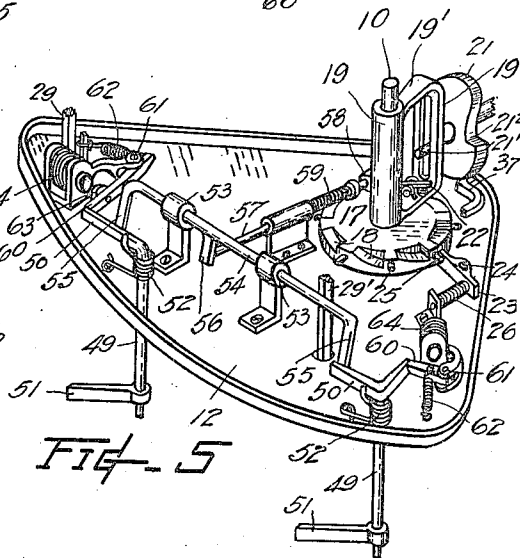
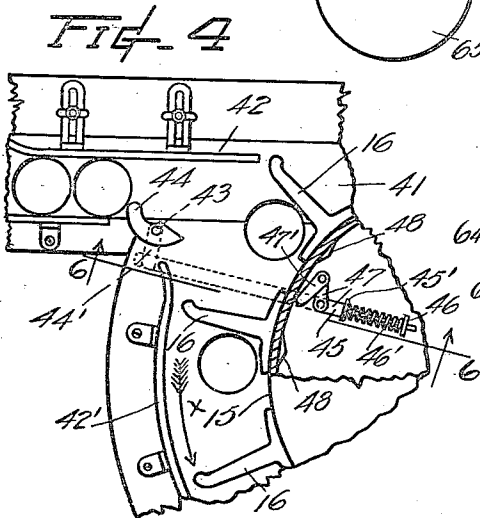
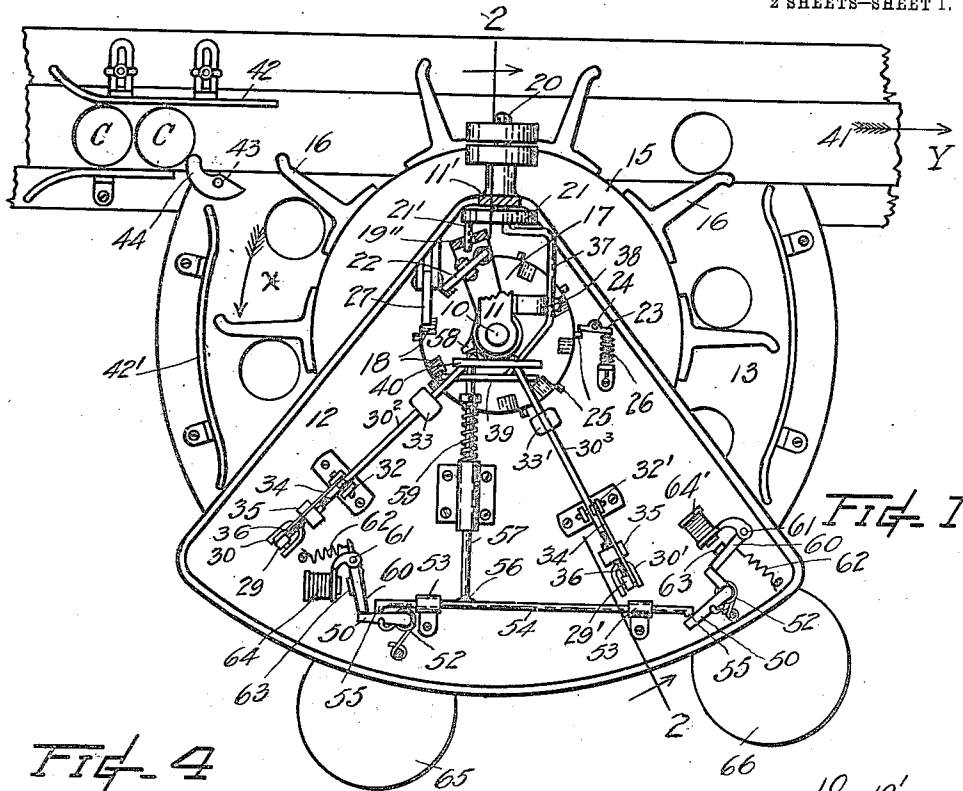


J. F. PERKINS.
CAN WEIGHING MACHINE.
APPLICATION FILED OCT. 23, 1911.

1,064,668.

Patented June 10, 1913.

2 SHEETS—SHEET 1.



WITNESSES:

F. C. Matheny
E. Peterson

INVENTOR:

James F. Perkins
BY *Pierre Barnes*
ATTORNEY

J. F. PERKINS.
CAN WEIGHING MACHINE.
APPLICATION FILED OCT. 23, 1911.

1,064,668.

Patented June 10, 1913.

2 SHEETS-SHEET 2.

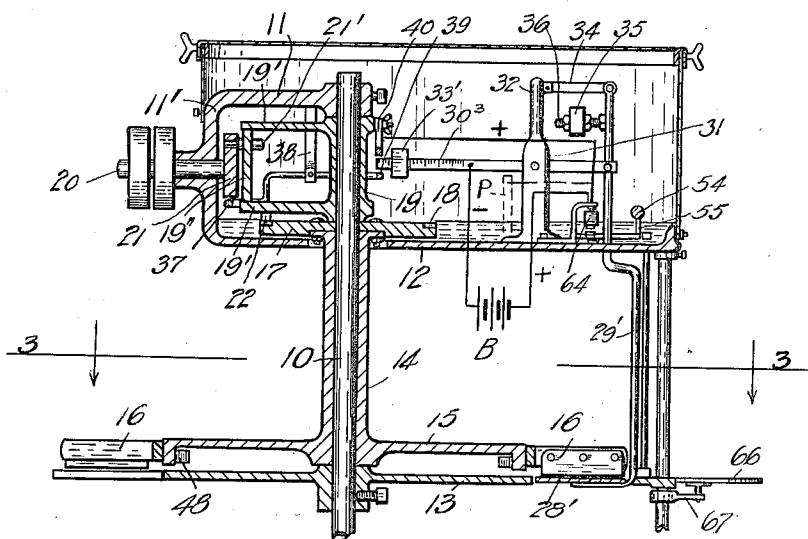


FIG. 2

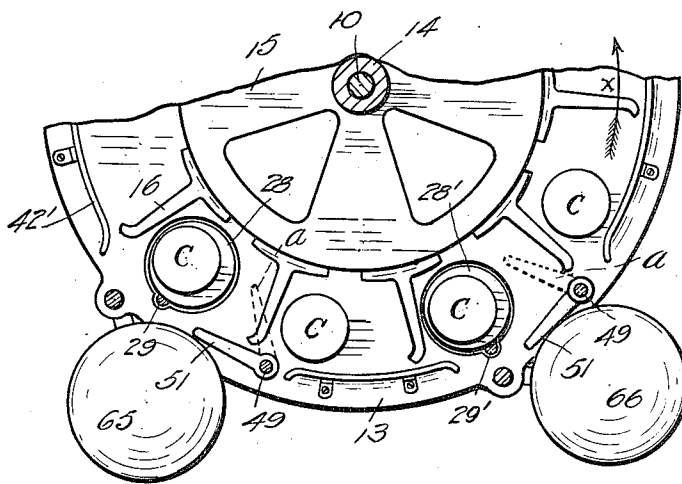


FIG. 3

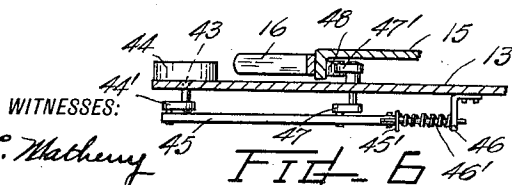


FIG. 4

WITNESSES:
F. C. Matheny
C. Peterson

INVENTOR :

James F. Perkins
BY
Pierre Barnes
ATTORNEY

UNITED STATES PATENT OFFICE.

JAMES F. PERKINS, OF SEATTLE, WASHINGTON.

CAN-WEIGHING MACHINE.

1,064,668.

Specification of Letters Patent. Patented June 10, 1913.

Application filed October 23, 1911. Serial No. 656,243.

To all whom it may concern:

Be it known that I, JAMES F. PERKINS, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Can-Weighing Machines, of which the following is a specification.

The object of this invention is the perfecting of that class of weighing machines which are provided with devices for automatically separating articles passing through the machine of less or greater weights than a predetermined standard for which the weighing scales of the machine have been adjusted.

The invention consists in the novel construction and combination of parts, as will be hereinafter described and claimed.

In the accompanying drawings—Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a vertical section taken through 2—2 of Fig. 1. Figs. 3 and 4 are fragmentary horizontal sections taken through 3—3 of Fig. 2. Fig. 5 is a perspective view showing the can-ejecting mechanism. Fig. 6 is a detail section through 6—6 of Fig. 4.

Referring to the drawings, 10 designates an upright post secured to the upper end of which is an arm 11 extending rearwardly and then downwardly, as at 11', to support a table 12. At a distance below the table is a stationary platform 13 which, as shown, is desirably connected to said post. The aforementioned parts constitute the frame of the machine. Rotatably mounted upon said post and above the platform 13 is a carrier comprising a sleeve 14 formed at its lower end with a wheel 15 armed with radiating fingers 16, and at the upper end of the sleeve it is provided with a disk having in its upper face a series of notches 18. Above the sleeve is an actuator, as it will be hereinafter termed, comprising a sleeve 19 connected by members 19' with a slotted offset bar 19'' at the rear.

Journalled in a bearing provided in the frame part 11' is a power driven shaft 20 having at its forward end a wheel 21 carrying a crank-pin 21' which operates in the slot of the actuator bar 19'' to effect a hori-

zontally applied vibratory motion to the actuator about the axis of the post 10. Provided on the lower actuator member 19' is a spring pressed pawl 22 whose office is to successively engage the disk 17 within the notches 18 thereof to impart intermittent rotary motions to the carrier in the direction indicated by arrows *a* in Figs. 1, 3 and 4. A relatively small retrograde movement is, however, given to the carrier at the termination of each progressive impulse received from the actuating pawl. Such reverse movements are accomplished through the medium of a lever 23 fulcrumed at 24 to the machine table and having one arm of the lever encountered by spaced spurs 25 provided about the circumference of the disk 17 and swerving the lever in opposition to a spring 26 acting against the other arm of the lever. Said lever is engaged by a spur during the termination of a rotary movement effected by a pawl 22 so that the thus compressed spring, in its recoil, will serve to impel the disk in a reverse rotary direction until the latter is arrested by a stop 27 (Fig. 1) encountering an end wall afforded by a notch 18 of said disk.

Provided in the frame platform 13 are openings to accommodate pans 28 and 28' of the scales which are respectively employed for detecting light and heavy weights in cans when the same are delivered thereto in the operation of the machine. These pans are suspended by rods 29 or 29' from scale beams 30 and 30' fulcrumed to pivotal pins, such as 31, Fig. 2, which are respectively supported by standards 32 and 32' secured to the frame table 12. The beam arms 30² and 30³ which are opposite to those from which the pan-rods 29 and 29' are hung are provided with graduation marks whereby weights 33 and 33' may be positioned to counterbalance cans of predetermined weights when delivered upon the respective pans.

34 represent parallel-motion links connecting the upper extremities of the beam rods 29 and 29' with extensions provided on the standards 32 and 32' for the purpose of maintaining the rods in upright positions and have the respective pans horizontal. To relieve the pivotal pins of the scale beams from lat-

eral strains there may be employed a compensating weight 35 which is adjustably connected to a branch rod 36 (Fig. 2) provided for each of the pan-supporting rods 29 and 29'. The scale weight 33 on the scale beam 30 is such as to overbalance the associated pan 28 together with a can containing less than a predetermined weight of goods. The scale weight 33' of the beam 30' is overcome by a can of more than standard weight when brought upon the scale pan 28'.

To regulate the action of the scales, the pans thereof are normally held in positions to have their upper surfaces flush with the upper surface of the platform 13; but when the carrier has been actuated to deliver a can upon either of the pans the holding means are released to permit the scales to operate. The referred to scale regulating means comprises a lever 37 fulcrumed to a hanger 38 from the machine frame, and provided at one end with a transverse bar 39 having its ends respectively disposed below and above the scale-beam arms 30² and 30³. The other end of the lever 37 bears against the periphery of the wheel 21 which is provided in its circumference with a recess 21² whereinto the end of the lever remote from the bar 39 enters by reason of the superior weight afforded by the bar and thereby allowing the bar end to lower. At a suitable height above the beam arms 30² and 30³ is a stationary stop 40 whose office is to limit the upward swing of the above mentioned beam-arms to restrain the scale pans against downward movements to a greater extent than requisite to accomplish their respective functions.

Disposed at the rear of the platform 13 is a belt 41 which is driven in the direction indicated by arrow Y in Fig. 1 and serves to convey the cans C to within the range of the fingers 16 at one side of the machine, to be then carried by such fingers to the scales, whence the cans of proper weights are returned by the fingers to the belt at the other side of the machine.

42 and 42' are guides for directing the cans as delivered from the belt within the orbital path of the fingers.

In order that the cans may be delivered one at a time to the carrier and at proper intervals of time to be engaged by the successively presented fingers, I provide a regulator which will now be described.

At the can receiving side of the machine is a bell-crank lever (see Figs. 4 and 6) which is pivoted at 43 to the platform and having one arm 44 of the lever above the platform and the other arm, 44', below the same. To the arm 44' is attached the end of a rod 45 whose other end extends through a bracket 46 secured to the underside of the platform. Upon the rod 45 is a collar 45' between which and the bracket is a spring

46' tending to influence the rod so that the bell crank arm 44 will project into the path of the cans as represented in Figs. 1 and 4 for the purpose of temporarily obstructing the delivery of the cans from the belt.

47 is an arm connected with the rod 45 and furnishes with another arm 47' a second bell crank. This bell crank is actuated by protuberances 48 provided within the carrier wheel 15 engaging the arm 47' to swerve the bell-crank so that the rod 45 is given endwise motion in opposition to the spring 46', resulting in the withdrawal of the arm 44 from in front of a can to allow the same being delivered by the belt to the machine carrier. Immediately after a protuberance 48 has passed the arm 47' the spring 46 asserts its power to restore the bell crank arm 44 into the position in which it is shown in the views.

The cans are conveyed by the fingers 16 in a succession of movements to the scale pan 28 and upon a can being deposited thereupon a relatively small retrograde motion, as previously explained, is imparted to the carrier to retract from the cans the fingers whereby their progressive movements were attained. Upon such occurrence the wheel 21 has been rotated to present the recess 21² thereof into position whereat the lever 37 is tilted by the bar 39 to lower the latter into position to enable the scales becoming operable. When a can of underweight is brought upon the pan 28 of the light weight scale, or a can of overweight is brought upon the pan 28' of the heavy weight scale, the light weight can will be elevated by the scale weight 33, or the heavy weight can will overcome the scale weight 33' to depress the pan. To remove such cans I employ ejectors which will now be described. Each ejector consists of an upright shaft 49 provided at their upper and lower extremities with arms 50 and 51 which are respectively disposed above the table 12 and platform 13. Provided for each shaft 49 is a spring 52 acting to turn the shafts to present the arms 51 into the positions in which represented by broken lines *a* in Fig. 3.

Journalled in bearing boxes 53 above the table 12 is a horizontal shaft 54 having at its ends arms 55 which extend downwardly to engage with the arms 50, of the upright shafts 49. A third arm 56 intermediate the length of the shaft 54 is arranged to be engaged by a push-rod 57 which is operated by a lug 58 provided on the aforesaid actuator sleeve 19 in opposition to a spring 59 during each of the propelling motions of the actuator.

For an arm 50 is a stop comprising a lever 60 fulcrumed to a pivotal pin 61 and normally obtruded by a spring 62 into the path in which the respective arm 50 will be

swung by the agency of the spring 52 to render the latter temporarily inoperative and likewise retain the ejector arms 51 in the positions wherein they are illustrated by full lines in Fig. 3.

As best shown in Figs. 1 and 5, an armature 63 is provided on a lever 60 for an electro-magnet 64 which upon being energized, will attract the respective armature to withdraw the associated lever 60 from its engaged position to release the affected arm 50 and allow an ejector to act. For each of said magnets is provided circuit connections with an electric current supply such as a battery, as indicated conventionally by B in Fig. 2, the wire connections for which may comprise wires + and - connecting with the scale beam-arm 30⁸ and the stop 40 with respect to the heavy-weight scale, and which serve as switch terminals so that when these members contact the electric circuit will be completed to energize the magnet included within the circuit. The wiring for the battery of the light-weight scales is similar except that the beam-arm in that instance would serve as a switch terminal to co-operate with a contact provided on a post P subjacent thereto, as indicated by broken lines in the view.

65 and 66 represent disk plates rotatably supported upon brackets such as 67, to receive ejected cans.

The operation of the invention is as follows: The filled cans are conveyed by the belt 41 to the platform 13 and within the reach of the revolving wheel-fingers 16 to which the cans are individually delivered through the agency of the vibratory arm 44 as hereinbefore described. The motions of the fingers 16 are, however, intermittent so that they carry the cans a distance and then are retracted to provide a small space between the cans and the various fingers by which the cans are pushed about the platform. Such advance and reactionary motions are accomplished by means of the afore-explained actuating pawl 22 and the spring controlled lever 23 both acting upon the disk 17 which is, in effect, integral with said fingers. The cans are successively brought upon the scale-pan 28 by the fingers. When a can is thus lodged the can-propelling finger is retracted and while freed from the finger the power driven wheel 21 is rotated to carry the wheel-recess 21² into position whereinto the adjacent end of the lever 37 is tilted by the unbalanced weight applied thereto by the bar 39. As the bar descends the beam-arm 30² for the scale pan 28 is released and, should a can on this pan be of lighter weight than required to balance the scale-weight 33, the latter will raise the pan. As this occurs the referred to scale beam, which serves as a terminal of the circuit wire is brought into contact with

the other terminal of the complementary wire to complete the circuit of the electro-magnet 64 to energize the same and whereby the armature of the magnet is attracted to swing the associated lever 60 out of engagement with the adjacent arm 50. This arm being released the spring 52 asserts its power to turn the rod 49 so that the arms 50 and 51 will be swung inwardly or toward the center of the machine. The arm 51 will then be in the position in which it is indicated by broken lines *a* in Fig. 3. With the arm 51 thus disposed a partial rotation is afforded the can carrier to progressively move the can against the arm 51 which then serves to guide the can outwardly to be received upon the plate 65. During the following forward movement of the carrier the arm 51 is restored to occupy the position in which it is represented by full lines in Fig. 3, by means of the lug 58 actuating the push rod 57 which, in turn, encounters and swings outwardly the arm 56 to operate the shaft 54 and cause the arm 55 to push against the arm 50 of the rod 49. When the arm 50 has been swung sufficiently the spring 62 acts to move the lever 60 into the position in which it is shown in Figs. 1 and 5 to accordingly lock the ejector devices in inoperative condition until the magnet is again energized. A can of a weight exceeding that for which the scale-weight 33 is adjusted will obviously not effect the completion of the magnet circuit and consequently the ejector for the light-weight cans will remain inoperative and not interfere with the travel of cans of normal or heavy weights in its travel beyond the pan 65.

The action of the heavy-weight scale and the ejector therefor is similar to that described for the light-weight can, except that the electro-magnet therefor is energized through the completion of its circuit by the can weight overcoming the scale weight to tip the scale beam, which serves as a circuit terminal, into contact with the stop 40 which serves as the complementary terminal. When a heavy can is brought upon the pan 28' it makes the ejector devices therefor operative to direct such a can upon the plate 66. Cans of proper weights are carried by a series of intermittent motions to be delivered upon the belt 41 at the right hand side of the machine.

It is to be understood that both of the heavy and light weight scales need not be employed upon a single weighing machine.

What I claim, is—

1. In a weighing machine of the class described, a weighing scale, a rotary carrier for conveying articles to be weighed to said scale, an ejector, a spring tending to cause said ejector to become operative, devices acting in opposition to said spring for normally retaining said ejector in inoperative posi-

tion, and electric apparatus arranged to be energized by the scale when the latter is influenced by an article being weighed for causing said devices to become temporarily inoperative whereupon said spring is rendered capable of asserting its power to actuate the ejector for the purpose of removing the article from said carrier.

2. In a weighing machine of the class described, the combination with the weighing scale, a carrier for conveying cans to the scale for weighing, means for actuating said carrier, an ejector, means tending to move said ejector into operative condition, electric controlled devices opposing the last named means to normally retain said ejector in inoperative position, and means affected by the movement of said scale when influenced by an article differing in weight from that for which the scale is adjusted whereby said electric controlled devices are actuated to present the ejector into position for engaging such article through a cooperative movement performed by said carrier.

3. In a weighing machine, the combination with a rotary carrier, means for imparting intermittent progressive motions to said carrier, and means for imparting relatively small reverse movements to the carrier at the termination of the successive advance movements thereof, of weighing scales having a pan disposed to receive the articles to be weighed, an ejector, a spring tending to maintain said ejector in operative position, spring controlled means for releasably retaining said ejector in inoperative position, an electro-magnet, a normally incomplete electric circuit embracing said magnet, means actuated by said scales for completing said circuit when an article of a weight different to that for which the scale is adjusted is brought upon the scale-pan whereby the magnet is energized to disengage said spring controlled means with respect to the ejector so that the latter becomes operative, and means whereby the ejector is subsequently restored to its inoperative position for re-engagement by said spring controlled means.

4. In a weighing machine, the combination with a rotary carrier, means for imparting intermittent progressive motions to said carrier, means for imparting relatively small reverse movements to the carrier at the termination of the successive advance movements thereof, a conveyer for supplying the articles for weighing to the machine, and devices controlled by said carrier for delivering said articles from the conveyer periodically to the carrier, of weighing scales having a pan disposed to receive the articles to be weighed, an ejector, a spring tending to maintain said ejector in operative position, spring controlled means for releasably retaining said ejector in inoperative position, an electro-magnet, a normally incom-

plete electric circuit embracing said magnet, means actuated by said scales for completing said circuit when an article of a weight different from that for which the scale is adjusted is brought upon the scale pan whereby the magnet is energized to disengage said spring controlled means with respect to the ejector so that the latter becomes operative, and means whereby the ejector is subsequently restored to its inoperative position for re-engagement by said spring controlled means.

5. In a weighing machine of the class described, the combination with a platform, a carrier disposed above the platform, mechanism for imparting intermittent rotary motions to said carrier, a weighing scale having a pan operating in an opening provided in said platform, devices for regulating said scale for tipping the same at a predetermined weight, means controlled by said mechanism whereby the scale is alternately rendered operative and inoperative, and a vibratory arm made operative by the tipping of the scale for ejecting cans from said platform.

6. In a weighing machine of the class described, the weighing scales, a rotary carrier, means for imparting intermittent rotary motion to said carrier, an ejector-arm, and means rendered operative by an article having a weight different from a predetermined weight for which said scales are adjusted whereby said ejector-arm is temporarily swung into position to render the same effective.

7. In a weighing machine of the class described, the combination with the weighing scale, a carrier for conveying cans to the scale for weighing, means for actuating said carrier, an ejector, means tending to move said ejector into operative condition, devices opposing the last named means to normally retain said ejector in inoperative position, and means affected by the movement of said scale when influenced by an article differing in weight from that for which the scale is adjusted whereby said devices are actuated to present the ejector into position for engaging such article through a cooperative movement performed by said carrier.

8. In a weighing machine, the combination with a rotary carrier, means for imparting intermittent progressive motions to said carrier, and means for imparting relatively small reverse movements to the carrier at the termination of the successive advance movements thereof, of weighing scales having a pan disposed to receive the articles to be weighed, an ejector, a spring tending to maintain said ejector in operative position, spring controlled means for releasably retaining said ejector in inoperative position, means actuated by said scales for rendering said spring controlled means inoper-

ative when an article of a weight different to
that for which the scale is adjusted is
brought upon the scale-pan whereby said
spring is caused to be operative to move the
5 ejector so that the latter in turn becomes
operative, and means whereby the ejector is
subsequently restored to its inoperative po-

sition for reëngagement by said spring controlled means.

JAMES F. PERKINS.

Witnesses:

HORACE BARNES,
E. PETERSON.