, as indicated in Fig. 3. A main object in providing the spring connection 25 with a finger-lever is to permit of a further movement of the finger-lever in order to print the characters on the type-writing machine. Of course during this further movement the extension 23 will be engaged against the rear side of the stop-bar. Upon each rotary movement of the shaft 13 a corresponding movement will be imparted to the shaft 14, the wheels 15 and 16 being so related to each other as to insure such movement.

Mounted on the outer extended end of the shaft 14 is a series of disks 28, each bearing on its periphery numbers from "0" to "9," both inclusive, and these numbers may be observed through a sight-opening 29 in the casing 30, within which said disks are located, this casing of course being fixed. It is here shown as supported on a bracket 31, attached to the frame 10. The several disks 28 are loosely mounted on the shaft 14, but are designed to be rotated therewith one independently of another, and to hold the disks in their adjusted position I provide for each disk a retarding device, here shown as a pawl 31^a, attached to a spring 32, secured to the casing 30. This pawl 31^a is designed to engage in any one of the notches 33, formed in the periphery of the disk, the numbers on said disks being arranged between the notches. Each disk is provided with a series of ten notches 34, which radiate from the shaft 14, and into any one of the notches of the disk a lug 35 on the shaft 14 is designed to engage, this lug being of sufficient width to engage with one disk only, and it may be here stated that the normal position of the said lug while the type-writer is in use in the usual manner will be at the left-hand side of the numeral-disk at the extreme left, or a dummy disk may, if desired, be placed at the extreme left to receive the lug. Arranged between adjacent numeral-disks is a means for carrying the tens. This means consists of a vertically-disposed swinging arm 36, to the upper end of which is pivoted a pawl 37 for engaging with a tooth of a ratchet-wheel 38, secured to one side of the numeral-disk. The number of teeth on the ratchet-wheel equals the number of notches 34. On the arm 36 is a cam-lug 39, designed to be engaged by a pin 40, carried by a disk

at the right of the one to be carried from "9" to "0." For instance, should the units-wheels be rotated to indicate nine the next number will be "10," and therefore upon a further movement of the units-disks the "0" will be disclosed at the sight-opening 29, and the pin carried by said units-wheel will engage with the cam-lug 39, forcing the arm 36 of the tens-disks rearward, and consequently by means of the pawl 37 cause a movement of said tens-disk to disclose "1" at said sight-opening, and this will be carried out to the end.

It is designed that lengthwise movement of the shaft 14 shall be imparted by a movement to the right of the type-writer carriage and also by a movement to the left of the carriage. For this purpose I provide a draw rod or bar 41, which is movable in the upper portion of the frame 10. As here shown, the said draw bar or rod is supported between upper and lower rollers 42 43, arranged in boxes in the upper portion of said frame 10. A lever 44 is mounted to swing on an arm 45, extended from the frame 10, and the upper forked portion of this lever 44 is provided with slots through which pins 46 on the rod 41 pass. The lower end of the lever 44 is also forked, and the members thereof are longitudinally slotted to receive a cross-head 47, in the central portion of which is an opening or bearing to receive the shaft 14, so that said shaft 14 may rotate therein. On the ends of the cross-head 47 guide-rods 48 extend through guides 49 on the opposite sides of the casing 30. On one of these guide-rods 48 I provide an indicating-finger 50, which is located directly opposite the lug 35, and thus the location of said lug will be readily observed.

Adjustably engaged on the bar 41 are stop-lugs 51 52. These stop-lugs may be attached to collars adjustable on said rods and held as adjusted by means of set-screws. These lugs 51 52 are designed to engage with opposite sides of a stop-lug 53, attached to the machine-carriage. I have here shown it as adjustably attached to the scale-bar 54, and by making these lugs adjustable the machine may be changed or set so that the adding machinery may be thrown into operative connection with the type-writing machine whenever the carriage has reached any prearranged position, and it is thus made possible to add a column of figures and write them in any desired position on the paper on the type-writing machine.

In operation while printing the usual matter and upon reaching the figure-column the lug 52 by engaging against the lug 53 will cause a movement to the left of the bar 41. This obviously will move the shaft 14 to the right, and this movement will be continued by means of the spacing-key until the desired numeral is reached. Then upon pressing the finger-lever of said numeral its disk will be

rotated by means of the lugs 35 to disclose the numeral at the opening 29. When the carriage is moved to the left for the next line of printing, the lug 51 by engaging with the
 5 lug 53 will return the shaft 14 to normal position, with its lug 35 at the left of the numeral-disk at the extreme left of the series.

It may be desirable to modify the form of the disks by having every third one wider
 10 than the others, so that in connection with the numerals decimal-points may be placed thereon.

Having thus described my invention, I claim as new and desire to secure by Letters
 15 Patent—

1. An attachment for a type-writer, comprising a series of numeral-disks, a shaft on which said disks are loosely mounted, a device carried by the shaft for engaging with
 20 any one of said disks to cause a rotary motion of the same, actuating devices having connection with the type-writer finger-levers for imparting rotary motion to said shaft, and means carried by the type-writer carriage for
 25 causing a longitudinal movement of the shaft, the carriage also having a longitudinal movement independently of the shaft.

2. An attachment for a type-writing machine, comprising a series of numeral-disks,
 30 a shaft having rotary and longitudinal movement relatively to said disk, each of said disks having a series of notches radiating from the shaft, a single lug on the shaft for engaging in any one of the notches of a disk, a driving-
 35 shaft, a gear connection between the driving-shaft and the first-named shaft, actuating connections between said driving-shaft and the finger-levers of the type-writing machine, and means controlled by the machine-carriage
 40 for moving the first-named shaft longitudinally to carry the lug from one end to the other of the series of disks.

3. An attachment for a type-writing machine comprising a frame attached to the machine,
 45 an actuating-shaft mounted in said frame, a stop-bar on said frame, a series of ratchet-wheels attached to the shaft, angle-arms mounted to swing on the shaft adjacent to the ratchet-wheels, pawls carried by said
 50 angle-arms for engaging with the ratchet-wheels, the said angle-arms having rearward extensions arranged consecutively in different horizontal planes for engaging with the rear side of the stop-bar and having upper
 55 projections for engaging with the front of the stop-bar, spring connections between the arms and the stop-bar, finger-levers, connections between the arms and the finger-levers, a shaft mounted to rotate and to move longi-
 60 tudinally in the frame, gear-wheel connections between the two shafts, numeral-disks loosely mounted on the last-named shaft, and means carried by the shaft for causing rotary movements of the disks, substantially as
 65 specified.

4. An attachment for a type-writing machine, comprising a frame attached to the ma-

chine, an actuating-shaft mounted in said frame, a stop-bar on said frame, a series of ratchet-wheels attached to the shaft, angle-
 70 arms mounted to swing on the shaft adjacent to the ratchet-wheels, pawls carried by angle-arms for engaging with the ratchet-wheels, the said angle-arms having rearward extensions arranged consecutively on different hori-
 75 zontal planes for engaging with the rear side of the stop-bar and having upper projections for engaging with the front of the stop-bar, spring connections between the arms and the stop-bar, finger-levers, spring connections be-
 80 tween the arms and the finger-levers, the last-named springs being stronger than the first-named springs, a shaft mounted to rotate and to move longitudinally in the frame, gear-
 85 wheel connections between the two shafts, numeral-disks loosely mounted on the last-named shaft, each numeral-disk having a series of notches radiating from the shaft, a lug carried by the shaft for engaging in any one of the notches in the disk, and means for
 90 moving said shaft longitudinally.

5. An attachment for a type-writer, comprising a shaft mounted on the type-writer frame, means actuated by a finger-lever of the type-writer for rotating said shaft, the said
 95 means permitting a further downward movement of the lever after the stopping of the shaft upon its complete movement, a series of numeral-disks loosely mounted on the shaft, means for causing a movement of any one of
 100 the disks with the shaft, and retarding devices for the disks.

6. An attachment for a type-writing machine, comprising a shaft supported on the machine-frame and having a longitudinal
 105 movement, means actuated by the finger-levers of the machine for rotating said shaft, a series of numeral-disks mounted loosely on the shaft, each of said numeral-disks having a series of notches radiating from the shaft,
 110 a lug on the shaft for engaging a notch in the disk, ratchet-wheels carried by certain of the disks, arms mounted to swing on the shaft adjacent to the disks, pawls carried by the arms for engaging with the ratchet-wheels,
 115 cam-lugs on the arms, and a pin carried by each disk for engaging with the cam-lug connecting with the next disk of the series.

7. An attachment for a type-writing machine, comprising a shaft having a longitu-
 120 dinal movement on the frame of the machine, means actuated by the finger-levers of the machine for rotating said shaft, a draw-bar movable on the upper portion of the frame, lugs adjustable on said bar, a lug attached to
 125 the machine-frame and with which said first-named lugs are designed to engage, a lever connecting said rod with said shaft, and a series of numeral-disks mounted on the shaft and actuated thereby.
 130

8. An attachment for a type-writing machine, comprising a shaft mounted to move longitudinally on the machine-frame, means actuated by the finger-levers of the machine

for imparting rotary motion to the shaft, a casing, a series of numeral-disks mounted loosely on the shaft within the casing, means for causing a rotary movement of the disks, one independently of another, by said shaft, a cross-head with which said shaft has rotary connection, guide-arms extended from the ends of said cross-head through guides on the casing, a lever connecting with the said cross-head, a bar movable lengthwise at the upper portion of the machine-frame, and with which the upper end of the lever connects, lugs adjustable on said rod, and a lug on the machine-frame adapted to be engaged by the first-named lugs.

9. An attachment for a type-writing machine, comprising a shaft having a longitudinal movement in the frame, a pinion through which said shaft may move, the shaft being also adapted to rotate with the pinion, an actuating-shaft, a gear-wheel on said actuating-shaft and engaging with the pinion, means for connecting the finger-levers of the ma-

chine for causing varying degrees of rotary movement to the actuating-shaft, numeral-disks mounted loosely on the longitudinally-movable shaft, each of said disks having a series of notches radiating from the shaft, a lug on the shaft for engaging in a notch in a disk, a cross-head with which said shaft has rotary connection, guide-rods extending from said cross-head, a casing in which the numeral-disks are arranged, guides on said casing for the guide-rods, a finger carried by one of the guide-rods, the said finger being opposite the lug on the shaft, and means controlled by a movement of the machine-carriage for moving the shaft longitudinally.

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

OSCAR L. INGRAM.

Witnesses:

M. H. BROUGHTON,
JOHN H. McDONALD.