

No. 713,243.

Patented Nov. 11, 1902.

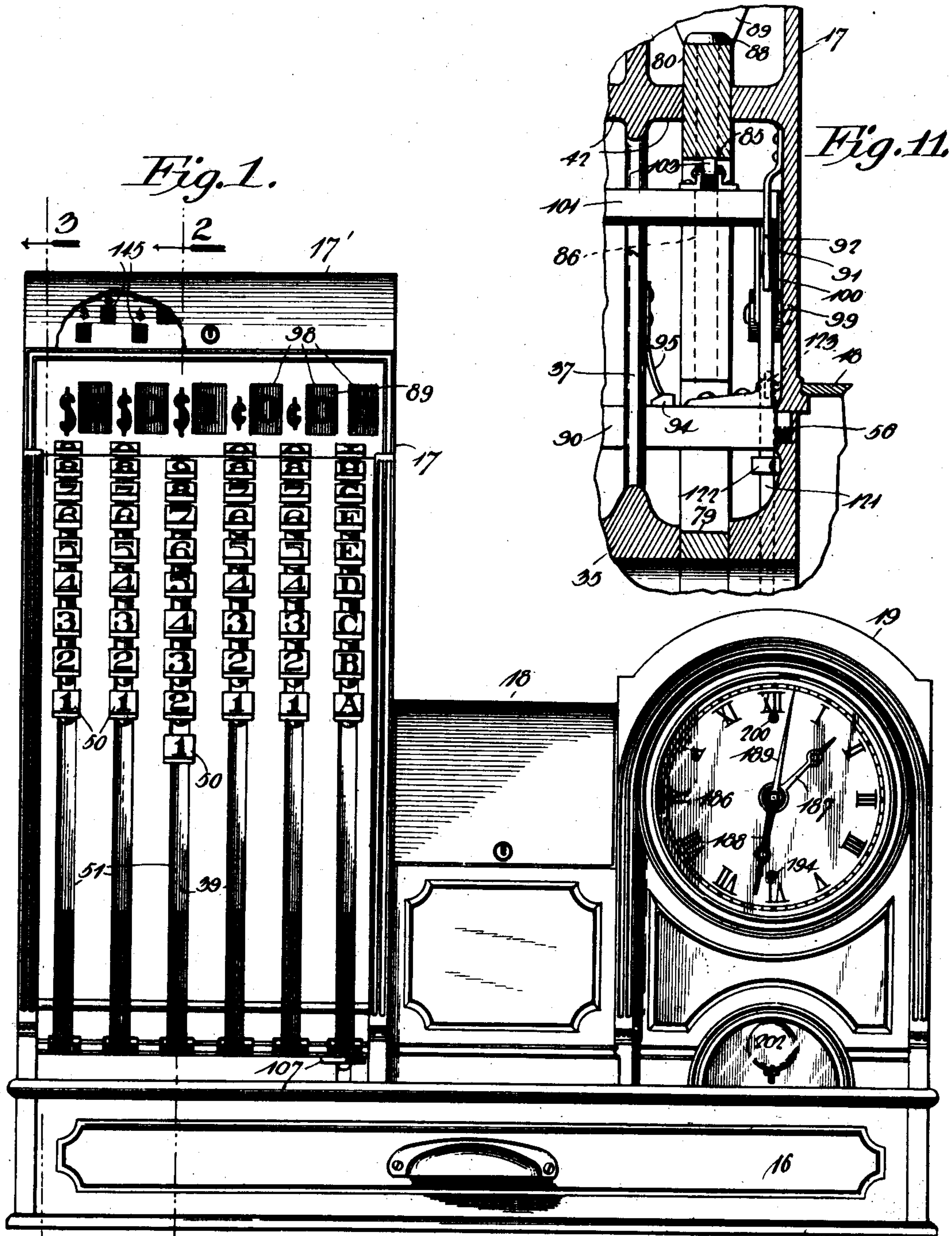
J. L. ROBERTS.

CASH REGISTER.

(Application filed Aug. 27, 1901.)

(No Model.)

8 Sheets—Sheet 1.



Witnesses

*John L. Roberts*  
*John L. Roberts*

*John L. Roberts*, Inventor,  
by *Chas. Snow*,  
Attorneys

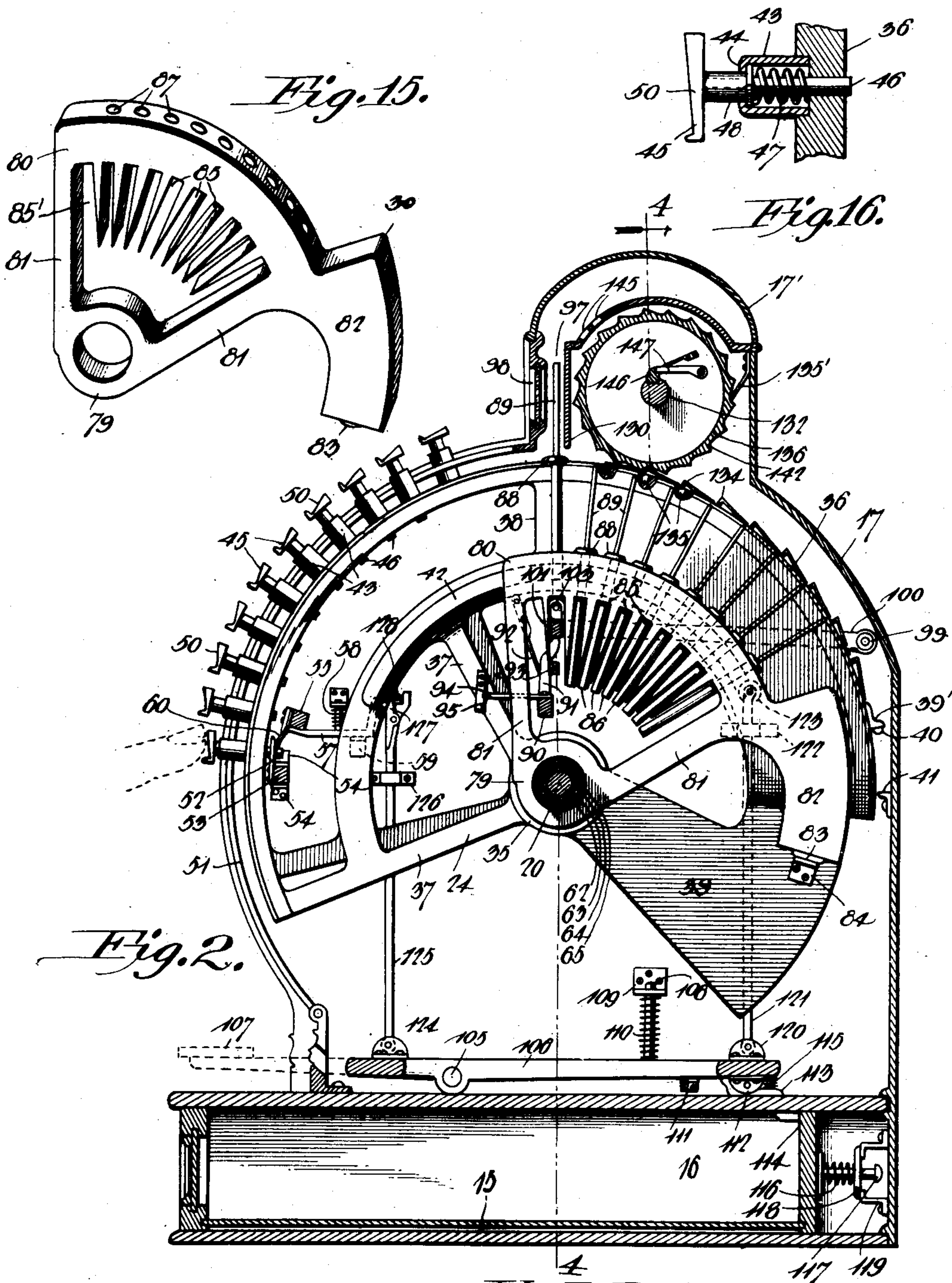
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(No Model.)

8 Sheets—Sheet 2.



Witnesses

*Frank C. C. C. C. C.*  
*J. M. & C. C. C.*

*John L. Roberts,* Inventor  
 by *C. C. C. C. C.*  
 Attorneys



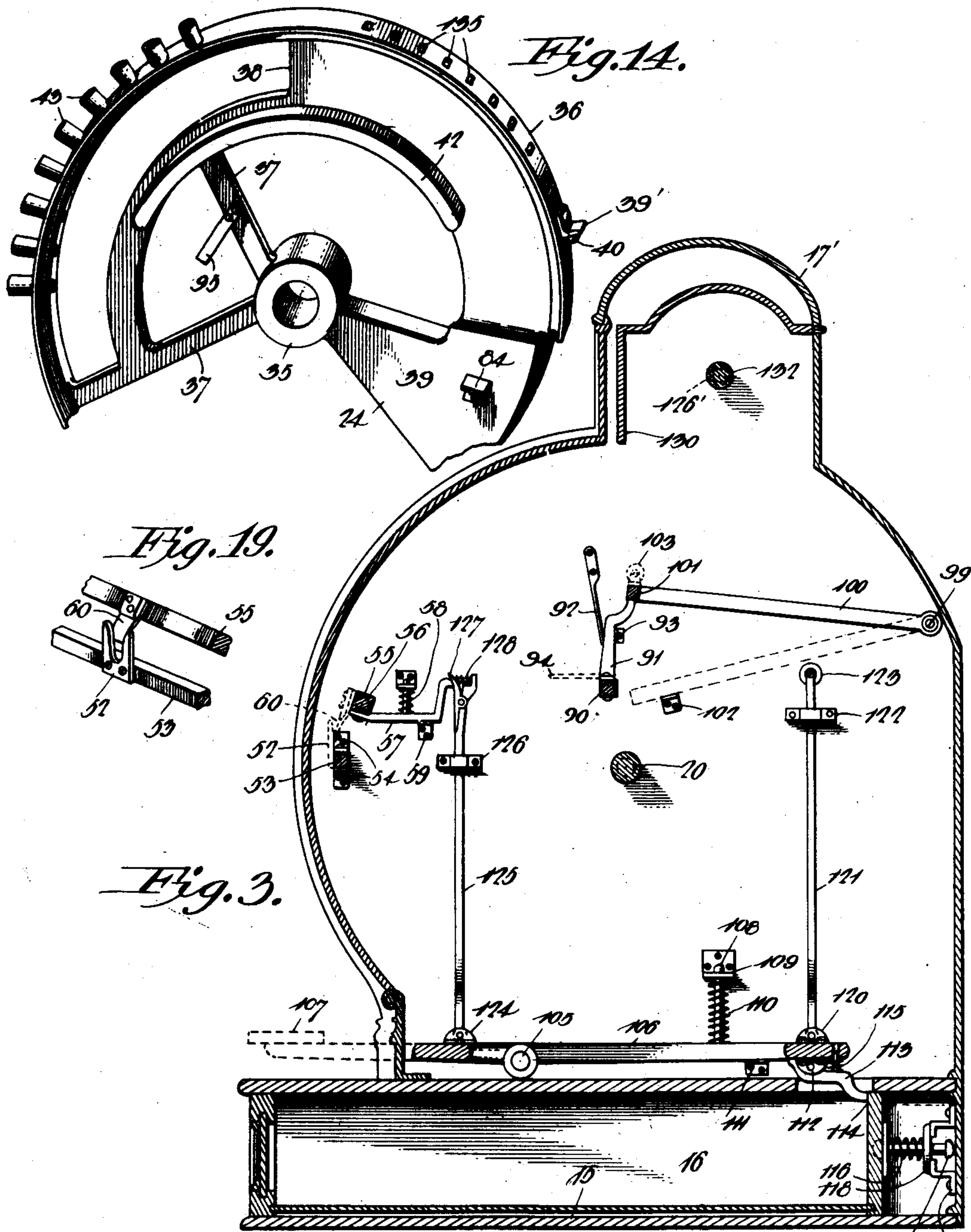
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(No Model.)

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Witnesses  
*John L. Roberts*  
*John E. Porter*

*John L. Roberts,* Inventor.  
 by *Chas. Snow & Co.* Attorneys



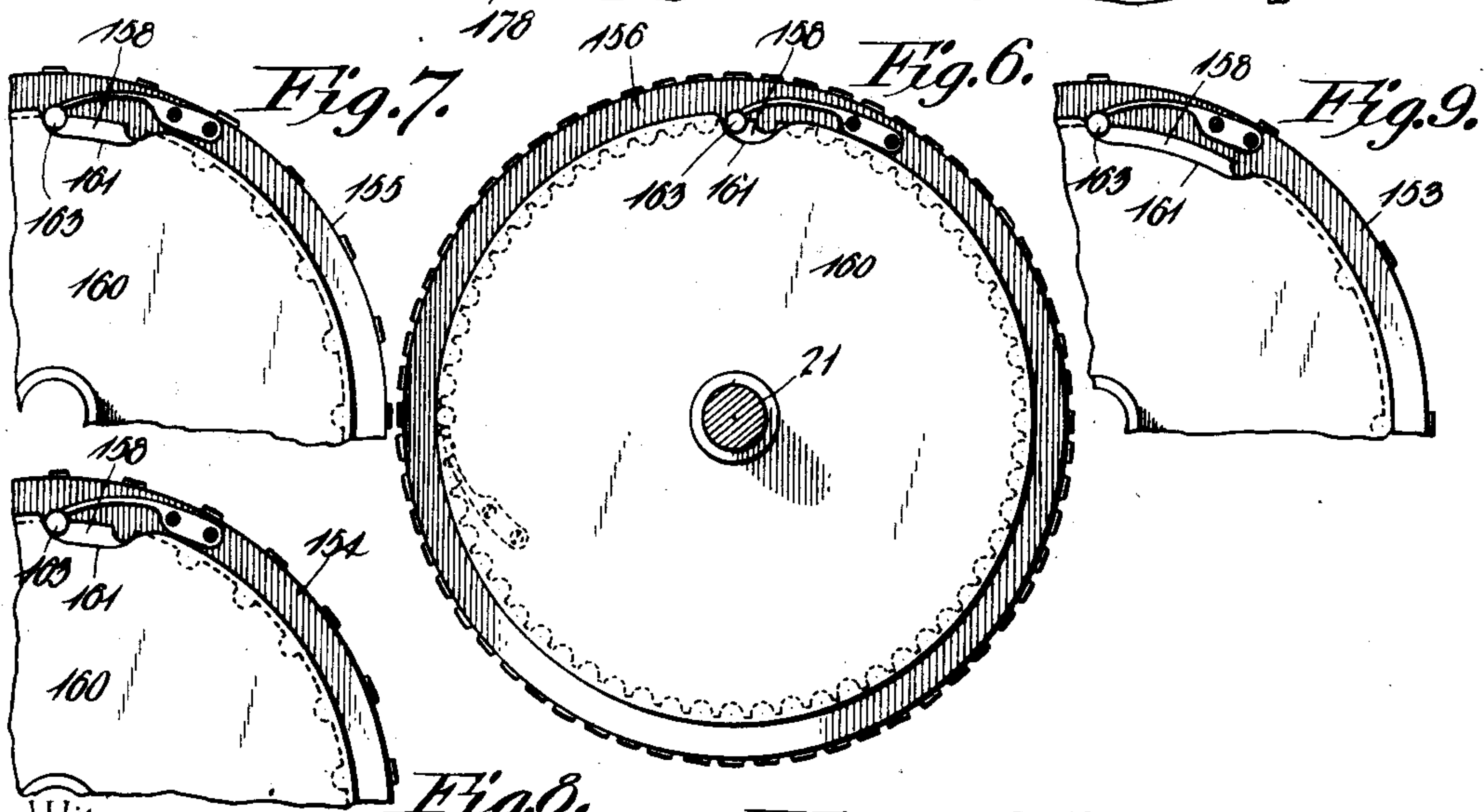
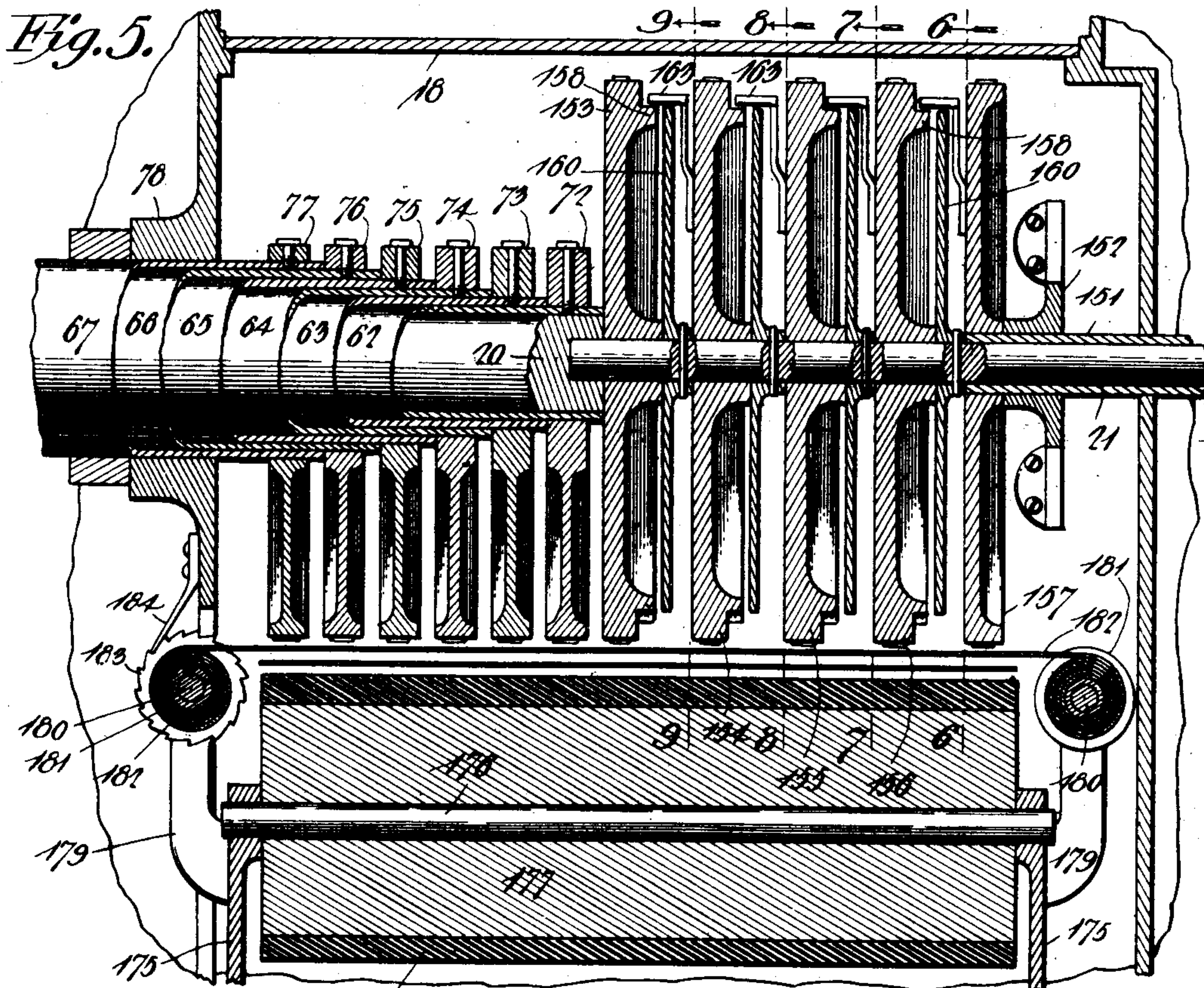


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(Application filed Aug. 27, 1901.)

(No Model.)

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Witnesses  
J. Frank Leavelle  
Jno E. Parker

John L. Roberts, Inventor.  
by C. A. Snow & Co.  
Attorneys



J. L. ROBERTS.

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Fig. 10.

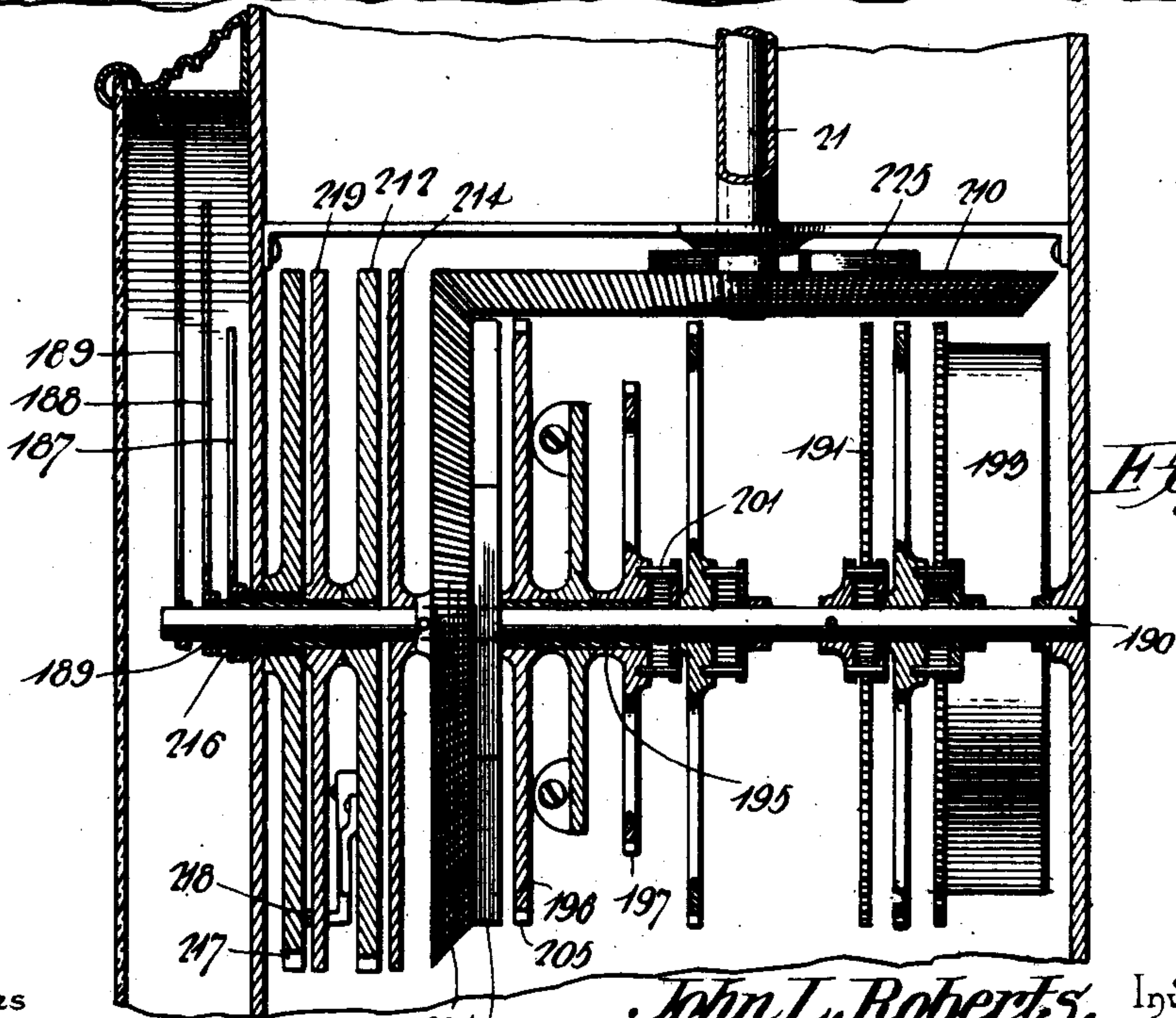
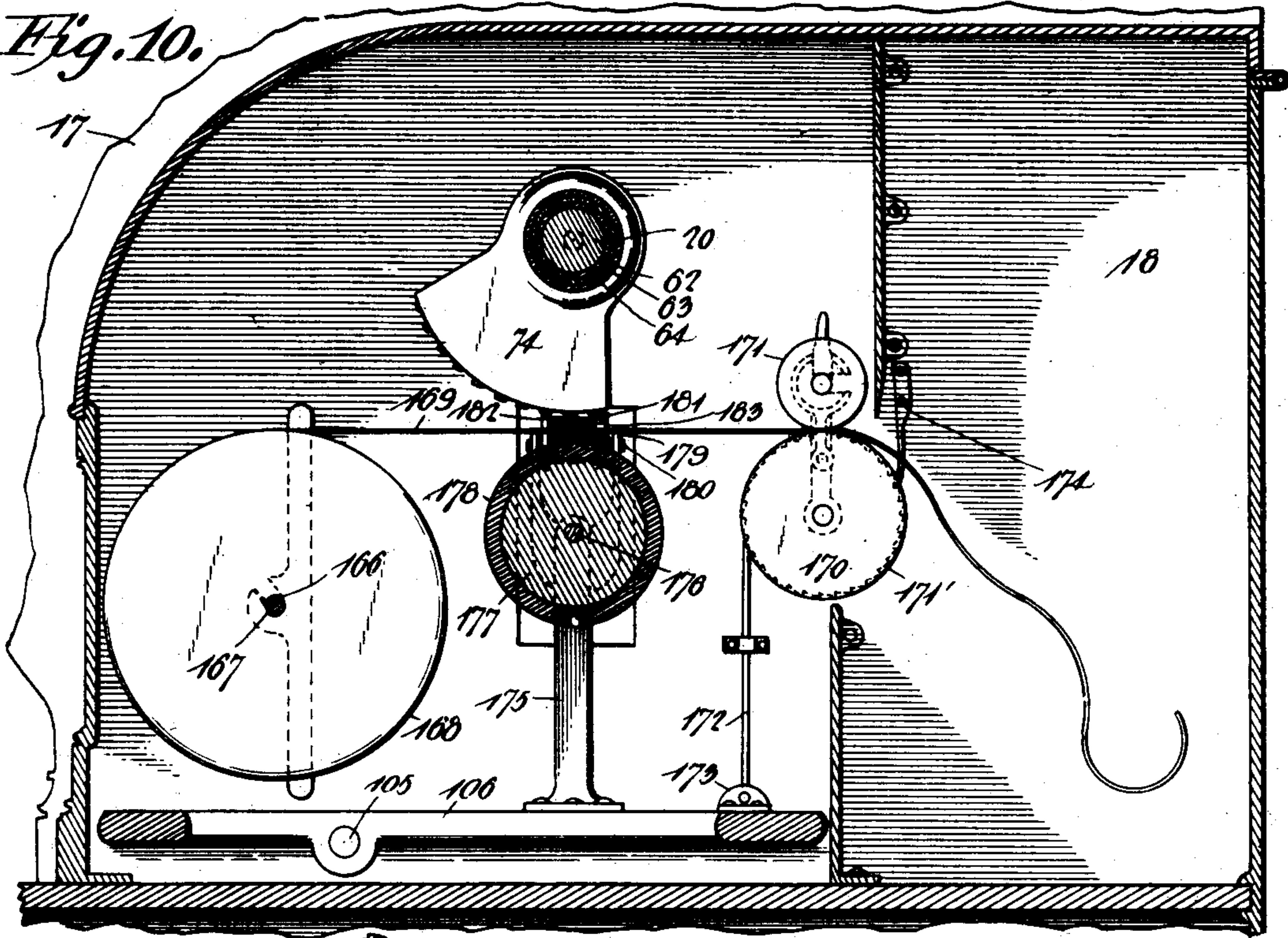


Fig. 12.

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*J. Frank Lambornwell,*  
*John E. Parker*

by

*John L. Roberts,* Inventor.  
*Chas. H. Snow & Co.*  
Attorneys

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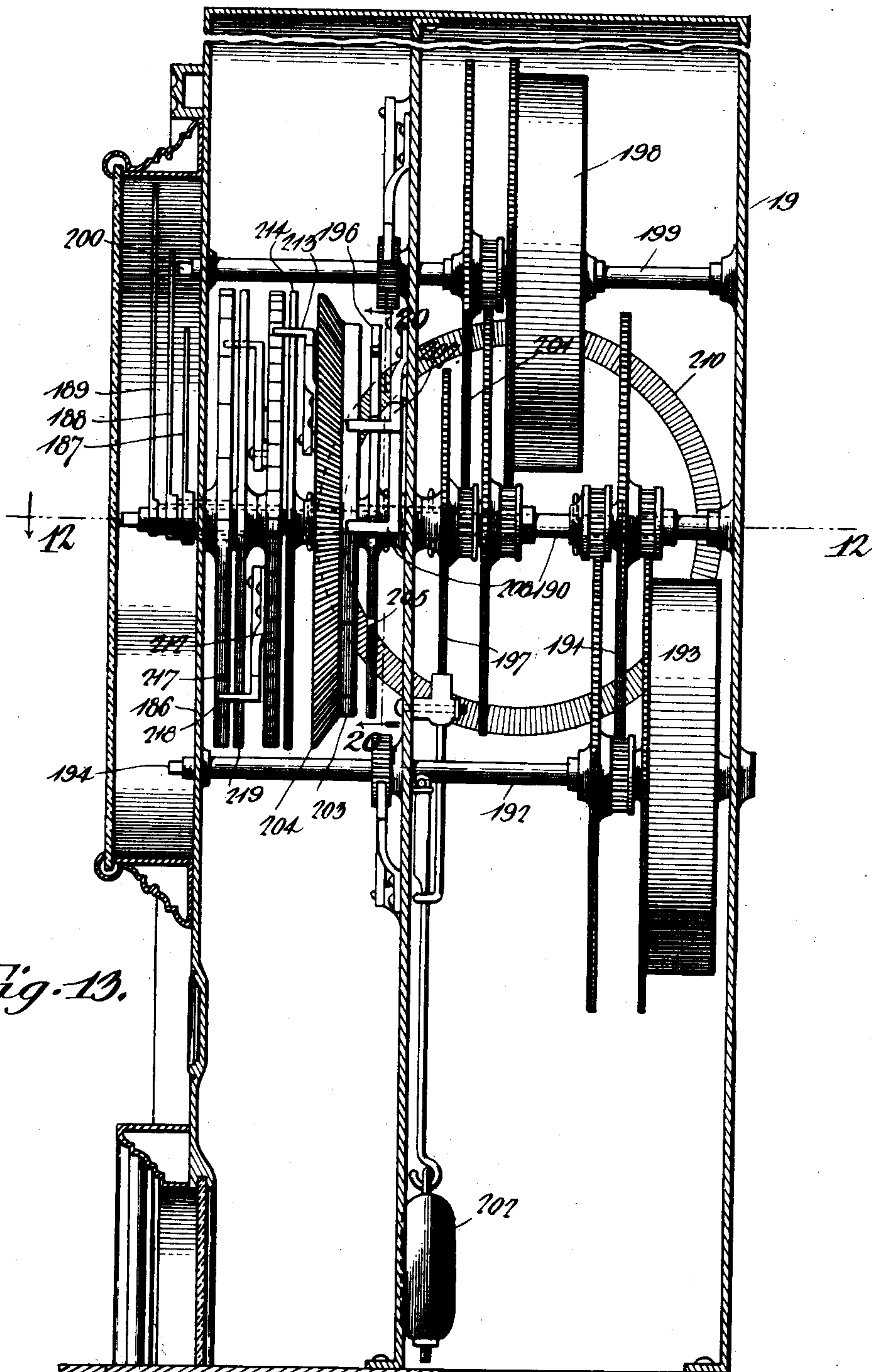


Fig. 13.

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*J. Frank Leubnerwell.*  
*Jno E. Barker*

by

*John L. Roberts,* Inventor.

*C. A. Snow & Co.*  
Attorneys

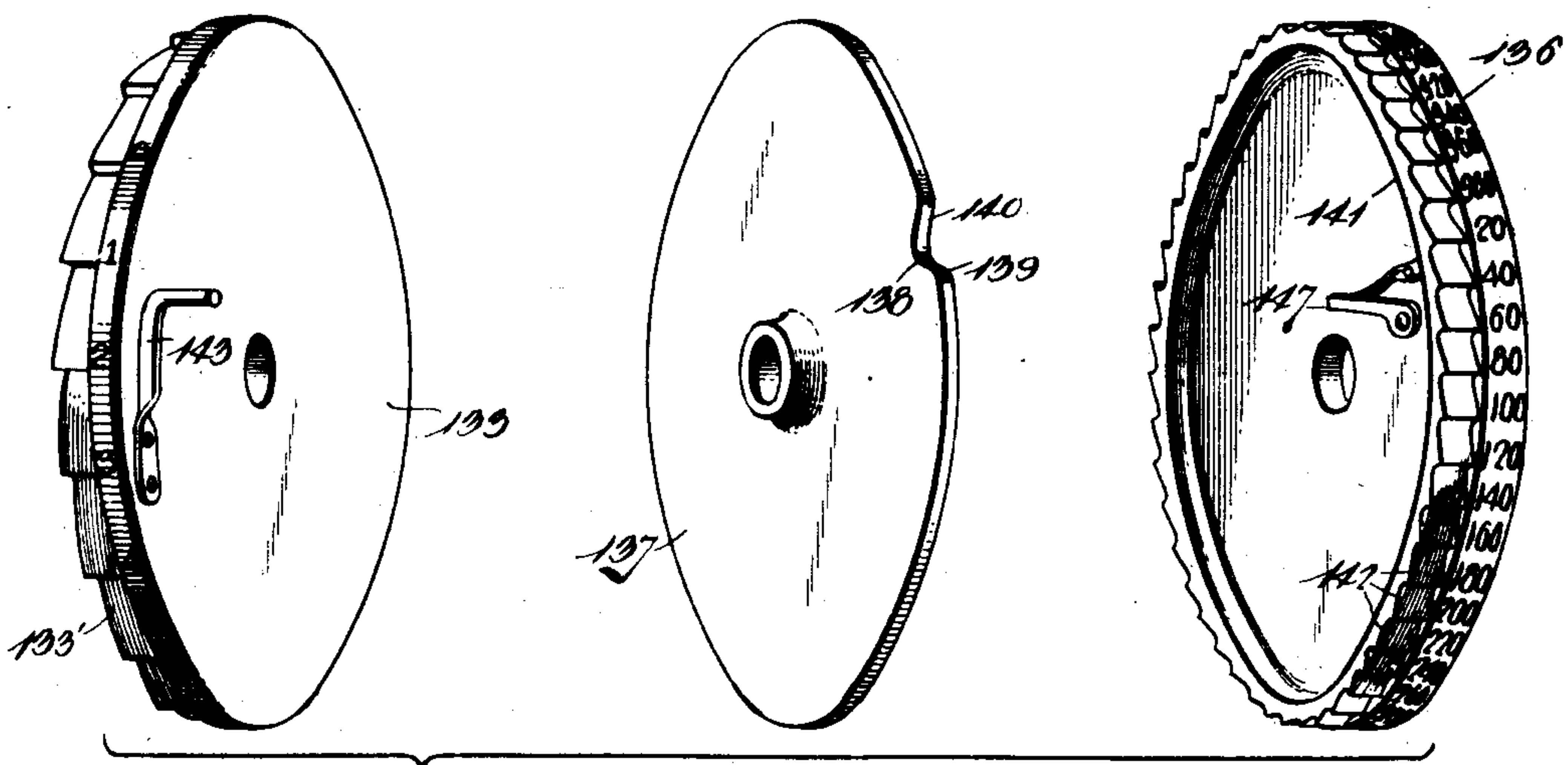
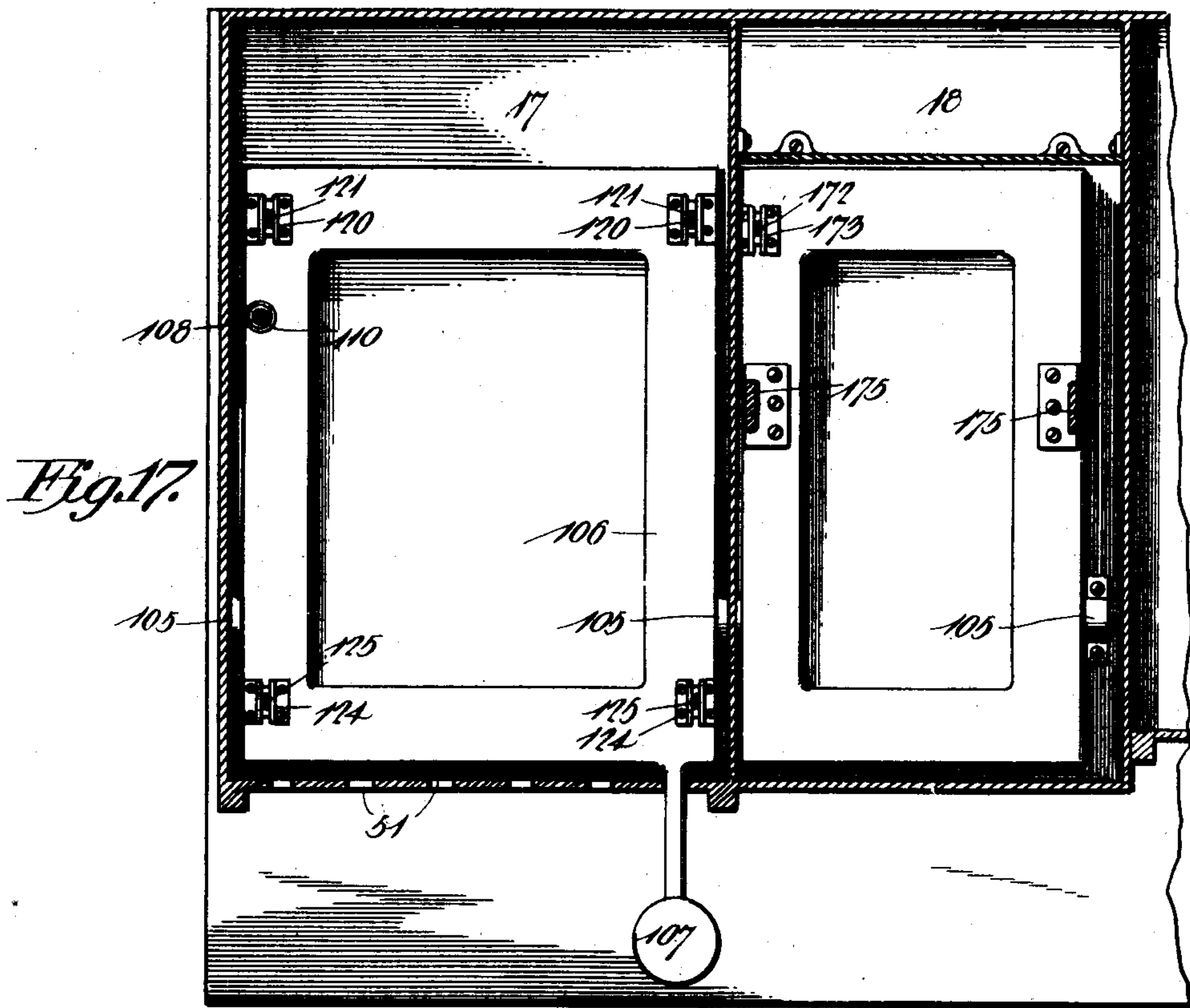


J. L. ROBERTS.  
CASH REGISTER.

(Application filed Aug. 27, 1901.)

(No Model.)

8 Sheets—Sheet 8.



Witnesses *Fig. 18.*  
*John L. Roberts,*  
*John L. Roberts,*

John L. Roberts, Inventor.  
by *Chas. Snow & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

JOHN L. ROBERTS, OF ST. LOUIS, MISSOURI.

## CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 713,243, dated November 11, 1902.

Application filed August 27, 1901. Serial No. 73,484. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. ROBERTS, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Cash-Register, of which the following is a specification.

My invention relates to certain improvements in cash-registers.

An object of the invention is to provide an apparatus of this character capable of making a printed record of the amount sold, the name or designative character of the salesman, and the exact time at which the sale was recorded.

A further object of the invention is to provide for the effective connection of the selecting and indicating mechanisms in machines of that class in which the selecting mechanism is immediately returned to its initial position, while the indicating mechanism is retained in its adjusted position to expose the amount of the last sale until a further operation of the selecting mechanism.

A further object of the invention is to reduce the number of working parts of the selecting and indicating mechanisms to a minimum and incidentally reduce the cost of construction and assembling of the machine.

A still further object of the invention is to dispense with the complicated mechanisms usually employed for making a record of the total amount of sales and to provide in its stead a totaling mechanism having but few parts, which may be engaged at a number of places by the selecting mechanism.

A still further object is to reduce the number of parts ordinarily employed for the printing of a record and to so arrange such recording mechanism as to record not only the sales, but the month, date, hour, minute, and second at which purchase was recorded.

Further objects of the invention will appear in the following description and will be more particularly referred to.

In the accompanying drawings, Figure 1 is a front elevation of a cash-register constructed in accordance with my invention. Fig. 2 is a transverse sectional elevation of the same on the line 2 2, Fig. 1. Fig. 3 is a similar view on the line 3 3, Fig. 1. Fig. 4 is a longitudinal sectional elevation of the device on the line 4 4, Fig. 2. Fig. 5 is a view of a portion of the recording mechanism similar to that

shown in Fig. 4, but drawn to an enlarged scale in order to more clearly illustrate the construction. Fig. 6 is a transverse sectional elevation of the recording mechanism on the line 6 6, Fig. 5. Figs. 7, 8, and 9 are similar views of a portion of the same on the section-lines 7 7, 8 8, and 9 9, respectively, of Fig. 5. Fig. 10 is a transverse sectional elevation of the recording mechanism on the line 10 10, Fig. 4, but drawn to an enlarged scale. Fig. 11 is a detail view, on an enlarged scale, of a portion of the structure shown in Fig. 4. Fig. 12 is a sectional plan view of the timing mechanism on the line 12 12, Fig. 13. Fig. 13 is a transverse sectional elevation of the timing mechanism on the line 13 13, Fig. 4. Fig. 14 is a detached perspective view of one of the segments of the selecting mechanism. Fig. 15 is a similar view of one of the segments of the indicating mechanism. Fig. 16 is a detail view of one of the finger-keys forming part of the selecting mechanism. Fig. 17 is a sectional plan view through the lower portion of the casing on the line 17 17, Fig. 4. Fig. 18 is a detached perspective view of a portion of the totaling mechanism. Fig. 19 is a detail view of the key-locking devices. Fig. 20 is a transverse sectional view of a portion of the timing mechanism on the line 20 20, Fig. 13. Fig. 21 is a view of a detail of construction.

Similar numerals of reference indicate corresponding parts throughout the various views of the drawings.

Referring to the drawings, 15 designates a suitable base, in which is guided a cash-drawer 16. Above the base is a casing formed in three main sections 17, 18, and 19, the section 17 inclosing the selecting and indicating mechanisms, the section 18 inclosing the recording mechanism, and the section 19 being provided with a clock-dial and inclosing the timing mechanism for operating the clock and the time-disks of the recording mechanism.

Adapted to suitable bearings within the casings is a horizontally-disposed stationary axis, which may be formed in two sections 20 and 21, the section 20 serving to support and forming an axis for the movement of all of the segments of the selecting and indicating mechanism.

The selecting mechanism comprises a series



of segments 22, 23, 24, 25, 26, and 27, separated from each other by intervening indicating-segments 28, 29, 30, 31, and 32, the various segments of each class being similar in construction, but owing to their different positions being employed for selecting and designating quantities of different value. The indicating-segment to the extreme right of Fig. 4 and the next adjacent selecting-segment 27 form one pair, carrying designative data, such as letters of the alphabet or names to correspond to the name or designative mark of the salesman. The next adjacent pair will register units in the cent-column and the next column tens in the cent-column. The next pair of segments 24 and 30 will designate dollars in the units dollar-column and the next pair tens in the dollar-column, the final pair, at the extreme left of Fig. 4 designating hundreds in the dollar-column.

Each of the selecting-segments comprises a central hub 35 and a segmental body portion 36, connected thereto by suitable arms 37, a portion of the web of the segment being cut away to form a segmental slot or recess 38 for the passage of the key locking and release bars. The lower rear portion of the segment is provided with a counterbalance-weight 39, which when the segment is released after effecting a movement of the indicating mechanism will return such segment to the initial position. On the rear face of the segment is a stop 39', carrying a buffer 40 on its under side adapted to make contact with a stop 41, secured to the casing 17 and fixing the limit of rearward movement of the segment. On each side of the web of the segment is a rib 42, following the general contour of the segment and serving to space and properly guide the indicating-segments.

On the periphery of each segment are secured a number of tubular casings 43, each having an inwardly-turned outer flange and serving as a guide for a finger-key 45, the shank portion 46 of the key being reduced in diameter and passing through a suitable opening in the periphery of the segment. The shank 46 is surrounded by coiled compression-spring 47, as shown more clearly in Fig. 16, which extends between a seat in the segment and an enlarged collar or flange 48, formed on the key, the spring tending to keep the key in the position illustrated in Fig. 16 and the intumed flange 44 forming a stop to limit the outward movement of said key. The keys carried by each flange are nine in number, spaced equidistantly along the segment and each carrying a finger contact-piece 50, bearing a different numeral or designating character. Thus the keys in all of the rows save one are marked with the numerals "1" to "9," inclusive, the remaining row being provided with letters, as shown, or in special cases with the names or initials of the salesmen employed in the establishment where the cash-register is used.

The keys all extend through slots 51 in the

casing 17, and in operation a desired key is first depressed and then pulled downwardly in a curved line until its inwardly-projected shank comes into contact with a fork stop-plate 52, fixedly secured to a bar 53, which passes through all of the segmental slots 38 of the various segments and is secured at its ends by brackets 54 to the end wall of the casing 17. Extending parallel with the bar 53 is a bar 55, fulcrumed at its opposite ends in sockets 56 in the frame, said bar being provided at each end with a laterally-extending arm 57, as shown in Figs. 2 and 3, which is acted upon and depressed by a compression-spring 58, which normally keeps the arm in contact with a fixed stop 59, secured to the casing, and retains the bar 55 in the position illustrated. On the bar 55, at a point directly in the rear of each segment, is a spring-finger 60, which will yield inwardly to permit the downward passage of the depressed finger-key and will then spring back over the top of the same and hold the shank of the key in the depressed position between the forks 52, as clearly shown in Fig. 2, the shank 46 being firmly held between the fork 52 and the spring-finger 60 against the action of the key-spring 47. Supported on the axis 20 are a number of concentrically-arranged tubular shafts 62, 63, 64, 65, 66, and 67, the inner shaft 62 being fixedly secured to the selecting-disk 22 and at its opposite end being secured to a segment 72, bearing on its peripheral face a series of numerals ranging from "1" to "9," inclusive, and corresponding to the numerals of the finger-key carried by the selecting-segment 22, the relative arrangement of the figures on the keys and on the type-segment being such that the depression and subsequent engagement of any particular key with the stop 52 will turn the type-segment a corresponding distance and bring a corresponding number on the type-segment into the vertical plane of the axis. The remaining segments 23, 24, 25, 26, and 27 are connected, respectively, by their several shafts to correspondingly-operated type-disks 73, 74, 75, 76, and 77, as shown in Figs. 4 and 5. To relieve the weight at this point and more accurately guide the various shafts, a casing-bearing 78 is provided for the outer tubular shaft, as shown.

The indicating-segments 28, 29, 30, 31, 32, and 33 are each of the construction more clearly shown in Fig. 15, comprising a central hub 79, a segmental portion 80, radial arms 81, connecting the hub and segmental portion, and a counterbalancing-weight 82, carrying a buffer 83, adapted to engage with a bracket 84 on the counterbalance-weight 39 of the selecting-segment, this bracket forming a rest and stop for the indicating-segment at the limit of its backward movement and engaging with the counterbalance-weight 82 at each forward movement to adjust said indicating-segment to the proper position.

Projecting inwardly from the segment 80 is



a series of narrow tapering ribs forming a series of radial slots 85 for the reception and guidance of radially-arranged pins 86, equal in number to the number of selecting-pins 5 on each of the segments, said pins extending out through the openings 87 in the segment 80 and at their outer ends being provided with heads 88 to limit their radial or downward movement. These pins are retained in 10 position by gravity, and to the head of these pins is secured a card or tag 89, bearing a numeral, the series of numerals on the cards of each indicating-segment corresponding to the numerals on the keys of its mating selecting-segment. 15

Between the inner ends of the ribs and the hub 79 of the indicating-segments there is formed a segmental space, through which extends from end to end of the casing a pivoted bar 90, having a dog 91 normally held by a plate 92 in contact with a fixed stop 93, one of said stops, springs, and dogs being arranged at each end of the casing 17. At intervals on this bar 90 are laterally-projecting arms 94, 25 situated one at each of the selecting-segments and adapted to be acted upon and depressed against the tendency of the spring 92 by spring-fingers 95, one of which is secured to a radial arm 37 of the segment for a purpose 30 to be presently described.

When a suitable key of the selecting mechanism is depressed into contact with the stop 52—say, for instance, the key bearing numeral "1" in the third row and representing 35 one dollar—the bracket 84 of the segment so operated is engaged with and moves its mating indicating-segment 80 to the position illustrated in Fig. 2 and brings that one of the pins 86 bearing a card or tag marked with 40 the numeral "1" in the vertical plane of the central axis and in line also with a space 97 in the upper portion of the casing 17. The casing at this point is provided with openings 98, which may be covered with glass or 45 other transparent material for exposing to view the amount of the purchase.

At each end of the casing is pivoted at 99 a lever 100, the outer ends of which carry between them a bar 101, which normally will 50 rest in the segmental recess of the indicating-segment parallel with the bar 90, the normal position being shown by dotted lines in Fig. 3 with the supporting-levers 100 resting on a stop or bracket 102, secured to the casing. 55 On the upper surface of this bar are brackets carrying antifriction-rollers 103, a roller being employed in connection with each of the indicating-segments and being immediately under the same, so that when the bar 101 is 60 moved upwardly its rollers will engage with the lower end of any pin or pins 86 which may at the time have been moved to the vertical position and will cause the projection of such pin in a vertical line until the proper 65 card or tag is exposed at the opening 98. When the card or tag is fully projected, the bar has passed beyond the dog 91, the dog

yielding to permit its passing and being then forced back by the spring 92 to hold said bar in the elevated position (illustrated in Figs. 2 70 and 3) until the next operation of a selecting-segment, the card or tag bearing the amount of the last sale being exposed to view. The bar 101 when moved upwardly will pass into the preliminary radial slot 85' of those segments which have not been moved by the operation of their respective selecting-segments, such preliminary slots being of a greater width than the remaining slots, which receive and guide the pins 86, in order that a slight 80 movement of any one selecting-segment and its mating indicating-segment may occur while the bar is still in place for the purpose of tripping the dog 91 and allowing the bar 101 to fall to its normal position. If a selecting-segment has been operated and its mating indicating-segment is locked in position 85 to expose a card, said selecting-segment will of course be in position to be again operated upon and effect the release of the bar, owing 90 to the fact that its bracket 84 is considerably below the counterbalance-weight of the indicating-segment.

In the lower portion of the casing 17 are formed bearings 105 for a pivoted frame 106, 95 arranged in the form of two open rectangles, one of which is located within the casing 18, which incloses the recording mechanism. The connecting pivot-pin between the two portions of the frame is rigidly secured to each 100 section, so that both may receive the same movement. At the central front portion of this frame is a finger-key 107, projecting outwardly through the casing and within convenient reach of the operator. This frame is 105 provided at points adjacent to the side walls of the casing 17 with guiding-pins 108, adapted to openings in brackets 109, a suitable compression-spring 110 encircling each of the pins and acting to hold said frame in the depressed 110 position against a fixed stop 111, as shown more clearly in Fig. 3. At the rear portion of the frame are ears 112, between which is pivoted a locking-dog 113, passing through a slot in the upper portion of the base and engaging with the forward face of the rear wall 115 114 of the drawer 16. The dog is forced downwardly into locking position by a compression-spring 115 and has its lower face slightly curved, so that when the drawer is forced inwardly to the closed position it will yield to 120 an extent sufficient to permit the drawer to pass beyond it and then under the influence of the spring return to the locking position.

In order to give the drawer an initial movement to force the same beyond the locking-dog after the depression of the finger-key 107, a compression-spring 116 is arranged around a pin 117, secured to the rear wall of the drawer and carrying a loose washer or collar 130 118, which the spring normally tends to force against the head of the pin. At the rear wall of the base are spaced brackets 119, between which the head of the pin may pass, but which



will receive the impact of the collar 118 during the closing movement of the drawer and will further compress the pin, so that on its release the spring will have sufficient strength or force to carry the drawer to a partially-open or fully-open position.

To the upper side of the rear portion of the frame 106, at points adjacent to the side walls of the casing 17, are ears 120, between which are pivoted vertically-movable rods 121, guided near their upper ends in brackets 122, secured to the casing, and at their upper ends carrying antifriction-rollers 123, adapted to engage with the carrying-levers 100 of the bar 101 and to force the same from the dotted-line position to the full-line position (shown in Fig. 3) for the purpose of exposing the indicating-card, as previously described.

To the upper side of the frame 106 and in front of the pivot-points thereof are secured near each end of the casing ears 124, between which are pivoted vertical movable rods 125, guided near their upper ends in brackets 126, carried by the casing. At the upper end of each of the rods 125 is pivoted a dog 127, normally held in a position shown in Fig. 3 by a compression-spring 128. On the depression of the finger-key 107 the rear portion of the frame 106 is elevated, moving the bar 101 to the position shown in full lines in said Fig. 3 and opening or unlocking the cash-drawer. The front portion of the frame in descending causes the rod 125 to move downwardly until the dog 127 passes below the arm 57 of the locking-bar 55, the spring 128 yielding to an extent sufficient to permit this movement and then resuming its normal position, so that when the finger-key 107 is released and returned to its normal position under the influence of spring 110 the elevation of bar 125 will cause the engagement of the dog 127 with the under side of the lever 57, rocking the bar 55 on its axis and moving any of the springs 60 which may be engaged with the shanks of the selecting-keys from engagement therewith and permitting the selecting-segment to reassume a normal position, the segment on being released being partly revolved by the counterbalance-weight 39 until the stop 39' engages with the fixed bracket 41. During all this time the bar 101 retains its elevated position and holds exposed the cards indicating the amount of purchase; but on the next operation of any one of the selecting-segments the spring 95, carried thereby, will come into engagement with one of the laterally-projecting arms 94, carried by the pivoted bar 90, and will force such arm in a downward direction, causing a movement of the dog 91 to the front against the action of the spring 92 and releasing the bar 101, which then falls by gravity to the dotted-line position shown in Fig. 3. The pin or pins 86, which have been projected by the upward movement of said bars, also fall by gravity until the top of the card clears the plate 130, and the indicating-segment is then returned

to its normal position by the counterbalance-weight 82.

In the upper portion of the casing 17 is journaled a shaft 132, on which are placed a series of pairs of register-wheels, the number of pairs of wheels being equal to the number of sets of selecting and indicating segments employed for the purpose of showing the amount sold. If desired, an additional and independently-operated pair of wheels may be employed in connection with the keys bearing letter or other designating marks; but this for general use is not deemed necessary. Each pair of wheels, as shown in Figs. 4 and 18, comprises the wheel 133, provided on its periphery with a series of ratchet-teeth 133', which are engaged by ratchet-teeth 134, secured to the periphery of the selecting-segment, the teeth 134 being each in the form of a spring-plate secured at one end to the periphery of the segment and at its opposite free end being bent downwardly and adapted to be received in a notch or recess 135, formed in the periphery of the segment. The selecting-segment during its forward movement will cause the engagement of these spring-teeth with the ratchet-teeth of the wheel 133, and on the rearward movement of the segment such spring-teeth will be depressed and will click past the fixed teeth of the ratchet-wheel, any backward movement of the latter being prevented by a locking-pawl 135', carried by the casing and engaging with the teeth, and the mating wheel 136 of each pair is separated from its fellow by a fixed disk 137, having at one point in its circumference a notch or recess 138, as shown in Fig. 18, having one abrupt wall 139 and a rounded wall 140. The wheel 133 has marked on its periphery numerals ranging from "1" to "20," and the wheel 136 has numerals ranging from "20" to "980." An annular flanged portion 141 of the wheel 136 is provided with teeth 142 adjacent to the fixed disk 137, the diameter of which is equal to or slightly greater than the diameter of the toothed portion 141, the teeth being exposed by the disk at the notch 138. To the wheel 133 is secured a spring-arm 143, having a laterally-extending tongue which is at all times held in contact with the periphery of the disk. This tongue at the completion of each revolution of the wheel 133 will pass into the recess 138 and engage one of the teeth of the wheel 136 and will move the latter for one tooth only, the continued rotation of the wheel 133 causing the tongue 143 to engage with the rounded cam-like wall 140 of the recess 138 and raise said tongue out of engagement with the teeth 142. Each pair of wheels is operated in similar manner by its respective selecting-segment, and each keeps a total of the number of complete or partial revolutions made, the total-record being exposed through sight-openings 145 at the top of the casing.

The various totaling-wheels are mounted loosely on the axis 132, and at suitable points



between each pair of wheels is secured a lug 146, with which engages a spring-pressed pawl or catch-dog 147, pivoted to the wheel, and when it is desired to move the totaling-wheels back to zero-point the cover 17' is removed and a suitable crank-handle is placed on the squared end 126' of the shaft 132 and turned until by the engagement of the lug 146 with the dogs 147 all of such wheels have been turned to the zero-point.

In the casing 18 is contained the recording mechanism.

In the inner end of the axis 20 is secured a stationary shaft 21, the opposite ends of which find a bearing in a tubular shaft 151, the latter being supported in bearing-brackets 152, carried by the casing. Mounted loosely on this axis 21 are a series of printing-wheels 153, 154, 155, 156, and 157, bearing on their peripheries the necessary data to imprint the name of the month, the date, the hour, the minute, and the second at which the record was made. Each wheel except the primary wheel 157 is provided with a number of teeth formed in or on an annular flange 158, extending from the side of the wheel, the teeth being equal in number to the number of different numerals or other data on the periphery of the wheel. Thus the minute-wheel 156 will have sixty teeth, representing the number of minutes in an hour, and the periphery of the wheel will bear numerals running from "1" to "60." The hour-wheel 155 will have twenty-four teeth, representing the number of hours of the day and bearing on its periphery two sets of numerals, each running from "1" to "12," and after each numeral there may be added the letter "A" or the letter "P" to designate the forenoon or afternoon, as the case may be. A date-wheel 154 is provided with thirty-one teeth, representing the greatest number of days in any one month, and bears on its periphery numerals ranging from "1" to "31." On the month-wheel 153 are twelve teeth, and on the periphery of the wheel the names of the months.

Between each of the wheels is a fixed disk 160, having in its periphery a notch 161, of a width sufficient to open to the action of spring-tongues 163 a single tooth of the wheel which it is desired to operate upon, the notches varying in width, as clearly shown in Figs. 6, 7, 8, and 9. The operation of these disks is similar to that already described with reference to the totaling-wheels, with the exception that the seconds-wheel 157 is the prime mover for the whole series.

The seconds-indicating wheel 157 is secured to the tubular shaft 151, which receives its motion from the timing mechanism contained within the portion 19 of the casing.

One complete movement of the seconds-wheel 157 will transmit to the minute-wheel 156 an angular movement for one space or division, and a complete revolution of the minute-wheel 156 will in similar manner transmit to the hour-wheel a movement for one space

or division. This movement is transmitted from wheel to wheel, as indicated by the timing device, the various types on the wheels, representing the month, date, hour, minute, and second, being always below and in vertical line with the axis ready for the imprinting operation.

The various type-segments 72, 73, 74, 75, 76, and 77 are also moved to the proper point by the selecting mechanism, as previously described.

In the opposite end walls of the casing 18 are bearings 166 for the reception of the movable shaft 167 of a paper-roll 168, on which is wound a ribbon or band of paper or other suitable material of the width sufficient to receive the imprint of all of the type wheels and segments. The end of the paper 169 is led between two feed-rolls 170 and 171, held in suitable bearings and adapted to clamp upon and draw the paper with a step-by-step movement from the feed-roll 168. At one end of the feed-roll 170 is a ratchet-wheel 171', with which engages a pawl 172, pivoted between ears 173 on the rocking frame 106 and adapted on the upward movement of said frame to turn the feed-roll to the extent of one or more teeth, so as to expose a fresh imprinting-surface. Backward movement of the feed-roll is prevented by the engagement of a pawl 174 with the ratchet-teeth 171'.

On the pivoted frame 106 are two standards 175, forming supports for a spindle 176, on which is mounted a revolving platen 177, provided with a cover 178, of rubber or other yielding material, for the purpose of securing a good impression-surface. Projecting laterally from the standards 175 are bracket-arms 179, carrying spindles 180, on which are mounted spools 181, carrying an ink-ribbon 182, similar to the type-writer ribbon in ordinary use. One of the spindles is provided with a take-up mechanism to effect a step-by-step movement of the ribbon, so as to expose a fresh ink-surface at each imprinting operation. This mechanism comprises in the present instance a ratchet-wheel 183, with which engages a spring-pawl 184, secured to the casing.

The imprinting mechanism is operated by the pivoted frame 106, the depression of the finger-key 107 raising the platen 177 and forcing the paper 169 into contact with the ink-ribbon 182 and the type on the various segments and wheels, previously described, the resultant imprint on the paper showing first the amount of the purchase and the name, initials, or designating letter of the salesman, and then in a continuous line the month, date, hour, minute, and second of purchase. The upward movement of the platen and the spools 180 causes the pawl 184 to move the ratchet-wheel 183 to the extent of one tooth, the pawl then dropping behind the next succeeding tooth and presenting a fresh ink-surface for the next imprinting operation.

The timing mechanism is contained within



the section 18 of the casing, and on the front of the casing is an ordinary clock-dial 186, over which move hour, minute, and seconds hands, numbered 187, 188, and 189, respectively.

5 Mounted in suitable bearings in the casing 19 is the main arbor 190 of the clock mechanism. This arbor is connected by reducing-gearing 191, of any ordinary type, to the shaft 192, the latter carrying a spring 193 and being provided with a squared end 194, projecting through an opening in the dial and adapted for the reception of an ordinary winding-key. This spring serves to operate the main portion of the mechanism. On the 15 arbor 190 is a loose sleeve 195, to which are secured a cam-wheel 196 and an escapement-wheel 197, the sleeve, with these two wheels, being rotated continuously by a spring 198, mounted on a shaft 199 in the upper portion 20 of the casing and having a squared end 200, projecting through an opening in the dial, for the reception of the winding-key. The shaft 199 is connected to the sleeve 195 through reducing-gearing 201 of the usual character, 25 the spring operating only on the cam-wheel and the escapement-wheel, and its action is regulated by a pendulum 202. To the arbor 190 is secured a wheel 203, a beveled gear 204, and the seconds-hand 189, and the operation 30 of the parts is such that the seconds-hand will be operated only twelve times in each minute, moving over five seconds-graduations at each operation. To accomplish this result, the wheel 196 is provided with six cams 205, 35 and the wheel 203 has six ratchet-teeth, with which engage locking-dogs 207 208, the spring-shank portions of which are fixedly secured to the clock-casing, the free ends of the dogs being bent laterally and adapted to pass over 40 the periphery of the cam-wheel into position for operative engagement with the toothed wheel 203. In the operation of this portion of the device, the dog 207 being in engagement with one of the teeth of the wheel 203 45 and holding the latter in position shown in Fig. 13, the continuous rotation of the cam-wheel 196 will bring one of the cams 205 into engagement with said dog 207 and raise the dog from its engaging position and permit 50 the wheel 203 to revolve. The movement of the wheel 203, however, is checked by the engagement of the same tooth which engaged the dog 207 with the dog 208 and is there held until by the further movement of the wheel 55 196 the dog 208 is raised from engagement with said tooth and the dog 207 is engaged by the next succeeding tooth. This mechanism gives a step-by-step movement to the seconds-wheel 157 through the beveled gear 60 204 and a mating bevel-gear 210 on the tubular shaft 21. The seconds-hand of the clock is similarly operated and moves over an interval of five seconds on the dial-plate.

The minute-hand 188 is secured on a sleeve 65 211, surrounding the arbor 190 and carrying at its inner end a toothed wheel 212, adapted

to be engaged by a dog 213, carried on the rear face of the bevel-gear 204 and passing over a fixed disk 214 of a diameter equal to or greater than the diameter of the wheel 112 70 and having a peripheral notch or recess into which the dog descends once during each revolution of the gear-wheel 204 and moves said wheel 204 to the extent of one tooth, the minute-hand 188 being moved for an angular 75 distance on the dial representing one minute.

Hour-hand 187 is secured on the sleeve 216, concentric with the sleeve 211 and the arbor 190, and at the inner end of the sleeve is secured a toothed wheel 217, adapted to be operated upon by a dog 218, secured to one face 80 of the wheel 212. In this case there are preferably two dogs, secured at diametrically opposite points on said gear-wheel and adapted to pass over a fixed disk 219, having a notch 85 into which said dogs may pass, the movement in this case being to the extent of one-fourth of an hour division at each operation, one of the dogs acting after each time the minute-wheel 212 has received fifteen impulses. 90

Owing to the peculiar construction of the timing mechanism, the escapement-wheel and pendulum are continuously operated, and the clock may be regulated with the same accuracy as any ordinary clock mechanism, while 95 the movement imparted to the printing-wheel, being only twelve times per minute, will always insure the stationary position of the seconds-printing wheel during the imprinting operation. The work of the remaining portions 100 of the clock mechanism and the intermittent movement of the printing-wheel being done by the spring 193, the proper operation of the escapement-wheel and pendulum will not be interfered with. This timing 105 mechanism may be employed in connection with the recording devices of a variety of characters other than that herein illustrated and described.

It will be understood that various changes 110 may be made in the form, proportion, sizes, and minor details of the apparatus without departing from my invention.

In some cases, especially while or during an imprinting operation, the wheel 210 is 115 held from rotation by the clockwork mechanism. To overcome this difficulty, a spring 225 is inserted between said wheel and its carrying-shaft, the movement of the clockwork being first imparted to the spring and 120 thence to the shaft. This construction permits of an operation of the clockwork during the printing operation.

Having thus described my invention, what I claim is— 125

1. In a device of the class specified, a selecting mechanism, an indicating mechanism, a recording mechanism, means for operatively connecting the selecting to the indicating mechanism for effecting the operation of the 130 latter, and mechanism operable in one direction of movement to effect the imprinting of



the recording mechanism and in the opposite direction to effect the release of said selecting mechanism.

2. In a device of the class specified, a selecting-segment, a series of finger-keys thereon, an indicating-segment, indicating-cards carried thereby, and auxiliary mechanism operable independent of the said finger-keys for exposing the indicating-card selected.

3. In a device of the class specified, a selecting-segment, a series of finger-keys thereon, an indicating-segment adapted to be engaged and moved by the selecting-segment for an angular distance corresponding to the movement of said selecting-segment, indicating-cards carried by said indicating-segment, and an auxiliary independently-operating mechanism for exposing the indicating-card selected.

4. In a device of the class specified, a selecting-segment, a series of finger-keys carried by said segment, a fixed stop for governing the extent of angular movement of the selecting-segment, a mating indicating-segment adapted to be operated by the selecting-segment, indicating-cards carried by said indicating-segment, and mechanism for projecting a selected indicating-card beyond the periphery of said indicating-segment.

5. In a device of the class specified, a selecting-segment, a series of finger-keys carried by the segment, a fixed stop for governing the extent of angular movement of the selecting-segment, means for locking said selecting-segment in any position to which it may be adjusted, a mating indicating-segment adapted to be operated by the selecting-segment, indicating-cards carried by said indicating-segment, and mechanism for projecting a selected indicating-card beyond the periphery of said indicating-segment.

6. In a device of the class specified, a selecting-segment, a series of finger-keys carried by said segment, a fixed stop for governing the extent of angular movement of the selecting-segment, a locking device for engaging an operated finger-key, a mating indicating-segment adapted to be operated by the selecting-segment, indicating-cards carried by said indicating-segment, and an auxiliary operating-lever for projecting a selected indicating-card beyond the periphery of said indicating-segment, and for effecting the release of the operated finger-key.

7. In a device of the class specified, a selecting-segment, a series of finger-keys thereon, a counterbalance-weight on said selecting-segment for returning the same to its normal position, an indicating-segment adapted to be engaged and moved by the selecting-segment for an angular distance corresponding to the movement of said selecting-segment and a counterbalance-weight arranged at the rear of said indicating-segment for returning the same to the normal position.

8. In a device of the class specified, a selecting-segment, a series of finger-keys carried

by said segment, a fixed stop for governing the extent of angular movement of the selecting-segment, a locking device for engaging an operated finger-key, a mating indicating-segment adapted to be operated by the selecting-segment, indicating-cards carried by said indicating-segment, a vertically-movable bar for projecting said indicating-cards, means for locking said bar in position, and means for releasing the finger-key after the vertical movement of said bar.

9. In a device of the class specified, a series of selecting-segments, a series of finger-keys arranged on each segment, a fixed stop for governing the extent of angular movement of each of the segments, a locking tongue or spring for engaging and locking the segment in its adjusted position, a pivoted bar carrying said locking tongue or springs, an indicating-segment for each of the selecting-segments, and an auxiliary lever operatively connected to said pivoted bar and adapted to move the same to effect the release of the selecting-segment.

10. In a device of the class specified, a selecting-segment, a series of finger-keys thereon, a fixed stop for engaging a depressed finger-key and limiting the extent of angular movement of the segment, a locking device for engaging the operated finger-key and holding the same in said fixed stop, a rocking bar carrying said locking device, a spring acting on said bar and normally holding the locking device in operative position, an auxiliary operating-lever, and a connecting-bar carried by said lever and adapted to engage said arm to effect a release of the locking device.

11. In a device of the class specified, a selecting-segment, an indicating-segment adapted to be operated thereby, a series of pins guided in said indicating-segment, a card carried by each of said pins, a bar adapted to operate upon a selected pin and movable by said indicating-segment to a common exposure-point, means for effecting the vertical movement of said bar, means for locking said bar in the elevated position, and means for releasing said bar on a succeeding operation of a selecting-segment.

12. In a device of the class specified, a selecting-segment, a series of finger-keys thereon, an indicating-segment adapted to be operated upon by the selecting-segment, a series of radially-arranged pins carried by said indicating-segment, a movable bar adapted to operate upon a selected pin, pivoted levers carrying said bar, an auxiliary operating-lever adapted to act upon said lever for effecting the vertical movement thereof, means for locking said bar in the elevated position, and means for releasing said bar upon a succeeding operation of a selecting-segment.

13. In a device of the class specified, a selecting-segment, a series of finger-keys thereon, an indicating-segment, a series of radially-arranged pins carried thereby, a series



of cards carried by the pins and adapted to be projected, a bar adapted to operate upon a selected pin, a locking-dog engaging said bar for holding the same in an elevated position, a pivoted bar carrying said locking-dog, an arm projecting from said pivoted bar, and a spring-finger carried by the selecting-segment and adapted to operate upon said arm to move the dog from engagement with said pin-operating bar.

14. In a device of the class specified, a selecting-segment, a series of finger-keys thereon, a fixed stop for governing the extent of angular movement of the selecting-segment, a locking device for engaging an operated finger-key, a pivoted bar carrying said locking device, a spring-pressed arm projecting laterally from said bar, an indicating-segment adapted to be operated upon by the selecting-segment, a series of radially-guided pins carried by said indicating-segment, indicating-cards on said pins, a movable bar adapted to operate upon said pins, a locking-dog for said bar, a pivoted bar by which said dog is carried, a laterally-projecting arm on said pivoted bar, a spring-finger carried by the selecting-segment for engaging said arm, pivoted levers carrying the pin-operating bar, an auxiliary lever, and vertically-movable rods carried by said auxiliary lever for effecting the movement of the pin-operating bar, and the release of the key-locking devices.

15. In a device of the class specified, a selecting-segment, a series of finger-keys guided therein and having shank portions passing through the periphery of the segment, a fixed stop for engaging the inwardly-projected shank portion of an operated finger-key, a locking-spring adapted to engage with said shank portion to hold the segment in its adjusted position, means for releasing said locking-spring, an indicating-segment adapted to be operated by the selecting-segment, and a series of indicating-cards carried by said indicating-segment.

16. In a device of the class specified, a series of segments having coincident axes, said segments being arranged in pairs, one of each pair being an indicating-segment and the other of each pair being a selecting-segment, a series of finger-keys carried by each selecting-segment, a series of indicating-cards carried by the indicating-segments, means for holding and locking the indicating-segments in an adjusted position, and means operated by the selecting-segments to effect the release of all of the indicating-segments at the operation of any one of the selecting-segments.

17. In a device of the class specified, a numbered wheel or disk forming part of a totaling mechanism and having engaging teeth, a key-operated segment, and radially-compressible teeth thereon adapted to engage with the teeth of the totaling-wheel.

18. In a device of the class specified, a key-operated segment or wheel, a totaling-wheel, engaging teeth on the key-operated segment

and on the totaling-wheel, one of said sets of teeth being radially compressible.

19. In a device of the class specified, a key-operated segment, having in its periphery a series of openings, radially-compressible spring-teeth adapted to be received into said openings, and a totaling device having as one of its elements a toothed wheel for engagement with the spring-teeth carried by the said segment.

20. In a device of the class specified, a key-operated segment having in its periphery a series of openings, a series of springs secured to the segment and having angular end portions adapted to be depressed into said openings, and a totaling mechanism having as one of its elements a toothed wheel adapted to engage or be engaged by said springs.

21. In a device of the class specified, a series of toothed selecting-segments, a series of register-wheels having teeth adapted to be directly engaged by the teeth on the selecting-segments, an auxiliary transfer or totaling wheel for each of the register-wheels, a shaft common to all of the wheels, a fixed disk carried by the shaft at a point between the wheels of each pair, said disk having a notched periphery, and a spring-dog carried by the register-wheel and adapted to engage a tooth in the totaling-wheel when depressed into the notch, substantially as specified.

22. In a device of the class specified, a series of key-operated segments, a series of mating indicating-segments adapted to be operated by said key-operated segments, indicating-cards carried by said segments and movable thereby to a common exposure-point, the keys and indicating-cards of one of said segments being provided with designating characters to indicate or identify the person operating the device.

23. In a device of the class specified, a series of type-segments, mechanism for adjusting the same, a cylindrical platen having a yielding impression-surface, a lever supporting said platen, brackets movable with the platen, spools carried by said brackets for the support of an ink-ribbon, a ratchet-wheel secured to one of said spools, a stationary spring-pawl for engagement with said ratchet-wheel, feeding-wheels between which a recording-strip is guided, a ratchet-wheel on one of said feeding-wheels and a pawl carried by the supporting-wheel and engaging said ratchet-wheel.

24. In a device of the class specified, a key-operated selecting-segment, means for locking said segment in an adjusted position, a type-segment connected to and operated by said selecting-segment, an indicating-segment adapted to be operated by the selecting-segment, a series of indicating-cards carried by the indicating-segment, an impression-surface below the type-segment, an auxiliary lever or frame carrying said impression-surface, and mechanism for operatively connecting said auxiliary lever to a selected in-



dicating-card and to the locking devices of the selecting-segment.

25. In a device of the class specified, a selecting-segment, a series of keys carried thereby, means for locking an operated key in an adjusted position, a type-segment operatively connected to said selecting-segment, an indicating-segment operated by the selecting-segment, a platen situated below the type-segment, a pivoted frame or lever carrying said platen, and mechanism connecting said frame or lever to the key-locking devices.

26. In the device of the class specified, a key-operated selecting-segment, means for locking said segment in an adjusted position, a type-segment operatively connected to and movable with said selecting-segment, an indicating-segment adapted to be operated by the selecting-segment, a series of radially-guided pins carried by the indicating-segment, indicating-cards on said pins, an operating-bar for engaging said pins, an impression-surface below the type-segment, and a pivoted lever or frame operatively connected to said impression-surface, to the segment-locking mechanism, and to the operating-bar of the indicating-segment.

27. In a device of the class specified, a series of key-operated selecting-segments, a series of type-segments, a series of concentrically-arranged tubular shafts extending each between one of the selecting-segments and one of the type-segments, means for locking the selecting-segment and type-segments in an adjusted position, an impression-surface situated below the type-segments, and an operating-lever carrying said impression-surface and adapted to release the locking devices of the selecting-segments after an operative movement of the impression-surface.

28. In a device of the class specified, a series of type-segments having on their peripheries type designating the amount sold, the

salesman, the month, date, hour, minute and second of purchase, a key-operated mechanism for effecting the adjustment of a portion of the printing-surface, clockwork mechanism for adjusting the remaining portion of said printing-surface, and connected to the primary of the time-indicating type-disks, transfer mechanism for communicating the movement of the primary disk to the remaining time-indicating disks, an impression-surface, and mechanism for operatively moving one of such surfaces thereby to print a record on a recording-strip passing between the surfaces.

29. In a device of the class specified, a series of key-operated segments, type-segments secured thereto, indicating-segments adapted to be operated upon by said key-operated segments, indicating-cards carried by said indicating-segments, a series of type-wheels having axes coincident with the axes of the type-segments, a clockwork mechanism for imparting movement to said type-wheels, an impression-surface below said type wheel and segments, and a lever or frame carrying said impression-surface and adapted to operate the same.

30. In a device of the class specified, a cash-drawer, a locking-dog therefor, means for moving said dog to the unlocked position, a headed pin formed on the rear of said drawer, a collar on said pin, a compression-spring extending between the rear of the drawer and the collar, and stationary brackets adapted to engage with said collar.

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

JOHN L. ROBERTS.

Witnesses:

GABRIEL A. HALLOCHER,  
CHAS. A. LEAVY.