

No. 653,647.

Patented July 10, 1900.

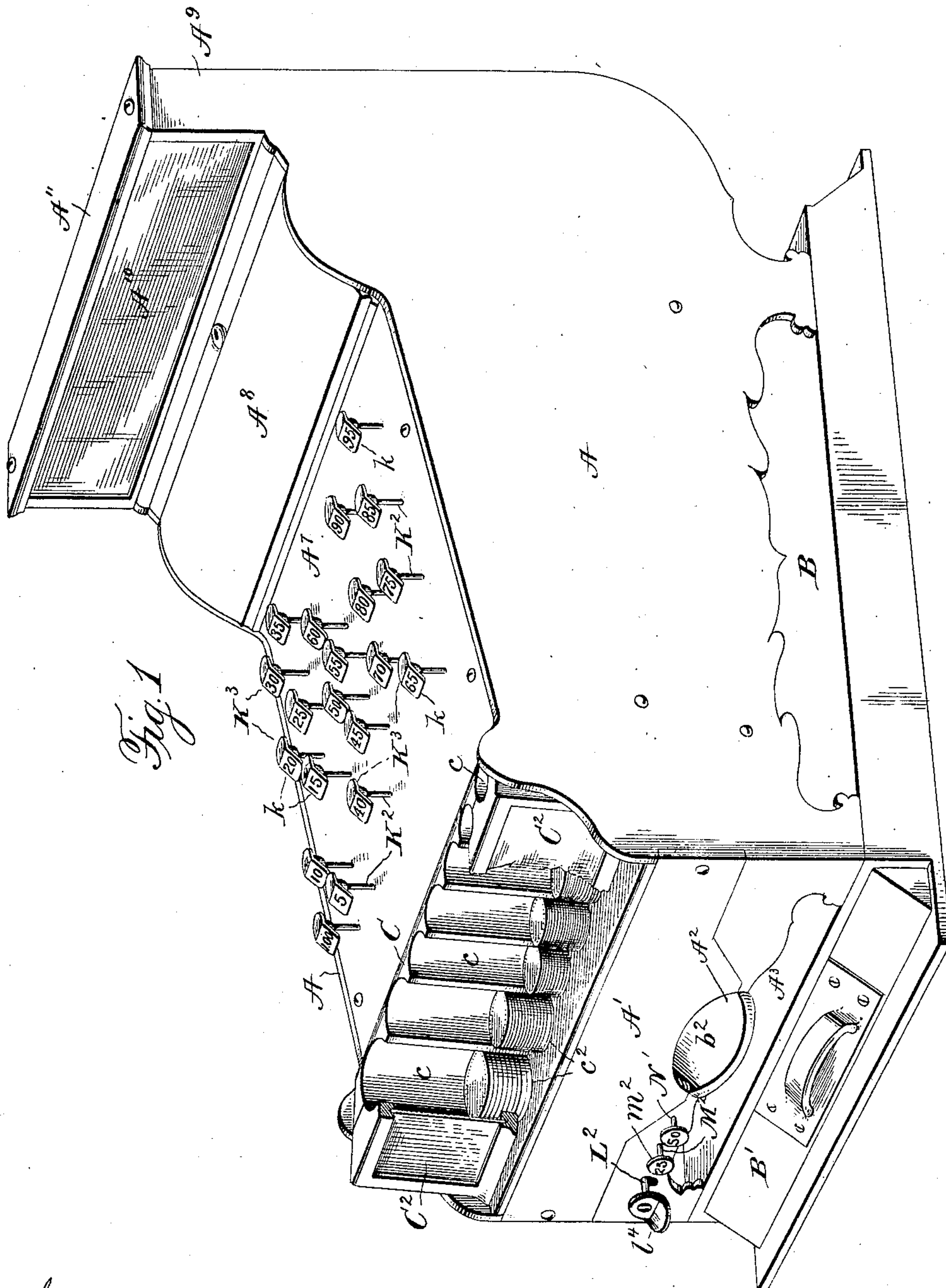
M. McANENY.

COMBINED CHANGE MAKER, CASH REGISTER, AND INDICATOR.

(Application filed Jan. 20, 1900.)

(No Model.)

10 Sheets—Sheet 1.



Witnesses:
Jas. Esq. Hutchinson.
J. R. Lawlor.

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Prindle and Russell, his atty

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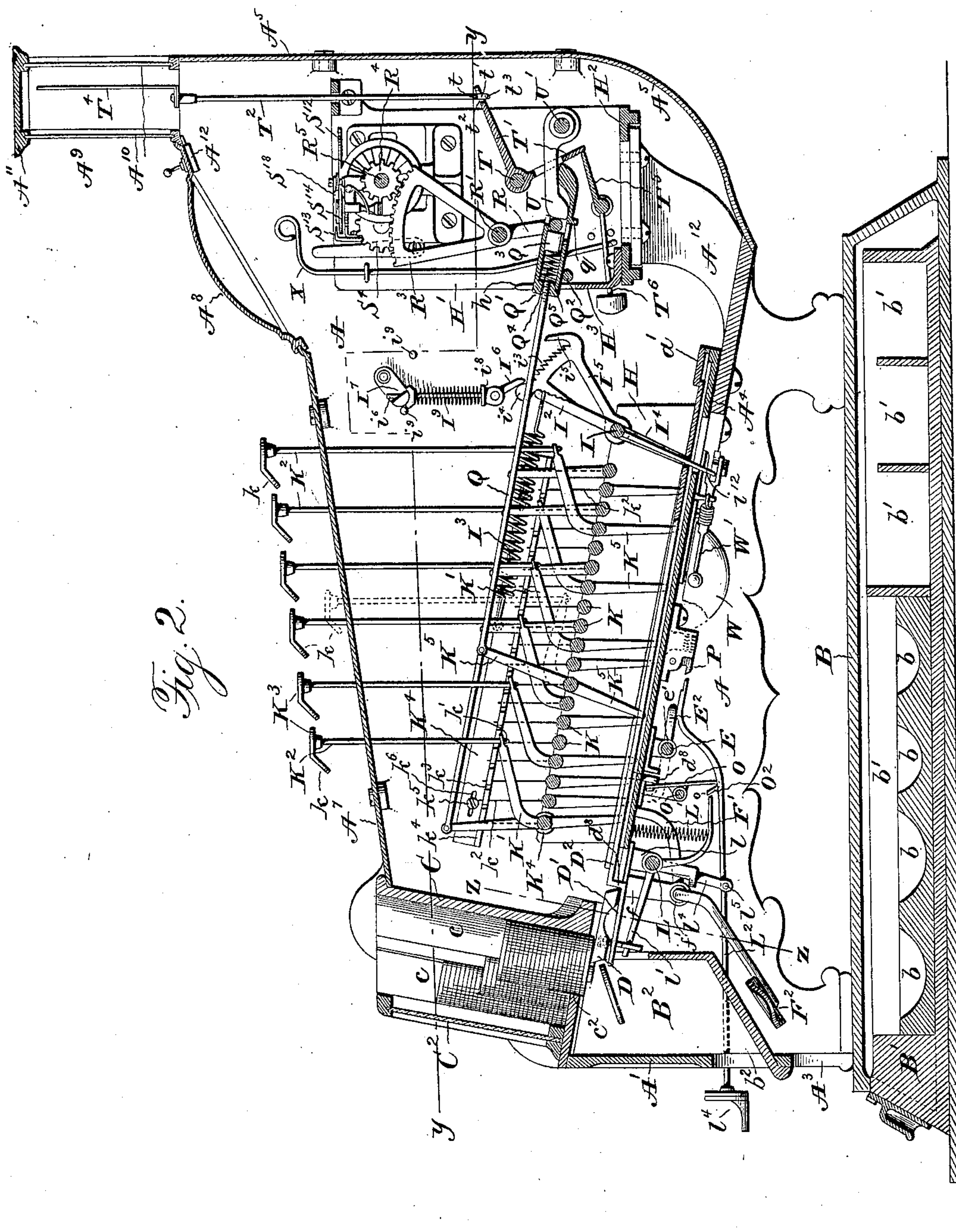
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Witnesses:
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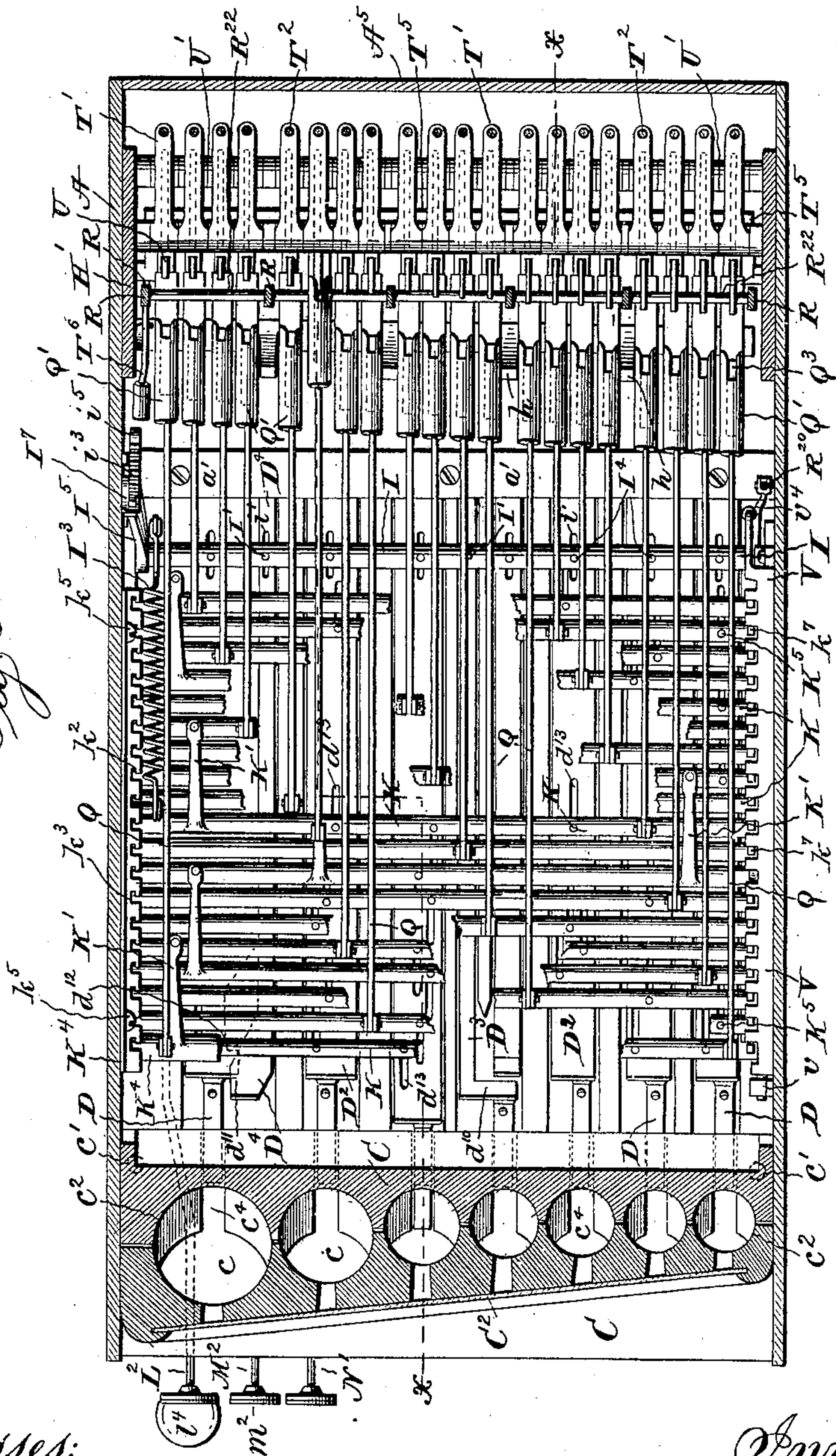
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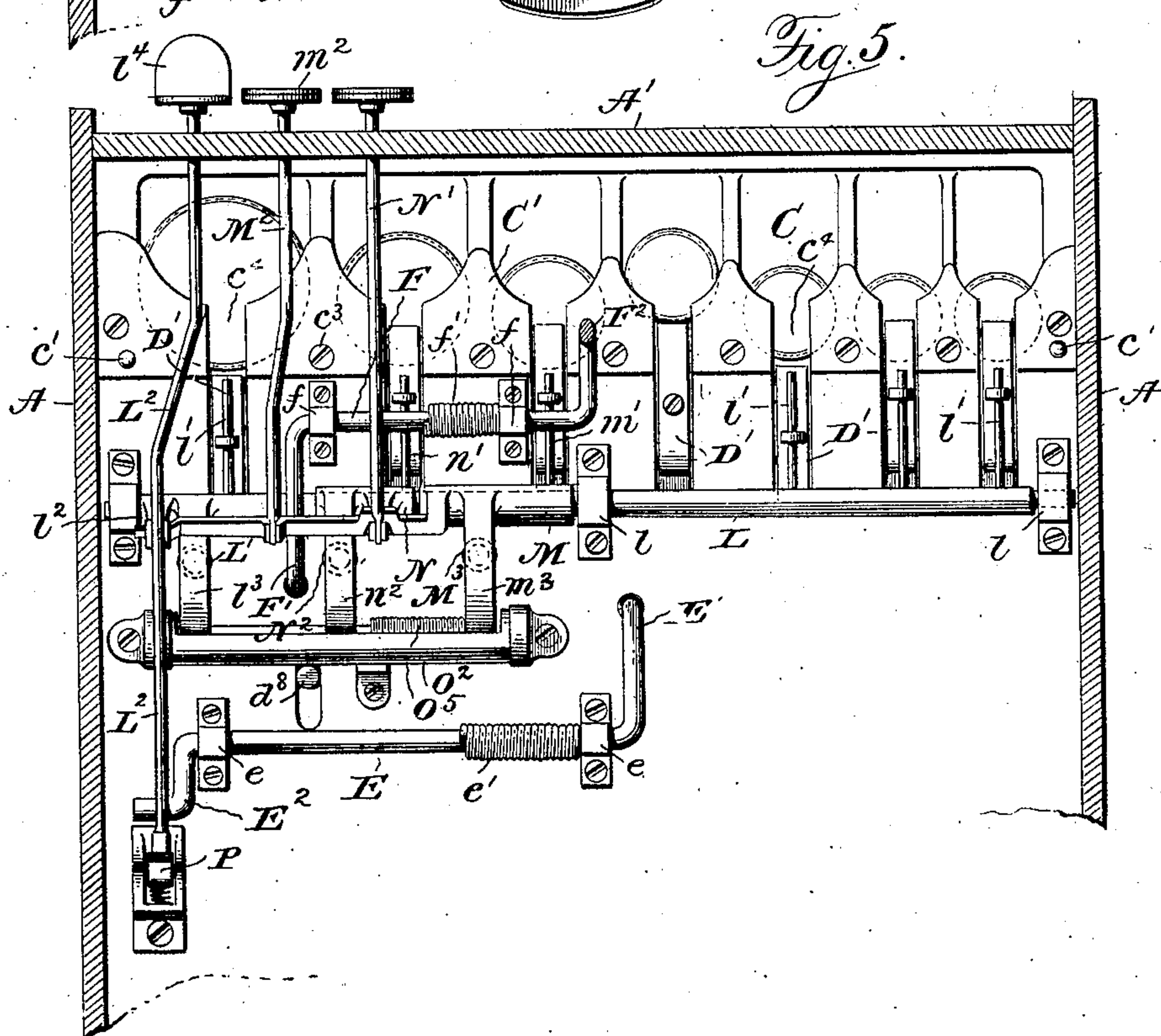
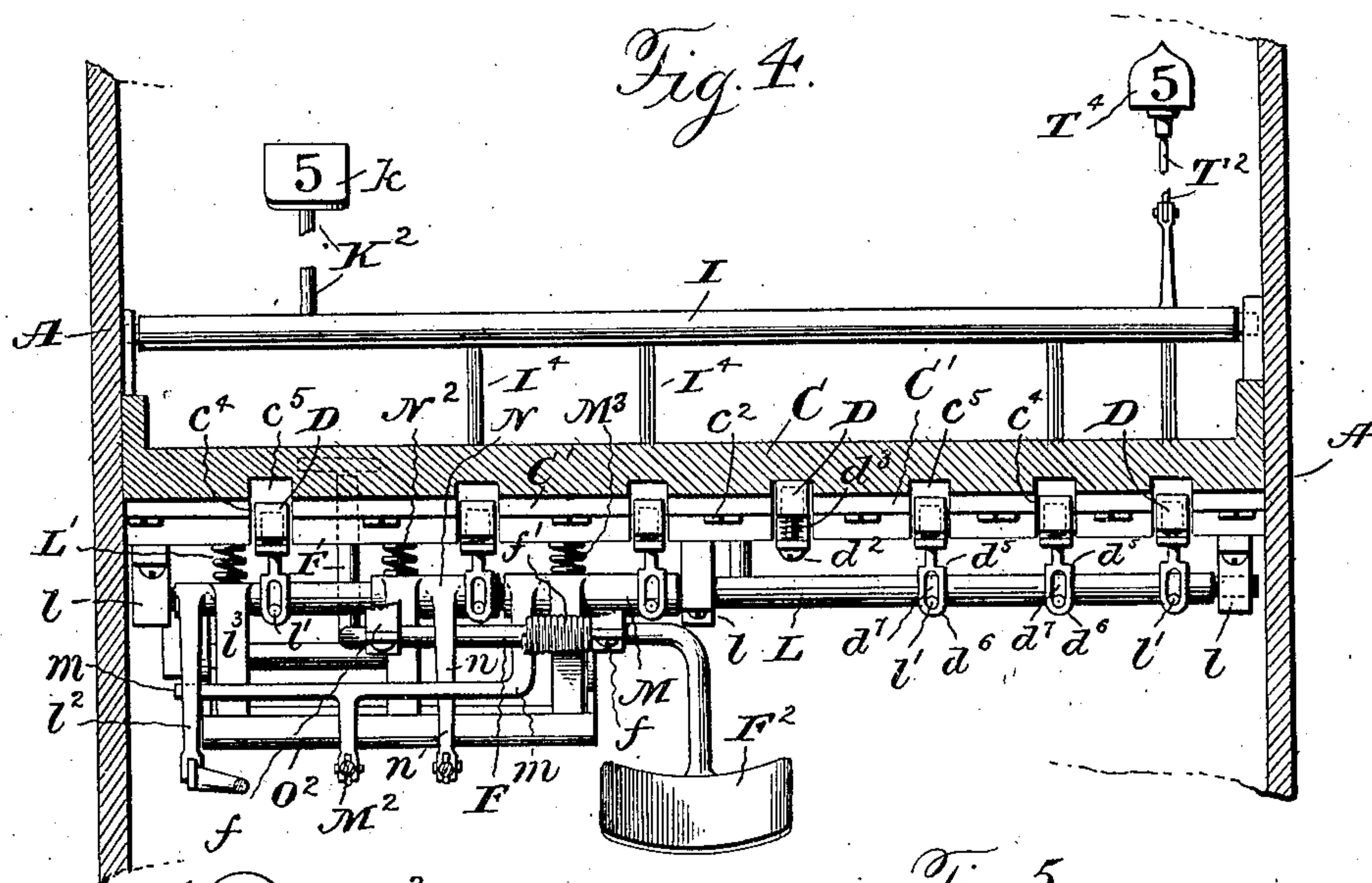
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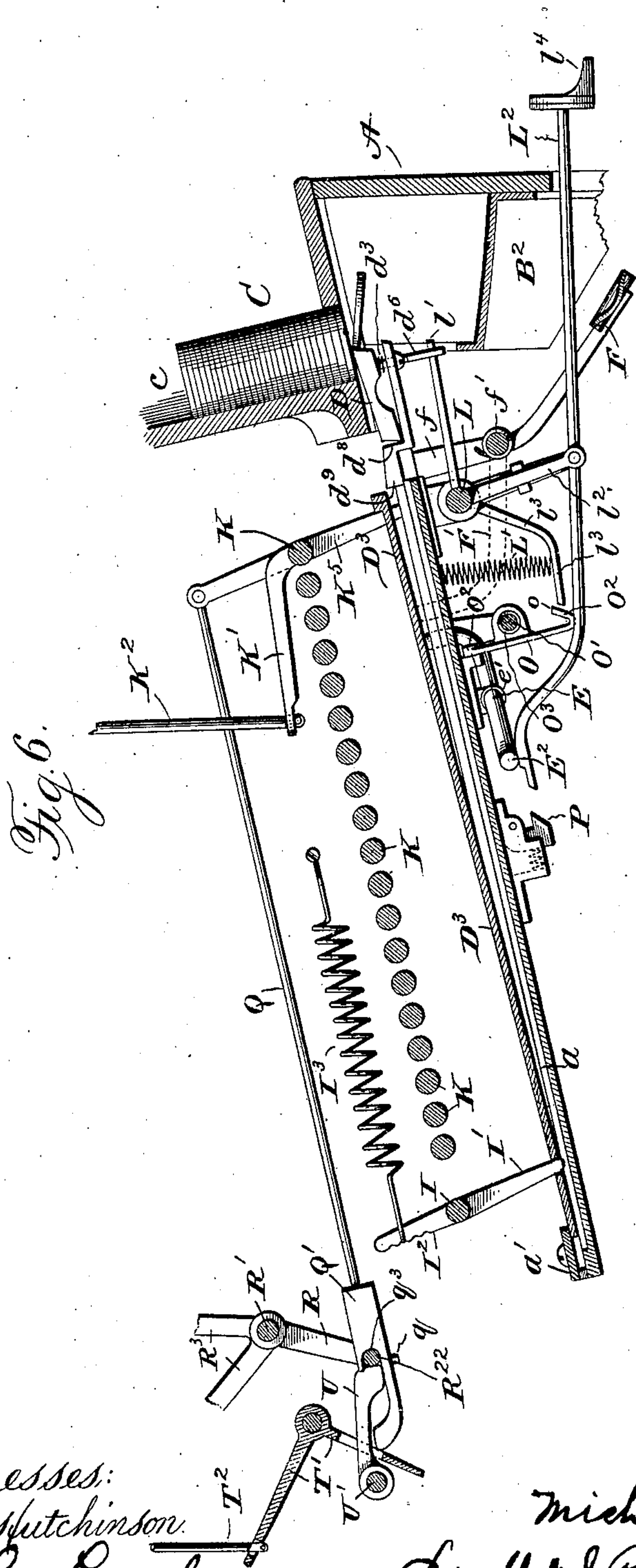
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10 Sheets—Sheet 5.

(No Model.)



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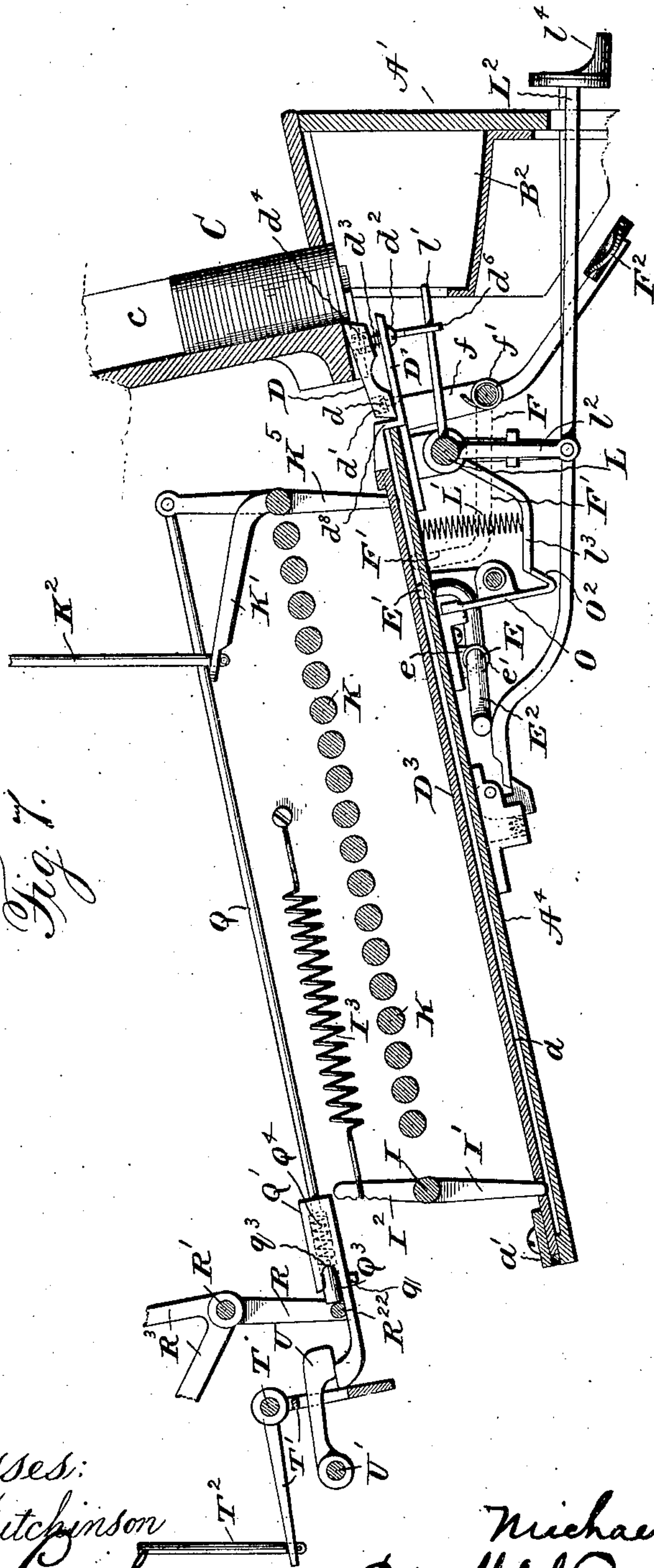


Fig. 7.

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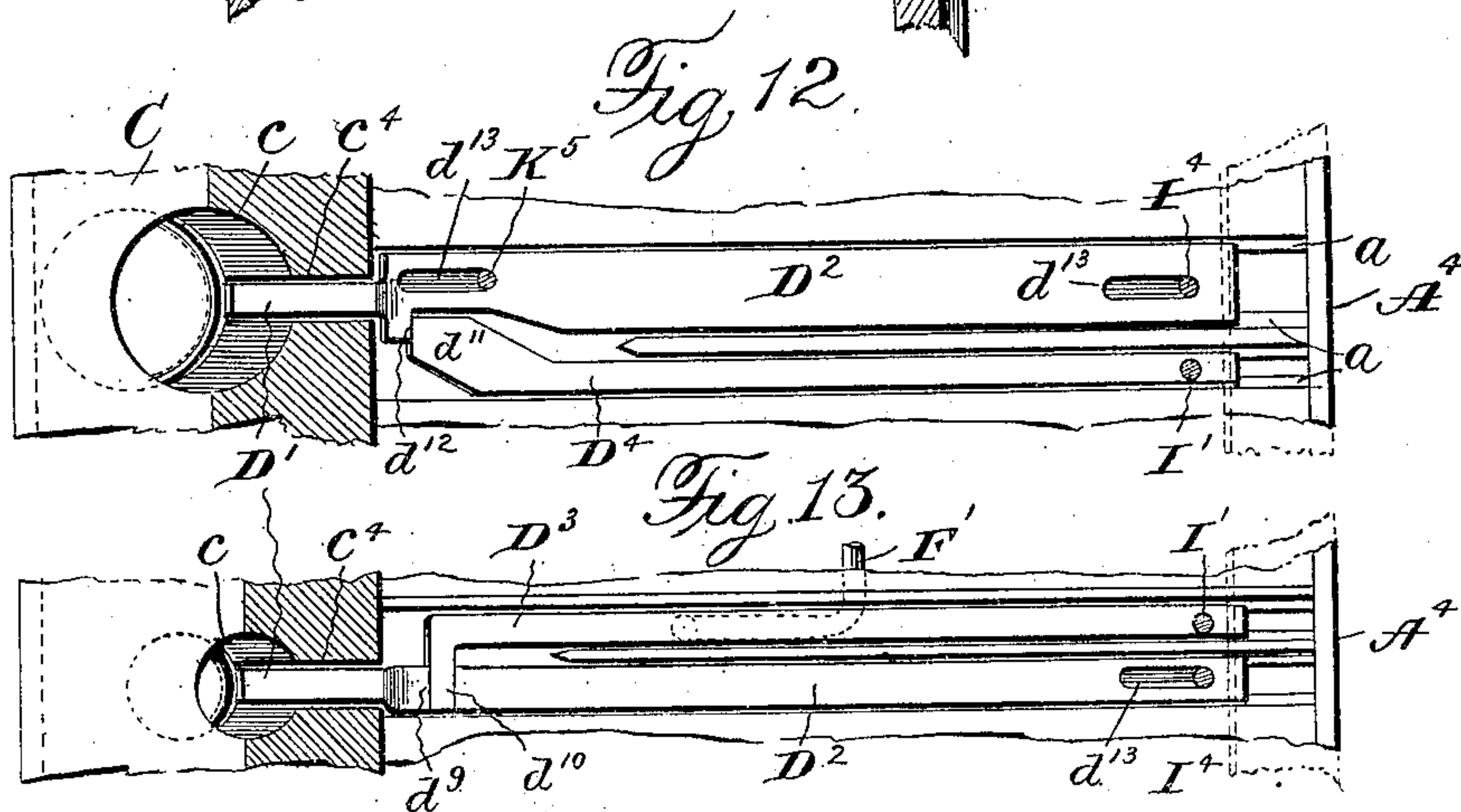
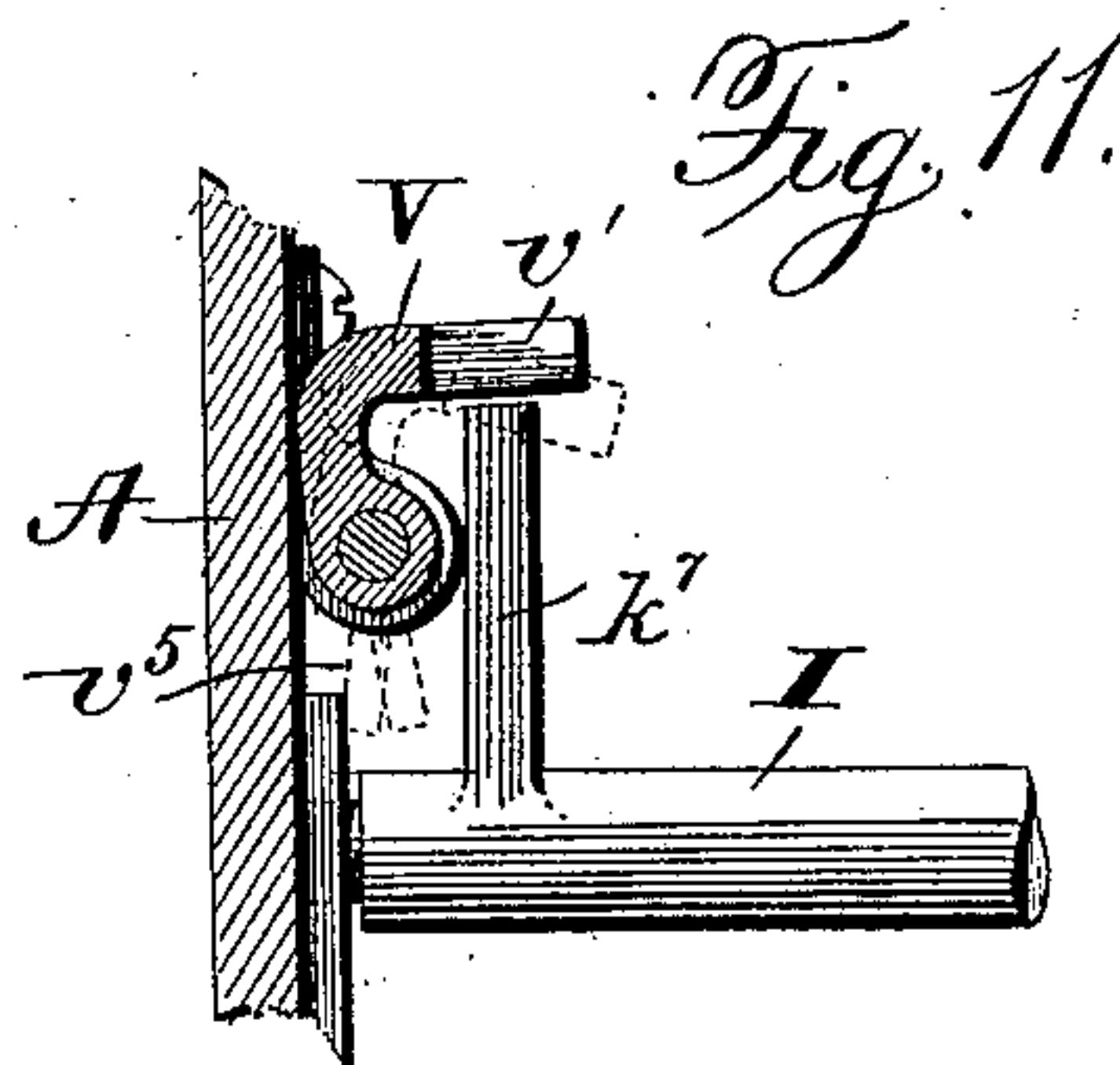
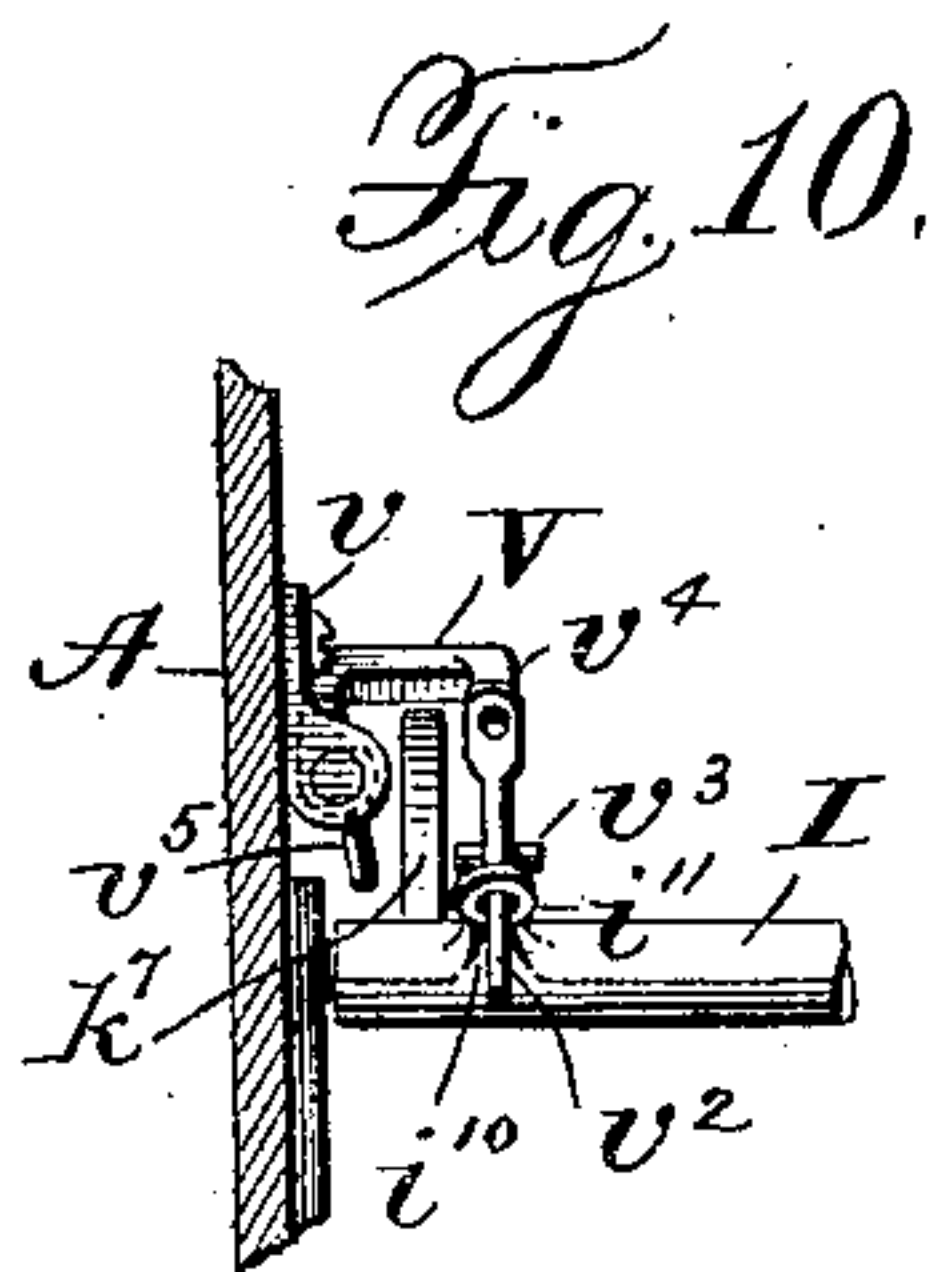
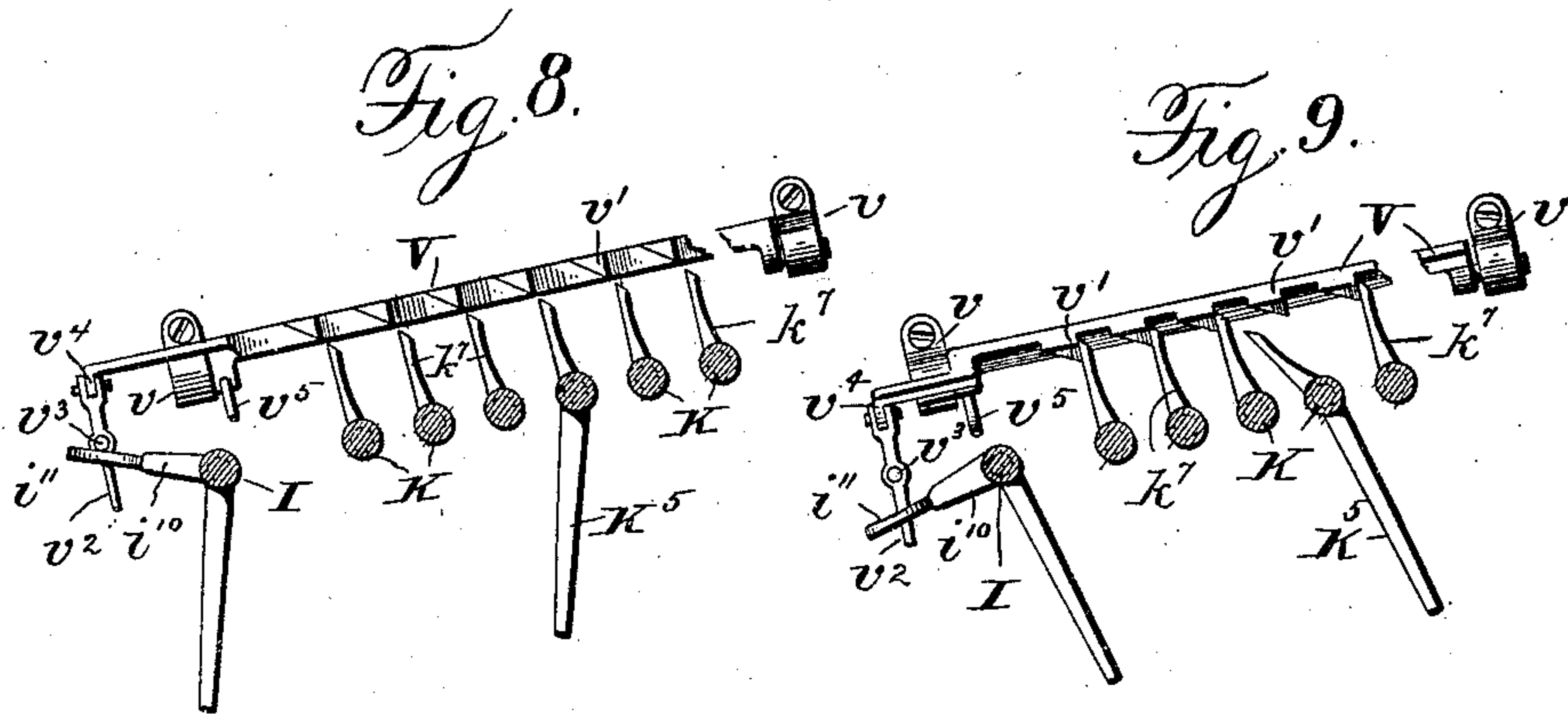
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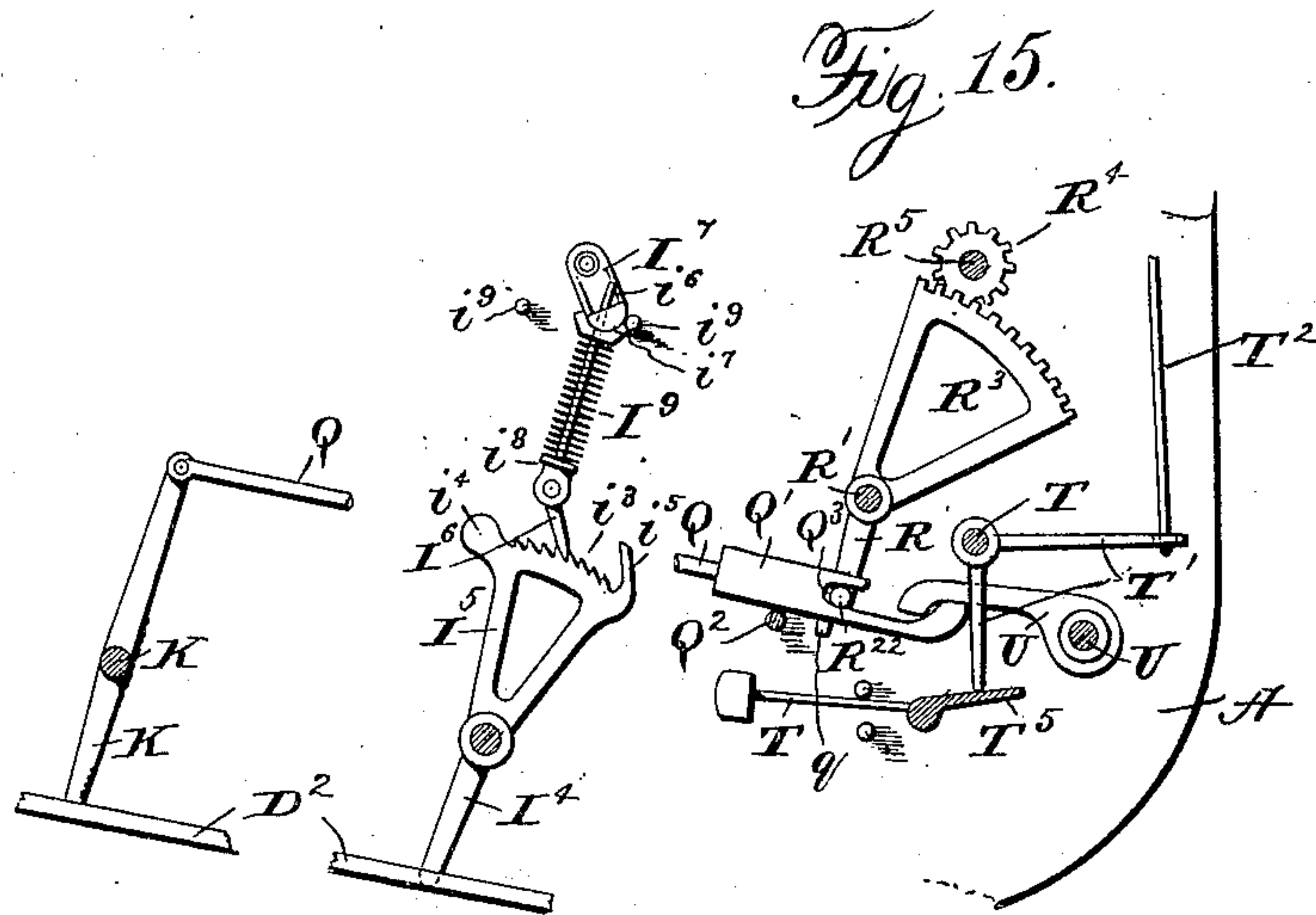
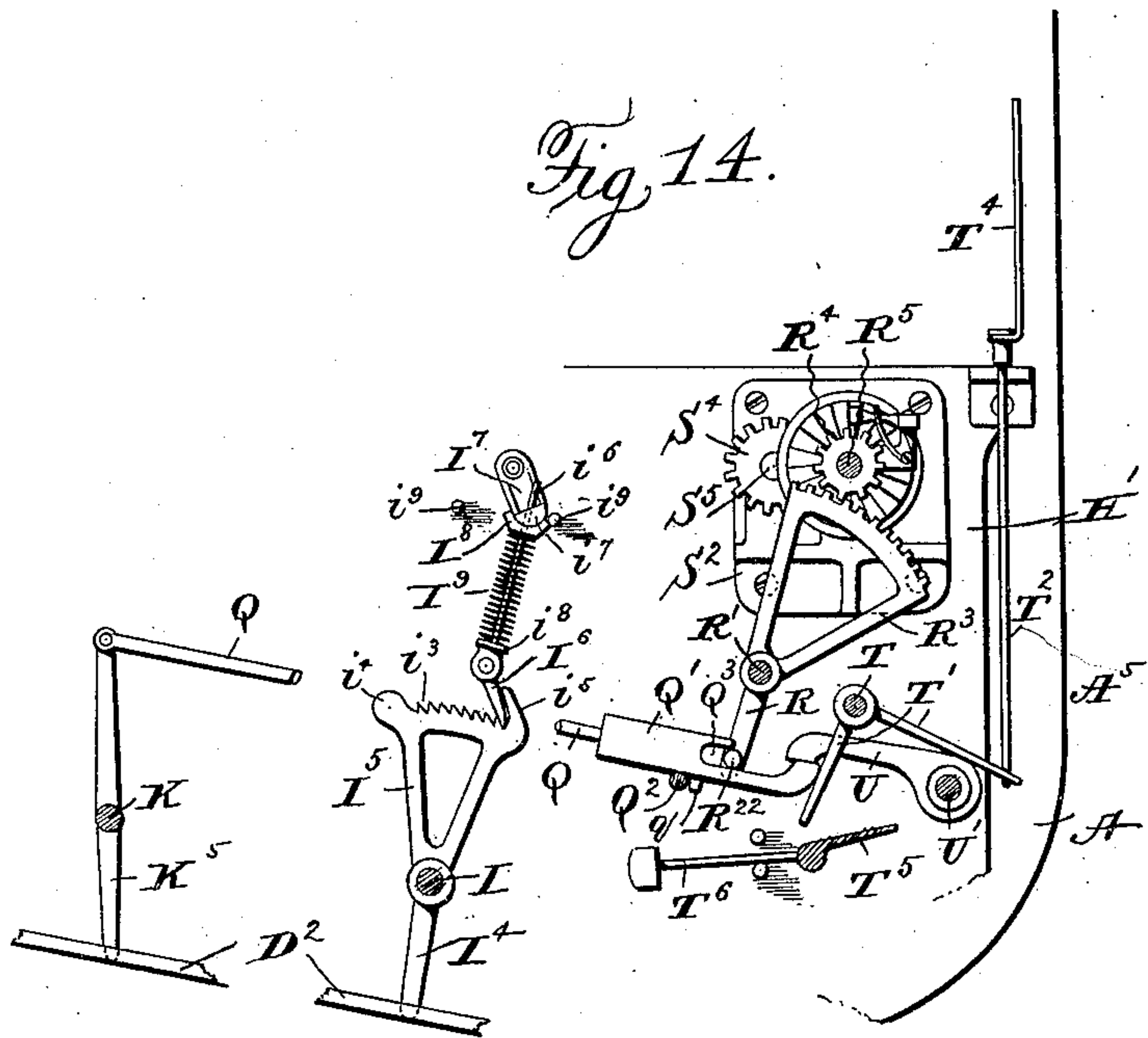
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Fig. 16.

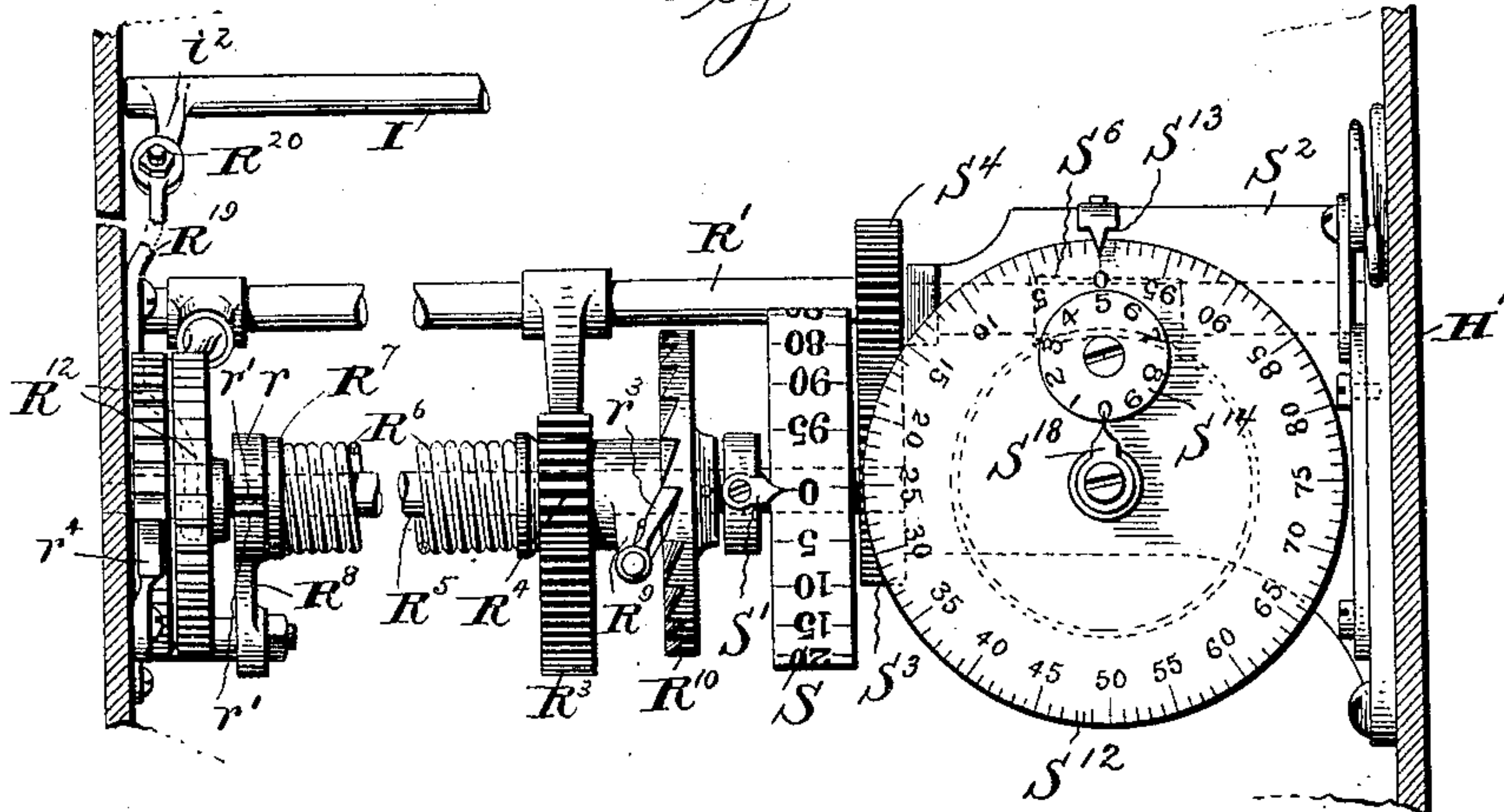
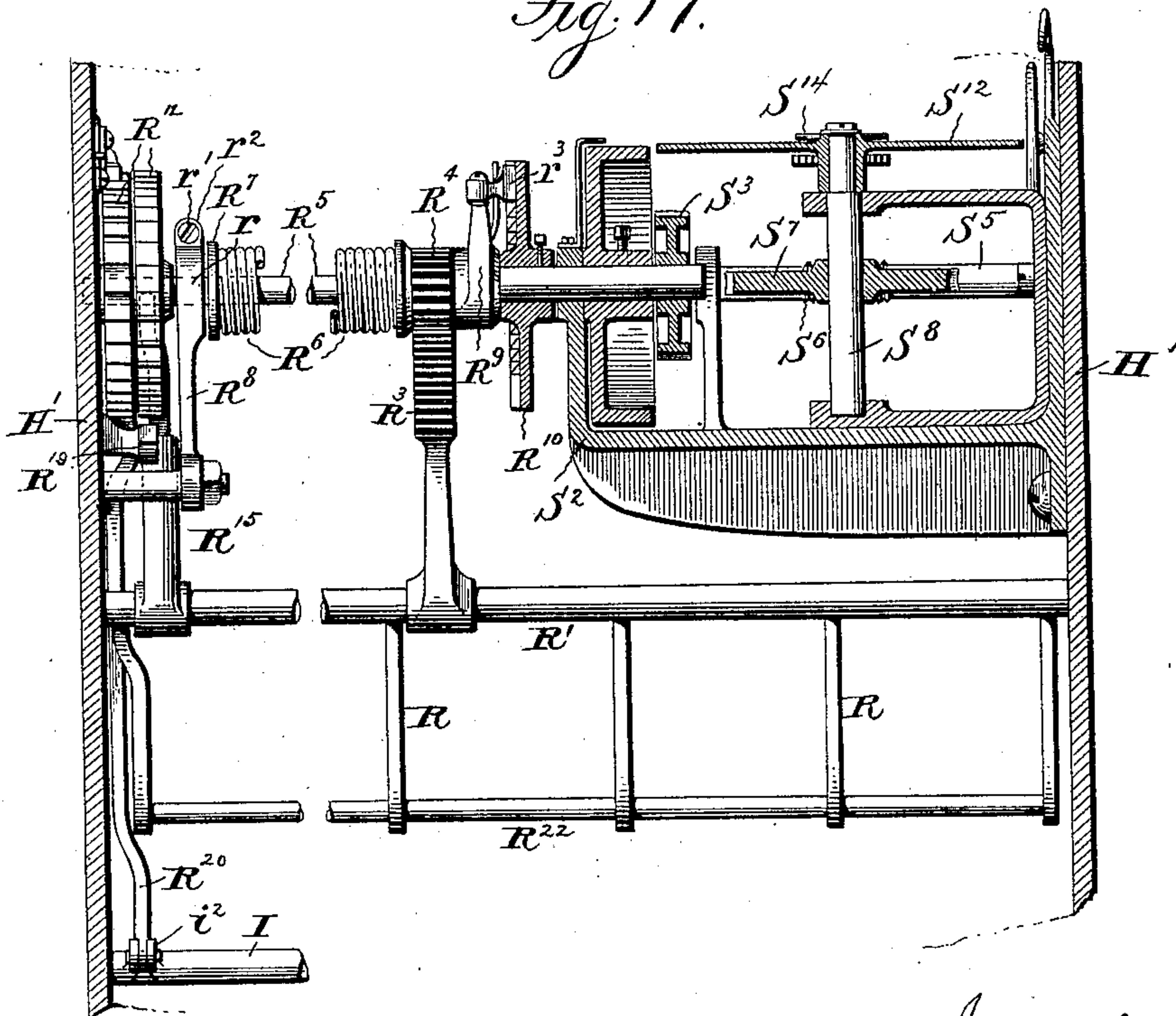


Fig. 17.



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Fig. 18.

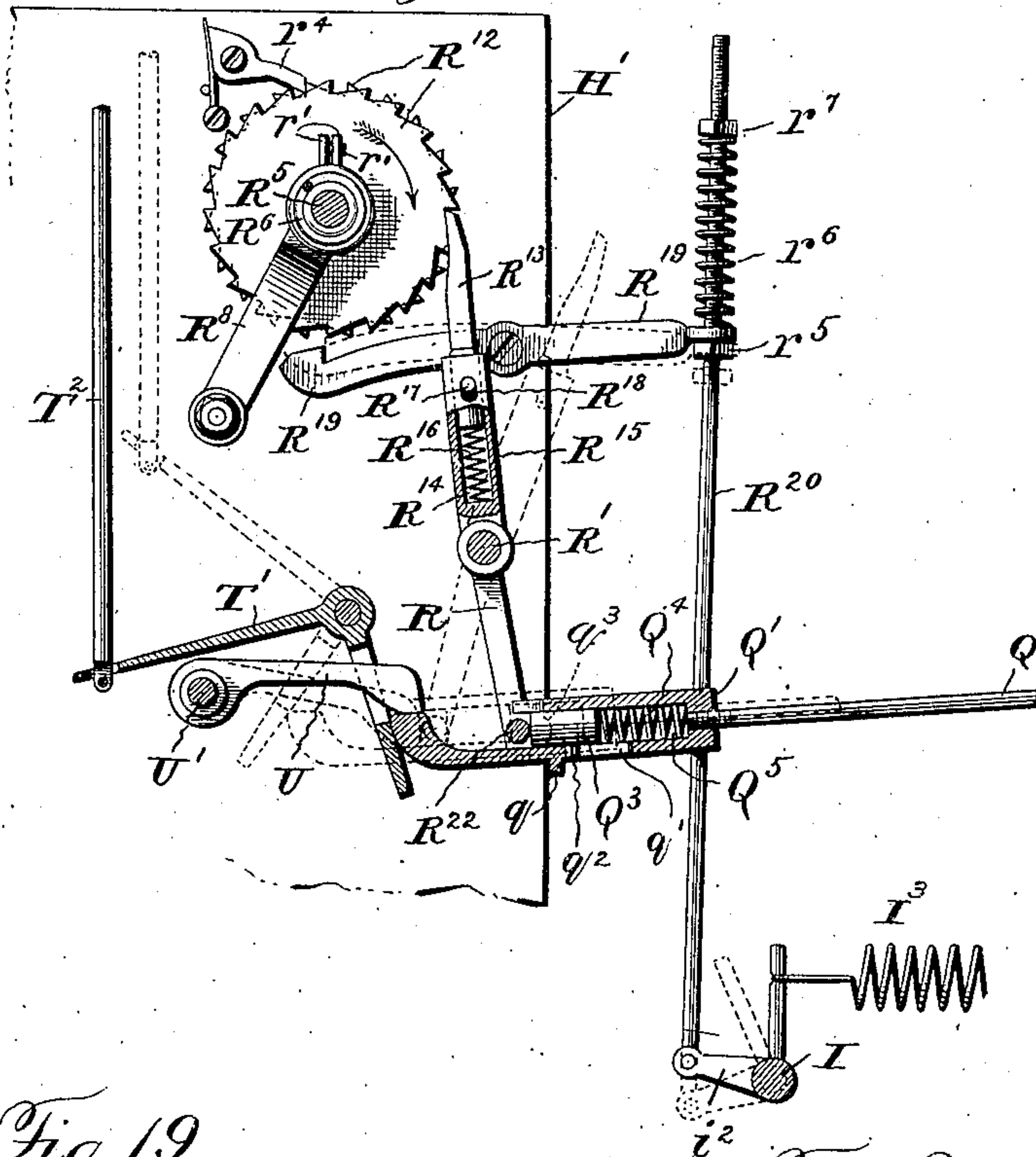


Fig. 19.

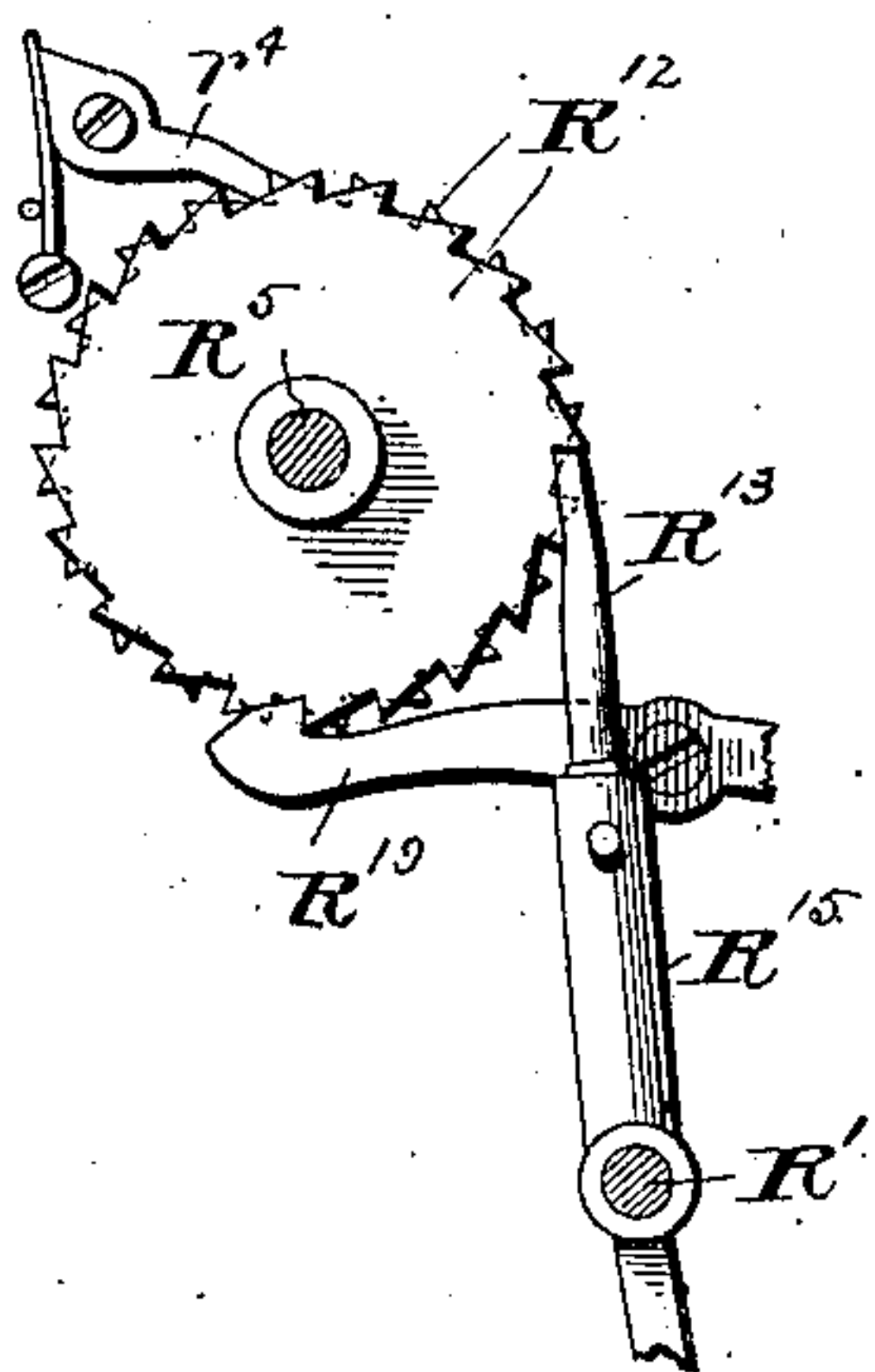
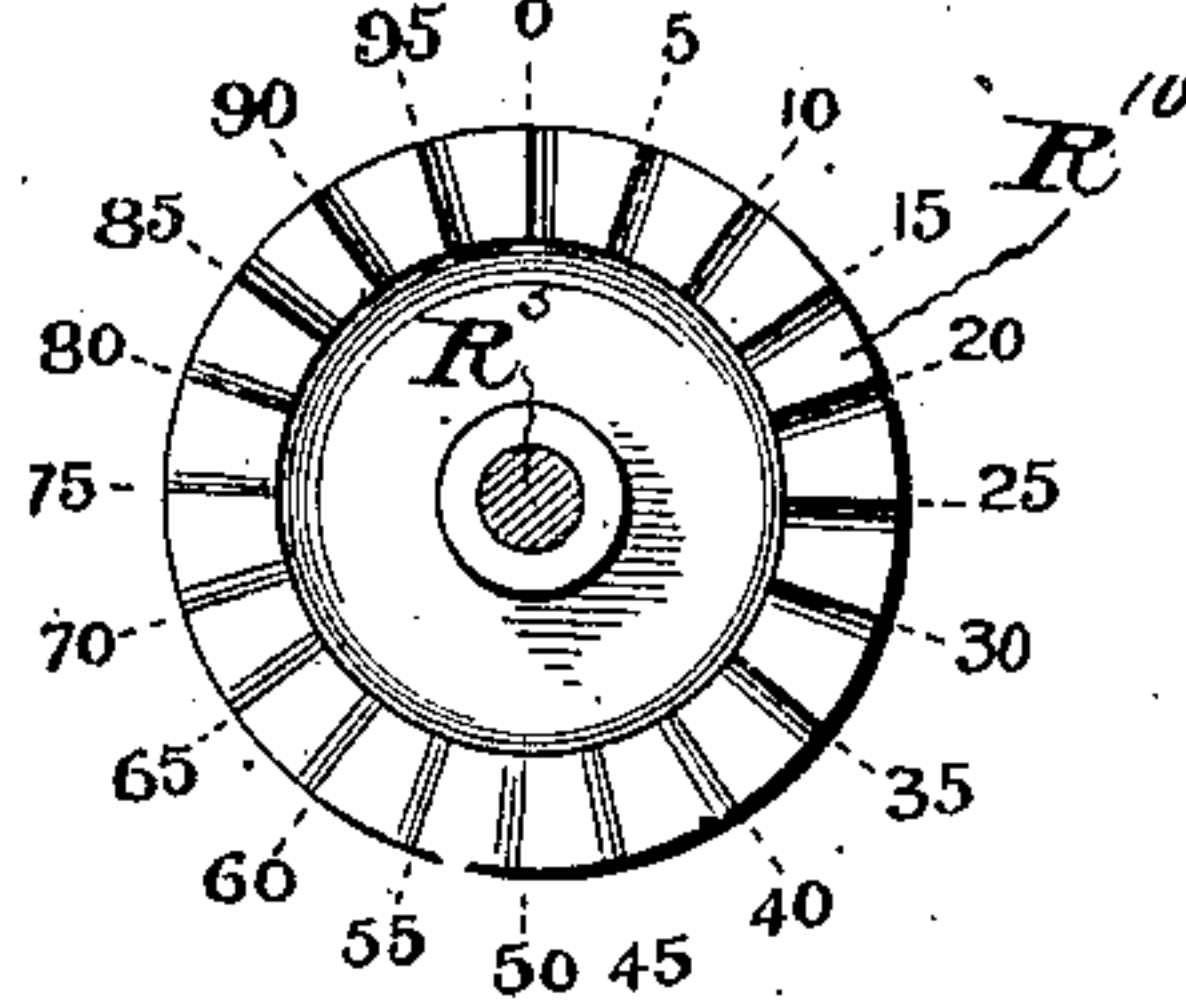


Fig. 20.



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UNITED STATES PATENT OFFICE.

MICHAEL McANENY, OF DENVER, COLORADO, ASSIGNOR TO BENJAMIN DAVIS, OF CHICAGO, ILLINOIS, ADMINISTRATOR OF GEORGE R. DAVIS, DECEASED.

COMBINED CHANGE-MAKER, CASH-REGISTER, AND INDICATOR.

SPECIFICATION forming part of Letters Patent No. 653,647, dated July 10, 1900:

Application filed January 20, 1900. Serial No. 2,216. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL McANENY, a citizen of the United States, residing at Denver, in the county of Arapahoe, State of Colorado, have invented certain new and useful Improvements in a Combined Change-Maker, Cash-Register, and Indicator; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of my machine; Fig. 2, a view of a vertical longitudinal section on line *x x* of Fig. 3; Fig. 3, a view of a horizontal longitudinal section on line *y y* of Fig. 2 with some of the parts broken away for the purpose of showing the other parts below them; Fig. 4, a detail view showing a transverse section of the change-issuing mechanism, the section being on line *z z* of Fig. 2; Fig. 5, a bottom plan view of the same; Fig. 6, a detail view, on an enlarged scale, partly in section and partly in side elevation, showing the cut-out mechanism and its locking device, the parts being shown in position as when such mechanism is not in operation; Fig. 7, a similar view showing the parts in condition as when the cut-out mechanism has been operated and locked; Fig. 8, a detail view, partly in section and partly in elevation, of the key-locking mechanism, the parts being shown in position to permit the movement of any one of the keys; Fig. 9, a similar view of said mechanism, showing the position of the parts when one of the keys has been operated and the rest locked; Fig. 10, a detail view showing said locking mechanism in end elevation; Fig. 11, a detail view, on an enlarged scale, of said mechanism in cross-section, the unlocked and locked positions of the locking bar or device being shown in full and dotted lines, respectively; Fig. 12, a detail top plan view of the dollar-ejecting mechanism, the auxiliary slide being shown in operative position and the parts in a position as when a coin has been ejected; Fig. 13, a like view of the extra five-cent-ejecting mechanism with the parts in similar position; Fig. 14, a detail view showing, partly in section and partly in elevation, the registering

and indicating mechanisms; Fig. 15, a similar view of said mechanisms with the parts in position as when a key has been moved through part of its throw to actuate the same; Fig. 16, a detail view, on an enlarged scale, showing in top plan view the registering mechanism; Fig. 17, a detail view, on an enlarged scale, of said mechanism, partly in side elevation and partly in section; Fig. 18, a detail view showing, on an enlarged scale, partly in end elevation and partly in section, the register and indicator operating devices; Fig. 19, a similar view showing in elevation the double stop-ratchets on the register shafts and pawls that coöperate therewith, both pawls being shown in engagement; and Fig. 20, a detail view, in side elevation, on an enlarged scale, of the register-shaft-driving ratchet-wheel.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention has been to provide a machine for use in stores, restaurants, and the like which shall be a combined change-maker, cash-register, and indicator capable of not only registering and indicating the amounts of different purchases made, but of at the same time issuing the proper change to be returned to the customer when the amount given by the latter at the time of any purchase is greater than that required to be paid for such purchase; and with this end in view my invention consists in the machine and in the parts thereof constructed, arranged, and combined as hereinafter specified.

The special purpose I have had in view in making my present invention has been to provide an improved construction of machine of the kind forming the subject-matter of my application for patent, Serial No. 730,914, filed September 18, 1899, and I therefore show here in a machine of such description in which my present invention is embodied. It is to be understood, however, that with regard to those parts of my invention which are applicable to other types of machine I do not restrict myself to their use in any particular kind of machine.

In the drawings, A A designate the two up-

right side plates of the casing of my machine, and A' designates the upright front plate, extending across between side plates A A and having in it the opening A² for the mouth of the change-delivering hopper, the opening A³ below A² for the admission of the fingers of the hand placed to receive change from the hopper-mouth, and certain other openings for the passage of keys, to be hereinafter described. The casing has also extending across within it the base-plate A⁴ for the support and guidance of the operative parts of the machine, to be described, such base-plate being forwardly and upwardly inclined toward the front of the casing and the back plate A⁵, which, extending across between such plates A A, covers the rear side of the machine.

The top of the casing consists of the top plate A⁷, inclined upward at a slight angle from a point near the front of the casing toward the rear of the latter, a door A⁸, a short upright part A⁹, extending upward from a point just to the rear of the door A⁸ and provided on both sides with sight-openings A¹⁰ and A¹⁰, through which any raised indicator-tablet can be seen, such openings being fitted each with a sheet of glass in the way usual in cash registers and indicators, and a flat part A¹¹, covering over the space between the two glazed openings A¹⁰ and A¹⁰.

The door A⁸, which is for permitting access to examination of and resetting of the register mechanism to be hereinafter described, is shown as provided with a key-operated lock A¹² for locking the door shut; but it is to be understood that any other suitable locking means for securing the door to prevent unauthorized manipulation of the registering devices can be employed instead, as desired, without involving any departure from my present invention, which has nothing to do with the form of such locking device or the means for preventing or permitting access to the interior of the casing.

The casing of the machine made up as described is shown supported upon a base B, containing a moving drawer B' of the usual construction, having receptacles b b for coins and compartments b' b' b' for bills or bank-notes. This drawer is not necessary to and has nothing to do with the operative mechanism or the operation of my machine and can be dispensed with or changed, as desired.

Extending across the front of the machine above the upper edge of the front plate A' is the change-tray C, having the seven upwardly-extending half-tubes or semicylindrical receptacles c and c to receive and hold the different stacks of coins from which change is to be issued by the machine. As shown, this tray, having its front edge resting upon the top of casing-plate A and the rear edge of its upper end resting upon the front part of the top plate A⁷, is tilted slightly rearward, so that its coin-receiving receptacles c c are inclined rearwardly a sufficient amount to insure the respective stacks of coins resting

securely in them without danger of falling or being tilted forward during use of the machine. This tray on its bottom, near its rear side, has dowel-pins c' and c', that engage openings in the casing, and it is thereby locked against direct outward movement, and it can only be removed from the machine after its rear portion has first been tilted up to disengage the pins and openings. As shown, such tray has seven of the coin-holding receptacles or half-tubes c c, one of them—the one to the left of the series—being large enough to receive dollar-coins, the next one being adapted to receive half-dollars, and the next quarter-dollars. The two succeeding tubes or receptacles to the right of the quarter-dollar one are adapted to receive nickels or five-cent pieces, while the remaining two on the right of the series are adapted to receive and hold ten-cent pieces. At the lower ends of the half-tubes or coin-stack receptacles there are round openings c² c² through the base-plate of the tray, each opening being of such size as to just admit the downward passage of a coin from the respective stack in the half tube or receptacle above. Below each of the openings c² there is a coin-support to keep the lower coin in the stack above from dropping straight downward, such support standing at a distance below the lower end of the respective opening c² equal to or slightly greater than the thickness of one of the coins in the respective stacks, so that while such support acts to sustain the stack of coins it will admit of the lowest coin in such stack being pushed forward off of the support by a device to be described. These coin-supports are formed of a series of plates C' C', attached by screws c³ c³ to the base-plate of the tray C, so as to leave narrow spaces c⁴ c⁴ between them, each of such spaces being in line with a point below the center of one of the coin-openings c², as shown best in Figs. 4 and 5. The front or outer edges of these plates are curved, so that their portions which project under the respective coin-openings present only crescent-shaped bearings for the coins to rest upon, so that only a short sliding movement is necessary to carry the respective coins off of their supports and cause them to fall down within the casing into the hopper B², which, extending across below the change-tray within the front of the casing, has its opposite sides inclined inward toward each other and the downwardly and forwardly inclined coin-delivering mouth or chute b² extending outward through the opening A² in the front plate A' of the casing. As shown, (see Figs. 4 and 5,) the plates C' C' are secured to a portion of the base-plate of the change-tray, which extends down below the planes of the bottom of the coin-openings c² c², such portion of the base-plate being provided with grooves c⁵ c⁵, each corresponding in size with and being situated directly over one of the spaces c⁴ c⁴ between plates C' C'.

The front side of the change-tray C is preferably, though not necessarily, closed with a sheet of glass C², through which the stacks of coins can be observed to see if they need replenishing at any time.

For feeding out the bottom coins from the several stacks in the change-tray I provide means which in their coin-engaging devices are like those set forth in my United States Patents Nos. 620,954 and 621,124 in that they consist of coin-engaging dogs pivoted upon reciprocating actuating-slides, so that their forward or outer ends can swing upward into coin-engaging position and having springs to hold such ends normally raised and means for limiting their upward swing, so that they can only stand high enough to engage and push out the bottom coins of the respective stacks. The device for feeding out a nickel or five-cent coin from that one of the five-cent-coin tubes which is next to the twenty-five-cent tube is made just like the feeding device shown in my said patents in that it consists of a coin-dog D, whose front end is adapted to engage the rear side of the lowest coin in the stack, while its rear end is pivotally connected with the depressed part D' of the actuating-slide D² by a screw *d*, having its head situated in a recess *d'* in the dog and its shank extending down through an opening in the bottom of the recess, which is made slightly larger than such shank in order to allow swing of the dog up and down and tapped into the depressed part of the slide. The upward swing of the dog is limited by the screw *d*² on the dog passing through an opening in the slide and having its head adapted to engage the under side of such slide when the dog has been swung upward to the limit of its movement. A spring *d*³, surrounding screw *d*² and extending from the slide D² up into a recess *d*⁴ in the dog, serves to hold the dog normally raised as far as the stop-screw *d*² will let it go.

The coin engaging and feeding devices for the other coin tubes or receptacles differ from the one just described only in that the means for limiting the upward swing of each of the dogs is not merely a screw with its head below the respective actuating-slide, but is one with a stop-shoulder *d*⁵ to engage the slide, and which below that shoulder has a head *d*⁶, provided with a vertical slot *d*⁷ for a purpose to be described. The dog-carrying slides having, as in the case of the similar slides shown and described in my said other patents, the shoulders *d*⁸ *d*⁸ at the rear ends of their depressed parts to form abutments for the rear ends of the coin-feeding dogs when the latter are in operation and are being caused to feed out coins by the movement of their respective slides are guided in ways *a a* in the base-plate A⁴, the rear ends of the slides being held down in such ways, while left free to reciprocate therein, by the cross-plate *a'*, secured to the base-plate so as to extend across the same and overlap a portion of the

slides seated in ways *a a*, as shown in Figs. 2, 3, 6, and 7. The coin-feeding dogs being adapted to pass through the grooves *c*⁴ *c*⁴ and the spaces *c*⁵ *c*⁵ between plates C' C' are of such thickness only that they can be swung down against the stress of their raising-springs, so that their upper sides will stand below the upper faces of plates C' C', forming the coin-stack supports. With this construction all of the dogs when they have slid forward to feed out the respective coins and are returning cannot be hindered materially in their return by the engagement of the bottom coins of the stack, for under pressure of such coins the dogs yield, so that all the weight of the coin-stacks is supported by the plates C' C', and the dogs can ride easily back under such stacks with only such friction against the coins as is due to the light upward stress of their springs.

By a downward pull on the slotted extension *d*⁶, connected with the other dogs except the one for feeding coins from what I call the "extra" five-cent coin tube or receptacle—that is, the one nearest the twenty-five-cent tube or receptacle—such other dogs can be swung down before they are carried forward by their respective slides, so that their noses or coin-engaging ends will be below the lowest coins in the respective coin-engaging slides, and consequently will not feed out any coins as the slides are moved forward. The purpose of this arrangement and construction will be described.

The extra five-cent slide for causing coins to be fed from the extra five-cent tube or receptacle has near its forward dog-carrying end a shoulder *d*⁹, adapted to be engaged by the lug *d*¹⁰ on the supplemental slide D³, reciprocating beside the extra five-cent slide in a suitable way in base-plate A⁴. The rear end of supplemental slide D³ is, like the corresponding end of slides D² D², guided under cross-plate *a'*. To provide for holding its front end normally raised to lift its lug *d*¹⁰ above the plane of the shoulder *d*⁹ on the extra five-cent slide, so that the supplemental slide can reciprocate without actuating the latter and at will letting the lug end of the supplemental slide down behind shoulder *d*⁹, so that forward sliding of the supplemental slide will cause a coin-feeding movement of the extra five-cent slide, I pivot in bearings *e e* on the under side of the base-plate A⁴ a rock-shaft E, having an arm E', extending up through an opening in the base-plate under the forward portion of the supplemental slide. A coiled spring *e'*, attached at one end to this rock-shaft and having its other end fixed, serves to keep the shaft normally turned to raise its arm E' up under the supplemental slide, so as to support the forward lug-carrying end of the latter above the plane of the top of shoulder *d*⁹. On its other end the rock-shaft has a crank-arm E², by which it may be rotated against the stress of its spring *e'* to depress the arm E' and allow

the supplemental slide to drop into position to carry its lug d^{10} down behind shoulder d^9 , to cause the supplemental slide and extra five-cent slide to travel forward together as the supplemental slide is reciprocated toward the front of the machine. The means for moving the crank-arm E^2 to so rotate the rock-shaft E will be described hereinafter. Guided beside the dollar-feeding slide is another reciprocating slide D^4 for actuating the former very much as the extra five-cent slide is actuated by its supplemental slide above described. This second supplemental slide, being guided in a suitable way in the base-plate and having its rearward end guided under and held down by the cross-plate a' , has its front end free to be raised and lowered, provided with a side lug d^{11} , adapted to engage a shoulder d^{12} on the dollar-slide when the slide end carrying it is down in the same plane with the dollar-slide, but to travel back and forth above such shoulder when the supplemental-slide end carrying the lug is raised. In Fig. 3 both supplemental slides are shown in the positions which they take when they have been slid forward with their forward ends raised to carry their lugs above the shoulders on the adjoining coin-feeding slides.

To keep the dollar-slide-actuating supplemental slide D^4 with its lug-carrying forward end normally raised to clear its lug from shoulder d^{12} , I provide the lever F , pivoted in ears f on the under side of the base-plate A^4 and having the upwardly-extending arm F' , projecting up through a hole in the base-plate, so as to engage and support with its upper end the forward end of the supplemental slide. This lever is normally held swung to raise its arm F' , so as to elevate the forward end of the supplemental slide D^4 enough to keep its lug d^{11} above shoulder d^{12} , by the action of spring f' , similar to the spring e' . The outer and lower end of this part of the lever is also provided with the weight piece or head F^2 , which can be readily engaged and raised by the fingers inserted through the opening A^3 in the front plate A' of the casing as the hand is placed to receive coins in change from the mouth of hopper C . It will be understood that this raising of piece or head F^2 causes arm F' to be lowered, so that the lug-carrying end of supplemental slide D^4 will descend to cause its lug d^{11} to engage the shoulder d^{12} on the dollar-slide and make the latter slide travel forward with the supplemental slide and cause a dollar-coin to be fed from the dollar-stack as the latter slide is reciprocated toward the front of the machine.

Journalled in suitable bearings in the upright side frame-plates H H , secured to the opposite sides of the casing, is a rock-shaft I , extending across above the series of coin-delivering and supplemental slides. Such shaft is connected with each of the supplemental slides D^3 D^4 by an arm I' , extending downward from the shaft and having its lower end engaging an opening in the slide, so that as

the rock-shaft I is rocked forward and back on its axis each supplemental slide will be reciprocated toward and from the front of the machine. The shaft I has also an upwardly-extending arm I^2 , connected with spring I^3 , the other end of which is secured to a support on the casing, forward of arm I^2 , so that the stress of the spring will always draw forward on arm I^2 to rock the shaft I and keep the arms I' forced rearward to hold the supplemental slides normally retracted. This rock-shaft I is also connected with all of the other slides D^2 D^3 , so as to be rocked to move the supplemental slides forward each time that one of the other slides is reciprocated toward the front of the machine and to retract such reciprocated slide when it has been released and left free to be moved rearward again. The connection of shaft I with each of the slides D^2 D^3 consists of a downwardly-extending arm I^4 on the shaft for each slide and a slot i' in each slide, of such length that the rear end only engages the lower end of the respective rock-shaft arm I^4 . With this construction as any slide D^2 is moved forward to feed a coin from the change-tray the engagement of the rear end of the slot of such slide with the rear side of the respective arm I^4 on the rock-shaft I will rock said shaft against the stress of its spring I^3 to carry all of its arms I^4 forward, moving the supplemental slides D^3 D^4 , but leaving the other slides D^2 moved, at rest in their normal retracted positions, the arms I^4 for such slides passing idly forward in the slots i' of the latter. When the moved slide D^2 has been released by the power moving it, the spring I^3 by rapidly rocking the shaft I back again causes the said slide to be quickly retracted because of the engagement of the arm on the rock-shaft with the end of slot i' on the slide. Also journalled in suitable bearings in the side frame-plates H H are the transverse parallel rock-shafts K K , nineteen in number, the series of such shafts beginning just forward of rock-shaft I and running forward to a point just to the rear of the coin or change tray C . Each of these shafts K has an upwardly and rearwardly extending lever-arm K' , whose upper rear end is connected with a key K^2 , formed of a rod extending up through a suitable hole in the top plate A^7 of the casing and bearing on its upper end at some distance above such plate a finger-piece K^3 , having a flat table to be engaged by the finger to press the key down, and a portion k , inclined forward and downward from the table to receive the number or marking for the respective key. As shown, each key-rod is connected with its lever-arm K' by a reduced portion of the rod passing through an opening in the lever-arm and having below the latter a pin k' , which, together with the shoulder on the rod at the upper end of the reduced portion, causes the key and lever-arm to move up and down together.

Nineteen of the finger-pieces K^3 are marked on their inclined front portions k with figures to correspond with different multiples of five cents, from five to ninety-five, inclusive, and the remaining finger-piece is marked to indicate one dollar. Though there are but nineteen shafts there are twenty keys, and the extra key, which is the dollar-key, is connected with a hollow shaft or sleeve K^4 , mounted on the shaft K next the coin-tray, so that either can turn independently of the other.

In order that upon the pressing of any key marked to correspond with the amount of any single purchase less than one dollar the proper change may be issued by the machine for return to the customer when the amount given by the customer is greater than that required for the purchase and that the pressure of the dollar-key may cause a dollar to be fed out from the dollar coin-stack into the hopper, I connect the rock-shafts K K directly with the coin-feed-actuating slides D^2 D^2 , hereinbefore described, except the extra five-cent slide, as follows: The form of connection between a shaft and slide is in each case the same, consisting of a rigid downwardly-extending arm K^5 , adapted at its lower end to engage the front wall of a slot d^{13} in the respective slide when the latter is in its normal retracted position. With this construction the forward swing of the arm, such as would be caused by pressing down on the key-piece K^3 , which is connected with the rock-shaft K , carrying the arm, will cause the slide to be moved forward to compel the feeding of a coin from the respective half tube or receptacle of the change-tray; but because of the length of the slot d^{13} the arm will not interfere with or prevent such forward movement of the said slide when the latter is actuated by other means than that particular arm just described. Each rock-shaft K K is indirectly connected with the two supplemental slides D^3 D^4 through the retracting rock-shaft I , having the arms I' I' , engaging the openings i i in such slides, as hereinbefore described, and the arms I^4 I^4 , engaging the rear sides of the slots i' i' on the slides D^2 D^2 , and the arms K^5 K^5 on the rock-shafts K K , engaging the front walls of the slots d^{13} d^{13} on the latter slides, the construction being such that as any key is depressed to rock its rock-shaft K to move forward any slide D^2 the two supplemental dollar and extra five-cent slide actuating slides D^3 D^4 will always be moved forward, too, being subsequently retracted with any moved slide by the return movement of the slide-retractor rock-shaft I under stress of spring I^3 .

Without giving a detailed description of the connections between the respective keys and slides, it is enough to say that the connections are such that upon the pressure of any key marked with the amount of a purchase the machine can be made to issue, as change to be returned to a customer, coins to the amount of the difference between the pur-

chase and one dollar, the machine being arranged to normally issue different amounts of change required where the purchases are under a dollar in value and a dollar is paid in.

In order that the machine may be adapted quickly and readily to give the proper change where the amount paid in by the customer exceeds the amount of his purchase, but is two dollars, fifty cents, or twenty-five cents, instead of one dollar, I have provided certain devices for regulating at will the amount of change issued to suit the amount of the payment made. Where two dollars are paid in and the purchase is any amount less than a dollar, the issue of the proper change is secured by pressing upon the head F^2 of lever F , hereinbefore described, so as to lower the arm F' and let the supplemental slide D^4 drop to bring its lug d^{11} into engagement with the shoulder d^{12} on the dollar-slide D^2 . The actuation of the key K^2 marked with the amount of the purchase will then cause the dollar-slide to be actuated to issue a dollar-coin in addition to such coins as are issued, in the manner hereinbefore described, by the actuation of the other coin-slides caused by the engagement of the arms on the rock-shaft, which is connected with the key, with the shoulders on said slides, and change will be delivered by the hopper for the payment on a two-dollar basis.

In order to provide for the making and issuing of the proper change for various payments on a fifty-cent or a twenty-five-cent basis and for the registration of any payments without the issuing of any coin in change whenever such payments are exactly equal to the amounts of the respective purchases, I provide the following-described mechanism connected with the pivoted feeding-dogs on the slides D^2 D^2 , except the extra five-cent slide hereinbefore described: A rock-shaft L , extending across within the forward part of the casing and journaled in suitable bearings l l on the under side of base-plate A^4 , just to the rear of the series of slotted heads d^6 d^6 on the stop-screws d^2 d^2 , connected with the pivoted spring-raised coin-feeding pawls or dogs D D , carried by all of the slides D^2 D^2 except the extra five-cent slide, has attached to it the series of forwardly-extending arms l' l' l' , extending through the slots d^7 d^7 d^7 in the heads d^6 d^6 d^6 on the screws connected with the two ten-cent and the regular five-cent feeding-dogs. It has also a similar rigid arm l' projecting through the slot d^7 in the head d^6 connected with the dollar-feeding dog. The shaft L also has a rigid downwardly-extending arm l^2 , by which it can be rocked, as desired, to lower and raise arms l' l' l' l' to cause the latter to draw down the two ten-cent, five-cent, and dollar dogs and let the latter rise again to their normal raised positions, in which they are supported by their respective springs d^3 d^3 . The construction is such that as the shaft is rocked to depress its arms l' l' l' l'

the latter will, by their engagement with the lower ends of the slots $d^7 d^7$ in the respective heads $d^6 d^6$, draw the coin-issuing dogs D D, connected with such heads, down to carry 5 and hold their coin-engaging noses or ends below the plane of the bottom coins in the respective stacks of coins in the change-tray, so that as the slides $D^2 D^2$, carrying said dogs, are reciprocated no coins will be fed out by 10 their dogs. The shaft L, with its arms $l' l' l'$ engaging the slotted heads connected with the two ten-cent, the five-cent, and the dollar feeding-dogs, forms a simple and efficient "cut-out" to cut the said dogs out of opera- 15 tion at any time as desired. A spring L' , pressing at one end against an arm l^3 on the shaft, serves to hold the shaft normally with its arms $l' l' l'$ raised to allow the coin-feeding dogs of the two ten-cent, five-cent, and 20 dollar slides to stand up in their coin engaging and feed position.

To provide for rocking shaft L against the stress of spring L' , I use the cut-out key L^2 , consisting of a rod extending in through the 25 front plate of the casing and bearing on its front or outer end a finger-piece l^4 , while within the casing its rod or shank is pivotally connected to the lower end of arm l^2 by a pivot-pin l^5 , so that while the key-rod 30 and arm move together as the rod is reciprocated longitudinally the rod can be swung up and down on the arm as a fulcrum without moving such arm. To the rear of arm l^2 the rod of this cut-out key is bent upward and 35 then rearward, so that its rear raised portion is in position to engage the under side of the crank-arm E^2 on the rock-shaft E, hereinbefore described, which has the arm E' for normally raising the supplemental slide D^3 for 40 actuating the extra five-cent slide out of position to actuate the latter. The spring e' for holding the rock-shaft E in its normal position, with its arm E' raised and its crank-arm E^2 depressed, is strong enough to keep 45 the rear or inner end of the rod or shank of the cut-out key L^2 normally depressed to raise the outer or front end of the key, as shown in Fig. 6. The finger-piece l^4 has the horizontal outwardly-extending lower portion to 50 be engaged by the finger to depress said piece and raise the rear end of the key, as shown in Fig. 7, so as to raise the crank-arm E^2 and depress the arm E' to let the supplemental slide D^3 drop into position to actuate the extra five-cent slide. A rearward swing of the 55 arm l^2 of rock-shaft L, caused by pushing inward the cut-out key L^2 , will, through the connections between such shaft and the dollar, five-cent, and two ten-cent dogs, already 60 described, and the connections between the shaft and the fifty-cent and twenty-five-cent dogs, to be described, depress all of such dogs, so that no change will be fed out by the change mechanism no matter what one of the change- 65 maker actuating-keys K^2 may be operated. A sleeve M, journaled so as to rotate easily on the shaft L, has an arm m extending down-

ward and then horizontally outward toward the side of the machine, its outer end passing 70 just to the rear of and in contact with the arm l^2 and a horizontal forwardly-extending arm m' , which passes through the slot d^7 in the head d^6 on the screw d^2 , connected with the twenty-five-cent feeding-dog D, just as and 75 for the same purpose as the arms $l' l'$ on the rock-shaft engage the slots in the heads of screws connected with the ten-cent, five-cent, and dollar feeding-dogs, as hereinbefore described. A cut-out key M^2 for rocking the 80 sleeve is pivotally connected at its inner end with a short arm on the horizontal part of arm m and at its outer front end, beyond the casing front plate, carries a suitable push-plate or finger-piece m^2 . Another sleeve N is rota- 85 tively journaled on shaft L, between sleeve M and the arm l^2 on such shaft, and has the downwardly-extending arm n passing down behind and in contact with the rear side of the horizontal part of arm m on sleeve M and the forwardly-extending arm n' passing 90 through the slot d^7 in the head d^6 of the screw d^2 , which is connected with the fifty-cent coin feeding-dog. A push-key N' for sleeve N has its inner end pivotally connected with the arm n and, extending forward from the 95 latter through the front casing-plate, has on its front end a suitable push-head or finger-piece, as shown. The sleeves M and N are turned reversely to the direction of their motion by their push-keys and so as normally to 100 be held in position to leave the fifty and twenty-five cent coin feeding-dogs in operative position by means similar to such as is employed in the case of the shaft L of said sleeves, having, respectively, arms m^3 and n^2 , 105 against which bear springs M^3 and N^2 , respectively.

The operation of key L^2 when rocked upon its pivotal connection with the arm l^2 of rock-shaft L has already been described fully. 110 When so rocked to carry its rear end upward, it through the described connections causes the supplemental slide for actuating the extra five-cent slide to go into operation to cause a five-cent piece to be fed out of the extra 115 five-cent tube or receptacle. When pushed longitudinally inward, it acts directly as a cut-out key, causing all of the coin-feeding dogs which are on the slides $D^2 D^2$, except that on the extra five-cent slide, which is nor- 120 mally not moved with any of the other slides, to be swung and held down out of operative position, so that no coins can be fed out by them from the change-tray. This it does because by moving the arm l^2 rearward it rocks 125 the rock-shaft L to depress its coin-feeding-dog-depressing arms $l' l' l'$ to draw the dogs of the two ten-cent, the regular five-cent, and the dollar slides down. This movement of arm l^2 also moves the arm in rearward to rock 130 sleeve M and depress its arm m' to draw down the twenty-five-cent feeding-dog and through the engagement of said arm m with the arm n on sleeve N also rocks the latter to depress

its arm n' to lower the fifty-cent feeding-dog. The pressure of any key K^2 marked with the figure corresponding with the amount of any purchase will now cause the issue of no coins or change from the change-tray, but will only cause registration and indication of the amount of the purchase made by mechanisms to be described actuated by keys K^2 . The cut-out key L^2 is therefore pushed in, as described, only when the money paid in by a customer is equal to the amount of his purchase, and consequently no change is to be returned to him. When the amount paid in is only fifty cents and the purchase is less, the cut-out key N' is pushed in, so as to rock the sleeve N and cause the fifty-cent feeding-dog to be drawn down out of operative position. The operation of any key K^2 representing the amount of a purchase less than fifty cents will then cause the proper one or ones of the series of slides $D^2 D^2$, which are to cause coins to be fed from the stack of coins below fifty cents, to be moved to feed out the required change. When the amount of purchase by a customer is less than twenty-five cents and he pays in twenty-five cents, the cut-out key M^2 is pushed in, and because of the engagement of the arm m with the arm n on sleeve N causes both sleeves M and N to be rocked to draw both the fifty-cent and the twenty-five-cent feeding-dogs down out of operative position. When one of the keys K^2 marked to correspond with the amount of a purchase less than twenty-five cents is then pressed, the proper one or combination of ten and the five cent slides $D^2 D^2$ will be actuated to push from the change-tray into the change-hopper the necessary coin or coins to make up the difference between the amount of the purchase and the twenty-five cents paid in by the customer.

To render it unnecessary for the operator to hold the cut-out keys after they have been pressed inward, I employ means for automatically locking them as soon as they have been moved inward and for automatically releasing them to permit their return to normal or inactive position when the occasion for their use ends. As shown in the drawings, the locking device is in the form of a swinging frame composed of two vertical end bars O and O' , that are pivoted to a shaft O' , supported in bearings on the under side of the base-plate A^4 , and two parallel upper and lower horizontal cross bars or plates O^2 and O^2 , extending between such end bars, the lower one having an upwardly and forwardly inclined flange or lip o , adapted to engage the under side of the extremities of the arms l^3 , m^3 , and n^3 when the shaft or sleeves carrying them are rocked, as hereinbefore described, to depress the arms l' , m' , and n' , said arms l^3 , m^3 , and n^3 being raised when the arms l' , m' , and n' are depressed. A coiled spring O^3 on the shaft O' with one end suitably fastened and the other bearing against the locking-frame normally holds the latter with its arm-

engaging flange or lip in the path of the free ends of the arms l^3 , m^3 , and n^3 , and the latter on rising by the rocking of the shaft engage the inclined side of the flange or lip, and so press the same rearward until said ends pass above the flange or lip, and the latter by the action of the spring O^3 is swung beneath such arm ends, and thus locks the cut-out keys in their operative position. For releasing the cut-out keys there is a pin or stud d^8 projecting from the under side of the supplemental dollar-slide D^4 in position to engage the upper cross-bar O^2 of the locking-frame when the slide is moved forward, and thereby to rock or trip the same, and thus free the arms l^3 , m^3 , and n^3 , permitting the springs L' , M^3 , and N^2 to act on their respective arms and move them. When besides being moved inward to operate all of the cut-outs the key L^2 is swung to permit five cents to be given in change, said key is locked in its swung position by having its inner end engaged by a spring-actuated latch or dog P , secured to the bottom of the base-plate A^4 . When the locking-frame is swung by the action of the stud or pin d on the slide D^4 and causes the release of the arms l^3 , m^3 , and n^3 , the key L^2 is also released from the latch P , the inner end of the key being moved forward off the latch by the forward swinging of the rock-shaft arm l^2 to which the key is connected. To counterbalance the weight of the arms K' on the rock-shafts K and the keys K^2 , connected with such arms, I provide each shaft K with a thin straight spring-wire k^2 , which, extending upward from the shaft, projects into one of the cuts $k^3 k^3$ in the horizontal flange k^4 on the plate K^4 , adjustably secured to one of the side plates of the casing by screws $k^5 k^5$, passing through slots $k^6 k^6$ in the plate. The cuts $k^3 k^3$ are L-shaped in form, each being carried inward and then rearward and its spring being placed in the rearwardly extending part thereof. The springs can be very readily placed in and removed from engagement with the cuts when necessary and yet are securely held against accidental disengagement. The support to which the front end of spring I^3 for actuating the retracting rock-shaft I is secured is the plate K^4 or a pin thereon. This arrangement enables me to adjust the stress of the said spring upon the arm I^2 of the shaft I by moving the said plate forward or back on its adjustable connections with the casing side plate.

To provide for the registration and indication of amounts of the different purchases, while the machine automatically issues the proper amounts of change when the payments exceed the purchases in value, so that the registration and indication of the amount of any purchase and the issue of change equal to the difference between the value of such purchase and the amount of the payment therefor made by the customer will all be caused to take place by the movement of a single one of the keys K^2 , the one marked to

correspond with the amount of the purchase, I connect each key K^2 with registering and indicating devices, as hereinafter described. Each rock-shaft K which is connected, as hereinbefore described, with one of the keys K^2 , so that depression of the key will cause the shaft to rock backward on its bearings, has an arm K^5 extending up from its upper side, and each of such arms is pivotally connected with the front end of a reciprocating rod Q , the arms K^5 K^5 being so arranged on the different rock-shafts as to be out of line with each other, so that the rods connected therewith can extend directly toward the rear of the machine, lying in a series parallel with each other, as shown best in Fig. 3. On the rear end of each rod I secure a head Q' for engaging and actuating the registering and indicating devices, such head being supported so as to slide easily thereon on the transverse cross-bar Q^2 , extending between the side plates $H' H'$ of a frame H^2 , that rests upon and is attached by screws to a bracket A^{12} , that rises from the base of the machine-case. These heads having straight parallel sides are placed close together, as shown, the series of twenty heads being divided up into five series of four each, these smaller series being separated from each other by vertical fingers $h h$ on a plate H^3 , fastened to the base of frame H^2 to provide narrow spaces (see Fig. 3) to accommodate four arms $R R$, fixed on the rock-shaft R' , journaled above heads $Q' Q'$ in suitable bearings in the side frame-plates $H' H'$ and carrying also the two outer arms $R R$, just beyond the opposite ends of the whole series of heads $Q' Q'$. On its under side each head has a shoulder q to strike the supporting-bar Q^2 and limit the forward movement of the head and attached rod Q . The rock-shaft R' , which is for actuating the registering mechanism to different extents as different heads $Q' Q'$ are forced rearward by the operation of the respective keys $K^2 K^2$, connected with them, has fixed to it a swinging segment R^3 , provided with rack-teeth meshing with and driving pinion R^4 , journaled so as to rotate freely on the shaft R^5 , which itself is journaled in suitable bearings on the side frame-plates $H' H'$. Encircling the shaft R^5 is a helically-coiled spring R^6 , one end of which is attached to the pinion R^4 , and its other end is secured to a collar R^7 , through which the shaft passes, and supported by an arm or bracket R^8 , fastened to the adjacent frame-plate H' . The revolution of the pinion by the rack R^3 winds or increases the tension of the spring R^6 , so that the latter will operate to turn the pinion in the reverse direction when it is free to move by reason of the segments being permitted to swing in the opposite direction from that in which it is moved by the operation of the keys $K^2 K^2$. To enable the tension of the spring R^6 to be adjusted, the connection between the collar R^7 and its supporting-arm R^8 consists of a clamp formed of a radially split or divided

ring-shaped part r on the arm R^8 , which encircles the collar R^7 , and a screw r' , which connects ears or lugs r^2 and r^2 , respectively, on opposite sides of the split or division on the ring-shaped part r . Whenever it is desired to change the tension of the spring R^6 , it is necessary merely to loosen the clamp, turn the collar in the desired direction according as the tension of the spring is to be increased or diminished, and then tighten the clamp to hold the collar from rotation. Secured to the hub of the pinion R^4 so as to partake of its motion is an arm R^9 , pivoted to the outer end of which is a spring-pressed pawl r^3 , that engages the teeth of a ratchet-wheel R^{10} , fixed on the shaft R' , to cause said wheel and shaft to turn with the pinion when the latter is revolved by the action of the spring R^6 . Attached to the shaft R^5 are the two oppositely-turned ratchet-wheels $R^{12} R^{12}$, having twenty teeth, those on one wheel having their abrupt sides facing in the direction opposite to that in which the shaft will be turned by the engagement of the pawl r^3 with the teeth of the ratchet-wheel R^{10} as the pinion R^4 is rotated back by the spring device described. A spring-pressed pawl r^4 , pivoted on one of the plates H' , engages this ratchet-wheel R^{12} , so as to prevent any rotation of the shaft R^5 in a direction opposite to the arrow in Fig. 18—that is, the direction opposite to that in which pawl r^3 would rotate the shaft by its engagement with ratchet-wheel R^{10} . Another pawl R^{13} , which I term my "brake" or "stop" pawl, engages the teeth of the other ratchet-wheel R^{12} , fixed on shaft R^5 , to stop the rotation of the shaft under the influence of the engagement of the pawl r^3 on the arm of the spring-rotated pinion R^4 when the pinion and the segment-rack have been rotated back to their starting-points or to the positions which they normally occupy when a key K^2 of the machine is not operated. This pawl R^{13} has its shank sliding in a longitudinal socket R^{14} in an arm R^{15} , secured to the rock-shaft R' , which carries the segment-rack, and is pressed outward with reference to such arm by the spring R^{16} , its outward movement under stress of the spring being limited by a pin R^{17} on its shank engaging a slot R^{18} in the arm R^{12} . The rocking of the shaft R' swings this pawl R^{13} out of engagement with its ratchet-wheel R^{12} as the shaft is turned to carry the segment forward to rotate the pinion R^4 on the shaft and into the path of a tooth on wheel R^{12} just as the rack completes its throw in the opposite direction, so that the ratchet-wheel R^{12} , and consequently the shaft R' , will be suddenly brought to rest without any danger of overthrow due to momentum of the parts under the influence of the spring-rotating pinion R^4 . As the pawl end is struck by one of the teeth on the ratchet-wheel R^{12} the pawl yields slightly against the stress of its spring R^{16} , so that there is no sudden or violent jar, and the action of the said spring then, when the

parts have been brought to rest, pushes the pawl outward to its normal position, rotating the ratchet-wheel R^{12} and shaft R' slightly backward. During the time of the disengagement of the brake-pawl from its ratchet-wheel R^{12} and until the pawl r^3 has been moved by the rack R^3 to the point necessary for proper registration on the operation of a given key K^2 it is essential to lock the register-shaft R^5 from rotation; otherwise on the partial depression of a key K^2 , and consequent partial swing of the rack R^3 in the direction to wind the spring R^6 , the latter would be free to revolve the pinion in the direction to cause rotation of the register-shaft, and thus result in registration of only a part of the amount represented by the key so partially depressed. For this purpose a pawl R^{19} is employed that is actuated from the rock-shaft I, so as to be thrown into engagement with the ratchet-wheel before the brake-pawl is released therefrom when said shaft is rocked by the depression of a key K^2 and thrown out of engagement with the wheel on the completion of the return rotation of the rock-shaft I. As means are employed, which are hereinafter described, to compel the full movement of the rock-shaft I by the depression of a key K^2 , it will be seen that it will therefore be impossible to operate the register by only a partial depression of a key K^2 . The connection between rock-shaft I and pawl R^{19} consists of a vertical rod R^{20} , that is pivotally attached at its lower end to a crank-arm r^2 on the shaft I and at its upper end passes through an opening in an arm of the pawl and having below the arm a nut r^5 and above it a spring r^6 , that yieldingly presses the pawl-arm against the nut r^5 , the spring being held upon the rod by a tension-nut r^7 . When a key is depressed and the shaft I rocked, the rod R^{20} will be drawn downward and promptly swing the pawl R^{19} into engagement with the wheel R^{12} . By reason of the spring r^6 the turning of the shaft can continue in spite of the stoppage of the pawl by its engagement with the ratchet-wheel R^{12} , the spring being compressed against the pawl-arm by the continued descent of the rod, and it is during such continued movement of shaft and rod that the stop-pawl R^{13} is disengaged from its ratchet-wheel R^{12} . The necessity for the described continued turning of shaft I and descent of rod R^{20} exists because of the connections between such shaft and the pawl-swinging shaft R' , which requires that the turning of the shaft I be continued until the limit of rotation of the rock-shaft R' is reached. The key K^2 being released, the shaft I is moved in the reverse direction by the action of the spring I^3 and lifts the rod R^{20} , causing by the reengagement of the nut r^5 with the pawl the disengagement of the latter from its ratchet-wheel R^{12} in time to free the shaft r^5 for revolution by the action of the spring R^6 on the pinion R^4 , the stop-pawl or brake R^{13} being returned to

ratchet-tooth-engaging position, as above described.

Secured to and rotating with shaft R^5 is the register-wheel S, having its periphery graduated into twenty equal parts by suitable graduation-lines numbered from "0" to "95," inclusive, the numbers increasing each time by five. An index-pointer S' , situated on a portion of the supplemental frame S^2 , secured to the adjoining side frame-plate H' , acts in conjunction with the graduations on wheel S, being so situated that as the pawl r^3 rotates the ratchet-wheel R^{10} , and consequently the shaft R^5 , through the distance of one tooth on such ratchet-wheel the wheel S will be turned to cause a graduation-mark thereon to move away from the index-pointer and a new mark to be brought up to the latter. The rotation of ratchet-wheel R^{10} through the distance of twenty teeth will then cause a full rotation of the register-wheel. The figures on the register-wheel from "5" to "95," inclusive, are intended to represent the different multiples of five cents in a dollar, so as to correspond with the markings on the keys K^2 , except the dollar-key. Attached to the shaft R^5 is also the gear-wheel S^3 , meshing with an equal-sized gear-wheel S^4 , secured on the worm-shaft S^5 , journaled in the supplemental frame S^2 and carrying the worm S^6 , meshing with and driving the worm-wheel S^7 , fixed on the vertical shaft S^8 . Secured on this shaft is a disk S^{12} to register dollars, its rim being divided into one hundred equal parts by suitable graduation-marks, and to cooperate with the marks on such disk is an index-pointer S^{13} . To register hundreds of dollars up to nine, I provide another disk S^{14} , that is geared to the disk S^{12} , so that on each complete turn of the latter a hundred so registered is transferred to such disk S^{14} . The rim of the disk S^{14} is divided into ten equal parts by graduations numbered from "0" to "9," inclusive, and an index-pointer S^{15} , fixed to disk S^{12} , is provided to act in conjunction with such numerals.

In order that whenever a key K^2 is operated to cause a registration, whether with or without the issuing of change by the machine, in the manner hereinbefore described, there will be displayed an indicator corresponding with the key moved, so that it can be seen whether or not the proper key has been moved by the operator, I provide the following indicator mechanism, having a separate indicator for each key carrying a tablet marked to correspond with the marking of the respective key—that is, with a figure or figures to agree with the amount of a purchase to be registered by said key.

Journaled loosely upon the transverse shaft T, supported by frame-plates H' H' , are the elbow-levers T' T' , one for each head Q' , having their pivotal openings engaging the shaft T at their angles and each having a downwardly-extending arm in the path of one of the heads Q' and a rearwardly-extending arm

connected with a vertical indicator-rod T^2 , so that the rod and arm will move together as the lever is swung on the pivot-shaft T . For this purpose the rod can have a shoulder t resting on the upper side of the lever-arm and a reduced portion t' extending down through a hole t^2 in such arm, with a pin t^3 passing through such reduced portion just under the arm, as shown in Fig. 2. The indicator-rods are of such length that as the heads $Q' Q'$ corresponding to the separate rods are moved and in their normal forward positions and the downwardly-extending arms of the levers $T' T'$ are resting against the rear ends of the respective heads $Q' Q'$ the indicator-tablets $T^4 T^4$ stand down below the display-opening A^{10} in the raised part of the casing; but as any head Q' is moved rearward to cause a registration and swings the engaged arm of the respective elbow-lever T' backward to raise the other arm of such lever and the indicator-rod connected therewith the tablet on such rod will be elevated to a position opposite the display-opening, so that the purchase-indicating figure or figures on it can be seen through such opening. For retaining each rod so raised in its elevated indicating position until another key K^2 is operated to cause a new registration, I provide the swinging rod-retaining wing T^5 , pivotally supported at its opposite ends in the plates $H' H'$ and extending across within the machine below the elbow-levers $T' T'$. Such wing extending rearward from its pivotal portion is provided with a weighted arm T^6 , adapted to hold the wing normally swung up into the path of the downwardly-extending arms of the levers $T' T'$ as such arms are swung rearward to cause the levers to raise the indicator-rods connected with them. As any lever T' is swung by its respective head Q' to carry its downwardly-extending arm rearward the end of such arm riding over the upper face of wing T^5 presses the latter downward until the end of the arm passes off of the rear edge of the wing. The weighted arm T^6 then swings the wing quickly upward to cause its edge to stand in front of the lever-arm (see Fig. 2) and hold the latter in its retracted position, so that the other arm of the lever and the tablet-carrying indicator-rod connected therewith will be maintained in their elevated position, to which they have been moved by the swing of the elbow-lever. The rearward and upward swing of another lever T^5 as its respective head Q' is moved by the operation of another key K^2 to cause a new registration and operation of the machine will then, by the engagement of the downwardly-extending arm of such lever, press the wing down again to disengage its edge from the arm of the previously-moved elbow-lever, so that such lever will by the weight of the indicator-rod and tablet connected with it be quickly swung downward and forward again to cause the tablet on its rod to be dropped out of sight below the sight or display opening in the casing. As the movement of the elbow-

lever being actuated is continued its wing-engaging arm finally passes off of the wing edge, and the wing swings quickly up again to cause its edge to block the return swing of such engaging arm, and the newly-raised indicator-tablet is kept up in its elevated indicating position to show what key has been operated, so that the observer can at once see whether the machine has been operated to register his purchase correctly.

For the purpose of insuring the movement of the rack R^3 in a direction to wind the register-operating spring R^6 to the point necessary to cause the proper operation of the latter before the display of the indicator-tablet T^4 , I provide means whereby each head $Q' Q'$ causes the completion of such movement of the rack before the indicator-tablet is displayed. Such means consists of the sliding block Q^3 and a coiled spring Q^4 , placed in a chamber or cavity Q^5 in the head Q' , the spring being interposed between the block and the forward end of the head and yieldingly holding the block at the rear limit of its movement within the head. The sliding movement of the block within the head is limited by a slot q' in the bottom of the head and a pin q^2 on the block that projects into the slot. When the head is moved rearward on the depression of its key K^2 , the rear end of the block engages a cross-bar R^{22} , carried by the rock-shaft arms $R R$, and moves such bar rearward, turning the segment-carrying rock-shaft R' in a direction to wind the register-operating spring R^6 , the spring Q^4 being strong enough to do this. When the limit of motion of the segment necessary to cause the desired registration is reached and the bar R^{22} stops, the spring Q^4 will yield, permitting the continuation of the rearward movement of the head. Although up to the time of the stoppage of the cross-bar R^{22} an indicator-tablet is being raised by the action of the head Q' on its elbow-lever T' , yet such tablet is not thereby raised high enough to be locked in display position, and its elevation to a point where it can be locked is effected during the continuation of the movement of the head Q' after the stoppage of the cross-bar R^{22} and during the yielding of the spring Q^4 . The bar R^{22} is stopped, as above described, by a stop U , consisting of a bar pivoted on a cross-shaft U' , supported by the frame-plates $H' H'$, from which shaft the stop extends forward, with its free front end resting upon the rear raised end of the head Q' when the latter is in its forward position. When the head is moved rearward on the depression of its operating-key, the raised rear end thereof passes from beneath the front end of the stop and the latter drops into the path of and is engaged by and arrests or stops the rearward movement of the cross-bar R^{22} . Should a spring Q^4 for any reason, such as having become weakened or because of some unusual opposition by the registering mechanism due to gumming of parts or other accidental causes, prematurely yield before the

bar R^{22} reaches its limit of motion, an abutment q^3 on the head Q' , in advance of which the bar-engaging end of the block Q^3 is normally held, will engage and carry the bar rearward until it is arrested by a stop U .

The blocks Q^3 Q^3 of the heads Q' Q' are arranged so that when the latter are in their normal or inactive position they will be at such distances from the cross-bar R^{22} that an equal movement of different heads will cause different amounts of travel of said bar, and consequently different amounts of rotation of the pinion R^4 and its pawl-carrying arm, and the stops U U are of correspondingly-graduated length.

For compelling the full movement of a key K^2 to insure the proper operation of the registering and indicating mechanisms the following-described means are employed: Fast to the shaft I , adjacent to one of the casing sides, is a segment I^5 , having ratchet-teeth i^3 , and pivoted to said casing side, above the rack, is a pawl I^6 , adapted to engage the teeth i^3 and permit movement of the shaft only in the direction in which it is turned by the depression of a key K^2 . At the two ends of the row of teeth i^3 are respectively lugs i^4 and i^5 , that are adapted to engage the pawl at one or the other limit of motion of the segment. Attached to the pawl is an upwardly-extending rod i^6 , whose upper end passes through an opening in a lug i^7 , projecting laterally from a bar I^7 , pivoted to the casing side. The free end of the bar I^7 is convexly rounded, and engaging it is the concave side of a collar I^8 , that is freely movable on the rod and between which and a collar i^8 at the bottom of the rod is a coiled spring I^9 , whose action is to yieldingly maintain the rod and bar so that they incline either on one side or the other from a straight line passing through the pawl and bar pivots. Pins or studs i^9 and i^9 on opposite sides of such line serve to fix the angles at which they stand, the pin on one side being located so that the angle will be such that the pawl will be in position to engage the ratchet-teeth and the stud on the other side located so that the pawl will be lifted entirely clear of said teeth, the former being the position of the pawl when the keys K^2 K^2 are raised or are inactive, and one permitting movement of the segment and shaft I only in the direction caused by the depression of the key. When the key has been fully depressed, the lug i^4 at the front end of the row of teeth will strike the pawl on its under side and, rocking it and its rod, will swing the latter and the bar I^7 beyond the straight line connecting the pawl and bar pivots, whereupon the spring will act to complete the movement of said parts and lift the pawl clear of the teeth. The shaft and segment will now be free to return to their former position, and just before it is reached the other lug i^5 on the segment will strike the pawl on its upper side and cause the return of the rod and bar to their position in which the pawl is in teeth-

engaging position. It will be seen that so long as the pawl is in the latter position the shaft I can be rocked only by moving it forward and that when so started such movement must be completed before return is possible. When and during the time a key K^2 is depressed, it is desirable to lock the remaining ones against movement, and for this purpose each of the shafts K K has near one end an arm k^7 , which when the shafts are inactive stand vertically and above and extending in a direction crosswise of the shafts, and pivoted at its ends in bearings v v on the adjacent casing side is a bar or shaft V , having for coöperation with the respective arms k^7 k^7 a series of laterally-projecting teeth or lugs v' v' , situated each relative to an arm, so that by the rocking of the bar it may be swung down into the path of movement of its arm k^7 , and thus prevent movement of such arm and its shaft. The rock-bar is normally held in a position with its teeth out of the path of the shaft-arms k^7 k^7 by means of a crank-arm i^{10} on the shaft I , through an eye i^{11} in which arm passes a rod v^2 , having above the arm a pin v^3 to engage the latter and pivoted at its upper end to a crank-arm v^4 on the rock-bar. When no key K^2 is being depressed, the pin v^3 , resting on the crank-arm i^{10} , supports the rock-bar with its teeth raised; but when a key is depressed and the shaft I turned thereby its arm i^{10} is lowered, and the support being removed the shaft or bar V rocks by gravity, carrying its teeth downward in the path of the arms of all of the unoperated keys K^2 . To limit the downward rocking of the bar, it has a pin v^5 , that strikes against an adjacent part of the casing. The under side of each tooth v is beveled, as is the extremity of each shaft-arm k^7 , so that on the return movement of the latter the arm k^7 will engage the tooth and aid the crank-arm i^{10} in rocking the bar upward.

As is usual in machines of this class, a bell W is provided, being preferably located on the bottom of the machine. Its hammer W' is actuated by means of an arm i^{12} on the shaft I , which has its end extended outside of the casing, the movement of parts being so timed that the bell is struck as soon as an operating-key K^2 is fully depressed.

As a convenient means for dropping any raised tablet, as when the machine is not in use, a vertically-sliding rod X is supported on one of the side frame-plates H' , with its lower end extended horizontally beneath the weighted arm T^6 and its upper end in convenient position for being reached when the door A^8 is open. By lifting the rod the wing T^5 will be swung downward, releasing any tablet that may be raised.

The operation and manner of using my machine, which will be understood from the hereinbefore-given description and the drawings, are briefly as follows: The machine being arranged, as hereinbefore indicated, to be normally adapted to make or issue change

on the basis of a dollar paid in, if a purchase less than a dollar in amount is made and a dollar is given in payment by the customer the operator presses on one of the keys K^2 , which is marked to correspond with the amount of the purchase, and the machine will then register and indicate such amount, the register being turned the proper distance after the key is released, and the pinion R^4 and the arm R^9 , connected therewith and carrying the register-actuating pawl r^3 , are rotated by the spring R^6 to return them to their several positions, and the indicator-tablet corresponding with the operated key having been raised during the downward movement of the key to its elevated indicating position, so as to show through the display-opening in the casing, by the pressure of the head Q' , which is connected with such key, against the respective elbow-lever T' for moving the indicator-rod carrying said tablet. The indicator-retaining wing T^5 , swinging up in front of the end of the elbow-lever arm, which has been passed back over it by the swinging of such lever, then locks the lever from swinging downward and forward again, and so retains the raised indicator in the position to which it has been elevated. By reason of the sliding block Q^3 and the spring Q^4 , through which power is transmitted from the head Q' to the segment-shaft-moving bar R^{22} , the completion of the movement of the segment for causing the operation of the registering mechanism is effected before the tablet reaches its display position. Should the next purchase be the same in value as the one just registered and indicated, a new registration will be caused by the depression of the key and the return movement of the pinion R^4 ; but the indicator will not be moved. Should the following purchase, however, be of a value different from the previous one, the depression of the proper key will effect the release of the already-raised tablet and cause the display of another tablet marked with the amount of the purchase. While one key is being depressed movement of any of the rest is prevented by the rock-bar V , and the complete depression of the key to insure proper operation of the registering and indicating devices is insured by the full-movement device, comprising the ratchet-segment I^5 and pawl I^6 . While the registering and indicating devices are being operated, as described, by their respective connections with the key K^2 , marked to correspond with the amount of a purchase made, the change-issuing device or devices connected with such key and operating as hereinbefore fully described will cause to be fed out from one or more of the stacks of coins in the change-tray the proper coin or combination of coins to make up the amount of the difference between the dollar payment made by the customer and the amount or value of his purchase. Such coin or coins dropping into the hopper B^2 are guided thereby into the hand of the operator

placed below the hopper-mouth or into any suitable receptacle provided to receive the change to be given the customer. Should a purchase be made less than fifty cents in value and only fifty cents be paid in, the cut-out key N' is pushed in to swing sleeve N and arm n' and so depress the fifty-cent coin feeding-dog on the fifty-cent slide, so that as the slide is moved the dog cannot engage and feed out a coin from the fifty-cent stack. The machine is now on a fifty-cent basis, and the operation of the proper key K^2 , marked to correspond with the amount of the purchase, will cause the proper coin or combination of the coin-feeding slides for the twenty-five-cent, one five-cent, and the two ten-cent stacks to be operated to feed out the necessary coin or coins to make the required change for fifty cents to be returned to the customer. Similarly should a purchase of less than twenty-five cents be made and twenty-five cents be tendered in payment the machine can be instantly changed to give change on the twenty-five-cent-payment basis by pushing in the cut-out key M^2 , which because of the engagement of the arm m with arm n on the sleeve N causes not only its own sleeve M , but also sleeve N , to be rocked, so that the arms m' and n' , connected, respectively, with such sleeves, will be depressed to draw the coin-engaging dogs $D D$ of the fifty and twenty-five cent feeding-slides $D^2 D^2$ down out of coin-engaging position, so as to cut them out of action when the slides carrying them are moved. Actuation of the proper key K^2 , marked with a figure or figures to correspond with the amount of the purchase, will then cause such a one or combination of the coin-feeding slides for the regular five-cent and the two ten-cent stacks of coins to be actuated that the coin-engaging dog or dogs on the actuated slide or slides will feed out from the change-tray into the hopper B^2 the proper coin or coins to make up the required change equaling the difference between the twenty-five-cent payment and the amount of the purchase. Should the amount of payment tendered by the customer equal the amount of his purchase, so that no change is required to be returned, the cut-out key L^2 is pushed in, rocking the shaft L , because of the engagement of the key with the shaft-arm l^2 , and also the two sleeves M and N , because of the engagement of the shaft-arm l^2 with the arm m on the former sleeve and of the latter arm with arm n on sleeve N , so that the shaft-arms $l' l' l' l'$ draw down the coin-feeding dogs $D D D D$ on the dollar, the regular five-cent, and the two ten-cent slides to cut such dogs out of action, and the arms m' and n' on the sleeves M and N similarly draw down and cut out of action the coin-feeding dogs $D D$ on twenty-five-cent and fifty-cent slides $D^2 D^2$. Operation of the key K^2 , corresponding with any purchase, will now cause actuation of the registering and indicating devices to make proper registration and indication of the

amount of the purchase without the feeding out of any coins by the change making or issuing part of the machine. If a customer tenders a payment of seventy-five cents for a purchase less than that amount, but greater than fifty cents, the proper registration and indication and issue of change may be secured by first pushing in the cut-out key M^2 to cut the fifty-cent and twenty-five-cent feeding-dogs out of operation and then pressing the key K^2 , which is marked to correspond with the amount of the purchase. Such amount will then be registered and indicated, and the required change being less than twenty-five cents will be issued by the actuation of the proper one or ones of the slides D^2 for feeding coins from the regular five-cent and ten-cent slides. When payments of other amounts than two dollars, one dollar, seventy-five cents, fifty cents, or twenty-five cents are made, requiring the issue of only five cents in change, the cut-out key L^2 is both pushed in and swung on its fulcrum on arm l^2 , so that such arm and the shaft L , together with sleeves M and N , will be swung to draw the coin-feeding dogs on the dollar, fifty-cent, twenty-five-cent, regular five-cent, and two ten-cent slides D^2 down out of operative position, and the rock-shaft E will be rocked by the raising of the rear arm of rod of key L^2 , so that the crank-arm E^2 on such shaft will be raised and the other crank-arm E' depressed, so as to allow the supplemental slide D^3 to drop to bring its lug d^{10} into engagement with the shoulder d^9 on the extra five-cent slide D^2 . Depression of any key K^2 , carrying the marking corresponding with any purchase made, will then cause registration and indication of the amount of such purchase, and because of the connection of any slide D^2 , moved by such key, with the retractor-shaft I and the connection of such shaft with the supplemental slide D^3 the latter slide will be moved to cause its lug d^{10} to drive the shoulder d^9 , and consequently the extra five-cent slide carrying such shoulder, forward to make the respective coin-engaging dog feed out five cents from the extra five-cent stack. No other coins are fed from the other stacks on the change-tray, because of the cutting out or depression of the coin-feeding dogs on all of the coin-slides, but the extra five-cent one by the rocking of the shaft L and sleeves M and N , caused by the inward sliding or pushing of the cut-out key L^2 , as hereinbefore described.

When the cut-out keys are pressed inward, as above described, to operate the cut-out devices, they are automatically locked in position by the engagement of their respective arms l^3 , m^3 , and n^2 with the latch or locking frame, and when the key L^2 , besides being pressed inward, is swung to cause the operation of the extra five-cent slide it is locked in its swung position by the engagement of its inner end with the latch P . The operator, therefore, does not have to hold said keys in the position for performing their functions,

but has merely to push them inward, and in case of the key L^2 to swing it when necessary, and then remove his hand from them. The key K^2 having been operated as a preliminary to the operation of which any cut-out key has been actuated, the release of the latter is automatically effected by the latch-frame being struck by the lug d^{10} on the slide D^3 and swung to carry its lip or flange out of engagement with the cut-out-key arm.

Having thus described my invention, what I claim is—

1. In a change-maker, in combination with a coin-holder, a feed device for feeding coins therefrom, a cut-out for cutting such device out of action, and a lock to hold the cut-out in operation, adapted to be tripped to release the cut-out, substantially as and for the purpose described.

2. In a change-maker, in combination with a coin-holder, a feed device for feeding coins therefrom, having its coin-engaging part made movable into and out of operative position for engaging and feeding out a coin from the holder, as the feed device is moved, a cut-out to move such part out of operative position, and a lock to hold the cut-out in operation, adapted to be tripped to release the cut-out, substantially as and for the purpose described.

3. In a change-maker, in combination with a coin-holder, a feed device for feeding coins therefrom, a cut-out for cutting such device out of operation, as a coin-feeder, while allowing it to move, a lock to hold the cut-out in operation, and means for tripping such lock, substantially as and for the purpose described.

4. In a change-maker, in combination with a coin-holder, a feed device for feeding coins therefrom, having its coin-engaging part made movable into and out of operative position for engaging and feeding out a coin from the holder, as the feed device is moved, a cut-out to move such part out of operative position, a lock to hold the cut-out in operation, and means for tripping such cut-out, substantially as and for the purpose described.

5. In a change-maker, in combination with a coin-holder, a feed device for feeding coins therefrom, having its coin-engaging part made movable into and out of operative position for engaging and feeding out a coin, as the feed device is moved, such part being yieldingly supported in such operative position, a cut-out to move such part out of operative position, a lock to catch and hold the cut-out, when it has been moved to carry the movable coin-engaging part of the feed device out of operative position, and means for causing the lock to release the cut-out, substantially as and for the purpose described.

6. In a change-maker, in combination with a coin-holder, a feed device to feed coins therefrom, having its coin-engaging part made movable into and out of operative position for engaging and feeding a coin from the

holder, as the feed device is moved, yielding-
 5 ingly supported in such operative position, a
 cut-out to move such part out of operative
 position, a yielding lock in the path of a part
 moving with the cut-out, adapted to lock the
 cut-out in position to hold the coin-engaging
 10 part of the feed device out of operative posi-
 tion, and means for tripping such lock, to
 cause it to release the cut-out, substantially
 as and for the purpose described.

7. In a change-maker, in combination with
 a coin-holder, a feed device to feed out coins
 therefrom, having a coin-engaging dog made
 15 movable on the feed device, so as to bring it
 into and out of operative position for engag-
 ing and feeding out a coin, as the feed device
 is moved, a spring supporting such part nor-
 mally in its operative position, a cut-out con-
 20 nected with such part, so as to move the same
 out of operative position, a lock to engage
 and hold the cut-out from returning, when it
 has been moved to move the coin-engaging
 part of the feed device out of operative posi-
 25 tion, and means for moving such lock, to
 cause it to release the cut-out, substantially
 as and for the purpose described.

8. In a change-maker, in combination with
 a coin-holder, a feed device to feed coins
 therefrom, having a movable coin-engaging
 30 dog adapted to be moved into and out of op-
 erative position to engage and feed out a coin,
 a spring pressing the dog toward its operative
 position, a cut-out connected with the dog, so
 as to move it out of operation, a yielding lock
 35 in the path of a part moving with the cut-out,
 adapted to lock the cut-out, when it has been
 moved to carry the coin-engaging dog out of
 operative position, yielding means for return-
 ing the cut-out, when released by the lock, so
 40 that the dog can return to its operative, coin-
 engaging position, and means for tripping the
 lock, substantially as and for the purpose de-
 scribed.

9. In a change-maker, in combination with
 45 a coin-holder, a feed device for feeding coins
 therefrom, having a movable coin-engaging
 part made movable into and out of operative
 position to engage and feed out a coin, as the
 feed device is moved, yielding means to nor-
 50 mally hold such part in its operative position,
 a cut-out connected with the part, so as to
 move it out of operative position, as the cut-
 out is moved, a swinging lock for the cut-out,
 yielding held in the path of a part moving
 55 with the cut-out, so as to yield to such part
 and then swing in behind it and lock it from
 return, means for tripping such lock, to cause
 it to release the engaged part of the cut-out,
 and means for returning the cut-out to allow
 60 the coin-engaging part of the feed device to
 be moved into operative position again, sub-
 stantially as and for the purpose set forth.

10. In a change-maker, in combination with
 a coin-holder, a feed device to feed coins there-
 65 from, having a movable, coin-engaging part,
 adapted to be moved into and out of operative
 position to engage and feed out a coin as the

feed device is moved, a rocking piece having
 an arm, connections between such arm and
 the movable, coin-engaging part of the feed 70
 device, whereby rocking of the piece carrying
 the arm in one direction will cause such mov-
 able part to be moved out of operative, coin-
 engaging position, means for rocking the
 75 piece, an automatic lock in the path of a part
 moving with the rocking piece, to engage such
 part to hold the rocking piece against return
 movement, and means for tripping such lock
 to cause it to release the engaged part of the
 80 rocking piece, substantially as and for the
 purpose described.

11. In a change-maker, in combination with
 a coin-holder, a feed device for the same hav-
 ing its coin engaging and feeding part made
 85 movable from and into operative position to
 engage and feed out a coin from the holder, a
 spring to hold such part in operative position,
 a slotted arm connected with such part, a
 rocker having an arm extending into the slot
 90 of the slotted arm, and a second arm, a lock
 in the form of a latch, yielding held in the
 path of this second arm, adapted to hold it
 from return, after movement of the rocker
 has carried it beyond the lock, means for rock-
 95 ing the rocker to carry its second arm to and
 past the lock, means for tripping the lock to
 cause it to release the arm of the rocker, and
 means for rocking the rocker back, after the
 release of its arm by the lock, substantially
 100 as and for the purpose described.

12. In a change-maker, in combination with
 a coin-holder, a feed device for feeding coins
 therefrom, having a movable coin-engaging
 105 part made movable into and out of operative
 position for engaging and feeding out a coin
 as the feed device is moved, a spring to hold
 such part normally in operative position, a
 slotted arm connected with such movable
 110 part, a rocker having two arms, one extend-
 ing into the slot of the slotted arm of the mov-
 able, coin-engaging part, a spring to rock the
 rocker in one direction, means for rocking it
 in the other direction, a swinging locking-
 115 piece in the path of the second arm on the
 rocker, a spring to hold such locking-piece up
 in the path of the rocker-arm and cause it to
 snap in behind the arm after the latter has
 passed by it, and means for tripping such
 120 piece to cause it to release the engaged rocker-
 arm, substantially as and for the purpose de-
 scribed.

13. In a change-maker, in combination with
 a coin-holder, a feed device to feed coins
 therefrom having a movable part for engag-
 125 ing and feeding out a coin, adapted to be
 moved into and out of operative position to
 engage and feed out a coin, as the feed de-
 vice is moved, a cut-out connected with the
 movable part of the feed device so as to move
 it out of operative position, as the cut-out is
 130 moved in one direction, a lock to lock the cut-
 out from return when it has been so moved,
 and means moving with the feed device
 adapted to engage and move the cut-out lock

to cause it to release the cut-out, when the feed device has been moved a certain distance, substantially as and for the purpose described.

5 14. In a change-maker, in combination with a coin-holder, a feed device to feed coins therefrom, having its coin-engaging part made movable into and out of operative position to feed out a coin, as the feed device is moved, 10 a cut-out connected with such part, so as to move it out of operative, coin-engaging position, as the cut-out is moved in one direction, yielding means for moving the cut-out in the other direction, a cut-out lock yieldingly held 15 in the path of a part moving with the cut-out, adapted to yield, as such part passes over it and then move in behind it to lock it from return, and means moving with the feed device adapted to trip the cut-out lock, to cause it to 20 release the engaged part of the cut-out, substantially as and for the purpose described.

15. In a change-maker, in combination with two or more coin-holders, feed devices, one for each holder, to feed out coins therefrom, 25 such feed devices having movable, coin-engaging parts, adapted to be moved into and out of operative position to engage and feed out coins, as the respective feed devices are moved, a cut-out connected with one of such 30 coin-engaging parts, so as to move it out of operative position, as the cut-out is moved in one direction, yielding means for moving the cut-out in the other direction, an automatic lock to lock and hold the cut-out, when it 35 has been moved to carry the coin-engaging part of the feed device with which it is connected out of operative, coin-engaging position, a swinging frame moving with the coin-feeding devices, as they are moved in the di- 40 rection for feeding out coins from the respective holders, and a piece moved by such frame adapted to engage the cut-out lock and cause it to release the locked cut-out, substantially as and for the purpose described.

45 16. In a change-maker, in combination with a series of coin-holders, a series of feed devices to feed coins therefrom, having movable coin-engaging parts, adapted to be moved into and out of operative position to engage 50 and feed out coins from the respective holders, as the feed devices carrying them are moved, yielding means to hold such parts normally in their operative positions, a rocker having several arms, connected, respectively, 55 with several of the movable, coin-engaging parts of the feed devices so as to move such parts out of operative position, as the rocker is rocked in one direction, and a retaining-arm, one or more other rockers each having 60 an arm connected with the movable coin-engaging part of one of the other feed devices, so as to move the same out of operative position, as the respective rocker is rocked in one direction, and a retaining-arm, means for 65 rocking the rockers in a direction to move the connected, movable, coin-engaging parts of the feed devices out of operative position,

yielding means for moving the separate rockers in the other direction, a swinging spring-pressed latch-plate in the path of the retain- 70 ing-arms of the rockers, to lock them from return, when the rockers have been moved to draw the connected, movable, coin-engaging parts of the feed devices out of operative position, a swinging frame engaged and moved 75 by the feed devices, so that as any one or more of such devices are moved, the frame will be moved, and means actuated by such frame to trip the latch-plate, to cause it to release the retaining-arm of any rocker en- 80 gaged by it, substantially as and for the purpose described.

17. In a change-maker, in combination with a series of coin-holders adapted to hold dollar, 85 fifty-cent, twenty-five-cent, ten-cent, and five-cent coins, feed devices for the respective holders, each having a movable coin-engaging part adapted to be moved into and out of operative position for feeding out coins as the feed devices are moved, yielding means 90 for holding such parts normally up in operative position, a rocker having arms connected with the movable, coin-engaging parts of the feed devices for the dollar, five-cent, and ten-cent coin-holders, respectively, whereby, as 95 the rocker is rocked in one direction, such coin-engaging parts will be drawn down out of operative, coin-engaging position, separate rockers for the fifty-cent and twenty-five-cent coin feeding devices, respectively, 100 each having an arm and connections between such arm and the movable, coin-engaging part of the respective coin-feeding device, whereby as the rocker is rocked in one direc- 105 tion, such part will be drawn down out of operative position, a swinging latch-plate in the path of parts moving with the several rockers, yielding means for holding it in such path and causing it to move up behind the plate-engaging part of any moved rocker, as 110 the latter is rocked to cause the movable coin-engaging part, or parts, connected with the arm or arms on such rocker, to be drawn down out of operative position, a swinging 115 frame connected with the coin-feeding devices, so as to be moved by any one of them, as it is moved in a direction for feeding out a coin, and means moved by such frame for engaging and moving the latch-plate, to cause it to release the engaged part of any rocker, 120 after the moved feed device has traveled a certain distance, substantially as and for the purpose described.

18. In a change-maker, in combination with a series of coin-holders, a series of coin-feed- 125 ing devices, one for each holder, to feed coins therefrom, each feeding device having a movable, coin-engaging part adapted to be moved into and out of operative position to engage and feed out a coin as the feeding device is 130 moved, means for yieldingly holding such part up in operative position, a rocker, connections between the latter and several of the movable, coin-engaging devices, whereby as the rocker

is rocked in one direction the connected, removable, coin-engaging parts will be drawn down out of operative position, means for rocking the rocker back again, an automatic lock to engage a part moving with the rocker to lock the latter from return, when it has been rocked to draw down the connected, coin-engaging parts of the coin-feeding devices, two other rockers, connections between each of them and the movable, coin-engaging part, on one of the remaining coin-holders, for drawing such part out of operative, coin-engaging position, when these rockers are rocked in one direction, means for rocking them in the other direction, and connections between these two rockers and the first rocker, whereby, as the latter is rocked, to draw down the coin-engaging parts of the feed devices with which such rocker is connected, the other two rockers will be rocked in the same direction, substantially as and for the purpose described.

19. In a change-maker, in combination with one or more coin-holders, a coin-feeding device for each holder, having a movable, coin-engaging part adapted to be moved into and out of operative position, for engaging and feeding out a coin, a rocking cut-out having an arm for the movable coin-engaging part of each coin-feeding device, and a second arm, whereby it is to be operated, connections between the former arm and the movable coin-engaging part, whereby the latter is drawn down out of operative position, when the rocker is rocked in one direction, a reciprocating and swinging key pivoted to the operating-arm of the rocker and extending beyond the same, a locking device in the path of a part swinging with the rocker, to lock the rocker against return, after it has been rocked to draw down the coin-engaging movable parts of the devices with which it is connected, means for tripping such locking device, a rock-shaft having an arm engaged by the key beyond the rocker-arm to which such key is pivoted, and a spring-latch to engage and hold the end of the key, when the latter has been pushed in to rock the rocker and then swung on its fulcrum on the rocker-arm, substantially as and for the purpose specified.

20. In a change-maker, in combination with two coin-holders, feed devices for feeding coins therefrom, each having a movable, coin-engaging part adapted to be held up in operative coin-engaging position by a spring, a rocker having two arms, connections between one of such arms and the movable coin-engaging part of one of the coin-feeding devices, whereby as the rocker is rocked in one direction such movable part will be drawn down out of operative position, so that it will not engage a coin as the feeding device carrying it is moved, a supplemental moving part adapted to be moved into and out of engagement with the other feed device, means for normally holding the supplemental moving part out of engagement with the latter feed device, and allowing it to move into engage-

ment therewith, consisting of a rock-shaft having two crank-arms, one of which has a part adapted to engage and raise the supplemental feed-device-moving part, and a spring to rock such shaft, a key pivoted upon the second arm of the rocker and having a part to engage the second crank-arm on the rock-shaft, an automatic lock to engage and lock against return a part moving with the rocker when the latter has been rocked to draw out of operation the movable coin-feeding part of the feed device with which such rocker is connected, a spring-catch to catch and hold the end of the key when the latter has been moved to rock the rocker, and then swung on its pivot on the rocker-arm, and means for tripping the rocker-lock, substantially as and for the purpose described.

21. In a register, in combination with a movable rack and means for moving the same, a rotary shaft, a pinion loosely journaled on the same, meshing with the rack, a spring connected directly with the pinion and with a support fixed with relation to the pinion, an arm carried by the pinion, a pawl on such arm, a ratchet-wheel rotating with the shaft, and engaged by the pawl, so that the pawl will rotate such wheel as the pinion is revolved by the spring, substantially as and for the purpose described.

22. In a register, in combination with the shaft for driving a registering device, a pinion loosely journaled on the shaft, and carrying an arm, a spring surrounding the shaft, having one end connected with the pinion, and its other end secured to a suitable support, a moving rack to mesh with the pinion, so as to rotate the same against the stress of the spring, a ratchet-wheel fixed on the shaft, and a pawl on the pinion-arm, engaging the ratchet-wheel, the pawl and ratchet-wheel being so constructed, that the pawl engages the abrupt sides of the ratchet-teeth, to rotate the wheel, only as the pinion is turned back by the spring, after being rotated by the rack, substantially as and for the purpose set forth.

23. In a register, in combination with the shaft for driving a registering device, a pinion loosely journaled on the shaft, an arm swinging with the pinion, a spring connected with the pinion, and with a suitable support, so that its stress acts to rotate the pinion, means for rotating the pinion against the stress of the spring, a ratchet-wheel fixed on the shaft, having its teeth turned with their abrupt sides facing in a direction opposite to that of the rotation of the pinion, under stress of the spring, and a pawl on the arm, which travels with the pinion, engaging the teeth of the ratchet-wheel, to turn the wheel and shaft, as the spring rotates the pinion, substantially as and for the purpose described.

24. In a register, in combination with a register-device-actuating shaft, a pinion loosely mounted thereon, an arm traveling with the pinion, a pawl on the arm, a ratchet-wheel

fixed on the shaft and engaged by the pawl, a spring around the shaft, connected with the pinion, a sleeve with which the spring is also connected, a clamp holding such sleeve, supported independently of the shaft and adapted to be loosened, to allow turning of the sleeve, to adjust the stress of the spring on the pinion, to rotate the latter, and means for rotating the pinion against the stress of the spring, substantially as and for the purpose set forth.

25. In a register, in combination with a rotary shaft, for actuating a registering device, a pinion loosely journaled on such shaft, a ratchet-wheel rotating with the shaft, an arm rotating with the pinion, a spring-pressed pawl on the arm, engaging the ratchet-wheel, a swinging frame carrying a segment-rack meshing with the pinion, means for swinging such frame, a spring around the shaft, connected with the pinion, a sleeve to which the spring is also attached, a clamp for such sleeve, supported on a suitable bracket independent of the shaft, and means for tightening up and loosening such clamp, whereby, upon loosening the clamp, the sleeve may be rotated therein, to regulate the stress of the spring upon the pinion, and a tightening up of the clamp will fix the sleeve as rotatively adjusted, substantially as and for the purpose described.

26. In a register, in combination with a rotary shaft for actuating a registering device, a pinion journaled on such shaft, a movable rack, meshing with such pinion, a ratchet-wheel rotating with the shaft, an arm revolving with the pinion, a pawl on such arm engaging the ratchet-wheel, so as to turn the wheel and shaft as the pinion rotates in one direction, spring means connected with the pinion for rotating it in that direction, means for moving the rack to turn the pinion in the other direction, against the stress of its spring, a rocking frame, connections between the latter and the rack-actuating means, whereby the rocking frame is rocked, as the rack is moved to rotate the pinion, means for returning such frame, after it has been so moved, a toothed wheel fixed on the shaft, a pivoted pawl to engage such wheel to hold it, and consequently the shaft, from rotation, a rod connected with and operated by the rocking frame, carrying an abutment to engage an arm of the pawl, to move the latter away from the toothed wheel, and a spring, the stress of which acts upon the pawl-arm in a direction to swing the pawl into engagement with the toothed wheel, substantially as and for the purpose set forth.

27. In a register, in combination with a shaft for actuating a registering device, a pinion journaled on such shaft, an arm rotating with the pinion, a movable rack meshing with the pinion, means for moving such rack in one direction, a ratchet-wheel fixed on the shaft, a pawl on the arm, rotating with the pinion, such pawl and ratchet-wheel being so constructed that the pawl rides over the in-

clined sides of the ratchet-wheel teeth, as the rack is moved, in the described direction, to rotate the pinion, a rocking frame, connections between the latter and the means for moving the rack, a toothed wheel fixed on the shaft, a pawl to engage the same, a rod connected with and actuated by the frame, an abutment on such rod to engage the latter pawl and move it out of engagement with the toothed wheel, and a spring carried by the rod exerting its stress on the pawl to move the latter into engagement with the toothed wheel, as the rod is moved by the rocking frame, to move its abutment away from the pawl, substantially as and for the purpose described.

28. In a register, in combination with a shaft for driving a registering device, a pinion journaled thereon, a movable rack meshing with the pinion, an arm rotating with the pinion, a ratchet-wheel turning with the shaft, a pawl on the arm, rotating with the pinion, and engaging the ratchet-wheel on the shaft, the ratchet-wheel and pawl being so constructed that the pawl rides over the inclined sides of the ratchet-teeth, as the pinion is rotated by the rack, means for rotating the pinion in the other direction, means for moving the rack, a swinging frame, connections between the same and the rack-actuating means, whereby the frame is moved, as the rack acts to rotate the pinion, a toothed wheel fixed on the shaft, a pawl to lock such wheel from rotation, having an arm with an opening in it, a rod passing through such opening and having a nut engaging one side of the pawl-arm in a direction to move the pawl out of engagement with its toothed wheel, and a spring on the rod exerting its stress upon the pawl-arm, in a direction to force the pawl toward the toothed wheel, so that the rocking of the frame, as the pinion-rotating rack is moved to rotate the pinion, will cause the pawl to engage the toothed wheel, so as to hold it and the shaft from rotation until after the rotation of the pinion by the rack has been completed, substantially as and for the purpose described.

29. In a register, in combination with a rotary shaft, for actuating a registering device, a pinion journaled on such shaft, a movable rack meshing with and driving the pinion, an arm traveling with the pinion, a pawl on such arm, a ratchet-wheel fixed on the shaft, the ratchet-wheel and pawl being so arranged that as the pinion is rotated by the rack the pawl rides over the inclined sides of the ratchet-teeth, means for rotating the pinion in the other direction, to cause the pawl to positively engage and rotate the ratchet-wheel, means for moving the rack to rotate the pinion, a toothed wheel fixed on the shaft, a stop-pawl to engage the same and lock the shaft from turning, and connections between such stop-pawl and the rack-actuating means whereby the stop-pawl is held in engagement with the toothed wheel until after the rack-actuating means has completed its full rack-

moving throw, substantially as and for the purpose described.

30. In a register, in combination with a shaft, for actuating a registering device, a toothed wheel fixed on such shaft, a rotary pinion, a rack meshing therewith, a moving part to actuate the rack in one direction, means for rotating the pinion back, after the rack has turned it in one direction, connections between the pinion and shaft for rotating the latter as the pinion turns back, a pawl to engage the toothed wheel on the shaft and lock it from turning, and means actuated by the rack-moving part to hold such pawl in engagement with the toothed wheel, until the rack-actuating part completes its full movement in a direction to actuate the rack, substantially as and for the purpose described.

31. In a register, in combination with a shaft for actuating a registering device, a toothed wheel fixed on such shaft, a locking-pawl to engage the wheel and lock it from turning, a rocking frame, a movable part connected with such frame so as to actuate the same, a rod, also connected with the frame, an abutment on the rod, engaging the locking-pawl, so as to swing it out of engagement with the wheel on the shaft, and a spring on the rod acting to move the pawl in a direction to cause it to lock the wheel, until the part actuating the rocking frame has completed its movement in one direction, substantially as and for the purpose described.

32. In combination with the shaft and the toothed locking-wheel thereon, a rocking frame, a rod connected therewith, a pawl to engage such wheel, an abutment on the rod to move the pawl away from the wheel, and a spring carried by the rod exerting its stress upon the pawl, in a direction to cause the latter to move toward the wheel, substantially as and for the purpose described.

33. In combination with a shaft and a toothed locking-wheel thereon, the wheel-engaging pawl, a rod having a threaded portion, a nut screwed thereon to engage the pawl, a spring on the rod, the pressure of which is exerted on the side of the pawl opposite to the nut, a second nut screwed on the rod to form an abutment for the outer end of the spring, and means for actuating the rod, substantially as and for the purpose described.

34. In a register, in combination with one or more movable parts for actuating the register mechanism, a rocking frame, connections between the latter and the register-actuating part, or parts, whereby the frame is rocked, as any such part is moved, a shaft of the register mechanism, a toothed wheel thereon, a locking-pawl for the same, and connections between the pawl and the rocking frame, whereby as the latter is moved by the motion of one of the actuating parts the pawl will be held in engagement with the wheel, until after the part has completed its throw in one direction, substantially as and for the purpose described.

35. In a register, in combination with one or more movable parts for actuating the register mechanism, a rocking frame, moved by any moved register-actuating part, a shaft of the register having a toothed locking-wheel fixed thereon, a pawl to engage such wheel and lock it from rotation, a rod connected with the rocking frame, an abutment on the rod to engage and move the pawl away from the toothed wheel as the rocking frame returns, after it has been moved by the motion of one of the register-actuating parts, and a spring carried by the rod and exerting its pressure upon the pawl in a direction to hold it in engagement with the toothed wheel, substantially as and for the purpose described.

36. In a register, in combination with one or more movable, register-actuating parts, a rocking frame, connections between the latter and each registering part, whereby the movement of such part causes the frame to rock, full-motion mechanism connected with such frame, to insure a certain extent of travel under power from any moved actuating part, before the frame can return, a shaft of the register, a toothed locking-wheel on such register, a locking-pawl for such wheel, and connections between the pawl and the rocking frame, whereby the pawl is moved into engagement with the wheel as the frame is moved by one of the register-actuating parts, and is held in such engagement until the frame has completed its movement in one direction, substantially as and for the purpose described.

37. In a register, in combination with one or more movable, register-actuating parts, a rocking frame, connections between the latter and each register-actuating part, whereby the rocking frame is moved, as such part is moved in one direction, full-motion mechanism, to insure always the same amount of motion of the frame in one direction, before it can return, a shaft of the register, a toothed, locking-wheel fixed thereon, a locking-pawl to engage and lock the wheel from rotation, a rod connected with the rocking frame, having a spring adapted to swing the pawl into engagement with the toothed wheel as the frame is moved in one direction, and an abutment to engage and trip the pawl, out of engagement with the wheel, as the frame rocks back again, substantially as and for the purpose described.

38. In combination with a series of rock-shafts, each having a locking-arm, means for rocking such shafts, a toothed rock-shaft, having a tooth for each rock-shaft arm adapted to be brought down into the path of the respective locking-arms on any unmoved rock-shaft, by rocking of the toothed shaft, a movable frame, connections between such frame and the toothed shaft, whereby the latter shaft is normally held rocked to keep its teeth above and out of the path of the rock-shaft arms, means for normally holding the frame in position to so hold the toothed shaft, and

connections between the rock-shafts, carrying the locking-arms and the frame, whereby the movement of any one of such shafts moves the frame, substantially as and for the purpose described.

39. In combination with a series of rock-shafts, having locking-arms, means for rocking the shafts, a movable frame, connections between this frame and the rock-shafts, whereby the rocking of any shaft causes the frame to be moved, yielding means to return the frame, after it has been so moved, a locking-shaft having teeth, one for each rock-shaft-locking arm, adapted to be brought into the path of the respective rock-shaft arms, by rocking of the shaft carrying the teeth, connections between such shaft and the movable frame, whereby when such frame is unmoved the rock-shaft carrying the teeth will be held with its teeth above the paths of the locking-arms on the rock-shafts, and when the frame has been moved by the rocking of a rock-shaft the locking-shaft will be rocked to carry its teeth down in front of the locking-arms on the unmoved rock-shafts, to lock them from moving, substantially as and for the purpose described.

40. In combination with a series of rock-shafts, having locking-arms, means for rocking such shafts, a rocking toothed shaft extending across, above the series of rock-shaft arms, and having its teeth arranged so that, by rocking of their shaft, they will be brought down in front of the ends of the rocking arms on the rock-shafts, when such arms and shafts are in their normal positions, means for holding the toothed shaft rocked so as to hold its arm-locking teeth normally out of the paths of the arms on the other rock-shafts, and means whereby the movement of any arm-carrying rock-shaft moves the toothed shaft-holding means, to allow such shaft to rock, to lower its teeth into the paths of the unmoved rock-shaft arms, substantially as and for the purpose described.

41. In combination with a series of rock-shafts carrying arms, a toothed rock-shaft provided with a series of arm-locking teeth, one for each rock-shaft arm, yielding means tending to rock the toothed shaft to carry its teeth down into the paths of the rock-shaft arms, a movable frame, connections between the frame and the toothed shaft, whereby the latter is held normally rocked to raise its teeth above the rock-shaft arms, yielding means for holding the frame against movement, and connections between the frame and the arm-carrying rock-shafts, whereby the movement of any of the rock-shafts moves the frame, substantially as and for the purpose described.

42. In combination with a series of rock-shafts carrying arms, means for rocking the shafts, the toothed locking-shaft having a tooth for each rock-shaft arm, adapted to be brought down into the path of the respective

arm, to lock the same, when such arm has not been moved by the rocking of its shaft, a swinging frame having an arm, an arm on the toothed shaft, a link on the latter arm having an abutment to be engaged by the arm on the swinging frame, yielding means tending to hold the frame so as to sustain the toothed shaft in position, with its teeth above the arms in the other rock-shafts, and means whereby the rocking of any one of the latter shafts moves the swinging frame, substantially as and for the purpose described.

43. In combination with a series of rock-shafts, having arms, means for locking any unmoved rock-shaft, which consists in a toothed rock-shaft, having a series of teeth, one for each rock-shaft arm, adapted to be brought down in front of and up above the rock-shaft arms, by rocking of the shaft carrying the teeth, in one way and the other, substantially as and for the purpose described.

44. In combination with a series of rock-shafts having arms, means for locking any unmoved rock-shaft, which consists in a toothed rock-shaft having a series of teeth, one for each rock-shaft arm, adapted to be brought down in front of and up above the rock-shaft arms, by rocking of the shaft carrying the teeth, in one way and the other, a movable frame, connections between each arm-carrying rock-shaft and such frame, whereby the movement of any of such rock-shafts causes movement of the frame, connections between the frame and the rocking device, for causing the latter to move, and a full-stroke device connected with the frame, whereby a full movement of the frame in one direction is insured before it can return, substantially as and for the purpose described.

45. In a register, in combination with one or more movable, register-mechanism-actuating parts, a shaft of the register having a toothed locking-wheel fixed thereon, a locking-pawl to engage such wheel, and lock the same and the shaft from rotation, a movable frame, connections between the latter and the mechanism-actuating part or parts, whereby the frame is moved, as any of such parts is moved, full-motion mechanism connected with the frame to always insure the same amount of movement of the frame in the direction in which one of the mechanism-actuating parts would move it, before the frame can return, means for returning the frame, and connections between the locking-pawl and such frame, whereby the pawl is moved into engagement with the toothed wheel, as the frame is moved by the motion of any one of the actuating parts, and is held in such engagement, until after the frame has completed its movement in the direction in which it has started, substantially as and for the purpose described.

46. In a register, in combination with a part to be moved and a second part to engage

and move the same, a yielding device moving with the second part, and adapted to engage and move the first part, before the second part does, substantially as and for the purpose described.

47. In a register, in combination with a movable, operative part, for causing actuation of the registering device, a moving, actuating-piece to engage and move such operative part, and a yieldingly-held device, moved so as to engage and move the operative part of the register, before the moving, actuating-piece does, substantially as and for the purpose described.

48. In a register, in combination with a movable, operative part, for causing actuation of the registering device, a moving, actuating-piece to engage and actuate such operative part of the register, and yielding means carried by such piece to engage and move the movable, operative part of the register, before the actuating-piece does, substantially as and for the purpose described.

49. In a register, in combination with a movable, operative part for causing actuation of the registering device, a moving, actuating-piece to engage and actuate such part, means for limiting the movement of the latter, and yielding means moving with the moving, actuating-piece to engage and move the operative part of the register before the moving actuating-piece does, substantially as and for the purpose described.

50. In a register, in combination with a movable, operative part for causing actuation of the registering device, a moving, actuating-piece to engage and actuate such part, carrying a yielding spring device to engage and move the movable, operative part of the register before the moving, actuating-piece does, and a stop adapted to engage the movable, operative part of the register, and limit its movement, substantially as and for the purpose described.

51. In a register, in combination with a movable part to be moved in actuating the register, an actuating part to engage and actuate the former part, a yieldingly-held device carried by the actuating part to engage and move the movable part of the register, before the actuating part does, and a movable stop adapted to move into the path of, and stop the movable, actuating part of the register, substantially as and for the purpose described.

52. In a register, in combination with a movable frame connected with the registering mechanism, to actuate the same, a moving piece for actuating such frame, having an abutment to engage a part of the frame, and carrying a spring-pressed part, to engage the frame, before the abutment does, as the piece is moved toward the frame, substantially as and for the purpose described.

53. In a register, in combination with a mov-

able frame, connected with the registering mechanism, so as to actuate the same, a series of movable pieces for actuating such frame, each having a head provided with an abutment, to engage and move the frame, and also a spring-pressed part, adapted to engage the frame, before the abutment on that head does, as the head is moved toward the frame, substantially as and for the purpose described.

54. In a register, in combination with a movable frame connected with the registering mechanism, so as to actuate the same, a series of reciprocating rods, each carrying a head with an abutment to engage and move the frame, a spring-pressed block held normally by its spring, so that its front end will be in advance of the abutment on the respective head, and will engage the bar before the abutment does, as the head is moved toward the frame, substantially as and for the purpose described.

55. In a register, in combination with a movable frame connected with the registering mechanism, so as to actuate the same, and having a transverse bar, a series of reciprocating rods, having heads with abutments to engage and move the bar of the frame, and portions projecting by such bar, a series of movable stops for the bar of the frame, one for each head, normally supported in raised position by raised parts of the respective heads, when such heads have not been moved toward the bar of the frame, and adapted to drop into the path of such bar, as the heads are moved toward the frame to actuate the same, and movable blocks on the heads for engaging the frame-bar yieldingly held in advance of the abutments on the respective heads, so as to engage the frame-bar before such abutments, as the respective heads are moved in a direction to actuate the frame, substantially as and for the purpose described.

56. In a combined change-maker and register, in combination with the change-making mechanism, the registering mechanism, and means for actuating both mechanisms, a cut-out to throw the change-making mechanism out of operation, while leaving the registering mechanism free to act, and a lock to lock the cut-out in operation, substantially as and for the purpose described.

57. In a combined change-maker and register, means for actuating the register, and change-making devices, means for throwing the change-making mechanism out of operation, while allowing the registering mechanism to operate, a locking device to lock such latter means, and means for automatically tripping the locking device, substantially as and for the purpose described.

58. In a combined change-maker and indicator, means for actuating the indicating and change-making devices, means for throwing

the change-making mechanism out of operation, while allowing the indicating mechanism to operate, a locking device, to lock such latter means in operative position, and means
5 for automatically tripping the locking device, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL McANENY.

Witnesses:

A. J. O'BRIEN.

MAE A. COUTTS.