No. 648,662. Patented May 1, 1900.

H. GOLOMB & J. TAIZ.

WEIGHING MACHINE.

(Application filed July 22, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

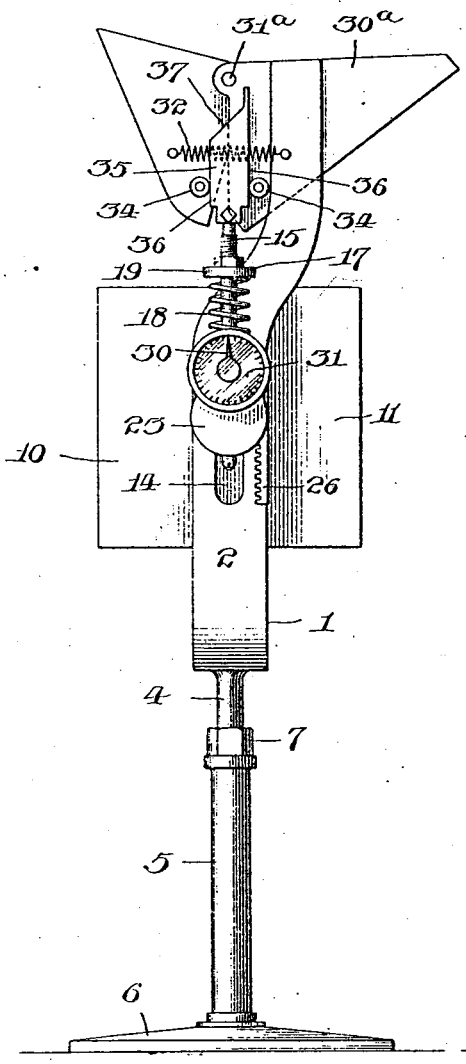
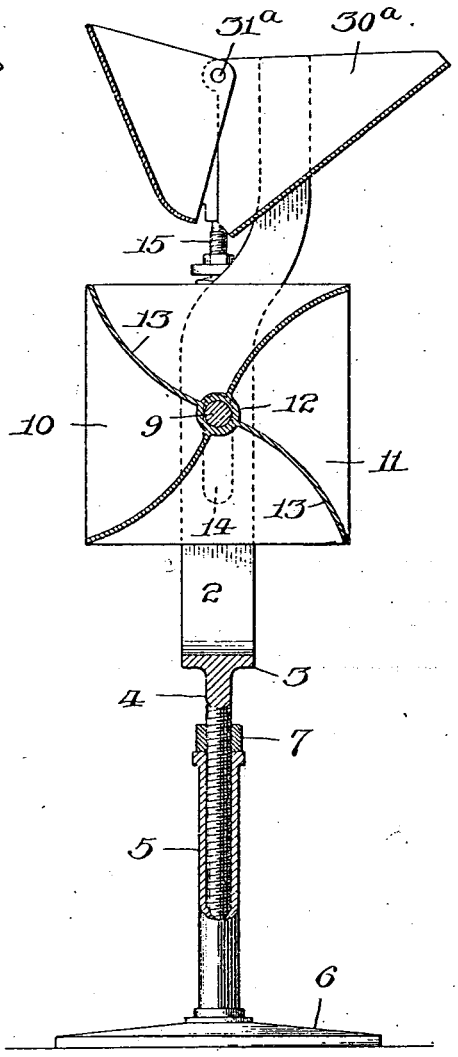


Fig. 2.



Witnesses.

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Helen D. Blackwood.

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Fig. 3.

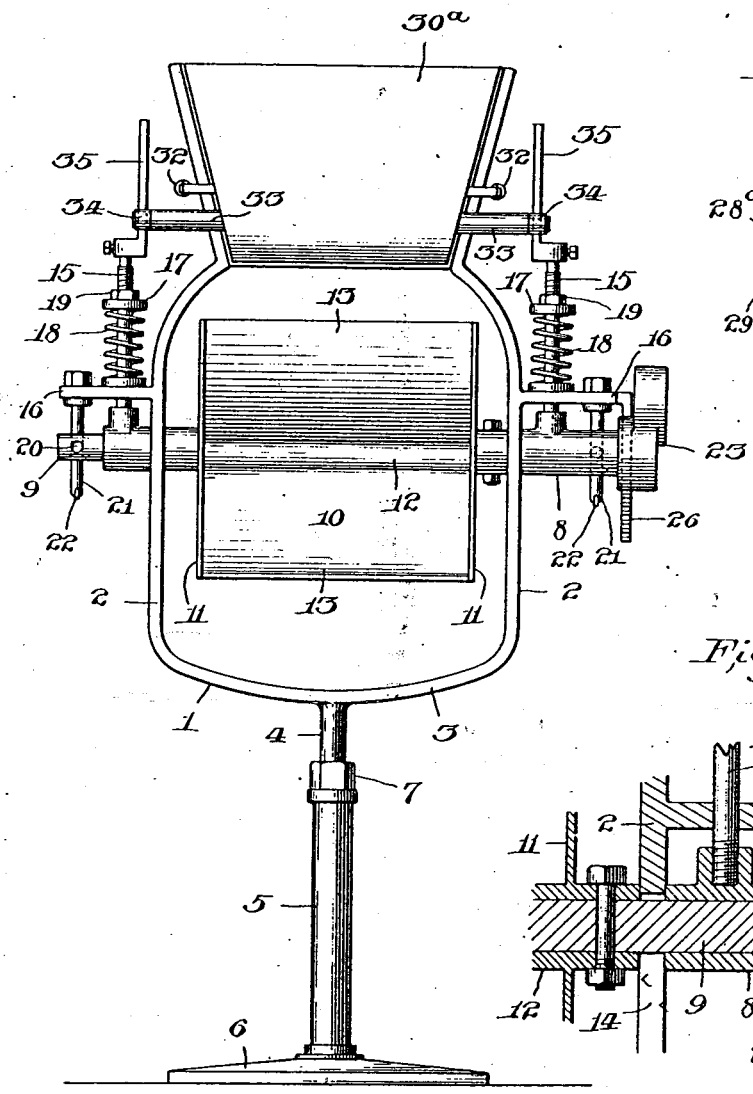


Fig. 4.

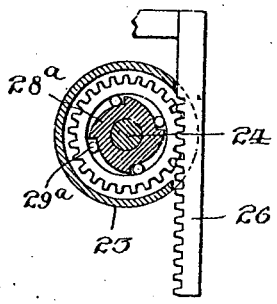
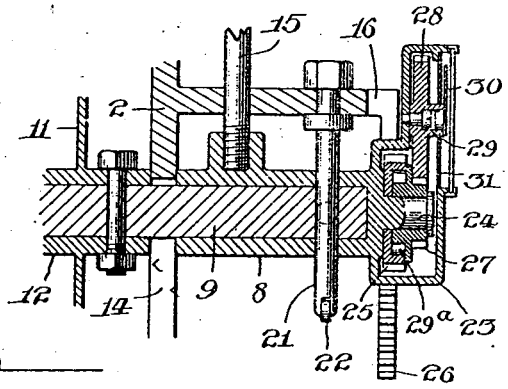


Fig. 5.



Witnesses.

A. S. Groupe

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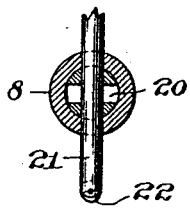
Fig. 6.



Inventor.

Herman Golomb

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UNITED STATES PATENT OFFICE.

HERMAN GOLOMB AND JACOB TAIZ, OF PHILADELPHIA, PENNSYLVANIA.

WEIGHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 648,662, dated May 1, 1900.

Application filed July 22, 1899. Serial No. 724,805. (No model.)

To all whom it may concern:

Be it known that we, HERMAN GOLOMB and JACOB TAIZ, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Weighing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to weighing-machines, and has for its object to provide a simple and efficient construction whereby large quantities of coal and like material may be expeditiously and accurately weighed as rapidly as it is discharged from the delivery-wagon.

The invention is particularly designed for household use, to the end that the weight of coal delivered to the consumer may be accurately ascertained by him.

Accordingly the invention comprises certain novel features of construction and organizations of parts, which will be hereinafter particularly described and claimed.

In the drawings, Figure 1 is an end view of an apparatus embodying our invention in its preferred form. Fig. 2 is a vertical section thereof. Fig. 3 is a side elevation of the same. Figs. 4 and 5 are details of the registering mechanism. Fig. 6 is a detail of the locking device for the weighing-receptacle.

The numeral 1 represents a supporting-frame comprising the side members 2, the lower cross-bar 3, and the depending stem 4. This stem extends into a tubular post 5, rising from a substantial base 6, and is provided with a suitably-disposed nut 7, by the manipulation of which the said frame may be raised or lowered, as desired. Journaled in bearings 8 adjacent to the side members is a horizontal shaft 9, to which is affixed a chambered receptacle 10. In the present instance this receptacle comprises two square end heads 11, connected by a tubular hub 12 and four diagonal walls 13, which latter extend from the hub to the respective corners of the end heads, so as to provide four chambers or compartments. These walls are preferably correspondingly curved, as seen, similarly to the blades of a turbine, so that when the uppermost compartment is supplied with material it will tend to tip or turn the receptacle in the direction indicated by the arrow. The shaft extends through vertical guide-slots 14 in the side members of the supporting-frame, so as to be vertically movable therein. The bearings are correspondingly movable, the same having affixed thereto vertical rods 15, that extend through and are guided in laterally-projecting lugs 16 on the side members. These rods at or near their upper ends are provided with collars 17, between which and the underlying lugs are disposed spiral springs 18, that tend normally to maintain the said bearings in their uppermost position. It will be seen that by adjusting these collars on the rods the tension or pressure of the springs may be nicely regulated. For this purpose we screw-thread the rods at points above the collars and equip the rods with set-nuts 19, by the manipulation of which the requisite adjustment of the collars may be effected. The shaft is provided near its respective ends with a series of radial orifices 20, which correspond in number and position with the compartments of the receptacle, and the lugs 16 are provided with depending pins 21, that are adapted to register with these orifices when the shaft and the receptacle thereon are in the raised or normal position, and thereby lock the said receptacle fixedly in place. The lower ends of the pins are preferably provided with antifriction-rollers 22. The orifices are so disposed that when the receptacle is thus locked the mouth of the upper compartment or chamber is horizontal, or substantially so, to the end that coal or other material may be readily introduced thereto. During the filling of the upper compartment the receptacle is gradually depressed by the increasing weight against the action of the springs, thus correspondingly withdrawing the shaft from the interlocking pins. When the compartment has been supplied with a predetermined quantity of material, the shaft is entirely disengaged from the pins, whereupon by virtue of the conformation of the walls of the compartment the receptacle is tipped forward by the weight of its contents and the latter thus discharged therefrom. In this movement the receptacle makes a quarter-turn, and the succeeding orifices in the shaft then being in register with the pins the receptacle is retracted

to its raised or normal condition, so as to lock the then upper compartment in position for the reception of the coal, &c. When a given quantity of material has been supplied to this compartment, the receptacle is again depressed and its contents discharged as before, and so on in continuous succession the compartments are supplied and discharged.

In order that the revolutions of the receptacle may be indicated and the weight of the material received and discharged thereby be accurately determined, we provide a registering mechanism whose operation is controlled by the descent of the receptacle. So far as the particular construction of this mechanism is concerned our invention is not restricted thereto, as obviously any other appropriate means to the same end may be substituted therefor.

In the present instance one of the sleeves or bearings for the shaft 9 is extended beyond the end of the latter and is provided with a suitable casing 23, in which the registering mechanism is contained. On a stud-shaft 24 in this casing is loosely mounted a pinion 25, with which engages a depending rack 26 on the adjacent lug 16 of the supporting-frame, whereby when the receptacle is depressed, as above described, the said pinion is positively rotated. On this stud-shaft is also loosely mounted a pinion 27, which is geared with a spur-wheel 28 on an upper stud-shaft 29, the hub of said wheel being provided with an index or pointer 30, that rotates about a suitably-graduated dial 31 in the casing. The pinion 25 is so connected with the pinion 27 that the latter will be rotated only during the descent of the receptacle. To this end the pinion 27 is provided with a peripherally-toothed collar 28^a, which is fitted in an annular groove in the face of the pinion 25, and small antifriction-rollers 29^a are interposed between the opposing edges of the collar and the groove. The teeth of the collar are inclined, as seen, so that in the rotation of the pinion 25 during its descent the rollers will bind the two pinions together, and in the reverse rotation of the pinion 25 during its ascent the rollers will roll loosely against the teeth. As will be observed, the extended sleeve or bearing is suitably perforated for the passage of the locking-pin.

As a simple and efficient means whereby the material shall be delivered in uniform quantities to the successive compartments of the receptacle we arrange above the latter a hopper 30^a, into which the material is first delivered. This hopper comprises two sections, one of which is fixed and the other hinged thereto, so that the lower or discharging portion of the hopper may be opened and closed at predetermined intervals in respect to the position of the underlying receptacle. The fixed section of the hopper is supported by upward extensions of the side pieces of the main frame, while the other section is pivoted, as at 31, to said fixed section. Normally the lower end of the hinged section is closed by the action of an exteriorly-arranged spring 32, affixed thereto and to one of the frame extensions. Each of the sections of the hopper is provided with projecting stems 33, carrying antifriction-rollers 34, between which extend cam-bars 35, that are affixed to the upper ends of the respective rods 15. These bars are provided with parallel edges 36 and with inclined portions 37, which are so relatively arranged that when the receptacle is in its uppermost position the parallel edges bear against the rollers 34 and maintain the hinged section of the hopper open to permit the contents thereof to fall into the underlying receptacle and that when the receptacle by the weight of its contents approaches its lowermost position the inclined portions of the bars engage the rollers on the hinged section and permit the latter to swing inward, thus cutting off the feed to the receptacle. In the succeeding ascent of the receptacle the hinged section is again opened by the vertical edges of the cam-bars.

The coal or other material to be weighed is shoveled or dumped into the hopper and thence delivered to the successive compartments of the receptacle and progressively weighed thereby, the aggregate weight being indicated by the register, as above explained.

We claim—

1. In a weighing-machine, the combination with a supporting-frame, of a vertically-movable and rotatable receptacle thereon, means to maintain said receptacle normally raised, locking and releasing devices for said receptacle, a registering mechanism, supported adjacent to said receptacle and carried bodily up and down therewith, and stationary means coacting with the registering mechanism during its vertical movement to effect the operation of said mechanism independently of the rotary movement of the receptacle.

2. In a weighing-machine, the combination with a supporting-frame, of a shaft therein, vertically-movable bearings for said shaft, a receptacle on said shaft, means to maintain said bearings normally raised, means for locking and releasing said shaft, a registering mechanism, supported adjacent to said receptacle and carried bodily up and down therewith, and stationary means coacting with the registering mechanism during its vertical movement to effect the operation of said mechanism independently of the rotary movement of the receptacle.

3. In a weighing-machine, the combination with a supporting-frame, of a shaft therein, vertically-movable bearings for said shaft, a receptacle on said shaft, means to maintain said bearings and its connections in elevated position, locking devices on said frame adapted normally to engage the shaft, a registering mechanism, supported adjacent to said receptacle and carried bodily up and down therewith, and stationary means coacting with the registering mechanism during its vertical

movement to effect the operation of said mechanism independently of the rotary movement of the receptacle.

4. In a weighing-machine, the combination with a supporting-frame, of a shaft therein provided with peripheral sockets or recesses, vertically-movable bearings for said shaft, vertical guide-rods for said bearings, a spring or springs acting on said rods to maintain said bearings normally elevated, a receptacle on said shaft, a fixed depending pin adapted normally to enter said sockets and prevent rotation of the shaft, a registering mechanism, and operative connections between the same and the receptacle.

5. In a weighing-machine, the combination with a supporting-frame, of a vertically-movable and rotatable receptacle thereon provided with a series of chambers or compartments adapted successively to be supplied with the material to be weighed; means to maintain said receptacle normally elevated, locking and releasing devices for said receptacle, a registering mechanism, supported adjacent to said receptacle and carried bodily up and down therewith, and stationary means coacting with the registering mechanism during its vertical movement to effect the operation of said mechanism independently of the rotary movement of the receptacle.

6. In a weighing-machine, the combination with a supporting-frame, of a vertically-movable and rotatable receptacle thereon provided with a series of chambers or compartments whereof the walls are curved or set as described, means to maintain said receptacle normally elevated, locking and releasing devices for said receptacle, a registering mechanism, supported adjacent to said receptacle and carried bodily up and down therewith, and stationary means coacting with the registering mechanism during its vertical movement to effect the operation of said mechanism independently of the rotary movement of the receptacle.

7. In a weighing-machine, the combination with a supporting-frame, of a vertically-movable and rotatable receptacle thereon provided with a series of compartments adapted successively to be supplied with the material to be weighed, means to maintain said receptacle normally elevated, a sectional hopper adjacent to said receptacle, means to maintain the hopper-sections normally closed, cam-bars connected with the bearings of said receptacle and movable vertically thereby, and operative connections between said bars and the hopper, whereby the said bars when elevated maintain the said hopper opened, and when depressed permit the closing of the hopper together with a registering mechanism supported adjacent to said receptacle and carried bodily up and down therewith, and stationary means coacting with the registering mechanism during its vertical movement to effect the operation of said mechanism independently of the rotary movement of the receptacle.

8. In a weighing-machine, the combination with a supporting-frame, and means whereby the same may be raised or lowered, of a vertically-movable and rotatable receptacle on said frame, means to maintain said receptacle normally elevated, locking and releasing devices for said receptacle, a registering mechanism, supported adjacent to said receptacle and carried bodily up and down therewith, and stationary means coacting with the registering mechanism during its vertical movement to effect the operation of said mechanism independently of the rotary movement of the receptacle.

9. In a weighing-machine, the combination of a supporting-frame, the shaft, the vertically-movable bearings therefor, the vertical guide-rods for said bearings, the springs tending to maintain said bearings normally elevated, a receptacle on said shaft, means for locking and releasing said shaft, a sectional hopper whereof one section is hinged, a spring to maintain the hinged section normally in closing position, and cam-bars carried by said rods and operatively engaged with said hinged section, whereby the latter is opened and closed at intervals in respect to the vertical movement of the receptacle.

10. In a weighing-machine, the combination with a supporting-frame, of vertically-movable bearings, a receptacle, a shaft or trunnions therefor in said bearings, means to maintain said bearings normally raised, means for locking and releasing said shaft, a registering mechanism, including a gear-wheel, mounted on the end of one of said bearings, a stationary rack coacting with said gear-wheel, and adapted to impel the registering mechanism during the descent of the bearings.

In testimony whereof we have hereunto affixed our signatures this 18th day of July, A. D. 1899.

HERMAN GOLOMB.
JACOB TAIZ.

Witnesses:
JOHN R. NOLAN,
ANDREW V. GROUPE.