C. H. VEEDER.

COUNTER.

APPLICATION FILED JULY 23, 1909.

1,039,227. **Patented Sept. 24, 1912.**

2 SHEETS—SHEET 1.

Fig. 1.

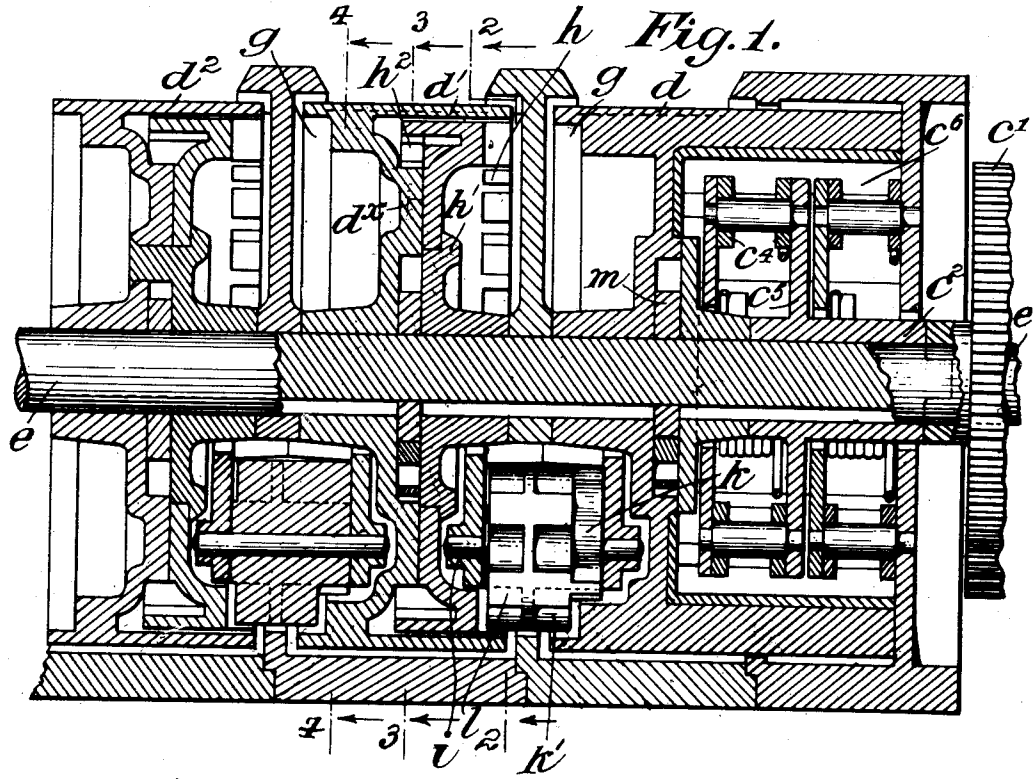
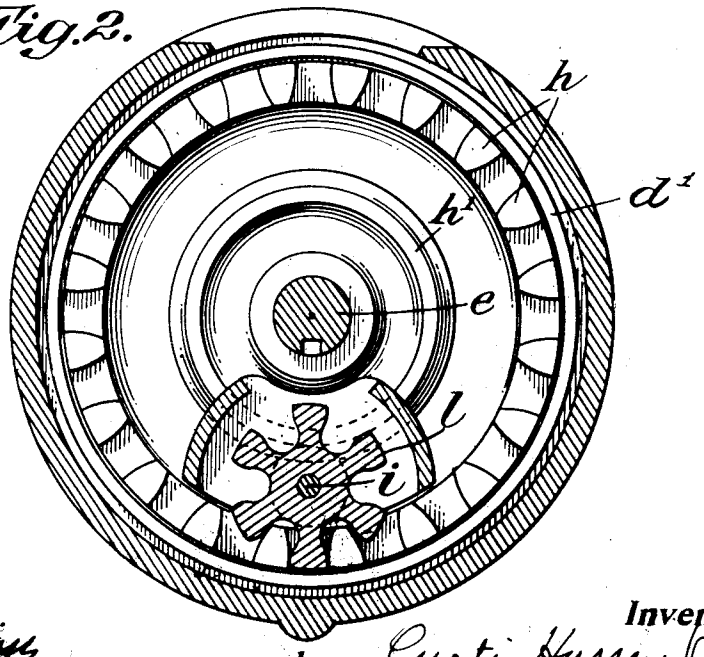


Fig. 2.



Attest:

W. McGlass

Helen M. Blanner

Inventor:

by Curtis Hussey Veeder

Redding, Greeley & Austin

Atty.

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2 SHEETS—SHEET 2.

Fig. 3.

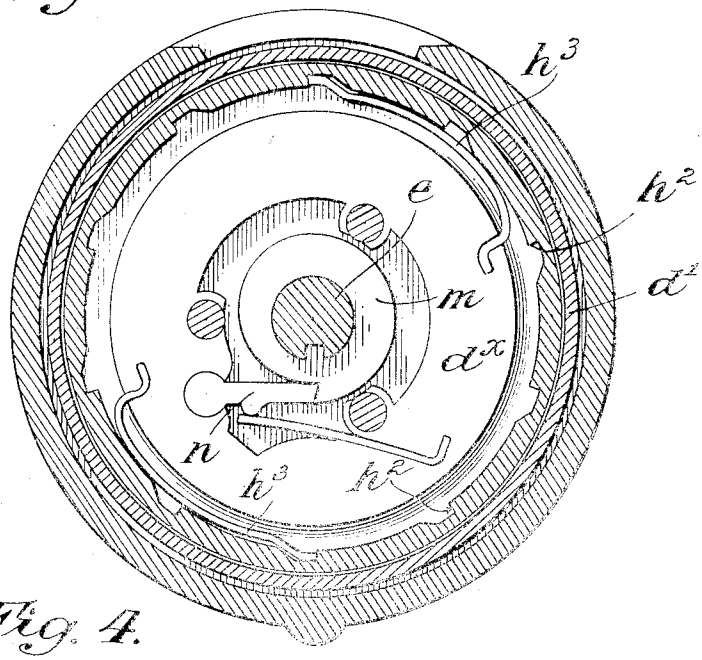
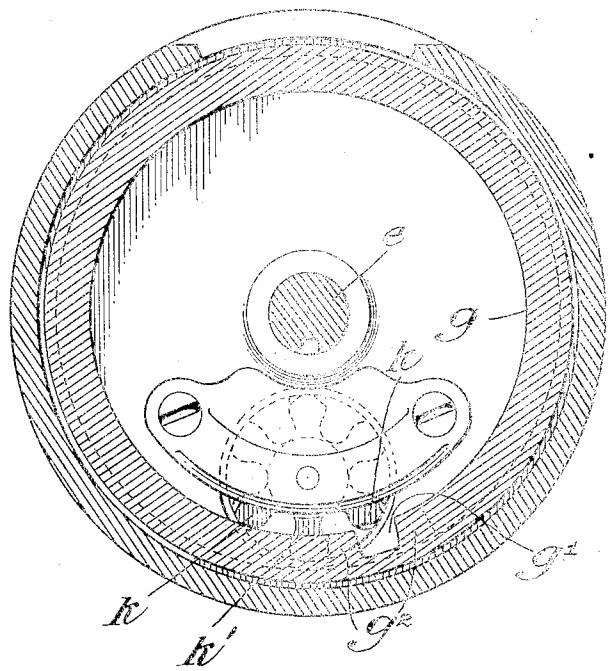


Fig. 4.



Attest:

W. McGinn

Helen M. Haines

Inventor:

by Curtis Hussey Veeder

Redding, Greeley & Austin

Atty's.

UNITED STATES PATENT OFFICE.

CURTIS HUSSEY VEEDER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO VEEDER MANUFACTURING COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

COUNTER.

1,039,227. Specification of Letters Patent. Patented Sept. 24, 1912.

Application filed July 23, 1909. Serial No. 509,208.

To all whom it may concern:

Be it known that I, CURTIS HUSSEY VEEDER, a citizen of the United States, residing in Hartford, in the State of Connecticut, have invented certain new and useful Improvements in Counters, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to so-called "set-back" counters or registers, in which provision is made for setting the number wheels back to zero from time to time.

In Letters Patent No. 950,546 granted to this applicant on March 1st, 1910 is disclosed a counter or register of the character referred to in which there are provided, in the transmission mechanism, by which the complete rotation of each number wheel effects a step-by-step movement of the next higher number wheel, two members which move together during the ordinary operation of the counter, while one of the members is free to move relatively to the other during the setting back of the number wheels, the particular embodiment of the invention referred to in the specification of said Letters Patent being a divided or two-part transmitting pinion with a ratchet and pawl connection between the two parts which permits relative movement of one part with respect to the other during the operation of setting back while compelling movement of the two parts together in the ordinary operation of the mechanism. In the present instance provision is made also for the relative movement of one of the parts between each number wheel and the next with respect to another of such parts, but the embodiment of the present invention differs from that shown in such former application in that the transmitting pinion itself is solid and provision for the relative movement referred to is made elsewhere.

The invention will be more fully explained hereinafter with reference to the accompanying drawing in which it is illustrated and in which—

Figure 1 is a view, partly in longitudinal, central section and partly in elevation, of a register or counter which embodies the present invention. Figs. 2, 3 and 4 are respectively sections on the broken lines 2—2, 3—3 and 4—4 of Fig. 1, looking in direction of the arrows.

In the construction shown it may be assumed that the several parts of the counting mechanism receive motion, indirectly, from a gear wheel c' which is mounted to rotate upon a shaft e and drives a sleeve c^2 which, through spring pressed pawls c^4 carried by a flange c^5 and internal ratchet teeth c^6, drives the first or units number wheel d. These details of construction, however, are not involved in the present invention and any suitable means for driving the first number wheel might be employed. Each of the number wheels d, d' d^2, is mounted for rotation upon a shaft e and is suitably constructed to impart movement through the transmitting mechanism, to the next succeeding number wheel and to have movement imparted to it, through the transmitting mechanism, from the next preceding number wheel. As shown, each number wheel, as d, is chambered, as usual, in its left hand end, to form an internal locking ring g having a notch g' (see Fig. 4) and two teeth g^2 to coöperate with the transmitting pinion. Each number wheel, as d', d^2, after the first number wheel d, is also chambered, in its right hand end to receive an independent internal gear h through which the number wheel is driven as hereinafter described. The transmitting mechanism, as will be observed, is wholly internal with respect to the number wheels and comprises, as usual, a transmitting pinion mounted for rotation upon a shaft i, carried by suitable hangers and comprising a three-toothed locking pinion k to coöperate with the locking ring g, a six-toothed driving pinion k' which meshes with the driving teeth g^2 of the preceding number wheel, and a six-toothed pinion l which meshes with the internal gear h by which the next succeeding number wheel is driven. The pinions k and l, instead of being separately formed, as described in the application above mentioned, are integral, while the internal gear h, which meshes with the pinion l, instead of being formed with the next succeeding number wheel, is formed separately therefrom and is adapted to rotate independently thereof in one direction, being mounted for rotation upon a hub h' which in turn is mounted for rotation upon the shaft e. The flange of the internal gear h is extended beyond its supporting web and on the opposite side of such web is formed internally with ratchet teeth h^2. The latter

are adapted to be engaged by spring pawls h^3 carried by the web d^x of the number wheel. The resetting mechanism is also internal with respect to the number wheel, comprising the shaft e, which is rotatable in its bearings for the purpose of resetting, a single toothed ratchet wheel or cam m which is keyed upon the shaft in proper position with respect to the corresponding number wheel, and a spring-pressed pawl n which is carried by the corresponding number wheel and is adapted to be engaged by the tooth of the wheel or cam m. The resetting tooth might be formed directly on the shaft e but it is preferable to provide the toothed cam or wheel m, of larger diameter than the shaft in order to reduce strain on the pawl and avoid wear on the shaft.

In the operation of the mechanism shown, the transmitting pinion k, l, acts in the usual manner to impart a step-by-step movement to the gear h as the preceding number wheel completes successive rotations. Through the driving engagement of the ratchet teeth h^2 with the pawls h^3 on the number wheel, the step-by-step movement of the gear h is imparted to the number wheel. When, however, it is desired to reset the number wheels to zero, the shaft e is rotated in a clockwise direction. Each single toothed cam or ratchet wheel m thereon therefore, through the corresponding pawl n, picks up the corresponding number wheel, in whatever position it may have been left, and rotates it to a zero position, when the movement of the shaft e is stopped, all of the number wheels being thus returned to zero. During this movement of each number wheel the pawls h^3 carried by it slip idly over the ratchet teeth h^2 of the wheel h which itself is held from movement by engagement with the transmitting pinion k, l, which is locked from movement by the locking rim of the preceding number wheel.

It will be seen from Fig. 1 that the locking ring g is formed with two inner annular surfaces of different diameters, the one of lesser diameter being provided with the notch g' for coöperation with the three-toothed locking pinion k while the one of greater diameter is provided with two teeth g^2 for coöperation with the six-tooth driving pinion k' all as set forth in Letters Patent No. 950,546 before referred to. During the operation of the mechanism the driving teeth g^2 serve to actuate the transmitting pinion by engagement with the teeth of the pinion k'. During the period of such engagement one of the teeth of the locking pinion k is in registry with the notch g'. Upon resetting two of the teeth of the last named pinion engage the inner annular surface of smaller diameter and slide thereon whereby rotation of the transmitting pinion and the wheel h is prevented.

It will be observed that in the construction described there is no heavy spring pressure or excessive friction to be overcome and at the same time the transmitting pinions are locked positively from accidental movement during the operation of resetting.

It will be obvious that details of construction may be varied as may be rendered desirable by different conditions of use and that the invention, therefore, is not restricted to the precise details shown and described herein.

I claim as my invention:

1. In a counter, the combination of a rotatable supporting shaft, number wheels mounted to rotate thereon, an internal transmitting pinion for transmitting movement from one number wheel to the next higher, a driving gear mounted to rotate concentrically with the shaft and in engagement with the transmitting pinion, a pawl and ratchet connection between the driving gear and the corresponding number wheel and a pawl and ratchet engagement between the supporting shaft and the same number wheel, whereby the number wheel is driven by the driving gear in normal operation and may be rotated independently thereof in resetting.

2. In a counter, the combination of a rotatable supporting shaft, number wheels mounted to rotate thereon, a transmitting pinion for transmitting movement from one number wheel to the next higher, a driving gear mounted to rotate concentrically with the shaft and in engagement with the transmitting pinion, a pawl and ratchet connection between the driving gear and the corresponding number wheel and a pawl and ratchet engagement between the supporting shaft and the same number wheel, whereby the number wheel is driven by the driving gear in normal operation and may be rotated independently thereof in resetting.

This specification signed and witnessed this 21st day of July, A. D., 1909.

CURTIS HUSSEY VEEDER.

Signed in the presence of—
E. BARRIE SMITH,
CHARLES G. ALLYN.