O. J. JOHNSON.

DEVICE FOR COUNTING CANS AND OTHER ARTICLES.

APPLICATION FILED APR. 24, 1914.

1,123,545.

Patented Jan. 5, 1915.

2 SHEETS—SHEET 1.

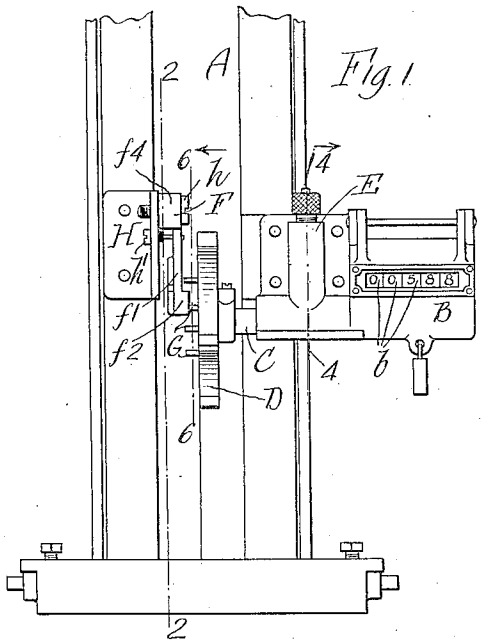


Fig. 1.

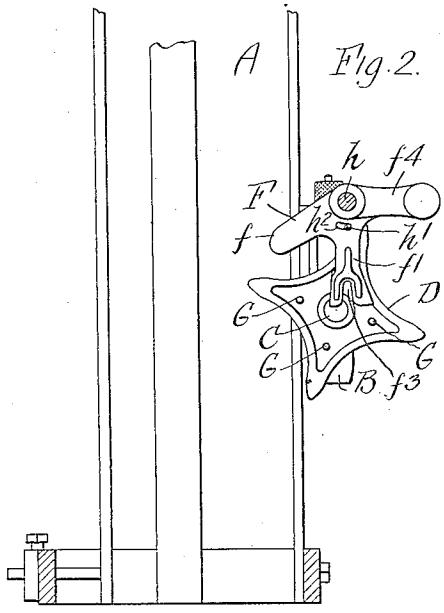


Fig. 2.

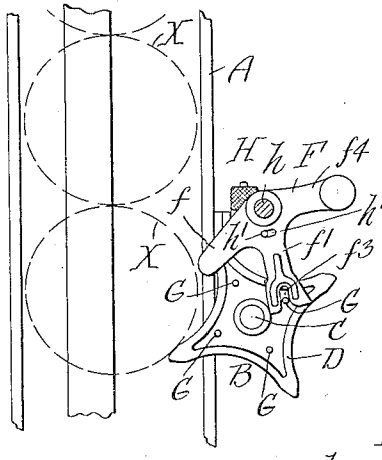


Fig. 3.

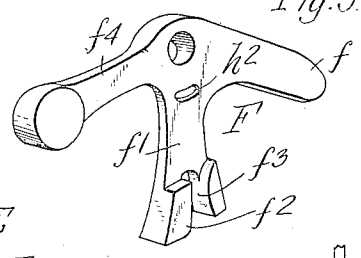


Fig. 5.

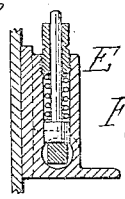


Fig. 4.

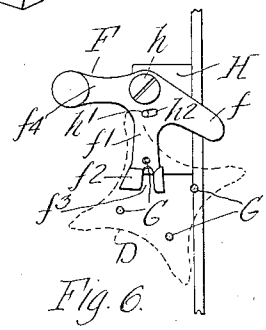


Fig. 6.

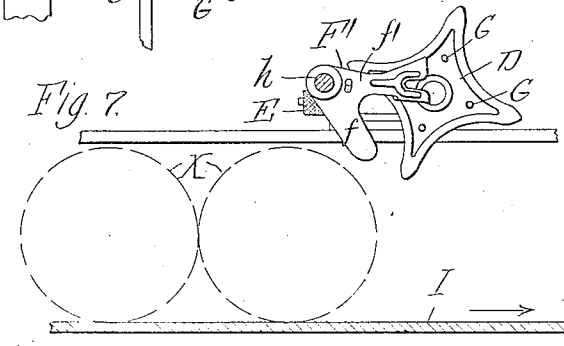


Fig. 7.

Witnesses.
Richard Sommer
A. G. Dimond

Inventor.
Oliver J. Johnson,
by Wilhelm & Parker,
Attorneys.

O. J. JOHNSON.

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Fig. 8.

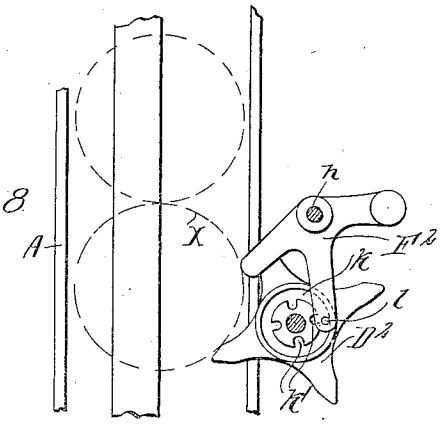
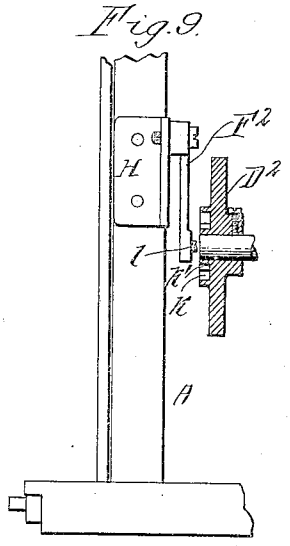


Fig. 9.



Witnesses:-
Richard Sommer
A. F. Dimond.

Inventor
Oliver J. Johnson,
by Wilhelm & Parker,
Attorneys.

UNITED STATES PATENT OFFICE.

OLIVER J. JOHNSON, OF WHEELING, WEST VIRGINIA.

DEVICE FOR COUNTING CANS AND OTHER ARTICLES.

1,123,545. Specification of Letters Patent. Patented Jan. 5, 1915.

Application filed April 24, 1914. Serial No. 834,046.

To all whom it may concern:

Be it known that I, OLIVER J. JOHNSON, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented a new and useful Improvement in Devices for Counting Cans and other Articles, of which the following is a specification.

This invention relates to improvements in registers or counting devices of the kind that are used, for example, for counting tin cans or other articles as the same are caused to travel past the register. A register of this sort which is used at the present time in can factories for counting tin cans, comprises an operating wheel for the counting mechanism arranged to be engaged and turned by the cans as they pass the same. The operating wheel is intended to be turned a definite distance, say one quarter of a revolution, by each can, and a brake is provided for the purpose of preventing the operating wheel from turning more than the intended amount. This device is not, however, entirely satisfactory, since the operating wheel is apt to overrun and prevent the proper count if the brake becomes worn or is adjusted to offer but little resistance to the movement of the wheel, which is necessary when the device is operated simply by the weight of the cans descending by their own gravity through a chute or runway.

The object of this invention is to provide a stop or controlling device for registers of this kind which will positively insure of the operating device being moved only to the intended extent by each can or article, and which will also prevent the reverse movement or malicious operation of the same. This is accomplished by the use in conjunction with the operating wheel or member of a movable stop or device which is moved by each can or article and controls the movement of the register operating wheel or member. In its normal position the stop device blocks the movement of the operating member. As each can or article approaches the register it moves the stop device to a position in which it allows the movement of the operating member. The can then releases the stop device and permits it to again return to position to block the movement of the register operating member before the latter can be turned more than the intended amount. Preferably the device is also constructed to prevent the reverse movement of the register operating member.

In the accompanying drawings: Figure 1 is a front elevation of a can chute or runway provided with a counting device embodying the invention. Fig. 2 is a sectional elevation thereof in line 2—2, Fig. 1. Fig. 3 is a similar view showing the stop device in position to permit the movement of the register operating member. Fig. 4 is a sectional elevation thereof in line 4—4, Fig. 1. Fig. 5 is a perspective view, enlarged, of the stop device detached. Fig. 6 is an elevation, partly in section in line 6—6, Fig. 1, looking toward the left. Fig. 7 is a sectional elevation showing the application of the counting device to a horizontal conveyer. Fig. 8 is a sectional elevation similar to Fig. 3, showing a stop device of modified construction. Fig. 9 is an elevation thereof, partly in section, in line 9—9, Fig. 8.

Referring first to Figs. 1–6, which illustrate the application of the invention to a chute or runway through which the cans or articles X to be counted are adapted to descend by gravity, A represents the chute or runway and B the register which is supported adjacent to the chute conveniently by securing the register casing directly to one side of the chute A. This invention is not concerned with the construction of the registering or counting mechanism *per se* and the same may be of any usual or suitable construction, comprising, for instance, a series of number wheels *b* and an operating shaft C which is operatively connected to the number wheels so as to turn them in a well known manner by the intermittent rotation of the shaft C. The operating shaft C is provided with a star wheel or operating member D arranged to be engaged and turned by the cans or articles descending through the chute or runway A. In the device shown, the points of the star wheel are adapted to extend into the path of the cans, and the wheel is intended to be turned one-quarter of a revolution by each can or article as the same passes the wheel in a manner similar to the operation of a turn-stile.

E represents the usual brake which is intended to prevent the operating shaft from being turned more than one-quarter of a revolution by each can or article. This brake consists of a spring-operated plunger, see Fig. 4, the end of which bears against a square portion of the operating shaft so that

the plunger tends to arrest the movement of the shaft and yieldingly hold it stationary after each one-quarter of a revolution thereof. The operation of a brake of this sort is, however, not reliable, as it does not hold properly when the corners of the square portion of the shaft wear round, or when the spring is adjusted light enough to permit the operating wheel and shaft to be turned simply by the weight of the cans descending through the chute.

The construction and operation of the parts thus far described are well known.

F represents a stop or controlling device which coöperates with the register operating star wheel or member D to limit the movement thereof by each can or article to the intended amount, that is, to one-quarter of a revolution in the device shown. This stop, shown in Figs. 1–6, consists of a lever which is suitably pivoted to swing parallel with the face of the star wheel D toward and from the path of the cans or articles passing through the chute or runway. The lever F has an arm f adapted to project into the chute in position to be engaged and moved by the cans or articles, and an arm f' provided with an abutment or lateral projection f^2 which, in the normal position of the lever, stands in the path of a series of pins G projecting from the adjacent face of the star wheel so that the pins are adapted to strike said abutment and thus prevent the turning of the star wheel. The abutment preferably has a slot or passage f^3 through it through which the pins G are adapted to pass in one position of the lever, as hereinafter explained. As shown in Figs. 1–6, the lever is also provided with an arm f^4 which is so weighted as to normally hold the lever in the position shown in Fig. 2, in which its arm f projects into the chute in position to be engaged by the cans, and its abutment f^2 is held in the path of the coöperating pins G on the star wheel D. The lever could, however, be otherwise weighted or operated by a spring or other means to hold it yieldingly in this normal position. In the construction shown, the lever is pivoted by a screw h to a bracket H secured to the chute A and its swing is limited by a screw h' which projects from the bracket into a slot h^2 in the lever. The lever could, however, be pivotally supported and its movement limited in any other suitable way.

The location of the arm f of the stop lever is such that the same is adapted to be engaged by the can or article and the stop lever swung on its pivot to the position indicated in Fig. 3 before the can engages the star wheel D. In this position of the lever the pins G of the star wheel are adapted to enter the passage f^3 in the abutment f^2 of the stop lever. The stop lever is retained in this position by the can or article until the latter has engaged and turned the star wheel far enough for one of the pins to enter the passage f^3. When the star wheel has been turned far enough for the pin to pass out of the passage f^3 or clear the abutment the can will have passed the arm of the stop lever and the lever will be returned to its normal position by its weighted arm, thereby placing the abutment in the path of the next pin G on the star wheel and preventing the star wheel from being turned more than the intended amount, which, in the device as shown, is one-quarter of a revolution. In the normal position of the stop lever the abutment f^2 is located between two adjacent pins on the star wheel, see Fig. 6, and these pins are adapted to strike the opposite ends of the abutment and thus prevent the rotation of the star wheel in either direction unless the stop lever is first moved to swing the abutment out of the path of the coöperating pins G. The stop device thus positively prevents the star wheel from being turned more than one-quarter of a revolution by each can, since the star wheel cannot overrun while a can is in engagement with it and the stop lever must be moved again by another can before the star wheel can be further moved. In addition the stop device prevents the wheel from being turned in either direction by hand unless the stop device is first moved to the position to permit the rotation of the star wheel. The device therefore serves, in a large measure, to prevent the malicious or mischievous operation of the register by a person attempting to spin the operating wheel by hand.

The brake device E is not required in addition to the stop device F and can be dispensed with if desired.

Fig. 7 shows an arrangement of the register suitable for use where the cans or articles are moved horizontally, as by a traveling belt or conveyer I. The construction and operation of the register and stop device in this arrangement are the same as before explained except that the parts occupy a horizontal instead of an upright position, and the weighted arm is omitted from the stop lever F′. The weighted arm is not needed in this arrangement since the other arms f f' of the lever tend to swing downwardly and act in the same way as the weighted arm to hold the lever in normal position, shown in Fig. 7.

Figs. 8 and 9 show a stop device of another construction which controls the operation of the register in a similar manner. In this construction the star wheel D^2 has a circular groove k in one side with four connecting slots k' extending radially therefrom or toward the center of the wheel. The stop lever F^2 has a pin l which extends

into the groove *k* and is adapted to enter the radial slots *k'* and lock the star wheel from movement in both directions. This device operates in substantially the same manner as the other construction. When a can engages the lever F^2 the pin *l* will be moved into the circular groove and permit the rotation of the star wheel, and when the can again releases the lever the pin will be returned into one of the slots and hold the star wheel.

Still other constructions embodying a stop device operated under the control of the cans or articles in the manner described, to lock and release the star wheel, could be used.

I claim as my invention:

1. The combination with a counting mechanism including an operating member and means whereby the articles to be counted are caused to move said operating member, of a movable stop device arranged to be moved in one direction by said articles, and means for returning the stop device when the articles disengage the same, said stop device cooperating with said operating member to prevent or permit the operative movement thereof depending upon the position of the stop device.

2. The combination with a counting mechanism including an operating member arranged to be moved by the movement relative thereto of articles to be counted, of a stop device which is movable to and from a position in which it obstructs the operative movement of said operating device and which is arranged to be moved from said obstructing position by said articles.

3. The combination with a counting mechanism including an operating member arranged to be moved by articles passing the same, of a stop device which is movable to and from a position in which it obstructs the operative movement of said operating device, the position of said stop device being controlled by said passing articles.

4. The combination with a counting mechanism including an operating member arranged to be moved by articles passing the same, of a movable stop device provided with an abutment arranged to intercept parts on said operating member to obstruct the movement thereof, said stop device being actuated by said articles to move said abutment out of the path of said parts of said operating member, and means for returning said stop device.

5. The combination with a counting mechanism including an operating member arranged to be moved by articles passing the same, of a stop device which is provided with an abutment and is movable to and from a position in which said abutment is in the path of coöperating parts of said operating member for obstructing the movement of said operating member, the movement of said stop device being controlled by said passing articles.

6. The combination with a counting mechanism including an operating member arranged to be intermittently rotated by articles passing the same, of a pivoted stop which is arranged to be moved by said articles from a position in which it obstructs the movement of said operating member, and means for returning said stop device when the article disengages the same.

7. The combination with a counting mechanism including an operating member arranged to be intermittently rotated by articles passing the same, said operating member being provided with stop projections, of a pivoted stop which is arranged to be moved by said articles from a position in which it is adapted to engage said stop projections, and means for returning said stop device.

8. The combination with a counting mechanism including an operating member arranged to be intermittently rotated by articles passing the same, said operating member being provided with stop projections, of a pivoted stop which is normally held by gravity in a position in which it is adapted to intercept said stop projections for preventing the operative movement of said operating member, and which is arranged to be engaged and moved from said position by said articles.

9. The combination with a counting mechanism including an operating member arranged to be intermittently rotated by articles passing the same, said operating member being provided with stop projections, of a pivoted stop which has an actuating arm, and an abutment adapted to intercept said stop projections for preventing the operative movement of said operating member, and which is normally retained in a position in which said arm is adapted to be engaged by said articles to move said abutment out of the path of said stop projections.

10. The combination with a counting mechanism including an operating member arranged to be intermittently rotated by articles passing the same, said operating member being provided with stop projections, of a pivoted stop which has an actuating arm, and an abutment adapted to intercept said stop projections for preventing the operative movement of said operating member, and which is weighted so that it is normally retained by gravity with said arm in position to be engaged by said articles to move said abutment out of the path of said stop projections.

11. The combination with a counting mechanism including an operating member arranged to be intermittently rotated by articles passing the same, said operating member being provided with stop projections, of

a pivoted stop which has an actuating arm, and an abutment adapted to intercept said stop projections for preventing the operative movement of said operating member, and which is normally retained in a position in which said arm is adapted to be engaged by said articles to move said abutment out of the path of said stop projections, said abutment being of a shape adapted to prevent the rotation of said operating member in both directions.

12. The combination with a counting mechanism including an operating member arranged to be moved by articles passing the same, of a movable stop device which normally obstructs the movement of said operating member and is arranged to be engaged by said articles in advance of their engagement with said operating member and moved by an article to a position in which it permits the operative movement of said operating member, said stop device being released by said article before the article clears said operating member.

13. The combination with a counting mechanism including an operating member arranged to be moved by articles passing the same, of a stop device which is movable to and from a position in which it obstructs the operative movement of said operating device and which is arranged to be engaged and moved from said position by said articles and again released in advance of the complete operative movement of said operating member by the articles.

Witness my hand, this 1st day of April, 1914.

OLIVER J. JOHNSON.

Witnesses:
A. O. PRAGER,
GEORGE E. WATERHOUSE.