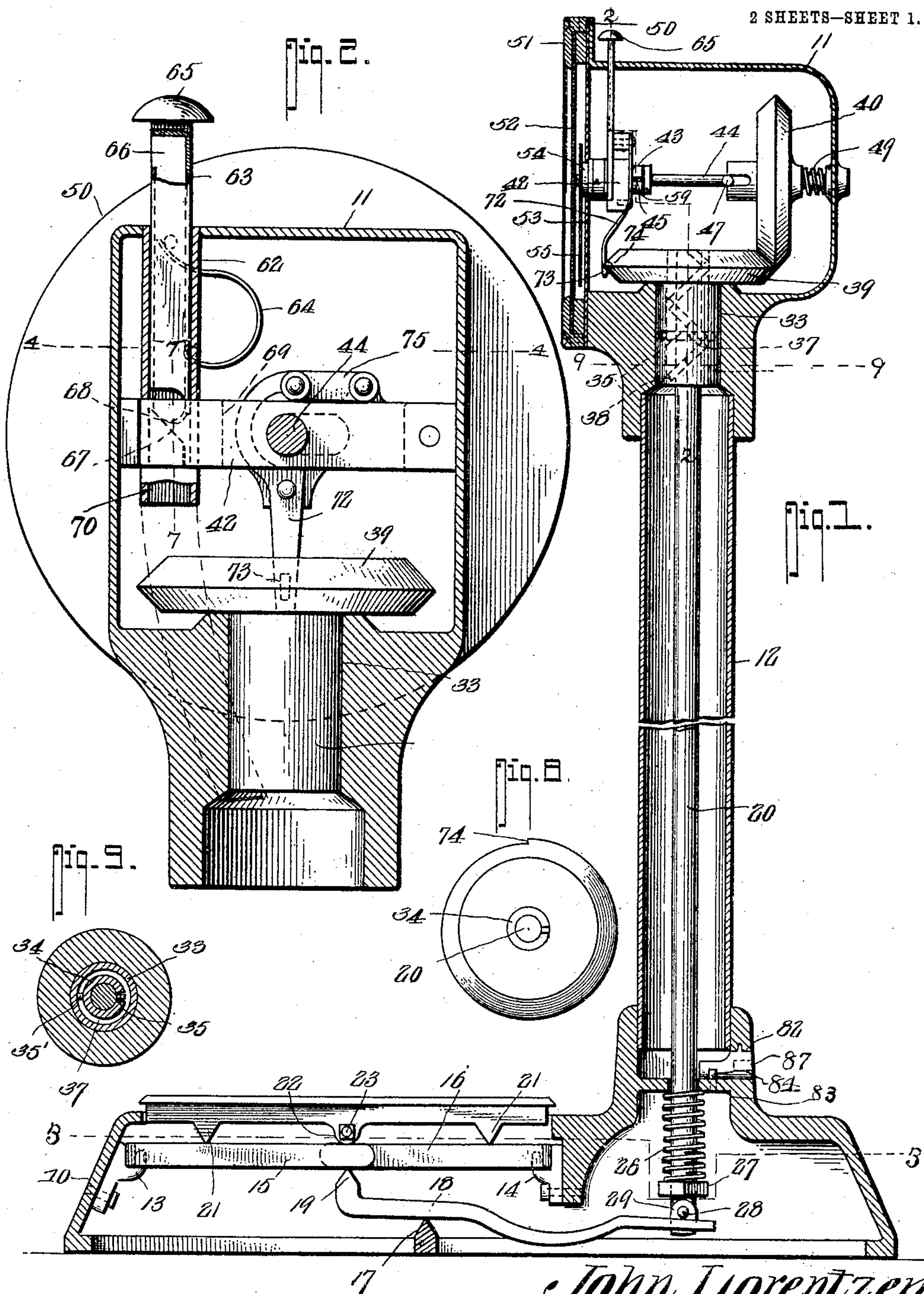


No. 809,198.

PATENTED JAN. 2, 1906.

J. LORENTZEN.
COIN CONTROLLED SCALE.
APPLICATION FILED OCT. 13, 1904.

2 SHEETS—SHEET 1.



Witnesses

E. J. Stewart
John E. Parker

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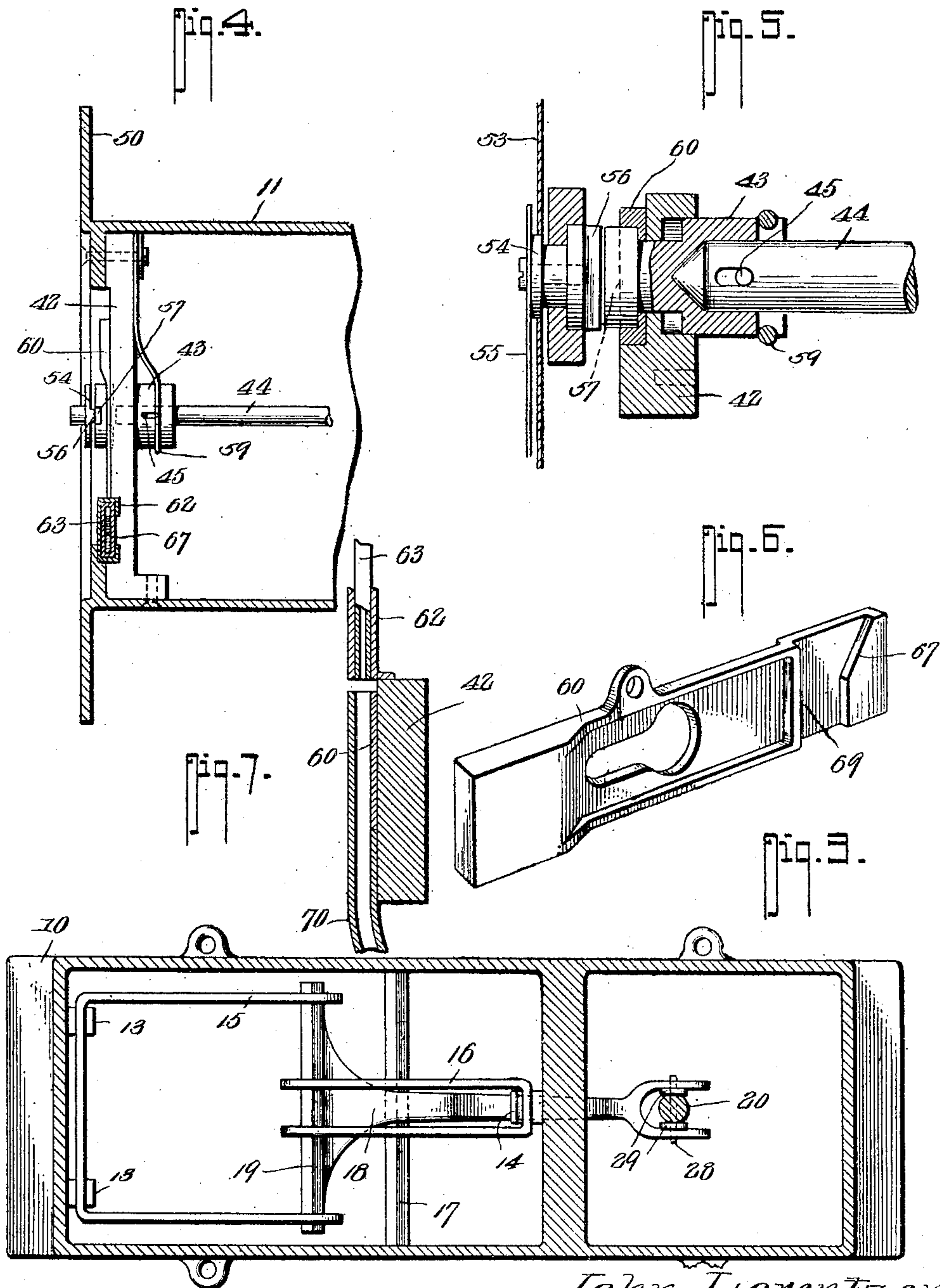
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UNITED STATES PATENT OFFICE.

JOHN LORENTZEN, OF DULUTH, MINNESOTA.

COIN-CONTROLLED SCALE.

No. 809,198.

Specification of Letters Patent.

Patented Jan. 2, 1906.

Application filed October 13, 1904. Serial No. 228,338.

To all whom it may concern:

Be it known that I, JOHN LORENTZEN, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented a new and useful Coin-Controlled Scale, of which the following is a specification.

This invention relates to weighing-scales, and has for its principal object to provide a scale of the most simple construction in which the weight of a person or object will be indicated only after the deposit of a coin, check, or other token.

A further object of the invention is to provide a novel form of platform-scale in which the arrangement of the platform-levers is greatly simplified and permits of the assembling of the parts at a minimum expense.

A still further object of the invention is to provide a novel form of spring-scale in which movement of the platform-levers is transformed into rotative movement of the indicator through the medium of a helical cam.

A still further object of the invention is to provide a novel form of coin-controlled mechanism for clutching the indicator-carrier to the mechanism receiving movement from the platform-levers.

A still further object of the invention is to insure the return of the indicator to its initial position after the weight has been removed from the platform.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of a coin-controlled weighing-scale constructed in accordance with the invention. Fig. 2 is a transverse sectional elevation of the upper portion of the same on the line 2 2 of Fig. 1, the view being on the enlarged scale. Fig. 3 is a sectional plan view of the apparatus on the line 3 3 of Fig. 1. Fig. 4 is a transverse sectional elevation of a portion of the mechanism on the line 4 4 of Fig. 2, the parts being shown full size. Fig. 5 is a detail sec-

tional view, on an enlarged scale, illustrating the mechanism for clutching the operating shaft and indicating means. Fig. 6 is a detail perspective view of the coin-actuated cam-slide. Fig. 7 is a transverse sectional elevation of a portion of the machine on the line 7 7 of Fig. 2, the view being on an enlarged scale. Fig. 8 is a plan view of the horizontal friction-disk. Fig. 9 is a sectional plan view of a portion of the machine on the line 9 9 of Fig. 1.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The framework of the scale is of simple character and comprises a base 10, an upper casing 11, and a standard 12, the latter being preferably formed of a metallic tube and serving as a receptacle for the coins or tokens deposited in the machine. Secured to or formed integral with the base are a number of brackets 13 14, the brackets 13 serving as fulcrums for a U-shaped platform-lever 15 and the bracket 14 serving as a fulcrum for a U-shaped platform-lever 16, the latter being of considerably less width than the lever 15 and the two being so arranged that the open ends of the levers are adjacent to each other and extend beyond the median transverse line of the platform 16, on which the person or object to be weighed is placed. The base is further provided with a transversely-extending knife-edge 17, on which is pivoted a lever 18, carrying at one end a knife-edge 19, on which both of the platform-levers rest. The opposite end of the lever 18 is bifurcated for the reception of the lower end of a vertically-movable rod 20. The under surface of the platform is provided with a pair of transversely-extending V-shaped ribs 21, which bear on the platform-levers at a point intermediate of the ends of the latter, and at opposite sides of the platform are pendent lugs 22, having threaded openings for the passage of bolts 23, which when screwed in position project under edge flanges formed at the opposite sides of the base in order to prevent the removal of the platform. The vertically-movable bar 20 extends through a guiding-opening formed in the bottom of the money-receptacle, and around the lower portion of the bar is a helical compression-spring 26, the lower end of which is pressed against a nut 27, adapted to a threaded portion of the bar, the nut serving as a conven-

ient means for adjusting the stress of the spring in order that the scale may be made to weigh accurately. The lower portion of the bar is provided with an opening for the passage of a pin 28, that bears on the bifurcated end of the lever, and rotative movement of said bar is prevented by a pair of washers 29, that are placed on the pin between the sides of the bar and the lever 18.

Secured in the upper casing 11 is a bushing 33, within which is arranged a sleeve 34, provided with a helical cam-groove 35, and while the sleeve is free to revolve any vertical movement is prevented by a number of pins 35', carried by the sleeve and projecting into horizontally-disposed grooves 37, formed in the inner face of the bushing 33. The bar 20 is free to slide within the sleeve 34, and to the upper portion of said bar is secured a pin 38, that projects within the helical groove 35, and when the bar is moved upward by the placing of a weight on the scale-platform this pin will traverse the groove and will force the sleeve to rotate in one direction, and when the weight is removed the compression-spring 26 will restore the bar to initial position, and the pin 38 in traversing the cam-groove will cause the sleeve to travel in the reverse direction. Secured to the upper end of the sleeve 34 is a beveled friction-wheel 39, which engages a similar friction-wheel 40, and from the latter the movement is transmitted to the indicating devices.

In the upper casing 11 is secured a transversely-extending bar 42, in which is formed a bearing for a longitudinally-movable clutch-sleeve 43, and said sleeve has at one end an opening for the reception of the end of a shaft 44, that is slotted for the passage of a pin 45, by which the sleeve and shaft are coupled together for mutual rotative but independent longitudinal movement. The opposite end of the shaft 44 extends within a bearing-opening formed in the casing, and on said shaft is mounted the bevel friction-wheel 40. The hub of the friction-wheel is slotted for the passage of a pin 47, that extends through the shaft, so that while said wheel is compelled to rotate with the shaft it may be free for longitudinal movement. This sleeve is forced into frictional engagement with the friction-wheel 39 by means of a helical compression-spring 49.

The front of the casing 11 is provided with an annular flange 50, and to this flange is bolted an annular frame 51, carrying a glass panel 52. To the flange is secured a dial-plate 53, that is graduated and provided with the usual indicating-marks. At the center of the dial-plate and in alinement with the longitudinal axis of the shaft 44 is a bearing for the support of a revoluble block 54, to the outer end of which is secured a pointer 55, adapted to travel over the graduated dial. The inner face of the block is

provided with a non-circular projecting pin 56, adapted to a similar-shaped opening 57, formed in the outer end of the clutch-sleeve 43; but normally these parts are separated, so that any weight placed on the platform, while effecting revoluble movement of the friction-wheels and shaft, will not result in any movement of the hand or pointer, and it is only after the deposit of a coin, check, or other similar token of a predetermined character that the two parts are coupled together in such manner as to transmit movement from the platform to the hand or pointer. Normally the parts are held separated by a U-shaped spring 59, extending around a groove formed in the periphery of the clutching-sleeve 43, the ends of the spring being bolted to the cross-bar 42.

The outer face of the cross-bar 42 is grooved for the reception and support of a coin-actuated slide 60, that is provided with a longitudinal slot for the passage of the clutch-sleeve 43, and the inner enlarged head of this sleeve bears against the outer face of the slide. The outer face of the slide is disposed at an oblique angle to the plane of the cross-bar and forms a wedge or slidable cam which when moved in the proper direction will force the clutching-sleeve outward until the projecting pin 56 is entered in the recess 57 and the two parts are thus clutched together.

Near one side of the casing is arranged a rectangular tube 62, the upper end of which is guided by the walls of an opening formed in the upper part of the casing, while the lower portion of said tube is secured to the cross-bar, and said tube is slotted for the passage of the coin-actuated slide 60. Within the tube is a vertically-movable push-bar 63, normally held elevated by a spring 64. The upper end of this bar projects above the top of the casing and is provided with an enlarged head 65, which is depressed by the operator after the insertion of the coin. The bar also forms a coin-slot, said bar being hollow to permit the passage of a coin there-through, and near the upper end of the bar is an opening 66, through which the coin may be inserted. Each inserted coin falls to the position shown in Fig. 2 and rests between an inclined shoulder 67, formed near one end of the slide 60, and a finger 68, depending from one end of the push-bar 63. The slide is slotted to form a passage for the coin, one wall of the slide being inclined, as previously described, and the opposite wall 69 being vertical, the distance between the lower portions of the two walls being sufficient to permit the ready passage of a coin. To the bar 42 at a point below the tube 62 is secured a coin-chute 70, that terminates at the top of the tube 12, and after each depression of the push-bar 63 the coin inserted will be freed and will drop down through the chute 70

into the money-receptacle formed by the tube 12. In order to restore the slide to initial position after each operation, a spring-lever 72 is pivoted to a lug depending from the cross-bar, and the lower end of the lever is provided with a lug 73, that projects into the path of a shoulder 74, formed on the friction-wheel 39. The upper end of the lever is curved to pass partly around the shaft 44 and is connected by a link 75 to the slide.

In operating the device a coin is first inserted in the opening 66 and falls to a point between the inclined wall 67 and the finger 68. As soon as the coin leaves the end of the opening in the push-bar it will tilt slightly to one side or the other, owing to the fact that it is practically impossible to balance the coin in an erect position by standing it on one edge, so that when the push-bar is depressed there will be no danger of the coin reëntering the slot. The push-bar is then depressed and downward movement is transmitted through the coin to the inclined wall 67, the latter acting as a cam and causing longitudinal movement of the slide. The inclined face of the slide bears against the head of the clutching-sleeve 43 and presses said sleeve forward and effects the entrance of the pin 56 in the recess 57, thus coupling the shaft 44 to the pointer carrying block 54. Any person stepping on the platform will cause upward movement of the bar 20, and this movement will be transmitted to the pin 28 and the sleeve 34 to friction-wheel 39, the latter rotating friction-wheel 40 and shaft 44, so that the hand or pointer will be turned to an extent determined by the weight. During the rotative movement of the friction-wheel 39 the shoulder 74 of the latter will be moved away from the lug 73 of lever 72, and the latter will be moved to an oblique position by the slide. When the weight is removed from the platform, the direction of rotation of the friction-wheels is reversed, and the shoulder 74 will then engage the lug 73 and move the lever and the coin-actuated slide back to an initial position. The downward movement of the push-bar necessary to effect proper movement of the slide must be to an extent sufficient to effect the discharge of the coin through the chute 70, and if the operator does not force the push-bar down to this extent the clutch-sleeve will not be connected to the block 54, and hence no movement of the indicator will occur. After a person has stepped on the platform and has started movement of the friction-wheels the downward movement of the push-bar will be relieved and the latter will be restored to its initial position; but the slide will remain in the position to which it has been adjusted, and the parts are properly clutched together to permit movement of the indicator, and it is not until the weight is removed from the platform and the direction of rotative movement

of the friction-wheel is reversed that the slide is restored to its initial position. The coins pass through the chute to the hollow standard, the latter forming a coin-receiver. At or near the lower end of the standard is an opening 82, through which the coins may be withdrawn, and in the opening is a suitable closing-plug 85, which may be provided with a lock, if necessary, the plug being removed when the coins are to be withdrawn.

Having thus described the invention, what is claimed is—

1. The combination in a weighing-scale, of a platform, a shaft to which revoluble movement is imparted on the depression of the platform, a pointer, a clutching-sleeve for connecting the hand or pointer to the shaft, and a coin-controlled cam-slide for moving said sleeve.

2. The combination in a weighing-machine, of a platform, a shaft to which revoluble movement is imparted on the depression of the platform, an indicating means normally disconnected from the shaft, a clutch-sleeve for connecting the indicating means to the shaft, and a coin-actuated cam-slide for operating said clutch-sleeve.

3. The combination in a weighing-scale, of a platform, a shaft receiving revoluble movement on the depression of the platform, an indicating means normally disconnected from the shaft, a slidable clutching-sleeve for clutching the indicating means to the shaft, a cam-slide engaging said sleeve, said cam-slide having a coin-seat, and a movable coin-engaging bar through which the slide may be actuated, after the insertion of a coin, to move said sleeve to clutching position.

4. In a weighing-scale, a platform, a shaft to which revoluble movement is imparted on the depression of the platform, a clutch-sleeve mounted on the shaft, an indicating means normally disconnected from the clutch-sleeve, a coin-actuated slide having an inclined face forming a coin-rest, said slide being provided with a cam for engaging and moving the slide to clutching position, and a push-bar serving when depressed to engage and force a coin against the seat, and thus transmit longitudinal movement to the slide.

5. The combination in a weighing-scale, of a platform, a shaft to which revoluble movement is imparted by depression of the platform, a clutch-sleeve mounted on the shaft, an indicating means normally disconnected from the clutch-sleeve, a slidable cam for engaging and moving the clutch-sleeve to operative position, said slidable cam having a groove provided with an inclined wall forming a coin-rest, and a push-bar adapted to engage a coin and force the same against the rest, said push-bar having a pendent finger to prevent premature escape of the coin.

6. The combination with a weighing-scale, of a platform, a shaft, means including a pair

of friction-disks for transmitting movement from the platform to the shaft, one of said disks having a projecting shoulder, a clutch, an indicator, a coin-actuated cam-slide for
5 moving said clutch to operative position, and a pivotally-mounted lever connected to the slide and disposed in the path of movement of said shoulder thereby to restore the parts to initial position.

10 7. In coin-controlled mechanisms, a coin-actuated slide, a movable member receiving revoluble movement first in one direction and then in the opposite direction, said

member being provided with a projecting shoulder, and a lever connected to the slide 15 and having one end disposed in the path of movement of the shoulder thereby to restore the slide to initial position.

In testimony that I claim the foregoing as my own I have hereto affixed my signature 20 in the presence of two witnesses.

JOHN LORENTZEN.

Witnesses:

C. G. JOHNSON,
DUNCAN MCNEE.