

No. 753,548.

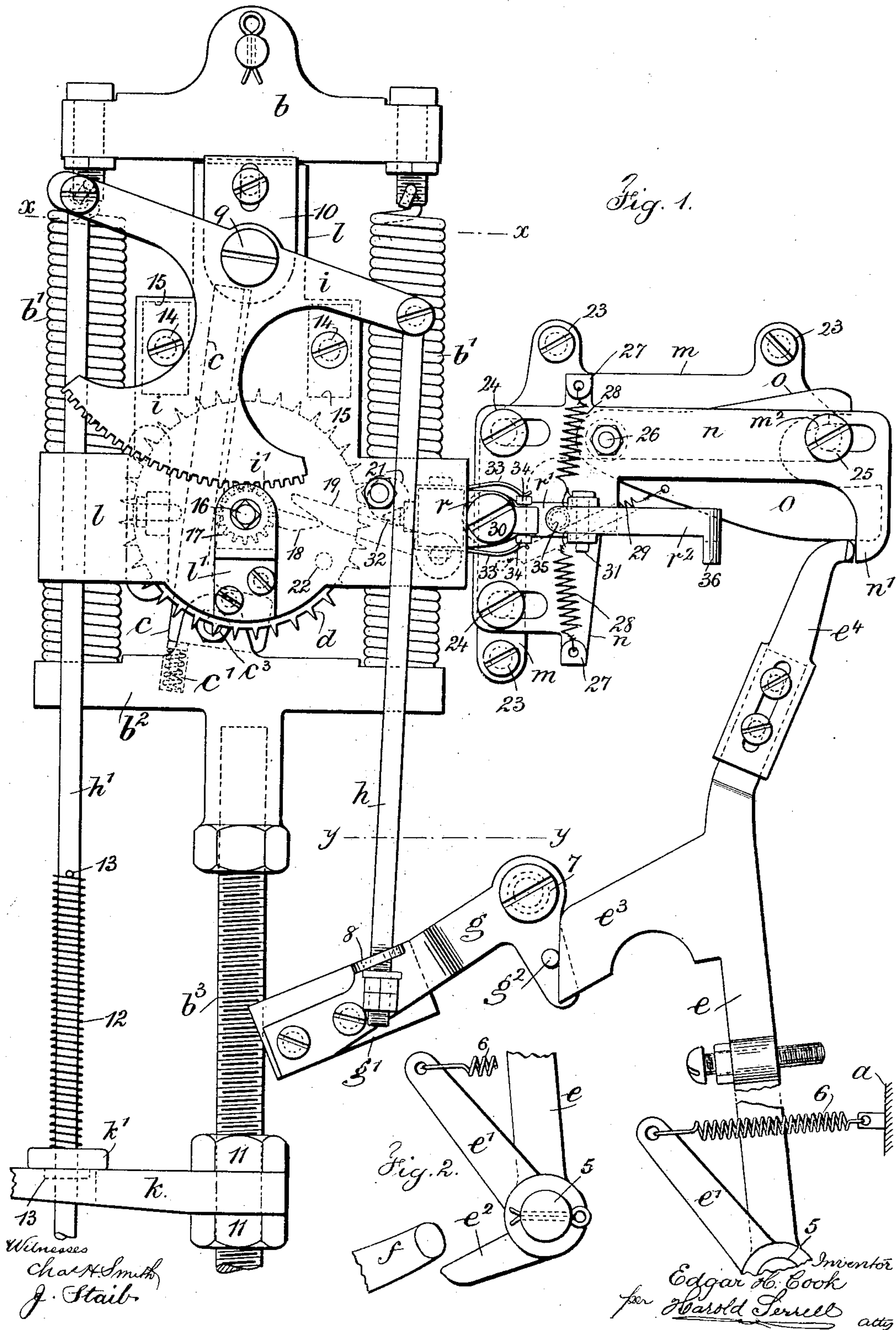
PATENTED MAR. 1, 1904.

E. H. COOK.
WEIGHING MACHINE.

APPLICATION FILED JUNE 22, 1903.

NO MODEL.

5 SHEETS—SHEET 1.



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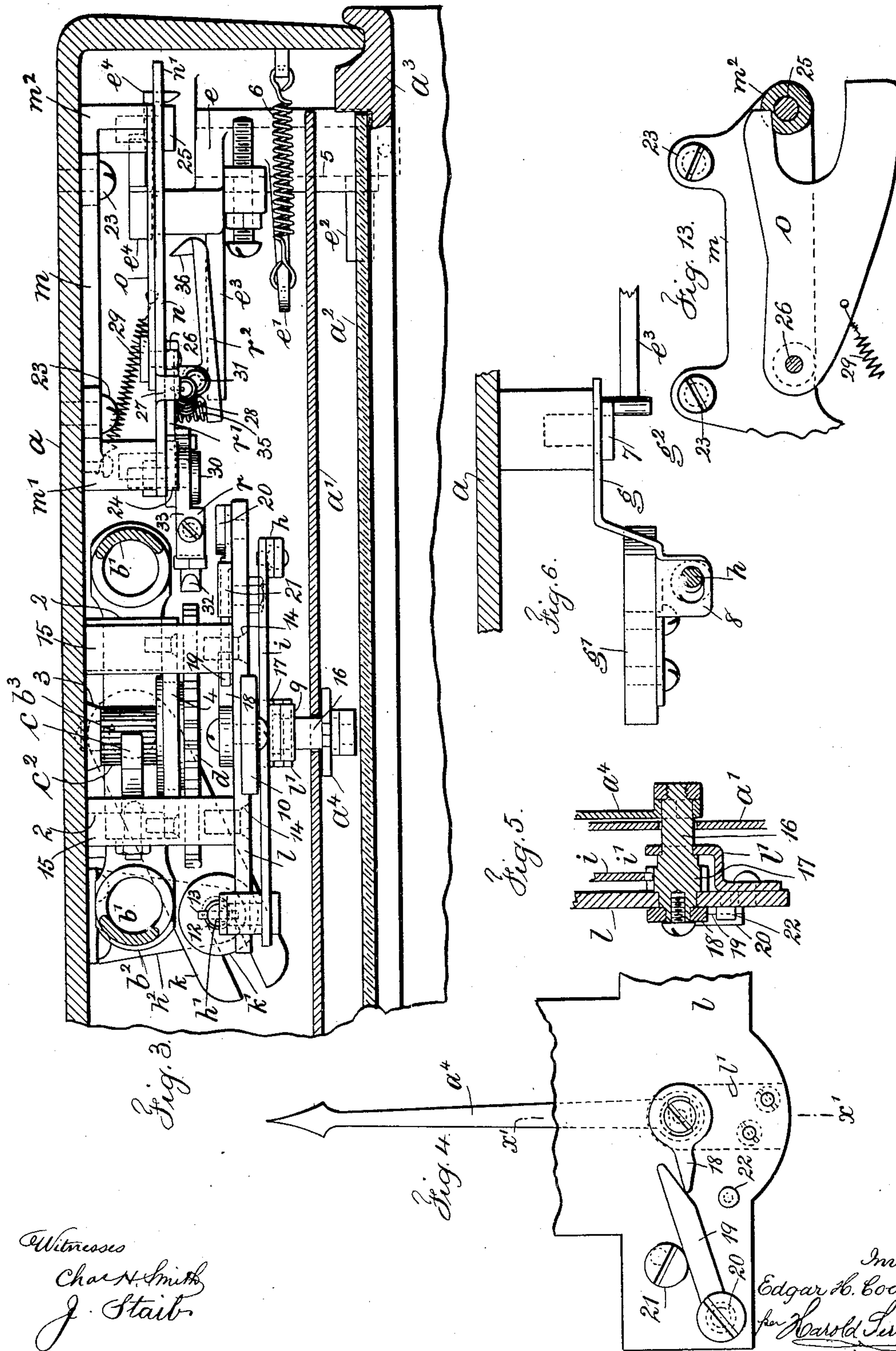
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5 SHEETS—SHEET 2.



Witnesses
Charles Smith
J. Staib

Inventor
Edgar H. Cook
per Harold L. Luce
att'y

No. 753,548.

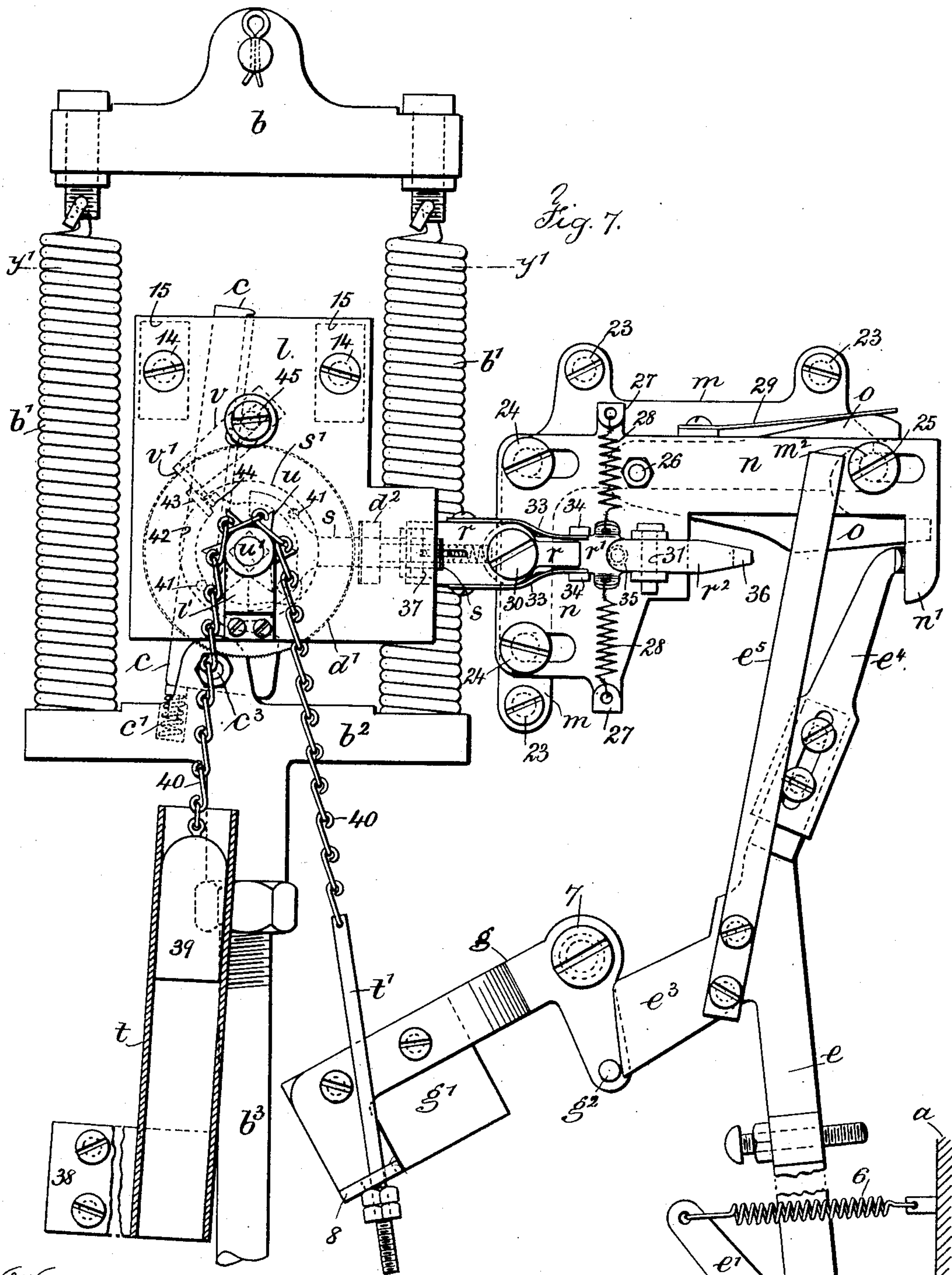
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5 SHEETS—SHEET 3.



Witnesses
Charles Smith
J. Stair

Inventor
Edgar H. Cook
for Harold Ferrell

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5 SHEETS—SHEET 4.

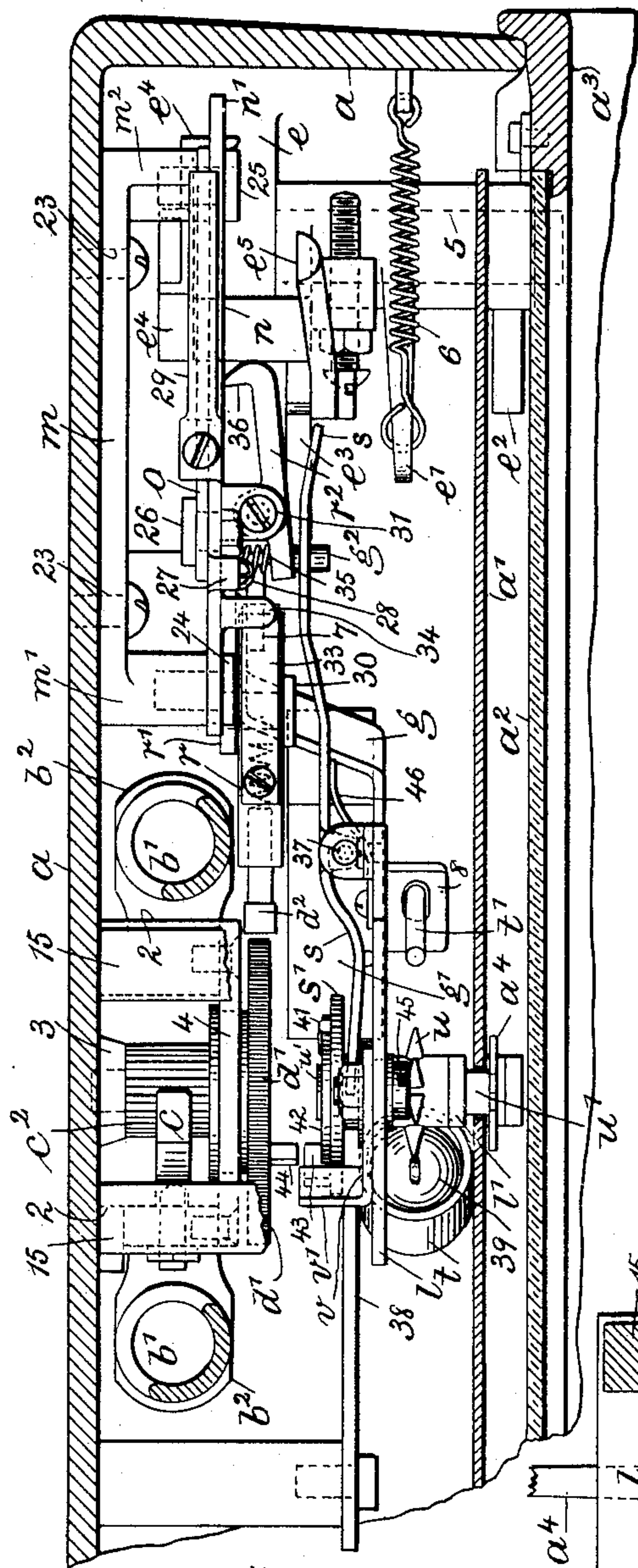


Fig. 8.

Fig. 10.

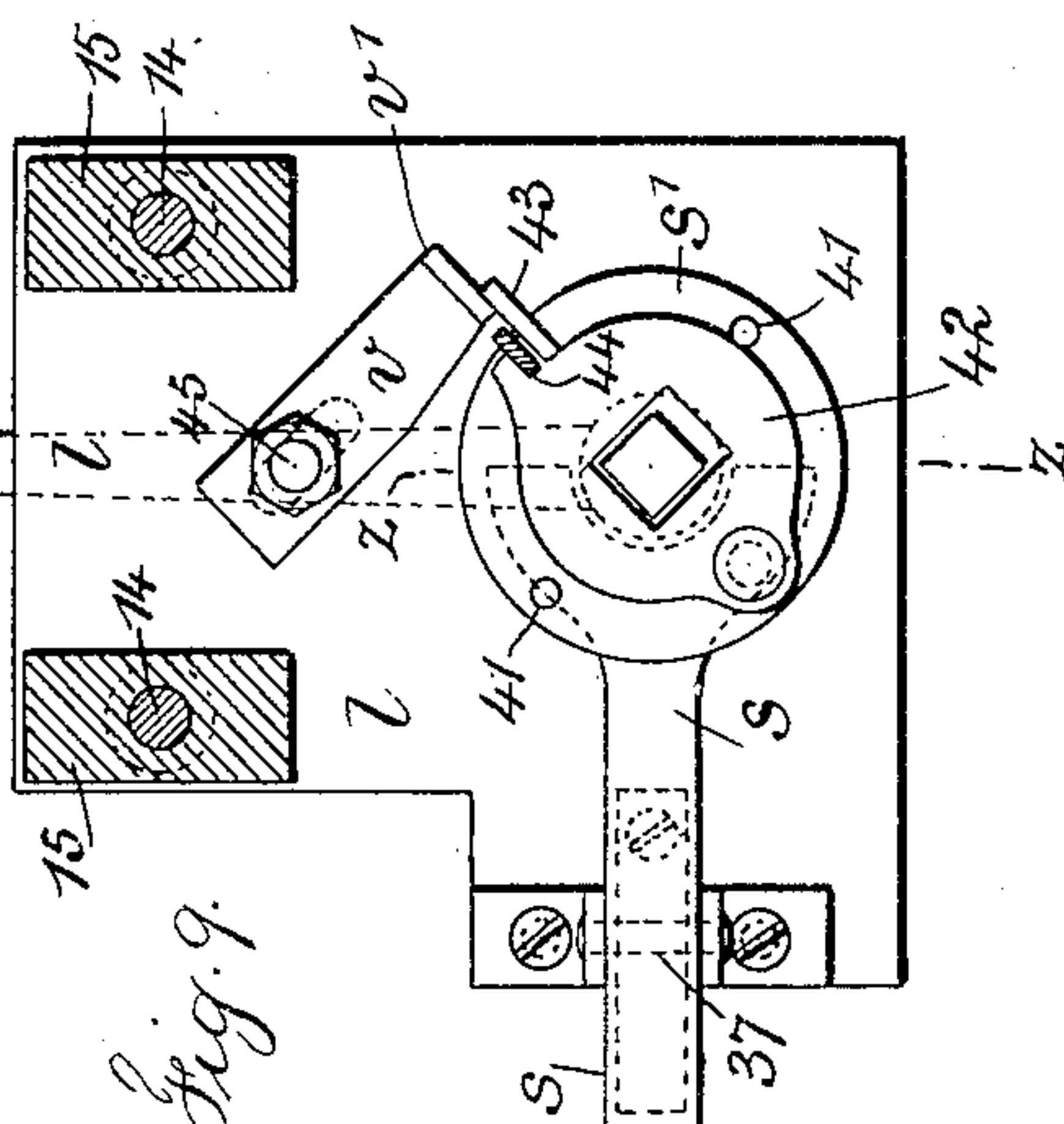
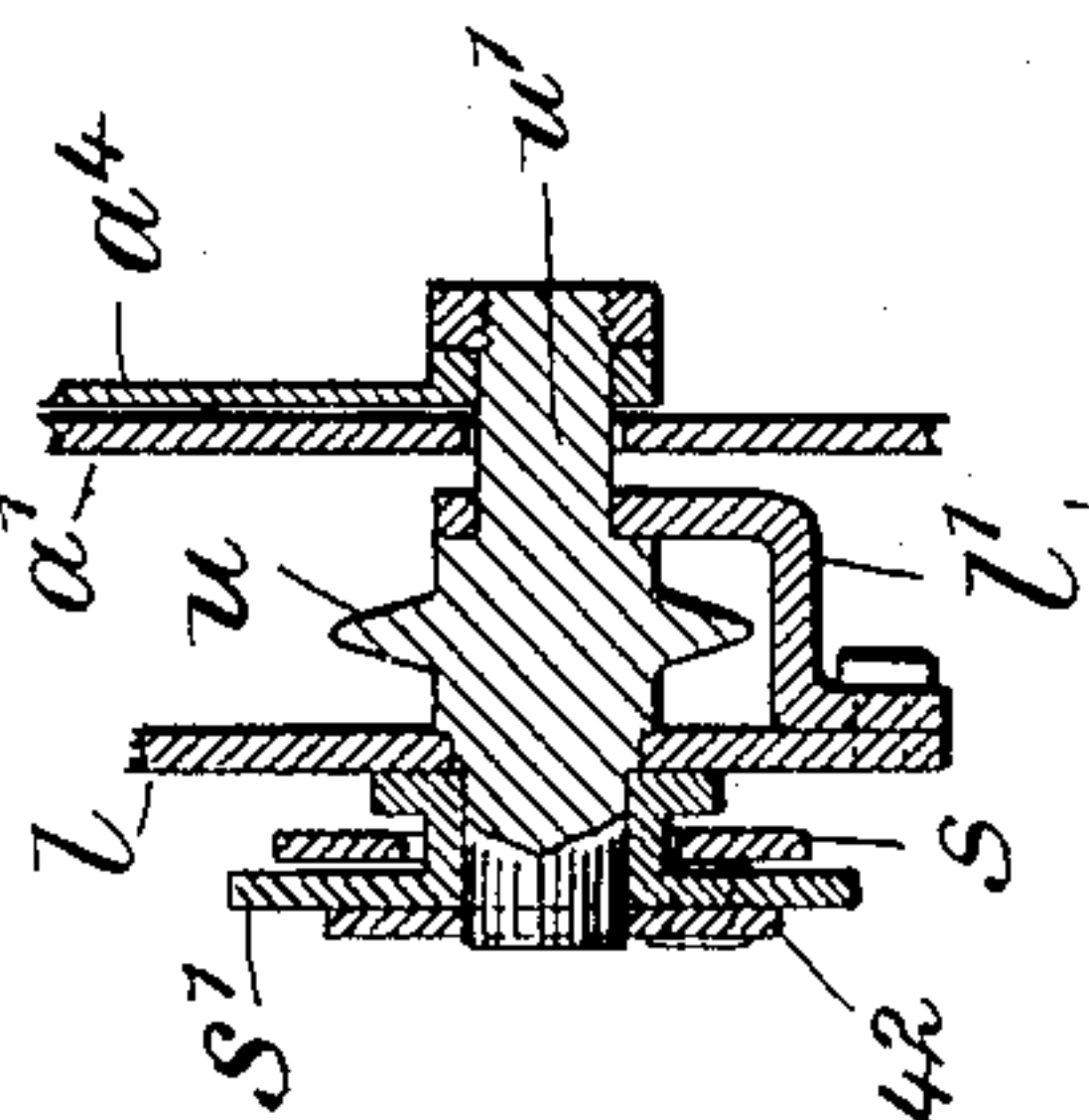


Fig. 9.

Witnesses

Chas. H. Smith
J. Staib

Inventor

Edgar H. Cook.
Per Harold Terrell

att'y

No. 753,548.

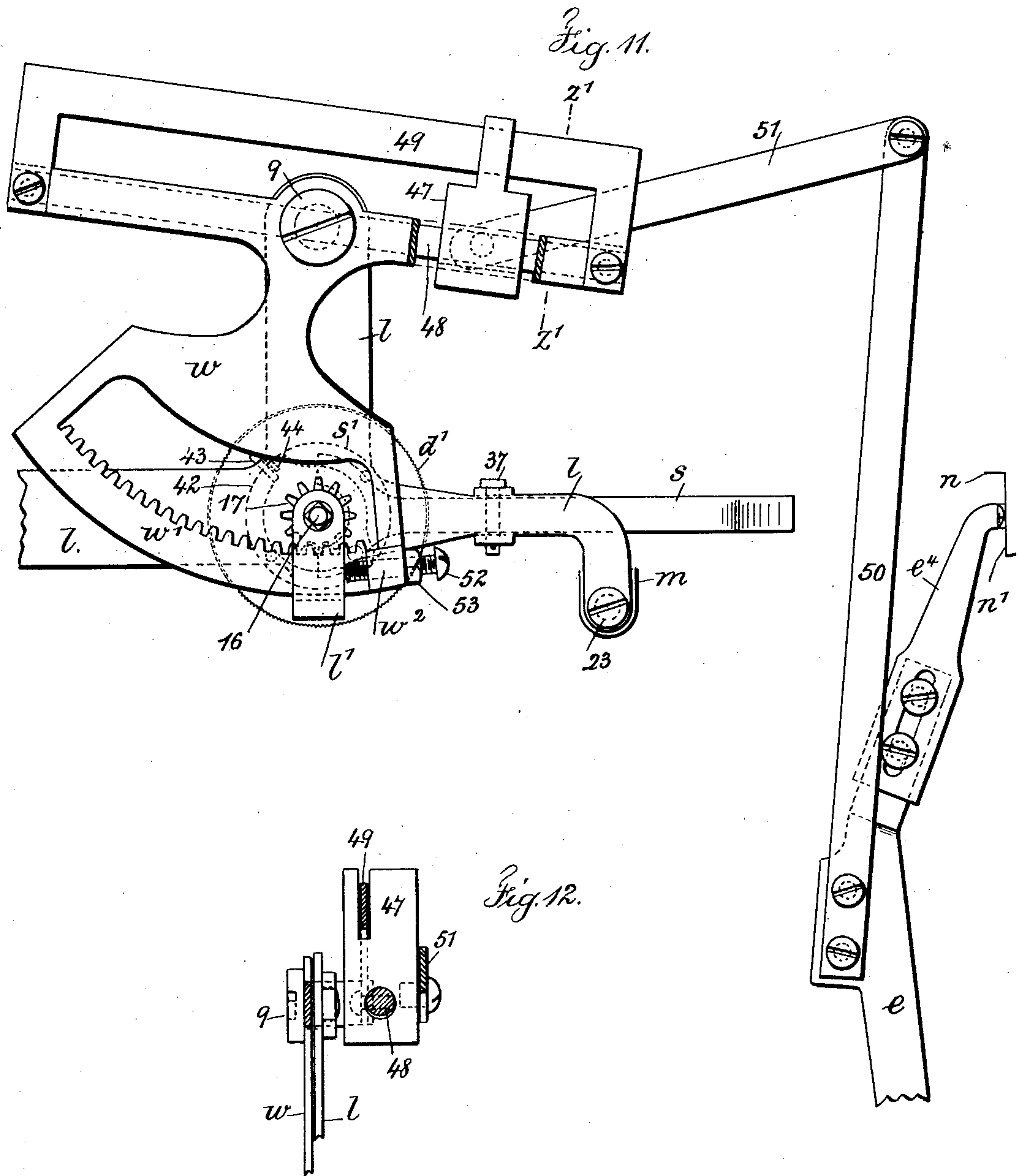
PATENTED MAR. 1, 1904.

E. H. COOK.
WEIGHING MACHINE.

APPLICATION FILED JUNE 22, 1903.

NO MODEL.

5 SHEETS—SHEET 5.



Witnesses

Chas H. Smith
J. Staib

Inventor

Edgar H. Cook.
Per Harold Lunnell

alt

UNITED STATES PATENT OFFICE.

EDGAR H. COOK, OF NEW YORK, N. Y.

WEIGHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 753,548, dated March 1, 1904.

Application filed June 22, 1903. Serial No. 162,478. (No model.)

To all whom it may concern:

Be it known that I, EDGAR HERBERT COOK, a citizen of the United States, residing at the borough of Brooklyn, in the county of Kings, city and State of New York, have invented an Improvement in Weighing-Machines, of which the following is a specification.

My invention relates to an improvement in weighing-machines, particularly of the class the operation of which is manually effected and made possible by and after the insertion of a coin in a slot.

In the device of my present invention the weight of a person upon the platform does not actuate the index-hand of the dial, but determines the position of a part acting as a stop for the indicating mechanism. This indicating or index-operating mechanism and the parts associated therewith are actuated by weights oppositely placed, the movement in one direction being preferably effected by the release of one weight and the return movement by bringing this latter weight again in evidence.

The device actuated by the coin mechanism simultaneously locks and holds the toothed disk of the platform group of devices and also insures the operation of the index-hand of the dial by the aforesaid weight mechanism. In this latter group of devices is a sliding plate and pivoted spring-held tooth-arm. I also provide a device acting as a stop to the hand or index operating mechanism together, and coacting with which is an adjustable device for setting the index-hand to normal zero, all of which parts are hereinafter more particularly described.

In the drawings, Figure 1 is an elevation of the essential features of a weighing-machine, illustrating the improved form of my invention. Fig. 2 is an elevation showing the complete parts at the lower end of Fig. 1, together with the end of the arm of a prime mover, such as the prime mover of a coin-actuated device. Fig. 3 is a sectional plan of the parts shown in Fig. 1, substantially on the line $x-x$ of Fig. 1. Fig. 4 is an elevation of the devices for adjusting the normal zero position of the index-hand. Fig. 5 is a vertical cross-section substantially on the line x'

x' of Fig. 4. Fig. 6 is a sectional plan of parts omitted from Fig. 3 and shown in Fig. 1 substantially on the line $y-y$. Fig. 7 is an elevation similar to Fig. 1, but showing a form of my invention. Fig. 8 is a sectional plan of the parts shown in Fig. 7 on the line $y'-y'$ with the chain omitted. Fig. 9 is an elevation from behind a front plate, showing the normal zero-adjusting devices for the index-hand. Fig. 10 is a vertical section on the line $z-z$ of Fig. 9. Fig. 11 is an elevation of a modified form of mechanism for operating the index-hand. Fig. 12 is a cross-section on the line $z'-z'$ of Fig. 11, and Fig. 13 is an elevation showing a pivoted plate of Fig. 1 as locked in one of its positions.

In the drawings similar characters of reference are employed to designate similar parts.

The following is a summary of the essential and generic characteristics of my present invention. The weight of the person to be weighed on the platform of the scales does not directly actuate the hands of the dial. A device actuated by the prime mover of a coin-actuated mechanism simultaneously locks the toothed disk of the platform series of devices and operates the hands of the dial to indicate the weight. The device employed to engage and lock the toothed disk of the platform series of devices includes a sliding plate and pivoted spring-held toothed arm. The operating mechanism for actuating the index or hand includes weights oppositely placed, preferably counterbalance-weights, the respective positions and control of which constitute the force for actuating the hand or index mechanism, a device acting as a stop to limit the extent of movement of the index or hand of the indicating mechanism, and a device providing for the zero adjustment of said hand or index, so that on the return movement thereof the same is sure to stop at "0" or zero.

In Figs. 3 and 8, a represents the case of the machine with ends; a' , the dial secured in any desired or usual manner; a'' , a glass face to the dial; a''' , the frame of the glass face coming against the edges of the sides of the main case of the machine, the said frame and the glass face being connected together and secured to the case in any desired or usual manner. a''''

represents the index or pointer. In the other figures of the drawings and for the purpose of clearness these parts have been omitted.

The platform group of devices comprises a head-block b , pivotally connected to a stud or equivalent part of the case a of the machine.

b' b' are helical springs at one end connected to studs which pass through the opposite ends of the head-block b , said springs being placed vertically and at their lower ends connected to the T-head b^2 , the stem of said T-head having an aperture and being interiorly threaded to receive the threaded upper end of the vertical rod b^3 , a clamp-nut at the lower end of said T-head being shown and preferably provided to prevent accidental unscrewing of the parts.

c is a rack-bar connected to the head b^2 by a pivot c^3 . A spring device c' holds said rack-bar, which is preferably inclined toward the vertical center of the mechanism and engaging a pinion c^2 . This pinion c^2 and the toothed disk d are preferably mounted upon or formed with an arbor which has its bearings in a hub 3 of the case a and a plate 4, secured to bracket-supports 2, extending from the case a . (See Fig. 3.)

A lever e of irregular shape is pivoted at 5 to the case a of the machine at a hub of said lever, and formed with this lever and its hub are an arm e' and a lever-foot e^2 . An extension e^3 of this lever is provided with an inclined end, and the upper part of said lever is made with an adjustable part or end e^4 , connected to the main portion of the lever by screws passing through a slot, so as to provide for the adjustability of the said end e^4 , especially with reference to parts that the bent end of said portion e^4 comes in contact with. A spring 6 is at one end connected to a short post of the case a and at its other end to the free end of the arm e' , and f , Fig. 2, represents the end of an arm or prime mover of a coin-actuated device, the manual operation of which is employed for effecting the functions of the weighing-machine.

A pivot 7 is connected to the case a , and a bell-crank lever g is mounted upon said pivot 7. This bell-crank lever has connected to the end of its long arm a weight g' , and this arm of the lever is also provided with a perforated lug 8. The short arm of the lever is provided with a pin g^2 , adapted to bear upon the inclined face or end of the lever extension e^3 . A rod h , occupying a substantially vertical position, passes at its lower end through the lug 8, and on the threaded lower end of this rod h are lock-nuts and a washer coming below the perforated lug 8. The upper end of this rod h is connected to a rocker-plate i . This rocker-plate is connected by a pivot 9 to an adjustable suspending-block 10, this block 10 being in turn secured by a screw to the plate l , and this plate l is secured by screws 14 to lugs 15, extending out from the case a .

The rocker-plate is provided with oppositely-extending arms, to the free end of one of which the rod h is pivotally connected, and to the free end of the other arm a rod h' is pivotally connected. This rocker-plate at its lower portion is formed as a toothed segment i' . The lower end of the rod h' moves in a guide-plate h^2 , Fig. 3, secured to the case a .

Upon the vertical rod b^3 of the platform group is an arm k , clamped thereto by the nuts 11, the end of said arm k being bifurcated to permit the lower end of the rod h' to pass through. On this rod h' between two pins 13 are a helical spring 12 and a ring k' . The ring k' normally rests upon the upper surface of the arm k , as will be seen from Fig. 1, which indicates the parts in their initial position—that is, a position of rest—and in which position the weighted bell-crank lever g bears against the nuts on the lower end of the rod h against the end of the lever extension e^3 , and at the same time the ring k' rests upon the surface of the arm k . In this position of rest the indicating hand or index a^4 is vertical and at "0" or zero.

l' represents a bracket-plate connected by screws to the surface of the plate l , and a short shaft 16 is supported by the said plate l and bracket-plate l' , having its bearings in said parts. Formed with or secured upon this shaft 16 is a pinion 17, the teeth of which mesh with the teeth of the segment i' . The outer end of this short shaft 16 passes through the dial a' and receives the hub end of the index or pointer a^4 , while the inner end of this shaft, that comes behind the plate l , has connected to it a hub and finger 18. An arm 19 is pivotally connected by a screw 20 to the back of the plate l . On the back of this plate l there are also a stop 22 and an eccentric bolt 21.

From Fig. 4 it will be noticed that the finger 18 is holding up the arm 19 against the periphery of the eccentric bolt 21. If the finger 18 be removed, the arm 19 will fall and rest upon the stop 22, whereas if the eccentric bolt is turned further toward the left it will be possible for the finger 18 to raise the arm 19 to a more elevated position than that shown in Fig. 4. This device acts as a stop to limit the extent of movement of the index or hand of the indicating mechanism and provides for the zero adjustment of movement of the index or hand, so that on the return movement thereof the same is sure to stop at "0" or zero. Referring to this device, Fig. 4, it will be noticed that in adjusting the parts the outer pointed end of the index a^4 should be moved exactly to "0" or zero, and simultaneous with said movement the finger 18 and arm 19 move, and the eccentric bolt 21 should be sufficiently elevated not to come in contact with these parts. While the index is held at "0" or zero, the eccentric bolt 21 is turned back until its periphery contacts with the upper surface of the arm 19, at which point it

is to be clamped by the nut on the stem of said bolt and against the outer surface of the plate l . With the eccentric bolt in this position the finger 18 will raise the arm 19 with each movement of the machine until the arm 19 strikes the periphery of the eccentric bolt 21, when the point of the index should stop at "0" or zero. This adjustment is required in different machines, as the finger 18 and its hub cannot be set on the shaft 16 with such precision in regard to the index a^4 that no after-adjustment is required.

A base-plate m , Figs. 1 and 3, is secured to the case a by screws 23. In Fig. 1 three of these screws are shown, the said plate m being of irregular outline, as indicated by the full and dotted lines. Formed with said base-plate m are bosses m' m^2 , two bosses m' and one boss m^2 being employed, the boss m^2 having a notch formed in the periphery thereof slightly back of the surface for the purpose hereinafter stated.

I provide a slidable plate n , secured to the bosses m' m^2 by screws 24 25 and having mortises, three in number, to fit over and move longitudinally upon hubs of said screws back of the heads. This plate n is provided at the right-hand end with a tailpiece n' , and an intermediate plate o is pivotally connected to the slidable plate n by the pivot screw or bolt 26, the right-hand end of the said plate o being notched to pass around the boss m^2 . The plate n carries two lugs 27, and I provide springs 28, one end of each spring being secured to an aperture of said lugs and the opposing ends of said springs being connected to the triple rocker-arm composed of parts r r' r^2 . A spring 29, having one end secured to the stud of the case a , is at its other end secured to the lower edge of the intermediate pivoted plate o . This spring 29 or the lever-arm e^4 may effect the movement of the plates n o and the parts associated therewith.

The triple rocker-arm composed of the parts r r' r^2 is a similar or closely analogous structure to the structures shown in Figs. 5 and 6 of Letters Patent granted to me December 18, 1900, No. 664,313, and May 20, 1902, No. 700,620. The parts r r' are connected by the pivot 30' to the slidable plate n . They are separate so far as their pivotal relation is concerned and are adapted to move somewhat independent of one another. The part r is provided with springs 33 and the part r' with lugs 34, and in Figs. 1 and 3 the free ends of the springs 33 come outside of and against the outer faces of the respective lugs 34, maintaining the part r in a yielding relation to the part r' . The part r is provided with a tooth 32, adapted to engage the teeth of the disk d when the parts are moved toward the left hand. The part r^2 is pivotally connected to the end of the part r' by a pivot-pin 31, which passes through lugs of the part r' and through the part r^2 , and there is a helical spring 35 be-

tween the outer surface of the part r' and the opposite and inner surface of the part r^2 , so as to normally maintain the part r^2 in substantially the position shown in Fig. 3. The part r^2 is at its free end made with a toothed end 36, inclined as shown in Fig. 3.

With reference to Figs. 7 and 8, the triple rocker-arm composed of the parts r r' r^2 and the parts associated therewith are substantially the same as just described with reference to Figs. 1 and 3, except that in Figs. 7 and 8 the free ends of the blade-springs 33 come under the lugs 35 and against their inner surfaces, and in Figs. 7 and 8 the tooth 32 is omitted and a serrated block d^2 , adapted to engage the toothed disk d' , is employed, this block having a short shaft fitting into the end of the part r' and provided with a spring having a yielding function for the contact of the serrated block with the toothed disk.

In Figs. 7 and 8, e^5 represents an arm secured at its lower end to the pivoted lever e , and s represents a lever having a bifurcated end at the left hand and pivotally connected at the pivot 37 to lugs upon the back of the plate l . This lever-arm s is of irregular form, (see Fig. 8,) and its free right-hand end is adapted to be engaged by the arm e^5 , which latter is preferably semicircular in cross-section, as will be hereinafter more particularly set forth.

In Figs. 7 and 8, t represents a tube-section secured to the case a by a support or bracket 38. Within this tube-section is a weight 39, having its upper end connected to a chain 40. The opposite end of the chain is connected to a rod t' , which passes through the perforated lug 8 of the bell-crank lever g . This chain passes over a star-wheel u , mounted upon or formed with a shaft u' , which shaft has its bearings in the plate l and the bracket-plate l' and at its forward end passes through the dial a' and has connected to it the index a^4 . On the rear portion of the shaft u' is a disk s' with a grooved hub, the groove of the hub receiving the bifurcated end of the lever-arm s , the said disk and hub being moved by said lever-arm. A spring 46 returns the lever s to an initial position. Attached to this disk s' is a disk 42, and the opening of said disk 42 is sufficiently larger than the shaft u' to permit said disk to be moved between the limitations of pins 41, secured in said disk s' . The disk 42 is provided with a projecting lug 43, and there is a lug 44 projecting from the surface of the toothed disk d' , said lugs being adapted to come into contact. On the back of the plate l there is a slide-plate v , having a bent free end v' , and a bolt 45 passes through a mortise of the plate l and through the plate v and is employed to connect the plates in a fixed relation. This plate v is movable in its relation to the bolt 45, so that its bent free end may be brought nearer to or farther from said bolt, and said plate is to be so placed

with reference to the plate l that the lug 43 will contact with the bent end v' . This device is employed both as a stop to limit the extent of movement of the index or hand of the indicating mechanism and for the adjustment of the said hand so as to bring the same to the zero-point, it being apparent that in proportion to the relation of said index-hand to the disks s' and 42 so it will be necessary to adjust the slide-plate v so that its bent end v' will contact with the lug 43 when the point of the index is precisely at "0," or zero, and that after once being adjusted the slide-plate v remains fixed, so as to bring the index-hand with each return movement to the normal position. Fig. 9 shows these parts in their normal relation.

In Fig. 11 I have shown a rocker-plate w upon the pivot 9, secured to the plate l , this rocker-plate being provided with a toothed segment w' , engaging the teeth of the pinion 17, and upon a guide-plate 49, connected to this rocker-arm, I have shown a slidable weight 47. Fig. 12 shows the guide-plate 49 as passing through a groove of the weight 47 and the weight 47 as resting and movable upon the support-rod 48. An arm 50 is connected to the lever e in substantially the same position and manner as is the arm e^5 , Fig. 7; but the free end of this arm 50 is pivotally connected to a link 51, which at its other end is pivotally connected to the weight 47. The lower end of this rocker-plate w is provided with a hub or enlargement w^2 . Through this passes a set-screw 52, upon which set-screw is a lock-nut 53. The pointed end of this set-screw 52 is adapted to come in contact with one vertical face of the bracket-plate l' , and this device also serves as a stop to limit the extent of movement of the index or hand of the indicating mechanism and also provides for the zero adjustment of said hand or index, the same returning to a normal position with the movement of the parts each time that the end of the set-screw 52 comes in contact with the surface of the bracket-plate l' . From this construction it will be apparent that as the index or hand is upon the shaft 16 of the pinion 17 the movement of the rocker-plate w effects the position of said index-hand, which position is regulated by screwing or unscrewing the set-screw 52, so that the overbalancing-weight 47 in the position shown in Fig. 11 will have its intended effect of maintaining the parts in the position shown, with the index or pointer at "0," or zero.

The operation of my improved weighing-machine is substantially as follows: The weight of the person to be weighed upon the platform of the scales acting upon the devices, Figs. 1 to 6, inclusive, draws down the vertical rod b^3 , straining the springs b' and by the rack-bar c' turning the toothed disk d and at the same time lowering the arm k , with the

rod b^3 . No indication of the weight is thus produced. This remains for the operation of the coin mechanism, which upon the insertion of the coin and the movement of the device actuates the arm f of the prime mover to bring the same with force into contact with the lever e^2 , so as to swing the lever e and the arm e' upon the pivot 5 against the force of the spring 6. This movement simultaneously effects a double function—that is to say, the lever e^4 is moved to the left. This permits the spring 29 to move the plate o and the slidable plate n , with the parts connected therewith, toward the left hand, following the movement of the lever e^4 . The extent of movement is, however, limited, because the moment the tooth 32 comes in contact with the toothed disk d the movement stops. Meanwhile, however, the end of the plate o has dropped into the notch of the boss m^2 , as shown in Fig. 13, so that an accidental or intentional return movement of the parts o n is prevented. Simultaneous with this movement the bent end of the lever e^4 has passed by the toothed end 36 of the part r^2 of the rocker-arm and engaged the same, so that this lever is locked. Also simultaneous with this movement the lever extension e^3 , pressing against the pin g^2 , has swung the bell-crank lever g on its pivot 7, raising the weight g' into a more nearly horizontal position, thus freeing the rods h h' and the rocker-plate i , and the rod h' , being the heavier, descends and causes a swinging movement of the rocker-plate i , which because of the toothed segment i' and the pinion 17 turns the index-hand until the ring k' upon the rod h' in its descent rests against the surface of the bifurcated arm k . This arm k in its position acts as a stop to limit the extent of movement of the index or hand of the indicating mechanism, and said hand is turned by the devices just described until in the descent of the rod h it reaches this part k , which acts as a stop. The weight of the person is then properly indicated and can be read by the person because visually seen in machines of this character. The moment the person upon the platform steps off or the weight is appreciably varied the toothed disk d receives a movement from a change of position of the vertical rod b^3 . This movement of the toothed disk effects the tooth 32 and swings the part r of the triple rocker-arm, simultaneously moving the parts r' and r^2 and either raising or depressing the toothed end 36, so that the same unlocks from the end of the lever e^4 and at once permits the spring 6 to act to return the lever device and the parts associated therewith to an initial position. This initial position permits the weight g' to fall and in said descent to operate the rods h h' , the rocker-plate i , and, through the intervention of the pinion 17, the finger 18, arm 19, and eccentric-bolt 21 to not only return but to bring the index or pointer a^4 to "0," or zero,

ready to repeat the operation. With the return movement of the lever e the upper end of the part e^4 , which underrides the plate o , raises the end of the plate o out of the notch of the boss m^2 and then comes against the tailpiece n' of the plate n and forcibly draws back the plate n , the plate o , and the parts of the triple rocker-arm into their initial position, as shown in Fig. 1, in which these parts are also ready to repeat the operations.

Referring to Figs. 7 and 8, the rod t' , the chain 40, the star-wheel u , and the weight 39, movable in the tube-section t , perform the same actuating function to move the index hand or pointer and indicate the weight of the person on the platform as do the rods h and h' and the rocker-plate i and the parts associated therewith. In Fig. 1 the bifurcated arm k is the part that acts as a stop to limit the extent of movement of the parts, so that the index or hand may come to the right place and indicate the weight of the person. In Fig. 7 the part performing this function is the lug 44 on the toothed disk d' , coacting with the lug 43 on the disk s' , because in the operation of the parts, Figs. 7 to 10, inclusive, when the lever e is actuated by the arm of the prime mover f the arm e^5 moves forward or to the left hand with the lever e^4 , and it acts upon the free end of the lever-arm s , swinging the same on its pivot 37 and moving the disk s' , with its hub, and the disk 42, carrying the lug 43, bodily toward the toothed disk d' , so that with the movement of the rod r and chain 40 by the weight 39 and the turning of the index or hand simultaneously with the turning of the disks s' and 42 the lug 43 may stop against the lug 44, so as to determine the extent of movement, the position of the lug 44 being controlled entirely in proportion to the weight of the person upon the platform.

In the form of my invention shown in Figs. 7 to 10, inclusive, when the person steps off the platform or the weight is modified and the parts returned to an initial position the spring 46, Fig. 8, acts against the lever-arm s to return the disks s' and 42 to their initial position, separating the lugs 43 and 44. Referring now to the form of invention shown in Figs. 11 and 12, the parts shown are adapted to be associated with the slide-block b , springs b' , T-head b^2 , and the vertical rod b^3 of Fig. 1 or the equivalent parts shown in Fig. 7, together with the rack-bar c , the pinion c^2 , and the toothed disk d' , these parts particularly relating to the operating mechanism for actuating the index or hand. In these devices and with the movement of the lever e by the arm of the prime mover of the coin-actuated mechanism from the initial position, Fig. 11, the arm 50 is moved to the left hand, carrying with it the link 51 and the slidable weight 47. This weight is carried to the other side of the pivot 9 or center of the rocker-plate w and the

part associated therewith. Consequently the weight exerts its force upon the other side of the center to swing this rocker-plate w and in its movement and by its toothed segment w' to turn the pinion 17 and shaft 16 and the index or pointer from "0," or zero, to indicate the weight of the person upon the platform, the extent of this movement being preferably controlled by the devices shown in Figs. 7 to 10, inclusive, and comprising the disks s' , 42, the lugs 43 44, and lever-arm s . This device is adapted to be associated with either the particular form of plates m , n , and o and parts associated therewith, (shown either in Figs. 1 or 7,) it being a fact that with the return movement of the lever e to its initial position the slidable weight 47 is returned to the full-line position, Fig. 11, where it exerts its force to move the rocker-plate w in the reverse position until the end of the set-screw 52 comes in contact with the base of the bracket-plate l' and the index or pointer is brought to "0," or zero, preparatory to repeating the operations.

I claim as my invention—

1. In a weighing-machine, the combination with devices actuated by the weight of a person including a limiting-stop, and means for holding said devices free from vibration, of a prime mover and a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, and a device intermediate of the latter devices and actuated primarily by the prime mover, and the operation of which permits the movement of the indicating mechanism and is also adapted for returning the same to its initial position.

2. In a weighing-machine, the combination with devices actuated by the weight of a person including a limiting-stop and means for holding said devices free from vibration, of a prime mover and a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, and a movable weight device the operation of which permits the movement of the indicating mechanism and is also adapted for returning the same to its initial position.

3. In a weighing-machine, the combination with devices actuated by the weight of a person including a limiting-stop, and means for holding said devices free from vibration, of a prime mover and a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, and a movable weight device actuated by the device set in motion by the prime mover, the movement of which in one direction permits the movement of the index-operating mechanism, and the movement of which in the opposite direction to its initial position and by

its weight returns the index-operating mechanism to its initial position and the index to 0 or zero.

4. In a weighing-machine, the combination with devices actuated by the weight of a person including a limiting-stop and means for holding said devices free from vibration, of a prime mover, a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, a device intermediate of the latter devices the operation of which permits the movement of the indicating mechanism and is also adapted for returning the same to its initial position, and a device acting as a stop to limit the extent of movement of the index or hand of the indicating mechanism.

5. In a weighing-machine, the combination with devices actuated by the weight of a person including a limiting-stop and means for holding said devices free from vibration, of a prime mover, a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, a device intermediate of the latter devices the operation of which permits the movement of the indicating mechanism and is also adapted for returning the same to its initial position, and an adjustable device providing for the 0 or zero adjustment of the hand or index, so that on the return movement thereof the same is sure to stop at 0 or zero.

6. In a weighing-machine, the combination with devices actuated by the weight of a person including a limiting-stop, and means for holding said devices free from vibration, of a prime mover, a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, a device intermediate of the latter devices the operation of which permits the movement of the indicating mechanism and is also adapted for returning the same to its initial position, a device acting as a stop to limit the extent of movement of the index or hand of the indicating mechanism, and a device coacting therewith and providing for originally setting the index or hand to 0 or zero, so that on the return movement thereof the same is sure to stop at 0 or zero.

7. In a weighing-machine, the combination with devices actuated by the weight of a person including a limiting-stop, and means for holding said devices free from vibration, of a prime mover, a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, a movable weight device actuated by the device set in motion by the prime mover the movement of which in one direction permits the movement of the index-operating mechanism and

the movement of which in the opposite direction to its initial position and by its weight returns the index-operating mechanism to its initial position and the index to 0 or zero, and a device acting as a stop to limit the extent of movement of the index or hand of the indicating mechanism.

8. In a weighing-machine, the combination with devices actuated by the weight of the person including a limiting-stop, and means for holding said devices free from vibration, of a prime mover, a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, a movable weight device actuated by the device set in motion by the prime mover the movement of which in one direction permits the movement of the index-operating mechanism and the movement of which in the opposite direction to its initial position and by its weight returns the index-operating mechanism to its initial position and the index to 0 or zero, and an adjustable device providing for the 0 or zero adjustment of the hand or index so that on the return movement thereof the same is sure to stop at 0 or zero.

9. In a weighing-machine, the combination with devices actuated by the weight of a person including a limiting-stop, and means for holding said devices free from vibration, of a prime mover, a device actuated thereby, an index or pointer and devices operating automatically for moving the same limited by the stop and thus indicating the weight, a pivoted and movable weight device actuated by the device set in motion by the prime mover the movement of which in one direction permits the movement of the index-operating mechanism and the movement of which in the opposite direction to its initial position and by its weight returns the index-operating mechanism to its initial position and the index to 0 or zero, a device acting as a stop to limit the extent of movement of the index or hand of the indicating mechanism, and a device coacting therewith and providing for originally setting the index or hand to 0 or zero, so that on the return movement thereof the same is sure to stop at 0 or zero.

10. In a weighing-machine having a case, the combination with the index-hand or pointer, and a shaft carrying the same, of means for turning the said shaft in opposite directions, oppositely-placed weights and connections therefrom to said devices, a prime mover and means actuated thereby for moving one of said weights to bring the other in evidence for actuating the index-operating mechanism, the release of which first weight actuates said index-operating mechanism to return the same to an initial position.

11. In a weighing-machine having a case, the combination with an index-hand or pointer, a shaft therefor and a toothed wheel on said

shaft, of a device meshing with said toothed wheel for turning the same, the shaft and moving the index or pointer, means for releasing the connection at one end of said device, a weight for simultaneously actuating the hand mechanism upon such release, and a weight for returning said parts to an initial position.

12. In a weighing-machine having a case, the combination with a vertically-movable rod, springs and connections between the same and to the case and which devices are actuated by a weight, an index-hand or pointer, a shaft therefor and a toothed wheel on said shaft, of a rocker-plate, a toothed segment formed therewith and engaging said toothed wheel, depending rods h h' from opposite ends of the said rocker-plate, an arm upon the vertically-moving rod of the platform devices bifurcated at one end to receive the lower end of the rod h' , a ring and spring around the rod h' between pins forming stops, a bell-crank lever pivoted to the case of the machine, a stud on the short arm of said lever, a weight and perforated lug on the long arm of said lever, and the said rod h passing through said lug, a prime mover and a lever device actuated thereby and having an extension with an inclined end adapted to come into contact with the stop of the said bell-crank lever to swing the same and raise the weight of the said lever to release and permit the operation of the index-operating mechanism.

13. In a weighing-machine having a case, the combination with a vertically-movable rod, springs and connections between the same and to the case and which devices are actuated by a weight, an index-hand or pointer, a shaft therefor and a toothed wheel on said shaft, of a rocker-plate, a toothed segment formed therewith and engaging said toothed wheel, depending rods h h' from opposite ends of the said rocker-plate, an arm upon the vertically-moving rod of the platform devices bifurcated at one end to receive the lower end of the rod h' , a ring and spring around the rod h' between pins forming stops, a bell-crank lever pivoted to the case of the machine, a stud on the short arm of said lever, a weight and perforated lug on the long arm of said lever, the said rod h passing through said lug, a prime mover and a lever device actuated thereby and having an extension with an inclined end adapted to come in contact with the stop of the said bell-crank lever to swing the same and raise the weight of the said lever to release and permit the operation of the index-operating mechanism, and means acting as a stop to limit the extent of movement of the index or hand of the indicating mechanism, and so acting that on the return thereof to an initial position the same is sure to stop at 0 or zero.

14. In a weighing-machine having a case, the combination with a vertically-movable rod, springs and connections between the same and to the case and which devices are actuated by

a weight, an index-hand or pointer, a shaft therefor and a toothed wheel on said shaft, of a rocker-plate, a toothed segment formed therewith and engaging said toothed wheel, depending rods h h' from opposite ends of the said rocker-plate, an arm upon the vertically-moving rod of the platform devices bifurcated at one end to receive the lower end of the rod h' , a ring and spring around the rod h' between pins forming stops, a bell-crank lever pivoted to the case of the machine, a stud on the short arm of said lever, a weight and perforated lug on the long arm of said lever, the said rod h passing through said lug, a prime mover and a lever device actuated thereby and having an extension with an inclined end adapted to come in contact with the stop of the said bell-crank lever to swing the same and raise the weight of the said lever to release and permit the operation of the index-operating mechanism, means acting as a stop to limit the extent of movement of the index or hand of the indicating mechanism and so acting that on the return thereof to an initial position the same is sure to stop at 0 or zero, and a device coacting with the latter device and adjustable for originally setting the index or hand at 0 or zero in each machine.

15. In a weighing-machine having a case, the combination with a vertically-movable rod, springs and connections between the same and to the case and which devices are actuated by a weight, the index-hand or pointer, and a shaft carrying the same, of a finger on the shaft of the index or hand and movable therewith, a pivoted arm, a support therefor, a stop to limit the downward or gravity movement of said arm, and an adjustable device also on the support of said arm and adapted to regulate the extent of the upward movement thereof imparted by the said finger so as not only to act as a stop to limit the extent of movement of the index or hand of the indicating mechanism, but to provide for the zero adjustment of said hand or index, so that on the return movement thereof the same is sure to stop at 0 or zero.

16. In a weighing-machine having a case, the combination with the index-hand or pointer and a shaft carrying the same, of a plate and a part connected therewith forming a bearing for the shaft of said index or pointer, a device carried by said shaft revoluble therewith back of said plate, a device supported by said plate and capable of an adjusted relation, a part intermediate of the said latter devices moving by the former and contacting with the latter and collectively acting for arresting the movement of the index or pointer and for originally adjusting the position thereof at 0 or zero so that on the return movement of said index or pointer the same is sure to stop at 0 or zero.

17. In a weighing-machine having a case, the combination with a vertically-movable rod,

springs and connections between the same and to the case and which devices are actuated by the weight a rack moving therewith, a shaft, a toothed disk and pinion thereon actuated by the rack, a spring-controlled pivoted rocker-arm device adapted to contact with said toothed disk and prevent vibrations thereof, a longitudinally-movable support and locking device connected therewith and carrying said rocker-arm, a prime mover and a lever device actuated thereby for holding the aforesaid group of devices in an initial position, and a spring for moving the said devices upon the release of the lever device for bringing the point of the rocker-arm device in contact with the toothed disk.

18. In a weighing-machine having a case, the combination with a vertically-movable rod, springs and connections between the same and to the case and which devices are actuated by the weight a rack moving therewith, a shaft, a toothed disk and pinion thereon actuated by the rack, a spring-controlled lever device, a prime mover for operating the same in one direction, a plate connected to the case of the machine, a plate slidable on the aforesaid plate and a plate pivoted thereto, a spring for moving the said plates in one direction, their return movement being effected by the lever device, means for locking the pivoted plate in its relation to the slidable plate, a spring-controlled rocker-arm structure adapted to come into contact with the toothed disk and hold the same free from vibration, a part formed with said rocker-arm adapted to engage the free end of the lever device to hold the same in a locked position, the release being effected by the forcible movement of the toothed disk swinging the rocker-arm structure.

19. In a weighing-machine having a case, the combination with the platform-operated series of devices and a toothed disk actuated thereby, of a plate secured to the case of the machine and having lugs, a slidable plate having mortises and supporting-screws passing into the lugs and connecting the same to the aforesaid plate, one of which lugs is provided with a notch, a plate pivoted to the slidable plate and having an end adapted to engage the notch of the said lug to lock both plates in position at one end of their movement, a rocker-arm structure pivoted to the slidable plate and having an end adapted to engage the toothed disk, a spring for moving the slidable and pivoted plates in one direction, a prime mover and a spring-controlled pivoted device actuated thereby and coacting with the

aforesaid devices, substantially as set forth.

20. In a weighing-machine having a case, the combination with the platform-operated series of devices and a toothed disk actuated thereby, of a plate secured to the case of the machine, and having lugs, a slidable plate having mortises and supporting-screws passing into the lugs and connecting the same to the aforesaid plate, one of which lugs is provided with a notch, a plate pivoted to the slidable plate and having an end adapted to engage the notch of the said lug to lock both plates in position at one end of their movement, a rocker-arm structure pivoted to the slidable plate and having an end adapted to engage the toothed disk, a spring for moving the slidable and pivoted plates in one direction, a spring-controlled lever device having an adjustable part at its upper end, the free end of which is provided with an offset or bent part, a prime mover for actuating this lever device, a toothed end of the pivoted rocker-arm adapted in one position to interlock with the free end of the lever device, the release being effected by the movement of the toothed disk, the free end of said lever device with its return movement underrunning the lower edge of the plate pivoted to the slidable plate to raise the same and unlock it from the notch of said lug and said slidable plate having a tail end with which the free end of the lever devices comes into contact to simultaneously return the slidable and pivoted plates and the rocker-arm to an initial position.

21. In a weighing-machine having a case, the combination with the platform-operated series of devices and a toothed disk actuated thereby, of a plate secured to the case of the machine and having lugs, a slidable plate having mortises and supporting-screws passing into the lugs, and connecting the same to the aforesaid plate, one of which lugs is provided with a notch, a plate pivoted to the slidable plate and having an end adapted to engage the notch of the said lug to lock both plates in position at one end of their movement, a rocker-arm structure pivoted to the slidable plate and having an end adapted to engage the toothed disk, a prime mover and a spring-controlled pivoted device actuated thereby and coacting with the aforesaid devices, substantially as set forth.

Signed by me this 19th day of June, 1903.

EDGAR H. COOK.

Witnesses:

GEO. T. PINCKNEY,
S. T. HAVILAND.