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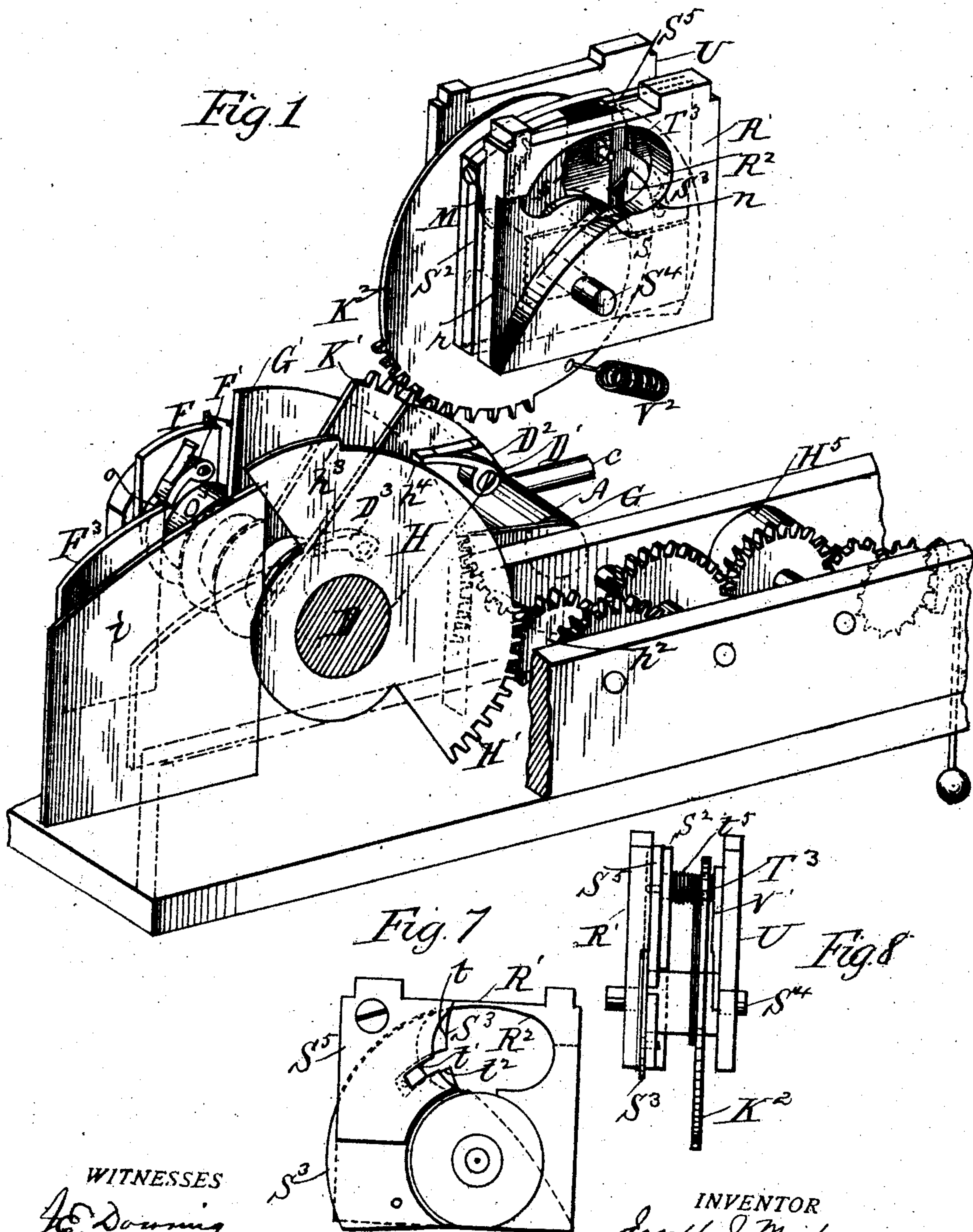
PATENTED MAY 21, 1907.

J. J. MACKEOWN.

COIN CONTROLLED LIQUID DISPENSING APPARATUS.

APPLICATION FILED FEB. 16, 1904.

4 SHEETS—SHEET 1.



WITNESSES  
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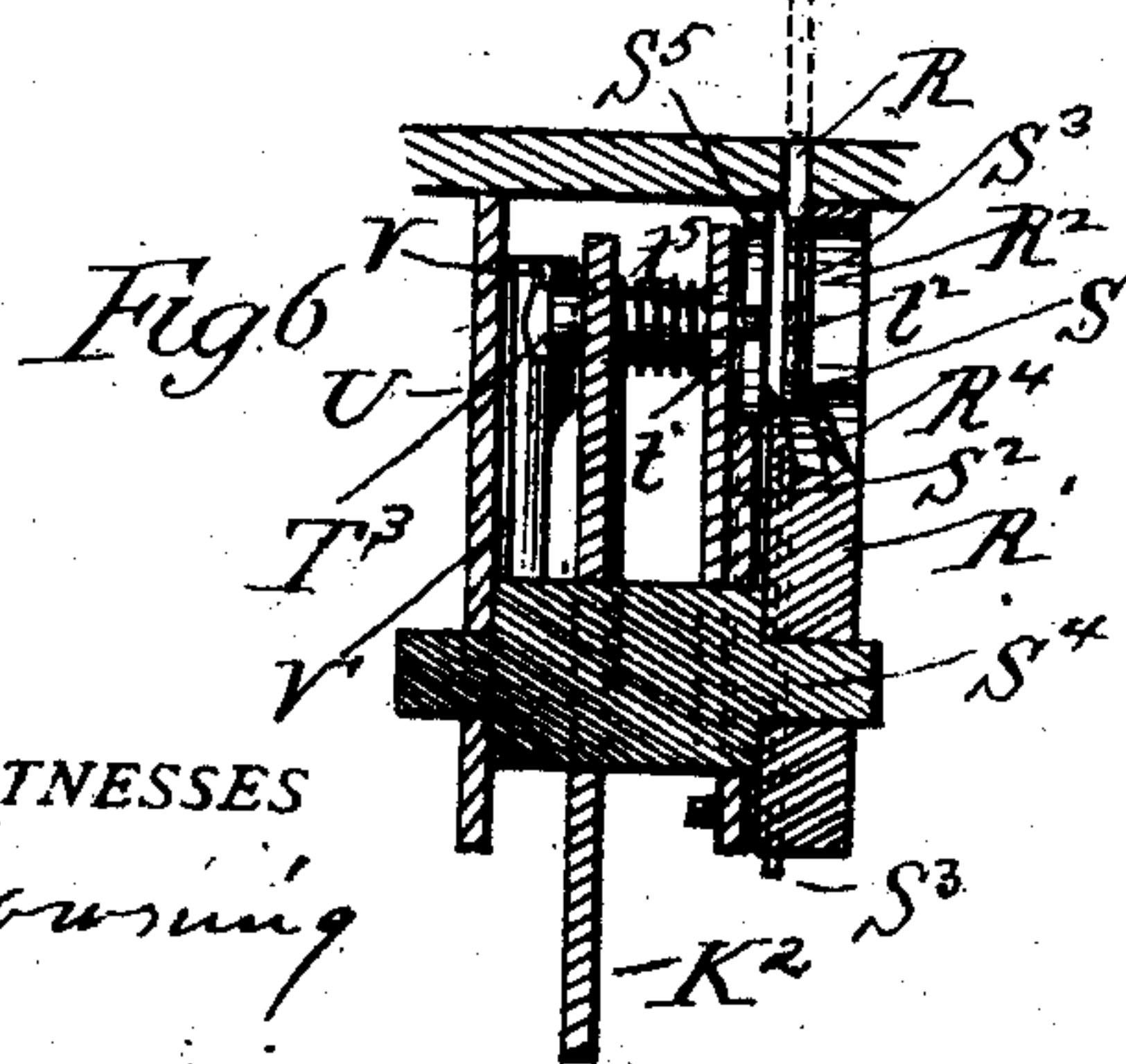
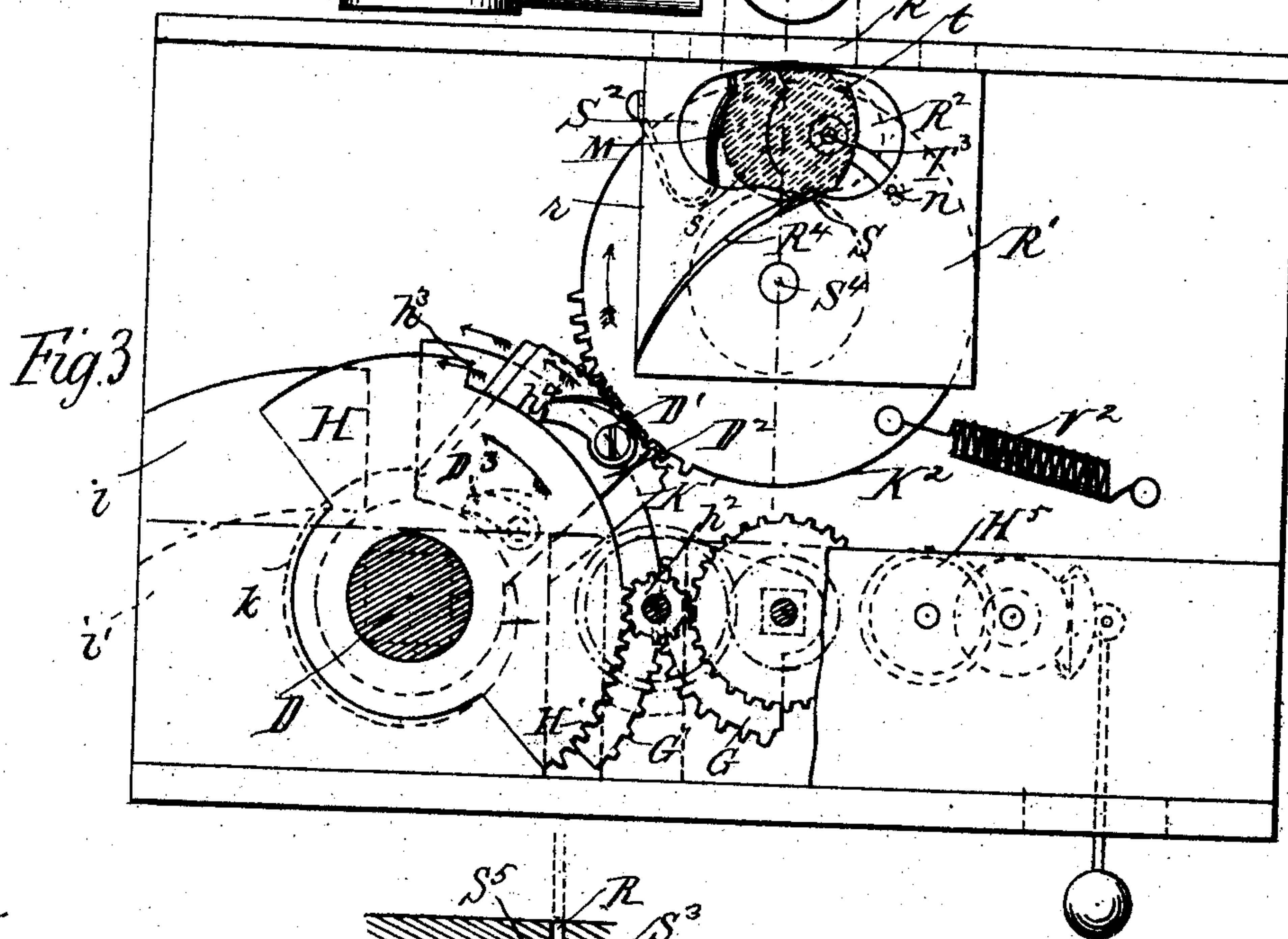
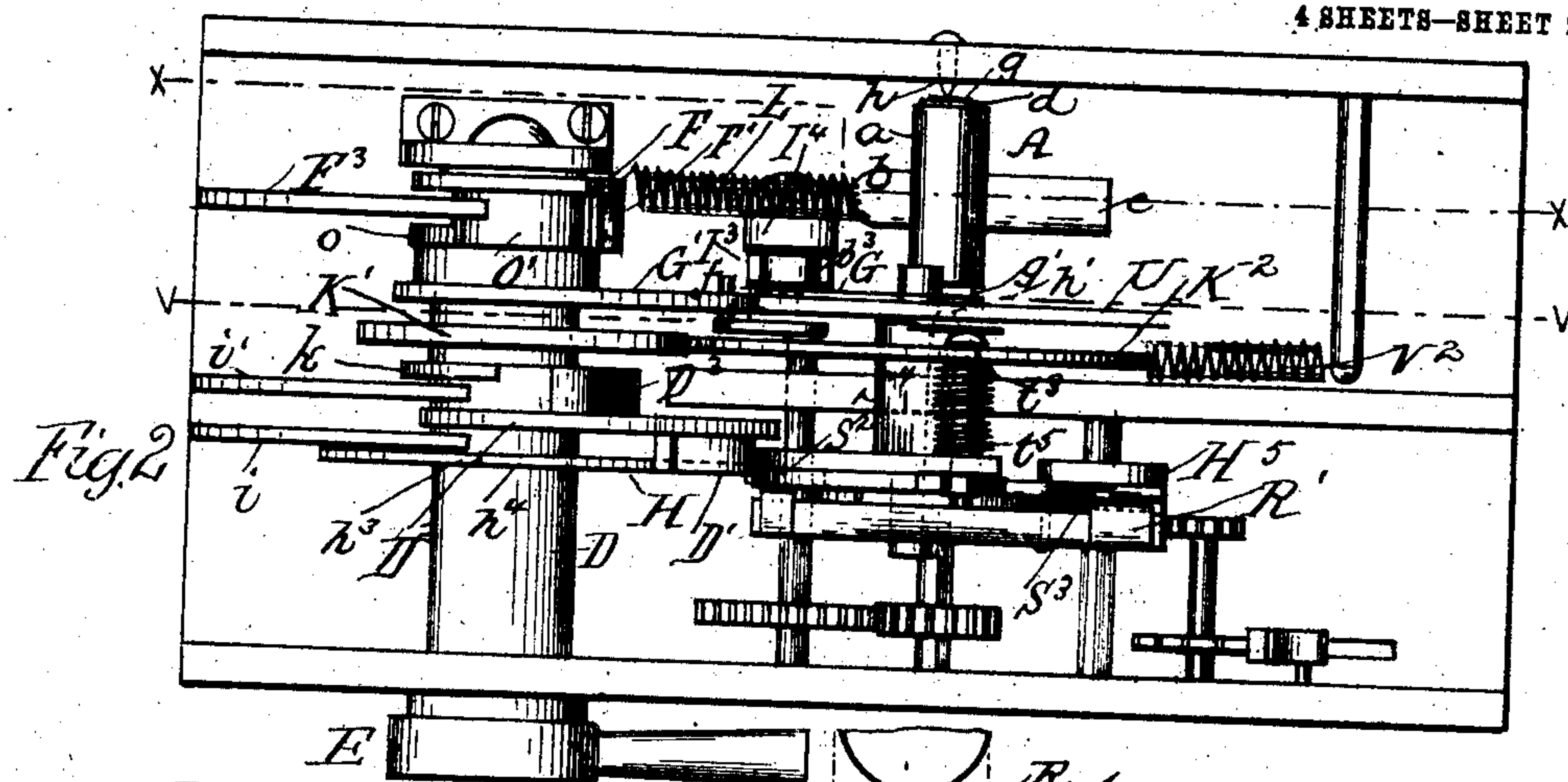
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4 SHEETS—SHEET 2.



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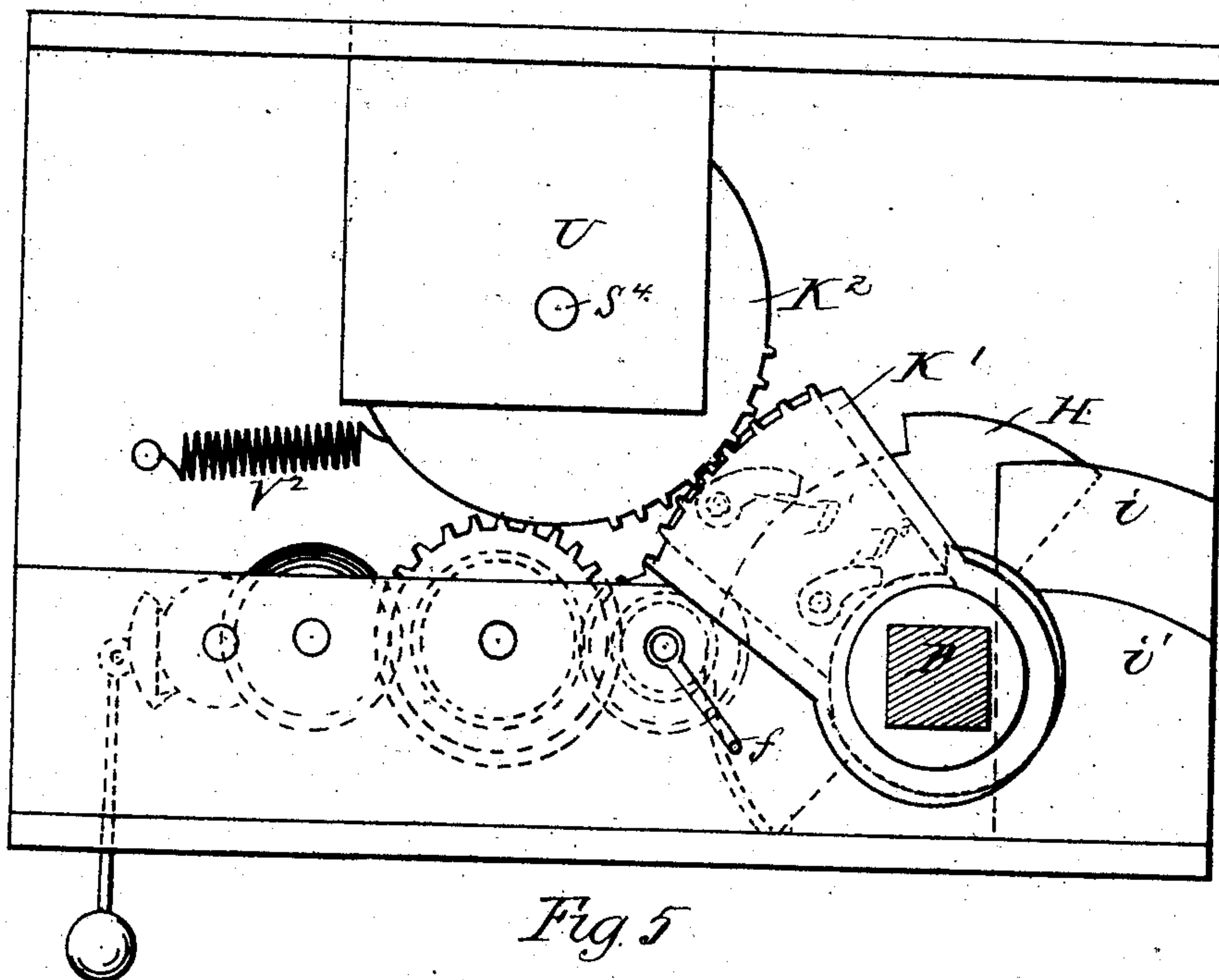
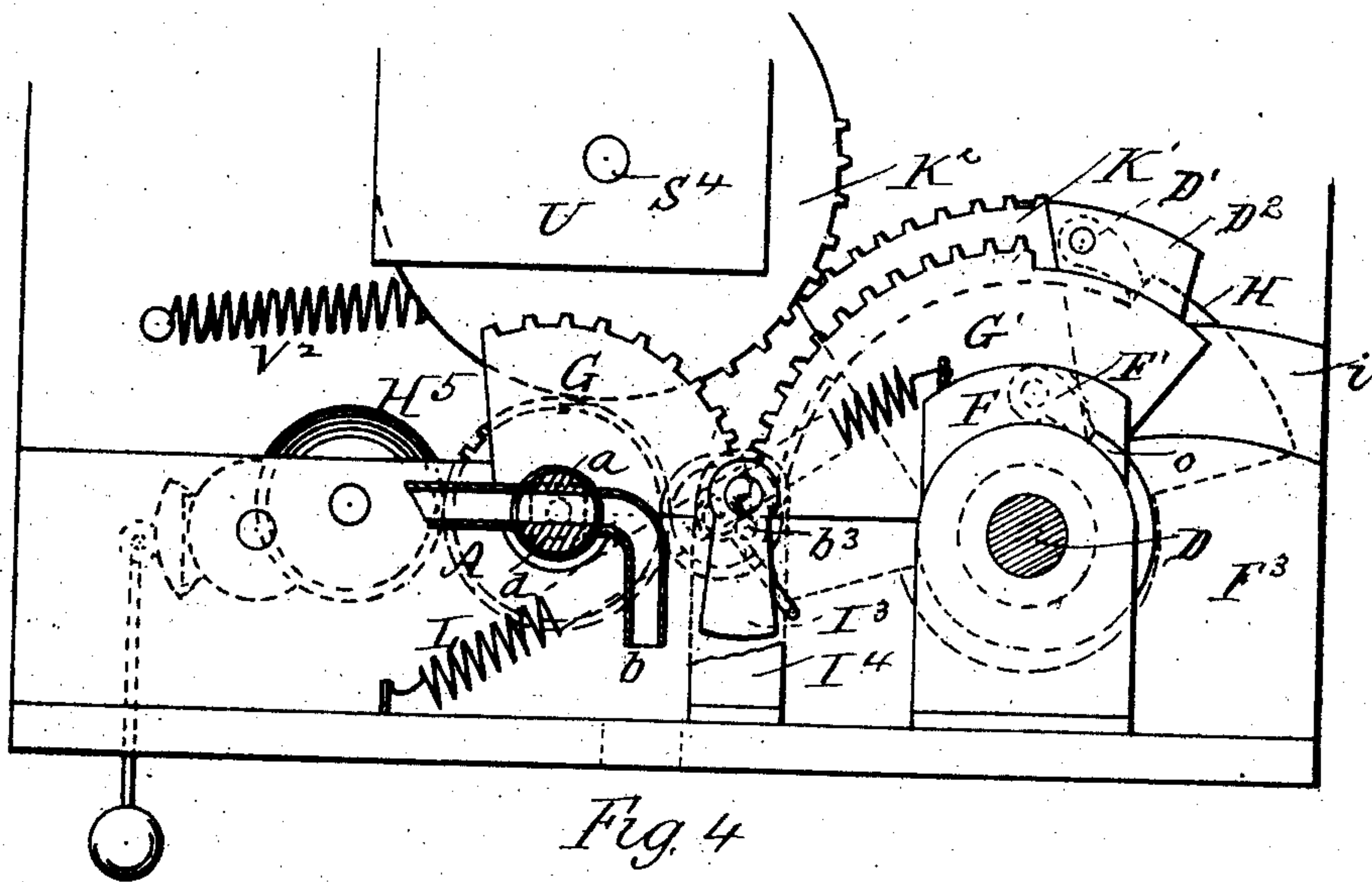


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4 SHEETS—SHEET 3.



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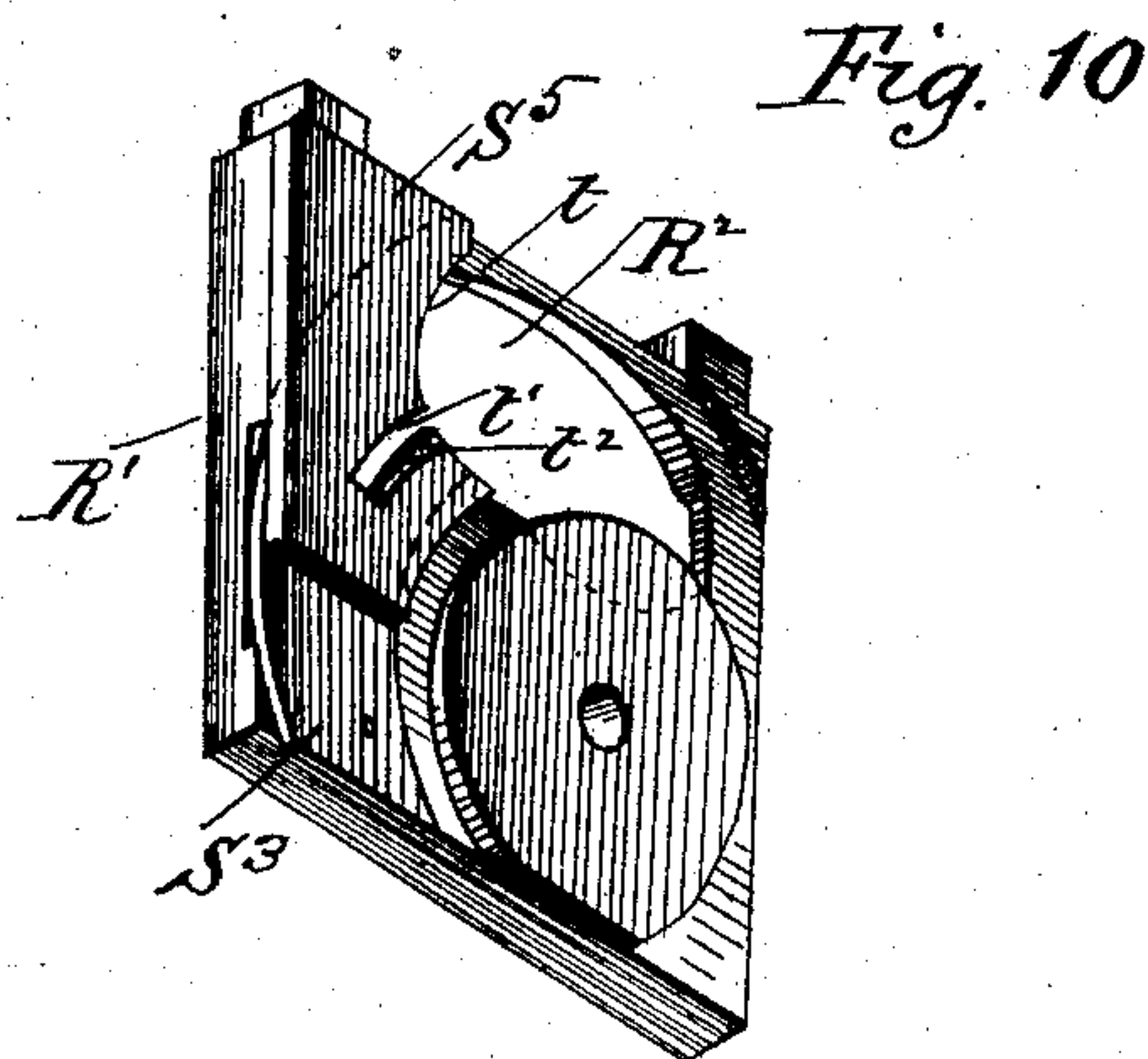
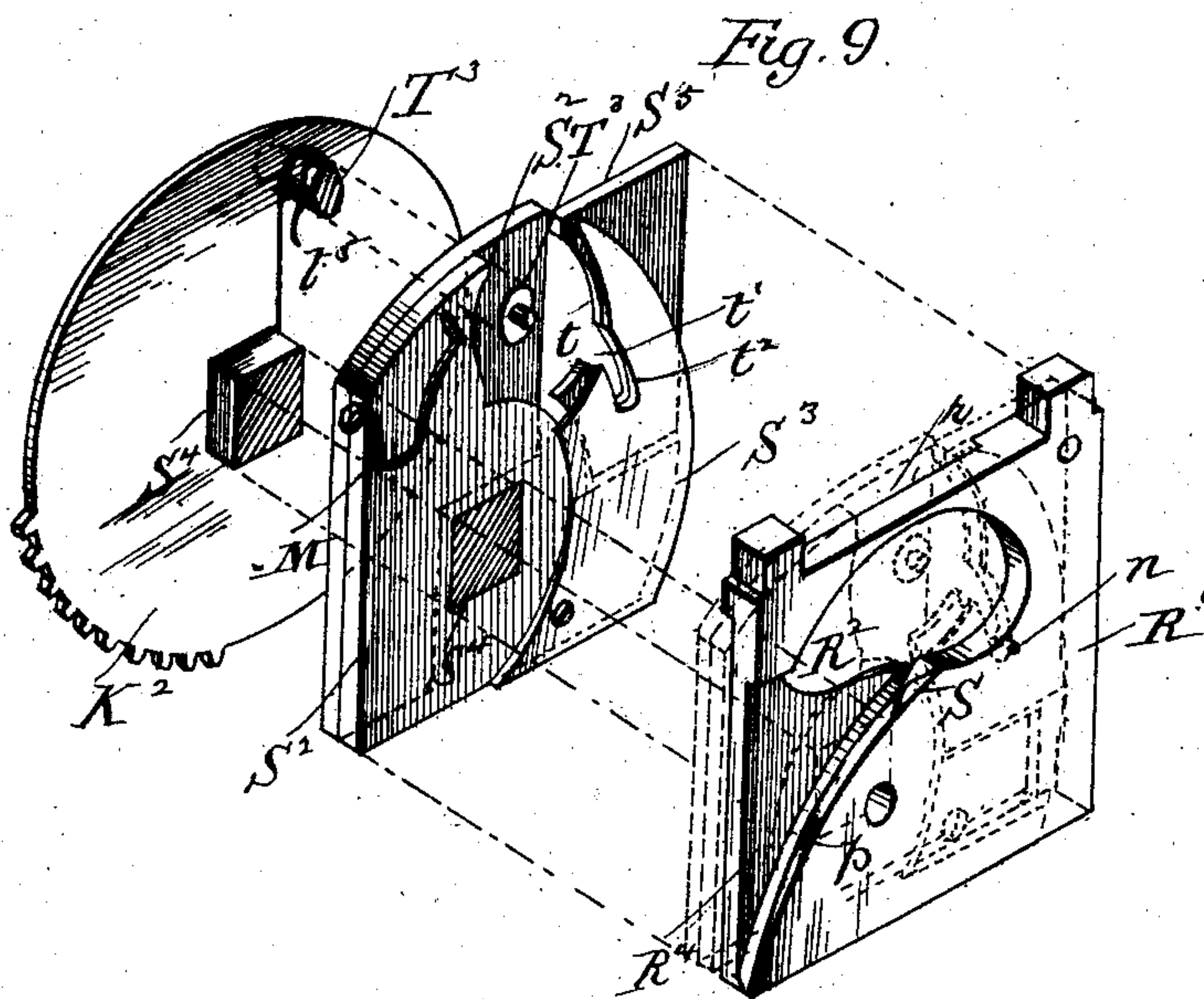
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APPLICATION FILED FEB. 16, 1904.

4 SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

JOSEPH J. MACKEOWN, OF NEW YORK, N. Y.

## COIN-CONTROLLED LIQUID-DISPENSING APPARATUS.

No. 854,097.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed February 16, 1904. Serial No. 193,917.

*To all whom it may concern:*

Be it known that I, JOSEPH J. MACKEOWN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Coin-Controlled Liquid-Dispensing Apparatus, of which the following is a specification.

This invention has relation to coin-controlled apparatus for dispensing liquids, such as mineral waters, and has for its object the provision of novel means and mechanisms whereby the dispensing of a measured or definite quantity of liquid is made dependent upon the time the faucet through which the liquid flows is kept open.

A further object of my invention is the provision of novel means for preventing the use of blanks, slugs and other fraudulent devices, instead of proper coins, to operate the apparatus.

My invention consists in the novel construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of the working parts of the apparatus, the inclosing case being omitted, Fig. 2 is a plan view of the same, Fig. 3 is a front elevation, Fig. 4 is a vertical sectional view on the line X—X of Fig. 2, Fig. 5 is a vertical sectional view on the line V—V of Fig. 2, Fig. 6 is a vertical transverse sectional view of the coin depositing mechanism, Fig. 7 is an elevation of the reverse side of the front plate of the coin depositing mechanism and Fig. 8 is a side elevation of the coin depositing mechanism. Fig. 9 is a perspective view of the coin depositing mechanism, dissected and the parts separated. Fig. 10, is a perspective view of the inner side of the front plate of the coin depositing mechanism.

The mechanism embodying my improvements is applied to a suitable supply apparatus comprising a tank or reservoir to contain the liquid to be dispensed, in which the liquid is held under pressure, such as air or gas pressure, or in which pressure may be produced by means of a pump or other pressure apparatus, or from which the liquid may flow by gravity. From such tank or reservoir a pipe leads to a faucet, through which the liquid is drawn, and, for the purposes of my invention, the plug or valve of the faucet is so connected to and controlled by mechanism brought into operative action upon the deposit of a proper coin, that when

opened for the flow of liquid, it will remain open a sufficient time to allow of the escape of a definite quantity, such as a tumblerful, of liquid, and will then close, or shut off the flow therethrough automatically, the coin-operative parts being restored to their normal positions for the deposit of another coin, and the dispensing of another portion of liquid.

The following is a description in detail of the parts, devices and structural features constituting my invention. A designates the faucet through which the liquid is dispensed, and such faucet consists of a tube or barrel, *a*, open at both ends, and having the delivery spout, *b*, and the supply branch, *c*, projecting laterally therefrom on opposite sides. The barrel or body of the faucet is arranged horizontally in the apparatus, and the faucet plug, *d*, is of a diameter to fit closely the inside of the faucet barrel and is formed with center bearing heads, *g*, *g'*, for the reception of the ends of the bearing screws, *h*, *h'*, by which the plug is supported.

The bearing head, *g'*, is squared to receive and hold in operative connection, a toothed wheel or segment *G*, which engages with another toothed segment *G'*, constituting parts of the coin-controlled mechanism. The segment *G'* is mounted on a horizontal shaft *D*, which has its bearings in upright pieces of the framing of the apparatus, and to one end of said shaft is attached the handle *E*, through the operation of which, when a proper coin is deposited, the coin-controlled devices may be operated, and a measure of liquid dispensed. *H* designates a segment-shaped plate or "tumbler" loosely mounted on the shaft *D*, and having a part of its edge toothed as shown at *H'* to engage with a toothed pinion *h<sup>2</sup>*, constituting part of a train of gearing or time movement which is operated by a wound spiral spring, connected to the main or power wheel of the train.

The purpose and functions of the time movement is to control and limit the time flow of the liquid from the faucet and its parts or operative elements are so arranged and organized that the first operation which takes place in the apparatus, is, assuming a proper coin to have been deposited, to set or partially wind up said train, so that, after the faucet is opened, and the liquid allowed to start flowing, the train will run backward, under the recoil of the spring, until a meas-



ured quantity of liquid has escaped through  
 the faucet, and after maintaining the faucet  
 open for a definite time, will release mechan-  
 ism by which the faucet will be closed. The  
 5 winding up of the spring of the train or time  
 movement is effected by the action of the  
 "tumbler" H, and the latter is actuated  
 through the pawl D' which is secured to an  
 arm or plate D<sup>2</sup> mounted on and turning  
 10 with the shaft D. The pawl D' normally  
 lies in the space *h*<sup>4</sup> formed in the periphery  
 of the tumbler H, and until a proper coin is  
 deposited, can only play or move within this  
 space or recess, without, however, moving  
 15 the tumbler any operative distance. When,  
 however, a proper coin is deposited, the shaft  
 D being allowed to turn further, the arm or  
 plate D<sup>2</sup> and with it pawl D' also turns, and  
 in moving, the point of the pawl strikes the  
 20 shoulder *h*<sup>3</sup>, terminating the space *h*<sup>4</sup>, of the  
 tumbler H, and moves the latter a certain  
 distance on and concentrically of the shaft  
 D. This movement of the tumbler H ad-  
 ditionally winds up the spring H<sup>5</sup> of the time  
 25 movement by the engagement of the teeth  
 of the tumbler H with the pinion *h*<sup>2</sup> of the  
 time movement, and this winding continues  
 until the underside of the pawl D' comes in  
 contact with the upper surface of a station-  
 30 ary curved cam piece *i*, whereupon the pawl  
 is lifted from engagement with the shoulder  
*h*<sup>3</sup>, and rides upon the cam piece *i*, thus re-  
 leasing the train, and allowing the spring  
 H<sup>5</sup> of the latter to operate to run the train  
 35 in a reverse direction. When the shaft D,  
 by the deposit of a coin, is allowed to be  
 turned and is turned so that the pawl D'  
 releases the train of gearing, the faucet plug  
 is turned at the same time and the faucet  
 40 opened and held open by a gravity drop, so  
 that the liquid begins to flow into the glass or  
 receptacle provided for its reception. This  
 flow or escape continues until a part gov-  
 erned by the train lifts the gravity drop;  
 45 hence the quantity of liquid dispensed under  
 a single coin deposit depends upon the time  
 limit of the train's operation, and as this time  
 limit is gaged to meet the necessary condi-  
 tions under which the different operations are  
 50 conducted, it will run just a sufficient time,  
 before allowing the faucet to be closed, to  
 measure out and dispense the quantity paid  
 for, say, an ordinary mineral-water glassful.

Attached to the plate D<sup>2</sup> which carries the  
 55 pawl D', is another similar pawl D<sup>3</sup>, on the  
 opposite side of the plate D<sup>2</sup>, arranged and  
 adapted to engage with a shoulder formed on  
 a segmental plate *k*, the latter being attached  
 to or forming part of the hub of a toothed  
 60 segment K' which is in mesh with another  
 toothed segment K<sup>2</sup> constituting part of the  
 coin-operated or controlled mechanism. Ad-  
 jacent to the plate *k* is a cam piece *i*', similar  
 to the cam piece *i*, and arranged and adapted

to lift the pawl or dog D<sup>3</sup>, so that, when the 65  
 parts K', K<sup>2</sup>, have performed their functions,  
 they will be released from engagement with  
 the parts mounted on the shaft and allowed  
 to return to position for the reception of an-  
 other coin. It is to be understood, as will ap- 70  
 pear more clearly hereinafter, that the seg-  
 ments K', K<sup>2</sup>, can only be effectively operated  
 after the deposit of a proper coin.

F designates a plate rigidly secured to and  
 adapted to turn with the shaft D, and having 75  
 mounted on one side a pawl or dog F', similar  
 to the pawls or dogs, D', D<sup>3</sup>. The pawl or  
 dog F' engages with a shoulder *o* on the hub  
 O' of a toothed segment G', and also rides on  
 the surface of a cam plate F<sup>3</sup>, similar to the 80  
 cam plate *i*, so that, when, by the partial  
 turning of the shaft D, by the movement of  
 the handle E, the segment G' is moved a suffi-  
 cient distance to cause the faucet to be opened  
 the pawl F' will be lifted from engagement 85  
 with the hub of the segment G' so that the  
 segment G' will be in position and condition  
 to return to its normal position, and close the  
 faucet, when the clock or time movement has  
 performed its operations and lifted the grav- 90  
 ity drop. When the segment G' has been  
 moved by the pawl or dog F' and the latter  
 has been disengaged from the segment, the  
 latter will be held in a retracted position, by  
 the falling in its path of a stop *b*<sup>3</sup> carried by 95  
 the gravity drop I<sup>3</sup> pivoted to an upright I<sup>4</sup>,  
 until, by the operation of the time movement,  
 a pin or stud *f* projecting from or carried by  
 one of the shafts of the time movement strikes  
 and moves the gravity drop from the path of 100  
 said segment.

R designates the coin slot, in the top plate  
 of the apparatus, and R', a stationary metal-  
 lic block, arranged below the slot and formed  
 on its inner face with a recess at *r*, so that a 105  
 coin dropped through the slot will face an  
 oval or elliptical opening R<sup>2</sup> cut through the  
 block R'. A channel R<sup>4</sup> is formed in the face  
 of this block and communicates with the coin  
 chute leading to the coin chest or receptacle. 110  
 The inner wall of the recess or channel R<sup>4</sup> is  
 curved so as to terminate at its upper part in  
 a sharp edge in front of which the coin will  
 fall, so as to be in line with the lower curved  
 or inclined edge of the channel, said lower 115  
 edge of the coin channel constituting a guide  
 to direct and convey the coin toward the coin  
 chute. At the upper part of the channel R<sup>4</sup>  
 a switch point or beveled shoulder S is formed  
 to switch the coin in the proper direction. 120

S<sup>2</sup> designates another block or plate adja-  
 cent to the block R', and constituting with  
 the latter a part of the coin-receiving mech-  
 anism. The plate S<sup>2</sup> is rigidly secured to a  
 horizontal shaft or spindle S<sup>4</sup>, which has its 125  
 bearings in the block R', and in a plate U, re-  
 spectively, the plate U being secured to the  
 top plate of the apparatus. Upon the shaft



$S^4$  is also fixedly mounted the segment  $K^2$  heretofore referred to as being in engagement with the segment  $K'$ .

The plate  $S^2$  is recessed on its inner face, as shown at  $s$  and attached to said plate is a curved metallic tongue  $S^3$  which moves in a narrow channel formed in the back of the block  $R'$  behind a plate  $S^5$  secured to said block. The plate  $S^5$  is formed with a curved recess  $t$  at its upper end, into which opens a curved notch  $t'$ . The tongue  $S^3$  is similarly notched, as shown at  $t^2$ . A plug  $T^3$  having its bearings in the plate  $S^2$  and segment  $k^2$ , and provided with an encircling spiral spring  $t^5$ , has a tenon on its forward end which projects into the space below the coin slot, and a projecting rear end which is arranged and adapted to be brought into contact with a bend or shoulder  $V$  formed on a spring plate  $V'$  attached to the stationary plate  $U$ , when the plate  $S^2$  and segment  $k^2$  are turned after the deposit of a coin, and to be projected by said spring plate so as to impinge against the side of the deposited coin. When the plug  $T^3$  is so projected and strikes a coin, it cannot be moved farther lengthwise, hence the plate  $S^2$  and the parts coacting therewith may be moved sufficiently to bring into play the other devices necessary for the opening of the faucet. If no coin be inserted, or if a slug, washer or other substitute for a coin be used which will not prevent the forward movement of the plug, the latter will be projected, so that it will, if the plate  $S^2$  be moved a slight distance, strike the upper end of the plate  $S^5$ , and effectually bar any further movement of the plate  $S^2$ , and thus prevent any fraudulent operation of the liquid-dispensing mechanism.

When a coin or other device is inserted in the slot, and the plate  $S^2$  moved, a spring or tongue  $M$  attached to the plate  $S^2$  forces the coin to one side, so as to bring it into proper position for escape into the coin chute, but a pin or stud  $n$  projecting from the back of the block  $R'$  into the channel  $O^2$  prevents the coin from being pushed too far for such escape.

Operation: The parts being constructed and arranged as described and illustrated, if now a coin of proper size and value be dropped into the coin slot, and the handle  $E$  pulled forward, the first or initial movement of the shaft will turn the plate  $D^2$ , carrying pawls or dogs  $D'$  and  $D^3$ , and the pawl or dog  $D^3$  will engage the shoulder on plate  $k$  and move the segments  $K$   $K'$ , and with the latter the plates  $S^2$  and  $K^2$ . This operation brings the plug  $T^3$  in contact with the spring plate  $V$ , and the plug comes in contact with the surface of the coin and presses back the spring plate  $V$ . The plug  $T^3$  is now in such position that the plate  $S^2$  and segment  $K^2$  may be moved still farther, thus permitting a continuation of the movement of the handle  $E$

and shaft  $D$ , and allowing the pawl or dog  $D^3$  to ride on the edge of the stationary cam plate  $i'$  and be thrown out of engagement with the plate  $k$  of segment  $K'$ . The parts  $S^2$ ,  $K'$ ,  $K^2$  being now unrestrained, return to their normal positions, under the retracting pull of a spring  $V^2$  connecting the plate  $S^2$  to a stationary part of the apparatus. This recoil movement causes the tongue  $S^3$  to forcibly press the coin into the channel  $R^4$ . In the event of a washer, or yielding slug or blank being substituted for a proper coin, the plug  $T^3$  moving lengthwise under the pressure of the spring plate  $V$ , will either penetrate the washer or bulge or bend the yielding blank or slug, and will project so far that its shoulder will come in contact with the plate  $S^5$ , if it be attempted to turn the handle  $E$ , and any further movement of the parts will be frustrated. The opening  $R^2$  through the block  $R'$  is so shaped and proportioned that the coin or other device inserted will be held solely by a part of its edge, hence a yielding plug, slug or like device will be forced out of shape, and either coin or slug will be moved laterally into line with the channel leading to the coin chute. The recoil of the plate  $S^2$  and tongue  $S^3$  above mentioned, causes the coin or other device used therefor to be forcibly ejected into the channel  $R^4$  from which it rolls to the coin box, but unless a proper coin has been inserted, the faucet cannot be opened. Upon continuing the movement of the handle  $E$ , after the operations already described, the pawl or dog  $D'$  engages with and turns the tumbler  $H$  and further winds and increases the tension of the spring of the time movement. When the pawl or dog  $D'$  reaches the cam piece  $i$  and is lifted thereby out of engagement with the tumbler  $H$ , the time movement starts running in a reverse direction, and continues to run until the tumbler  $H$  is moved back to its normal position, when further running ceases. The time occupied by the time movement in so running before releasing the segment  $G'$ , is the measure of time during which the faucet will be kept open, and by regulating the size of the escape opening from the faucet to the time of running, the quantity of liquid dispensed can be accurately measured and controlled. Just prior to the release of the pawl or dog  $D'$  from engagement with the tumbler  $H$ , the pawl or dog  $F'$  engages with the shoulder on the hub of the segment  $G'$ , and the latter is then turned or moved, so as to turn the segment  $G$  and open the faucet. When the pawl or dog  $F'$  reaches the cam plate  $F^3$ , it is lifted thereby out of engagement with the hub of segment  $G'$ , leaving the latter in condition to be restored to normal, after the requisite portion of liquid has been drawn. While the liquid is being drawn, the segment  $G'$  is restrained from returning to its original posi-



tion by the gravity drop, and so remains, until by the continued movement of the timing devices, the gravity drop is moved out of the path of the segment, whereupon the latter  
5 will be restored to its normal position by the retractile force of a spring L, connecting said segment with the framing of the apparatus (such spring having been strained or brought to tension by the forward movement of the  
10 segment), and the faucet will be closed.

The time movement is provided with the usual or any suitable escapement mechanism or other means for controlling its speed.

Having described my invention, what I  
15 claim as new and desire to secure by Letters Patent, is:

1. A liquid-dispensing apparatus, comprising a faucet or valve, manually operated devices for opening said valve, independ-  
20 ently releasable checking or restraining devices, automatically operating means for maintaining said valve or faucet open during a predetermined period of time, and then closing it, and means, whereby, after the pre-  
25 liminary or initial movements upon which the opening of the faucet depends, the contributing devices and mechanisms are restored to normal positions.

2. In liquid-dispensing apparatus, the  
30 combination with a main shaft, an operating handle, and releasable restraining devices, of a spring-actuated time movement, operatively connected with said shaft and adapted to be operated thereby to increase the ten-  
35 sion of the spring, a valve or faucet, means dependent upon the release of said restrain-

ing devices for opening said faucet, when said shaft is operated to the limit of its movement, and means for closing said faucet at the expiration of said period. 40

3. In a liquid-dispensing apparatus, the combination with a time movement to control the flow of liquid, and manually operable means for opening the delivery faucet or valve and controllable devices for holding  
45 said manually operable devices in check, of means for winding the spring of the time movement and permitting said time movement to operate, after such winding, and independently of said manually operable de-  
50 vices, and means for allowing said controllable devices to return to their normal positions, after the winding of said spring and before the opening of the valve or faucet.

4. In a liquid-dispensing apparatus, the  
55 combination with the main shaft D, having the handle E, of a series of dogs or pawls connected thereto, tumblers or shouldered plates with which said pawls successively engage, devices for releasing said pawls from  
60 such engagement, devices which normally restrain the movement of said handle and means, including said restraining devices, for controlling the movement of said pawls.

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

JOSEPH J. MACKEOWN.

Witnesses:

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D. T. JOYCE.