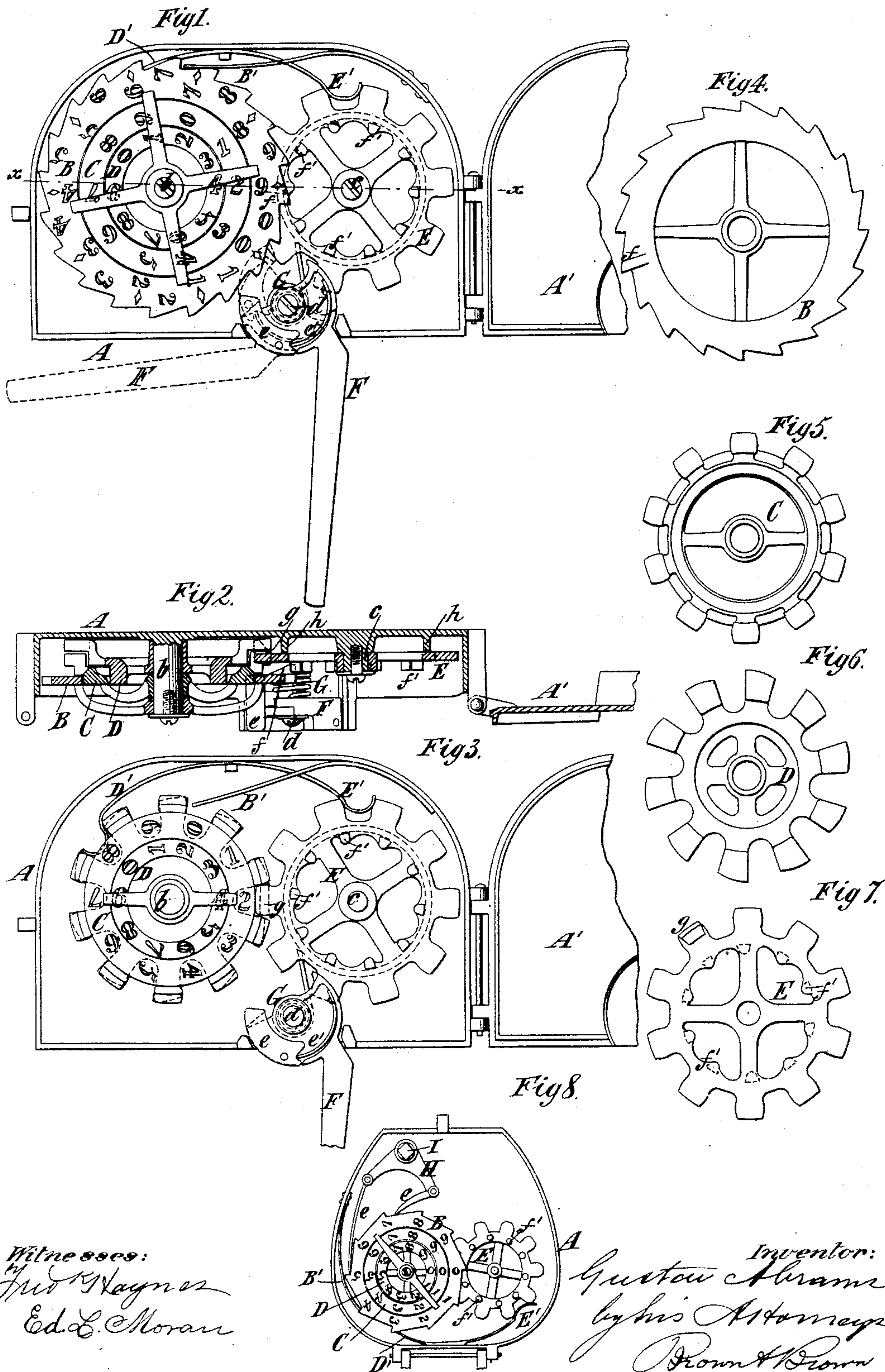


(No Model.)

G. ABRAMS.
REGISTER.

No. 286,671.

Patented Oct. 16, 1883.



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UNITED STATES PATENT OFFICE.

GUSTAV ABRAMS, OF STILLWATER, MINNESOTA.

REGISTER.

SPECIFICATION forming part of Letters Patent No. 286,671, dated October 16, 1882.

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To all whom it may concern:

Be it known that I, GUSTAV ABRAMS, of Stillwater, in the county of Washington and State of Minnesota, have invented a new and useful Improvement in Registers, of which the following is a specification.

This invention relates to a register or counter in which is comprised three or more wheels, which may be termed the "units-wheel," "tens-wheel," and "hundreds-wheel," and which are advanced step by step by a pawl or other operating device, the tens-wheel being moved one step at each revolution of the units-wheel, and the hundreds-wheel being moved one step at each revolution of the tens-wheel.

The object of my invention is to simplify the construction of such registers or counters.

In carrying out my invention I arrange the three wheels, or more than three, if it is desired to employ a thousands-wheel or ten-thousands wheel, concentrically one within the other; and the invention consists, essentially, in the combination, with the units, tens, and hundreds wheels, of a secondary wheel which is advanced a fraction of a turn at each revolution of the units-wheel, which gears with the tens-wheel, so as to impart to the latter a motion equal to its own motion, and which has a tooth which is adapted to act upon the hundreds-wheel, whereby at each revolution of the secondary wheel the hundreds-wheel is advanced a fraction of a turn. By this construction I am enabled to employ only one secondary wheel, whereas two or more secondary wheels have heretofore been employed, with three counting or registering wheels.

The nature of the invention will be understood from the accompanying drawings, wherein Figure 1 is a face view of my improved register with the cover or case removed or thrown back. Fig. 2 is a section thereof on the dotted line *x x*, Fig. 1. Fig. 3 is a face view of the open case, showing the tens, hundreds, and secondary wheels. Fig. 4 is an inverted plan of the units-wheel. Fig. 5 is an inverted plan of the tens-wheel. Fig. 6 is an inverted plan of the hundreds-wheel. Fig. 7 is an inverted plan of the secondary wheel and Fig. 8 is a face view of a register of slightly modified form, also embodying my invention.

Similar letters of reference designate corresponding parts in all the figures.

Referring, first, to all the figures except Fig. 8, A designates the case of the register or counter, and A' the hinged cover thereof, which has or may have a glazed opening, through which the reading of the register can be ascertained.

Upon the case A are two pivots or posts, *b c*, here represented as cast integral with the case. Upon the pivot or post *b* are journaled three wheels, B C D, and upon the pivot or post *c* is journaled what I term a "secondary wheel," E. The three wheels B C D are provided on their faces with figures or numbers. The outer or larger wheel, B, is the units-wheel, the next smaller wheel, C, is the tens-wheel, and the smallest or inner wheel is the hundreds-wheel.

F designates an actuating-lever, pivoted at *d* and projecting through the side of the case A. This lever carries a pivoted pawl, *e*, which is impelled into engagement with the units-wheel B by a spring, *e'*, and as the lever is swung or oscillated on its pivot the wheel B is advanced step by step.

As here represented, the units-wheel has twenty teeth, and where the register is intended for registering grain from a thrashing-machine these notches would represent half-bushels. Thus alternate teeth are marked with whole numbers, while the intermediate teeth are numbered one-half ($\frac{1}{2}$).

In using this register it may be so arranged that in removing the filled half-bushel from the grain-spout it strikes the lever F and swings it from the position shown in full outline to that indicated in dotted outline, thereby advancing the units-wheel B one tooth. After each actuating movement the lever F is or may be returned to the position shown in full outline by a spring, G, coiled around the post to which the lever is pivoted. The tens-wheel C and the secondary wheel E are each provided with ten teeth, which gear into each other, as shown in Fig. 3, and hence they move together.

Upon the under side of the units-wheel B is a projection or tooth, *f*, (best shown in Fig. 4,) and upon the upper side of the secondary wheel E are ten projections or teeth, *f'*. The hundreds-wheel D is likewise provided with

ten teeth, but the teeth of the secondary wheel E work over and clear of them, as shown in Fig. 2. Upon the under side of the secondary wheel E is a single tooth or projection, *g*, (best shown in Fig. 7,) and at each revolution of said secondary wheel its tooth *g* engages with one of the teeth of the hundreds-wheel D, and thereby moves it one-tenth of the revolution.

- 10 The operation of my register is as follows: By the operation of the lever F the units-wheel B is turned step by step until nineteen half-bushels have been registered, when the tooth *f* is brought against one of the teeth *f'* of the secondary wheel E. At the twentieth movement of said lever the tooth *f* of the wheel B acts on one of the teeth *f'* of the wheel E, and thereby the latter wheel and the tens-wheel C are moved one-tenth of a revolution.
- 20 When the wheel E has moved nine-tenths of a revolution, its tooth *g* is brought against one of the teeth of the hundreds-wheel D, and, at the next operation of the lever, the hundreds-wheel, the tens-wheel C, and the secondary wheel E are all moved one-tenth of a turn. Upon the back of the case A is a circular rim or flange, *h*, upon which the secondary wheel E bears, and which supports said wheel irrespective of the pivot *c*. Consequently the tooth *g* of the wheel E is prevented from slipping over the teeth of the wheel D.

In order to prevent the wheels from turning accidentally, I have represented a spring, B', bearing on the wheel B, a spring, D', bearing on the wheel D, and a spring, E', bearing on the wheel E. The springs D' E' are here shown as made in one piece.

In Fig. 8 the arrangement of wheels B C D E is the same, as before described; but instead of the wheel B being operated on by one pawl *e* only, two pawls *e* are employed, which are secured to the two arms of a bell-crank or two-

arm lever, H. This lever is mounted on a rock-shaft, I, and by this arrangement the units-wheel B is moved at each movement of the rock-shaft backward or forward.

My register is compact. It can be very cheaply made, as all its parts, except the springs, may be of cast-iron, and it is so simple that there is little likelihood of its getting out of order.

Although I have for convenience termed the several concentric wheels B C D respectively the "units-wheel," "tens-wheel," and "hundreds-wheel," I do not wish to limit myself to wheels having such relations to each other. For example, the wheels might be so constructed as to require forty revolutions of the units-wheel to one revolution of the tens-wheel, and forty revolutions of the latter wheel to one revolution of the hundreds-wheel.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a register or counter, the combination of the units, tens, and hundreds wheels arranged concentrically, and the secondary wheel gearing with the tens-wheel, adapted to be turned a fraction of a turn at each revolution of the units-wheel, and at each of its own revolutions to advance the hundreds-wheel a fraction of a turn, substantially as described.

2. The combination, with the case A, provided with integral pivots *b c*, of the wheels B C D, journaled on the pivot *b*, the ratchet and units-wheel B being provided with a tooth, *f*, and the secondary wheel E gearing into the tens-wheel C, and having teeth *f'*, which are operated on by the tooth *f*, and a tooth, *g*, for operating on the hundreds-wheel D, substantially as described.

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Witnesses:

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