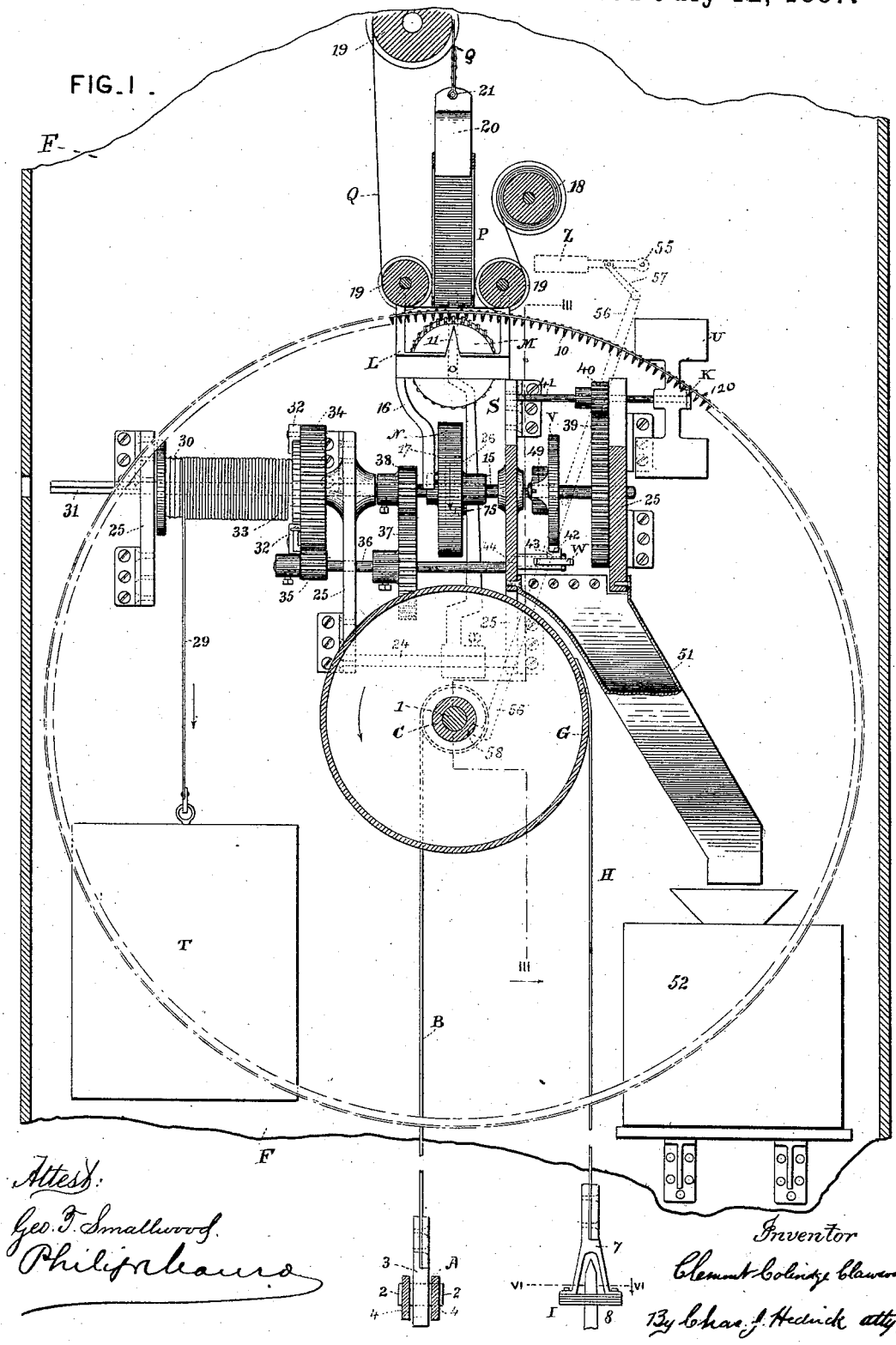
(No Model.) 3 Sheets—Sheet 1.

C. C. CLAWSON.

RECORDING WEIGHING MACHINE.

No. 366,303. Patented July 12, 1887.

FIG. 1.



Attest:
Geo. T. Smallwood
Philip Pearce

Inventor
Clement Colidge Clawson
By Chas. J. Hedrick atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

C. C. CLAWSON.

RECORDING WEIGHING MACHINE.

No. 366,303. Patented July 12, 1887.

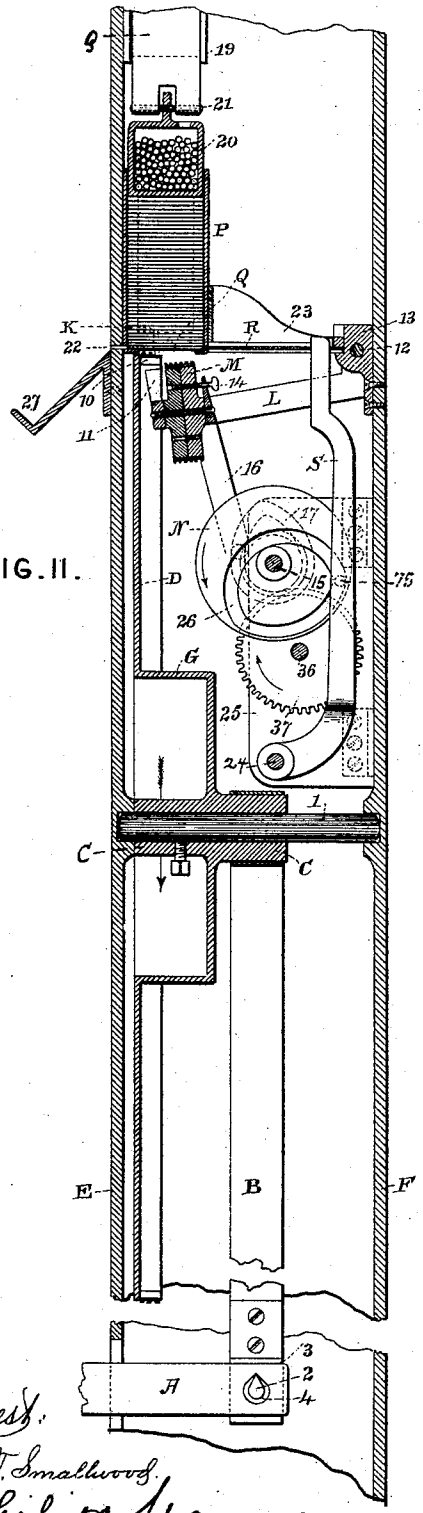


FIG. II.

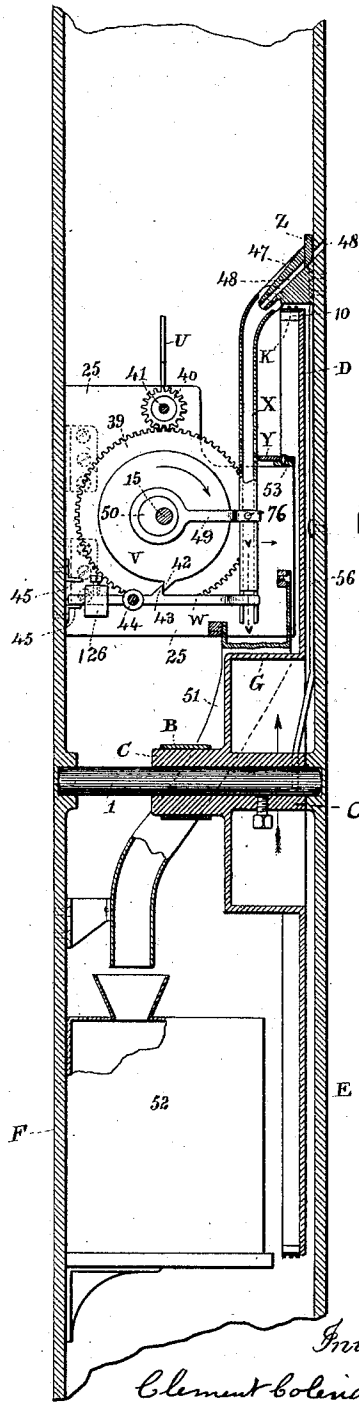


FIG. III.

Attest:
Geo. T. Smallwood.
Philip Mauro

Inventor:
Clement Colcridge Clawson
By Chas. J. Hedrick atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 3.

C. C. CLAWSON.

RECORDING WEIGHING MACHINE.

No. 366,303. Patented July 12, 1887.

FIG. IV.

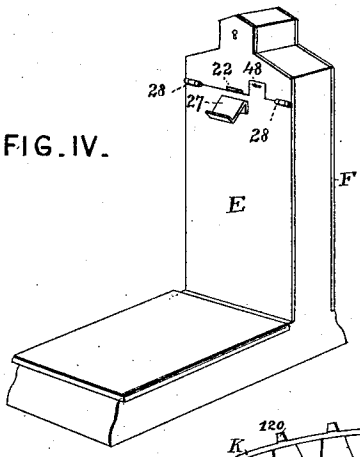


FIG. V.

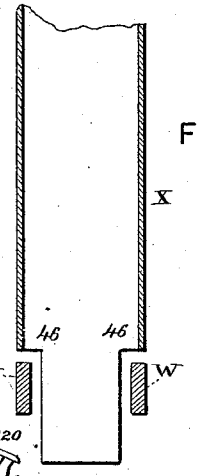


FIG. IX.

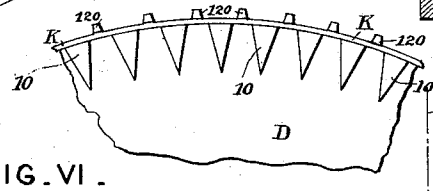


FIG. VI.

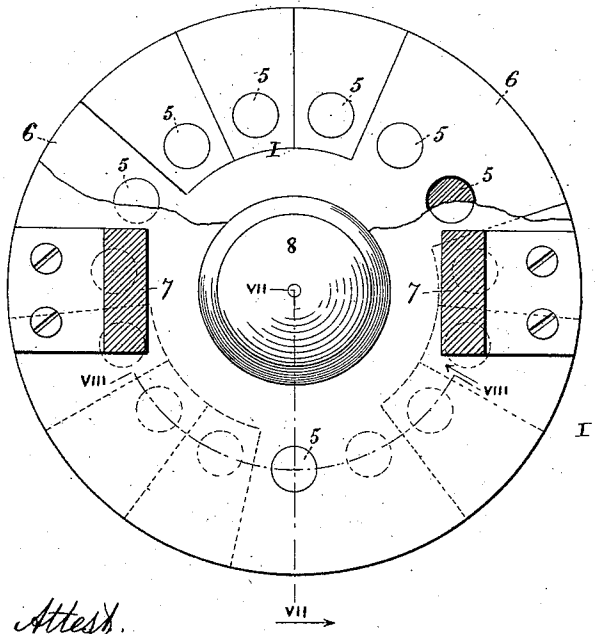


FIG. VII.

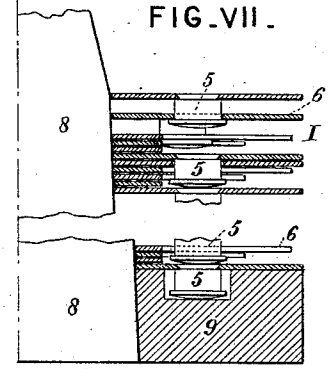
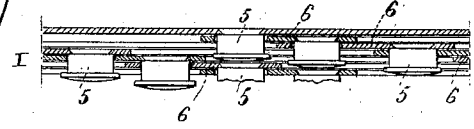


FIG. VIII.



Attest.
Geo. T. Smallwood.
Philip Mauro

Inventor.
Clement Colendge Clawson
By Chas. J. Hedrick atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CLEMENT COLERIDGE CLAWSON, OF NEWARK, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE UNITED STATES MACHINE AND INVENTIONS COMPANY, OF NEW YORK.

RECORDING WEIGHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 366,303, dated July 12, 1887.

Application filed November 10, 1886. Serial No. 218,455. (No model.)

To all whom it may concern:

Be it known that I, CLEMENT COLERIDGE CLAWSON, a citizen of the United States, residing at Newark, in the State of New Jersey, have invented certain new and useful Improvements in Weighing-Machines, of which the following specification is a full, clear, and exact description.

This invention, although applicable, at least in part, to other uses, relates particularly to machinery which prints the weight of the person or object weighed when a proper coin or token is dropped into the machine.

It consists, first, in the combination, with a weighing-scale and a ticket printing and delivery mechanism, having type adjusted or controlled by said scale, so that the weight of objects on the scale may be printed from said type, of a mechanical motor or power-driven mechanism of any suitable description for operating said ticket printing and delivery mechanism, and an escapement provided with a detent or some other suitable means for controlling the operation of the motor, and a fork or some other device connected with said detent or its substitute, for receiving the coin or token when introduced into the machine. This combination, broadly, is within the invention, irrespective of the precise arrangement of parts, and also of the special construction, hereinafter fully described, of the weighing-scale, the ticket printing and delivery mechanism, the motor, or the escapement, for the elements mentioned have never, to my knowledge, been combined before. The principal new and distinguishing result of the new combination is that a ticket printed with the weight of the object on the scale is delivered automatically on the introduction of a coin or token into the machine. A mechanical motor or power-driven mechanism is therefore employed in contradistinction to hand-operated appliances, its movement being controlled through the action of the coin upon the escapement or some equivalent contrivance. The tickets are preferably cards, which are arranged in order in a suitable card-box. This part of the invention also comprises, specially, the combination of the elements above mentioned when one or more of them embody the particular constructions and arrangements hereinafter set forth, or some of them.

The invention consists, secondly, in the combination, with a rotary cylindrical drum suitably connected with the scale-pan or scale-platform, so as to be turned more or less, according to the weight thereon, of a band fastened at one end to the drum, so as to be wound on the latter when it is turned, and a series of scale-weights connected with said band in such a way that they are taken up consecutively until the weight on the scale-pan or scale-platform is balanced. The use of a series of scale-weights which are successively lifted is specially advantageous in connection with a printing disk or wheel operated by the scale, because, as the weighing proceeds by definite increments, the said disk will always be brought into position to print one or another of the successive numbers, and there will be no danger of printing two numbers or parts of two numbers in consequence of the disk being turned a fraction of the distance between the successive numbers.

The invention consists, thirdly, in the combination, with a suitable type-carrier (a disk, for example) actuated or adjusted by a weighing-scale, of yielding type adapted to be pushed out independently of each other, or practically so, and a printing-finger for pushing out the type to print the results of the weighings. By this combination the printing is or may be effected without practical interference with the weighing mechanism, for it is only necessary for the type-carrier to resist the force required to press out the type, which force is or may be inconsiderable. Where the tickets or paper is pressed against the type, the type-carrier must resist the force required to give an impression, and, on the other hand, if the type were formed near the edge of a metal disk and attempt were made to print by pressing them out, a considerable pressure also would be required to spring the disk, and the type would not be practically independent of one another. The type are preferably formed or mounted on an elastic, flexible, and extensible support or

band of soft rubber. This part of the invention also consists in the combination, with the type-carrier actuated or adjusted by a weighing-scale, the type adapted to be pushed out to give an impression, and the printing-finger for pushing out the proper type, of teeth on said carrier in the path of said printing-finger, or of some part thereof, so as to be engaged thereby and retain the carrier in position in printing, with or without first adjusting the same to a slight extent, so as to bring the type directly opposite the desired space.

The invention consists, fourthly, in a printing-disk having the type mounted or formed on an elastic, flexible, and extensible rubber band which is drawn over a series of teeth or a slotted rim, so that printing may be done without moving the disk by pressing out said band beyond its normal circumference; also, in the combination of such disk with other elements in a weighing-scale, so as to print the results of the weighings.

The invention consists, fifthly, in the combination, with a card-box for holding a pile or number of cards and presenting them successively for printing, and a carbon or ink ribbon, of means for moving said ribbon, comprising a presser-weight or other follower which rests on or against the cards and is connected with the said ribbon. As the cards are successively moved the follower advances and moves along the ribbon.

The invention consists, sixthly, in the combination, with a weighing-scale and a printing-disk controlled thereby, of a clock-work or other power-driven mechanism for bringing the disk or the type thereon into action for printing, and an escapement for releasing said mechanism when a proper coin or token is introduced into the machine.

The invention consists, seventhly, in an escapement for clock-work, of which escapement the essential elements are a lever or some other mechanical device or devices for receiving the coin or token and thereupon releasing the clock-work, and a spout or some substitute therefor movable by the clock-work lengthwise of said lever to discharge the coin or token from said lever.

The invention consists, eighthly, in positively-acting means whereby, if the coin introduced into the machine should be attached to a string for the purpose of withdrawing it, the string will be cut and the coin permitted to fall into the money-box in the machine.

The invention consists, ninthly, in a small shutter for closing, when there is no weight on the scale, the slot through which the coin or token is introduced, the said shutter being connected with the weighing-scale, so that the depression of the scale-pan or scale-platform automatically removes the shutter.

The invention further comprises the particular constructions, combinations, and arrangements of parts hereinafter particularly pointed out.

The best mode to me known of applying the principle of the invention is as follows, reference being had to the accompanying drawings, which form part of this specification:

Figure I is a front view, in sectional elevation, of the standard of a weighing-machine containing mechanism constructed in accordance with the invention; Fig. II, a central vertical section in elevation, looking to the left in Fig. I; Fig. III, a vertical section on line III, in elevation, looking to the right in Fig. I; Fig. IV, a perspective view, on a smaller scale, of the machine; Fig. V, a detail view of a part of the escapement in section on line V of Fig. III, looking in the direction of the arrow; Fig. VI, a detail view of the series of scale-weights in section on line VI of Fig. I, looking in the direction of the arrow; Fig. VII, a detail view on line VII of Fig. VI, looking in the direction of the arrow; and Fig. VIII, a detail view on line VIII of Fig. VI, looking in the direction of the arrow. These detail views are on enlarged scales. Fig. IX is an enlarged back view of a portion of the printing disk with its printing-band in place.

The beam A of an ordinary platform-scale is connected with the lower end of a steel band, B, which is wound on the hub C of a disk, D, fixed to the rotary shaft 1, so that when the scale-platform is depressed the band is drawn down and the disk D is turned in the direction of the arrow. The connection of the band with the scale-beam is made by knife-edges 2, fixed in a cast-metal piece, 3, which is fastened to the band. The knife-edges enter holes 4 in the scale-beam. The shaft 1 has its bearings in the front E and back F of the standard. The disk D is provided with a drum, G, to which is fastened one end of a steel band, H, so that when the disk D is turned in the direction of the arrow the band H is wound on said drum. The lower end of said band H is connected with the series of scale-weights I. Each weight is made of thin sheet metal, and is provided with three little pins, 5, (see Figs. VI, VII, and VIII,) which depend from the weight and serve to connect it with the next weight below. These pins, which have heads at their lower ends, are riveted to their respective scale-weights and pass through holes of smaller diameter than said heads in the next scale-weight below. The shanks of the pins are longer than the thickness of the scale-weights, so that each scale-weight will be lifted a definite distance before the heads of the pins come into contact with the next scale-weight, ready to lift the same. In Fig. VII the two upper scale-weights are shown suspended. When the scale-weights are allowed to settle down, they rest upon their respective pins, leaving a very small space between the adjacent scale-weights. As the pins in this position occupy the thickness of several scale-weights, the latter are cut away, so as to leave a clear space for the pins after they have passed through the hole in the plate below that to which the pins are fastened.

The result of this cutting away is, that each scale-weight (except the top, which is left circular) has three peripherical projections, 6, each of which has a depending pin, 5, riveted to it, and is provided with a hole for the passage of the pin from the scale-weight above. The top scale-weight is fastened by the bifurcated piece 7 to the end of the band H. When an object on the scale-platform turns the disk D, the scale-weights are lifted successively until a sufficient number of them are suspended to balance said object. This number (the scale-weights being of equal mass) is of course proportionate to the weight of said object, and the angle through which the disk D is turned (the pins 5 having shanks of equal length and the scale-weights being of equal thickness) is likewise proportionate thereto. It will be understood that when there is no object on the scale-platform there is equilibrium with the disk D at zero and all the scale-weights down, and also that the parts can be arranged so that the first movement of the disk D raises a sufficient mass to balance any desired number of pounds on the scale-platform. The scale-weights have open centers and pass over the tapering post 8, which is fixed in the base 9, which supports the scale-weights when these are not suspended. Near its periphery the disk D is provided on its back with a series of wedge-shaped teeth, 10, which thus form a slotted rim to said disk, and the endless printing-band K, of soft rubber, is sprung over said teeth. On the outside of the band are the consecutive numbers which indicate the results of the weighings. They are represented on the drawings by small protuberances or projections 120. There is one of these numbers outside each of the slots or spaces between the teeth 10, and the parts are arranged in such a way that when a scale-weight is lifted so far as to bring the heads of its pins against the next scale-weight below, the number representing the weight on the scale-platform which would thus be balanced is brought directly over the center of shaft 1. The printing-lever L has a finger, 11, which, when raised, enters between the teeth and presses the number out, so as to print the same on any overlying surface. The lever L is fulcrumed on the shaft 12, which is mounted in the bracket 13, attached to the back F of the standard. The wheels M, forming a dating-stamp, are journaled in a slot behind the finger 11. The pin 14 prevents their rotation. By removing the pin the wheels can be turned to change the date as desired. The lever L is operated by the cam-disk N, which is fast on the shaft 15, and is driven by the weight T through the gearing hereinafter described. The arm 16 of the lever L has a pin which enters the cam-groove 17 on the left of disk N, and conveys the motion to said lever. Above the printing-disk and dating-wheels is a card-box, P, which is fastened to the front E of the standard. The bottom of said box is slotted for the passage of the printing-type and the interposed ink or carbon ribbon Q. This ribbon, wound at one end on the spool 18, is led around the guide-spools 19, and is attached at the opposite end to the pressure weight or follower 20, which rests upon the cards in the box P. The spools 18 and 19 turn on pins fixed to the front E of the standard. The weight 20 is hollow, and is filled with sufficient shot to give the required amount of pressure. The connection between the ink-ribbon and the pressure-weight is made by a bar, 21, which is fast in an ear on the weight, and has its ends introduced into closed loops at the end of the ribbon. Just above the bottom of the box P there is a slot, 22, the thickness and width of one of the cards, which slot extends through the front wall of the card-box, and also through the front E of the standard. When the bottom card has been printed by raising the printing-lever L, it is pushed out through the slot 22 by the pusher R, which slides in ways in the bracket 23, and works through a slot in the back of the card-box. The pusher is moved by the lever S, fulcrumed at its lower end by the pin or shaft 24, which is supported at its ends by two of the side plates, 25. There are four of these side plates altogether for carrying the various shafts of the clock-work. A pin, 75, near the middle of the lever S enters the cam-groove 26 in the right face of the disk N, and the upper end of the lever S passes through a slot in the pusher R. The cam-grooves 17 and 26 are so arranged that the lever S remains stationary while the lever L is raised to print, and then immediately is moved forward to push the printed card from the machine. A little shelf, 27, is provided to catch the card when it has been pushed through the slot 22. When the lever S and pusher R have been drawn back, the cards in box P descend by gravity, and a new card is ready to be printed and delivered. The pressure-weight 20 descends at the same time and draws upon the ink-ribbon Q, thus bringing a fresh portion of the same over the printing-types. The upper part of the front E of the standard, by which the card-box P and spools 18 and 19 are carried, is separate from the lower part, and is connected therewith by hinges 28, (see Fig. IV,) so that by turning said upper part outward access is given to the inclosed mechanism. The rear end of bracket 23 fits in a notch in the bracket 13, out of which it rises when the upper part of the front E is turned down.

The clock-work which drives the shaft 15 is itself driven by the weight T, which is attached to the wire cord 29, wound upon the drum 30. This drum is fixed on the shaft 31, the (left) end of which is squared, in order to receive a key for winding up the driving-weight T when required. It is connected by pawls 32 and a ratchet-disk, 33, with the spur-wheel 34, loose on said shaft 31, the pawls and ratchet compelling the wheel 34 to turn with the drum 30 when the weight descends, but allowing said drum to be turned independently for raising the weight. The wheel 34 engages

the pinion 35, which is fast on the shaft 36, and the spur-wheel 37, also fast on said shaft, engages the pinion 38, fast on the shaft 15. The spur-wheel 39, fast on the shaft 15, engages the pinion 40, fast on shaft 41, on the outer (right-hand) end of which is fixed the fan U, for moderating the movement of the clock-work. An escapement-disk, V, fixed on shaft 15, is provided with a single tooth, 42, which arrests the motion of said disk, and consequently of the whole clock-work, by contact with a projection, 43, on the escapement-lever W. This lever is fulcrumed on the stud 44, tapped into one of the side plates, 25, and is provided on its rear arm with an adjustable counterpoise, 126, which is so set as to overcome the weight of the front arm, and thus tend to place the projection 43 in the path of the tooth 42, while at the same time it will itself be overcome by the weight of a suitable coin or token resting upon said front arm. Stops 45 on the back F of the standard limit the motion of the escapement-lever in both directions. The front end of the lever is forked, (see Fig. V,) the space in the fork being slightly less than the diameter of the coin or token by which the clock-work is to be released. This forked end projects across the lower end of a spout, X, of sufficient size to conduct the coin or token, the sides of said spout being cut away, as shown at 46, Fig. V, leaving the front and back to project below the escapement-lever. The upper end of the spout is hinged to the bracket 47, which is fastened to the lower part of the front E of the standard, and through which and through said front E is formed the slot 48 for the passage of the coin or token. The spout X is connected by a journal-pin, 76, with the front end of a bar, 49, whose rear end encircles an eccentric, 50, fast on the shaft 15. When a coin of the proper size is inserted through the slot 48, it falls edgewise through the spout X; but as it cannot pass through the fork of the escapement-lever it carries the same down and removes the projection 43 from the path of tooth 42. The clock-work, being now free, revolves and the eccentric 50 moves the spout X forward beyond the end of the escapement-lever, so as to push the coin or token off of the said lever, which, being relieved of the weight of the coin or token, immediately rises, bringing the projection 43 again in the path of tooth 42, while the coin or token drops into the chute 51 and rolls or slides down the same into the money-box 52. When the shaft has made one revolution, its motion is arrested by the projection 43. If the coin or token should be attached to a string, the knife Y, which is fastened to the cross-piece 53 between two of the side plates, 25, cuts said string when the spout X is moved forward. The action of the knife, it will be observed, is that of a positively-actuated cutter, and is independent of any pull on the string. The spout forms or may form a pair of shears in connection with the stationary knife. If a wire should be attached to the coin, it would be caught, and if not severed would be held by the knife, and the operation of the machine would be arrested. If a small coin be introduced, it simply passes the escapement-lever without effect and proceeds onward into the money-box. The size of the slot 48 prevents the introduction of coin larger than the machine is intended to be operated by. The front and back of the spout X are slotted in order that they may pass over the knife. Behind the slot in the front E of the standard is the shutter Z, (shown in dotted lines in Fig. I, because it lies in front of the plane of said figure,) formed by the end of a lever pivoted at 55 to said front E. When the shutter is down, it closes the slot, so that a coin cannot then be introduced. When it is raised, the passage is free. The shutter is controlled, by the lever 56, (shown in dotted lines, Fig. I,) pivoted to the front E of the standard, and connected at the upper end by a link, 57, with the shutter-lever. The hub C of the disk D is provided with a notch, 58, which the lower end of lever 56 enters when there is no weight on the scale. At this time the shutter Z is closed. When, however, the disk D is turned, the end of the lever is pushed out of the notch and the shutter is lifted.

When a person desires to weigh himself on this machine, he first steps upon the scale-platform. His weight draws down the beam A and band B and turns the disk D until the band H has taken up enough of the scale-weights I to counterbalance his said weight. The number representing that weight is then directly over the shaft 1 in position to be printed upon the bottom card in the box P. As the rotation of the disk D has raised the shutter Z, the person weighing can insert a proper coin into the slot 48. When inserted, it falls through the spout X and is arrested by its edge striking the forked end of the escapement-lever W. This lever is, however, first moved by the coin a sufficient distance to release the tooth 42 of escapement-disk V, whereupon the weight T sets in motion the clock-work and the cam-disk N. The latter in its revolution first lifts the printing-lever L. The finger 11 enters between the two uppermost teeth and presses up the printing-band K against the ink-ribbon Q, and the latter against the bottom card in the box P, so as to print the proper number on said card. The dating-wheels M are made to print by the same movement in like manner. The finger 11 prevents the disk D from moving in printing. If the disk is not quite in position, it moves the same forward or back to the proper extent, so as to insure the correct position of the number to be printed. As soon as the printing has been effected the lever L drops and the lever S and pusher R are advanced to push the newly-printed card out of the machine. The pusher R is then withdrawn and the pile of cards falls, and with it the follower or pressure-weight 20, which draws the ink-ribbon Q, so as to expose a

new surface for the next weighing. In the meantime the eccentric 50 moves the spout X, the knife Y cutting the string, if one be attached to the coin, and the coin falls into the money-box 52. When these movements have been completed, the clock-work is arrested by the projection 43 on the escapement-lever. When the person weighed steps off of the scale, the disk D is turned in reverse direction by the scale-weights I, which have been lifted, and which now settle down into a pile, and the lever 56 is allowed to enter the notch 58 and close the shutter Z.

In the drawings, and in the description of the machine shown therein, various details have been given for enabling others to make and use the invention; but the invention is not restricted to them, as it is evident that they can be changed while still employing the substance of the invention.

Parts of the invention can be used separately, some of them otherwise than in weighing-machines.

I claim the following as my invention or discovery:

1. The combination, with a weighing-scale and a ticket printing and delivering mechanism having type adjusted or controlled by the said scale, of a mechanical motor or power-driven mechanism for operating said ticket printing and delivery mechanism, and an escapement for said motor or power-driven mechanism constructed and arranged to be controlled by a coin introduced into the machine, substantially as described.

2. The combination, with a scale-beam, of a cylindrical drum connected with said beam, so as to be turned thereby, a band fastened at one end to said drum, so as to be wound thereon, and a series of scale-weights connected with the other end of said band, so as to be lifted successively, substantially as described.

3. The combination, with a scale-beam, of a printing-disk provided with a hub, a band connected at one end with the scale-beam and wrapped at the other around said hub, a drum fastened to or forming part of said disk, a band fastened at one end to the drum, and a series of scale-weights connected with the last-mentioned band, substantially as described.

4. The combination, with a weighing-scale and a printing-disk connected therewith, so as to be turned more or less, according to the mass of the object weighed, of a series of teeth on said disk, and a finger arranged to enter between said teeth for insuring the correct position of the disk for printing, substantially as described.

5. The combination, with a scale-beam, of a series of scale-weights which are lifted successively, a printing-disk, a series of teeth on said disk, and a finger arranged to enter between said teeth, both said scale-weights and said printing-disk being connected with said scale-beam, substantially as described.

6. The combination, with a weighing-scale and a type-carrier connected with the said scale, of yielding type adapted to be pushed out independently one of another, and a printing-finger for pushing out the said type, substantially as described.

7. The combination, with a weighing-scale and a type-carrier connected with the said scale, of type provided with an elastic, flexible, and extensible support or band of soft rubber, and a printing-finger for pushing out the type to give an impression, substantially as described.

8. The combination, with the weighing-scale, the type-carrier connected with said scale, the yielding type on said carrier, and the printing-finger, of the teeth on said carrier in the path of said finger, substantially as described.

9. The combination, with a weighing-scale, a printing-disk connected with a weighing-scale, and provided with type movable independently of the body of said disk, of a movable finger for pressing out the type to print the results of the weighings, and a dating or other stamp movable with said finger, substantially as described.

10. A printing-disk having a slotted rim or rim formed by a series of teeth and provided with an elastic, flexible, and extensible printing-band on said rim, substantially as described.

11. A printing-disk having a slotted rim and provided with an elastic, flexible, and extensible printing-band on said rim, in combination with a movable finger arranged to enter the slots in said rim and press out the band for printing, substantially as described.

12. The combination, with a weighing-scale, of a printing-disk operated thereby and provided with a slotted rim, and an elastic, flexible, and extensible printing-band on the said rim, substantially as described.

13. The combination, with a weighing-scale, of a printing-disk operated thereby and provided with a slotted rim and an elastic, flexible, and extensible printing-band on the said rim, a stationary card-box, and a movable finger arranged to press out the printing-band and impress the number thereon upon the lowest card, substantially as described.

14. The combination, with the printing-disk having a slotted rim, and an elastic, flexible, and extensible printing-band on the said rim, of the printing-lever provided with a finger for pressing out said band, and the dating-stamp carried by said lever, substantially as described.

15. The combination of the scale-beam, the printing-disk connected with said beam and having a slotted rim, and a printing-band on the said rim, the drum connected with said disk, the band on said drum, the series of scale-weights connected with said band, so as to be lifted thereby in succession, and the printing-finger arranged to enter the slots in said rim, substantially as described.

16. In combination with a card-box for holding a number of cards and presenting them

successively for printing, and a carbon or ink ribbon stretched across the end of said box, means for moving said ribbon, comprising a follower or weight resting against or on said cards and connected with said ribbon, substantially as described.

17. The combination, with a weighing-scale and a printing-disk controlled thereby, of a card-box, a carbon or ink ribbon, and a follower or weight connected with said ribbon and resting on or against said cards, substantially as described.

18. The combination, with a weighing-scale and a printing-disk controlled thereby, of a power-driven mechanism for effecting the printing, and an escapement for said mechanism, said escapement being constructed and arranged to release said mechanism when a proper coin or token is introduced into the machine, substantially as described.

19. The combination, with the weighing-scale and printing-disk, of the card-box and a power-driven mechanism for effecting the printing on the cards and the delivery of the printed cards, substantially as described.

20. The combination, with the weighing-scale and printing-disk, of the card-box, the power-driven mechanism for effecting the printing and delivery of the cards, and the escapement, the latter being constructed and arranged to release the said mechanism on the introduction into the machine of a proper coin or token, substantially as described.

21. The combination, with a weighing-scale and type adjusted or controlled thereby, of a rotary shaft, a power—such as a weight—for driving said shaft, ticket printing and delivery appliances operated by said shaft, and an escapement controlling the rotation of said shaft, substantially as described.

22. The combination, with a weighing-scale and a printing-disk adjusted or controlled by said scale, of a card-box, a printing-lever, a pusher, a rotary shaft connected with said printing-lever and pusher for operating the same in due sequence to print and deliver a card from the card-box, a power—such as a weight—for driving said shaft, and an escapement for controlling its rotation, substantially as described.

23. The combination, with a printing-disk having a slotted rim and a printing-band on the said rim, of a printing-finger for entering the slots, a power-driven mechanism for moving said finger, and an escapement for said mechanism, substantially as described.

24. The combination of the weighing-scale, the printing-disk operated thereby, and having a slotted rim, and a printing-band on the said rim, the card-box, the finger for entering the slots in said rim, the pusher, the power-driven mechanism for operating said finger and said pusher, and the escapement, substantially as described.

25. The combination, with a clock-work or power-driven mechanism, of an escapement composed of a lever for receiving a coin or token and thereupon releasing the clock-work, and a spout movable by the clock-work lengthwise of said lever to discharge the coin or token, substantially as described.

26. The combination, with a spout or coin-conveyer, of a knife for cutting the string, should one be attached to the coin, and mechanism whereby said knife is caused to have a positive action independent of a pull on the string, substantially as described.

27. The combination, with the movable spout, the escapement, and the eccentric for moving said spout, of the stationary knife, substantially as described.

28. The combination, with a weighing-scale and mechanism whereby the introduction of a coin or token is made to effect the weighings, of a shutter connected with said scale, so as to be controlled thereby, and operating to close the opening through which the coin is introduced, so long as the scale pan or platform is free of outside weight or pressure, substantially as described.

29. A weighing-machine comprising, in combination, first, a weighing mechanism, of which the essential elements are a scale pan or platform, a scale-beam, a drum connected with said beam, so as to be turned thereby, a band on said drum, and a series of scale-weights which are successively lifted by said band; second, a printing mechanism, of which the essential elements are a printing-disk connected with said drum and having a slotted rim, and an elastic, flexible, and extensible printing-band on the said slotted rim, an ink or carbon ribbon, a printing-finger, a card-box, and a pusher; third, a clock-work for operating said printing mechanism, and, fourth, an escapement for said clock-work, of which the essential elements are a lever to be moved by a coin or token, and a spout movable by said clock-work to discharge the coin or token, all substantially as described.

In testimony whereof I have signed this specification in the presence of two witnesses.

CLEMENT COLERIDGE CLAWSON.

Witnesses:
ALEX. WILEY,
E. A. MEAD.