

F. C. BURCHELL.
Grain-Registers.

No. 146,429.

Patented Jan. 13, 1874.

Fig. 1.

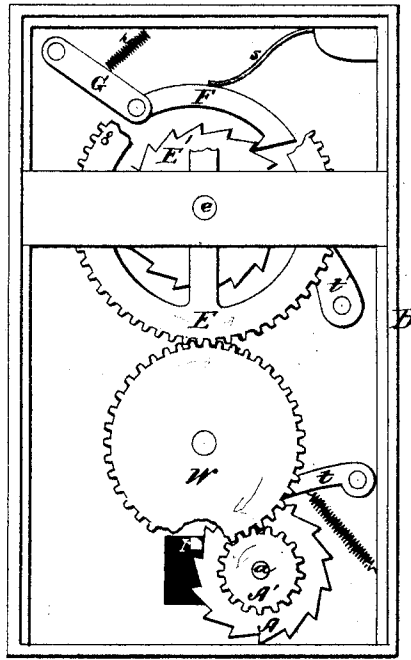


Fig. 2.

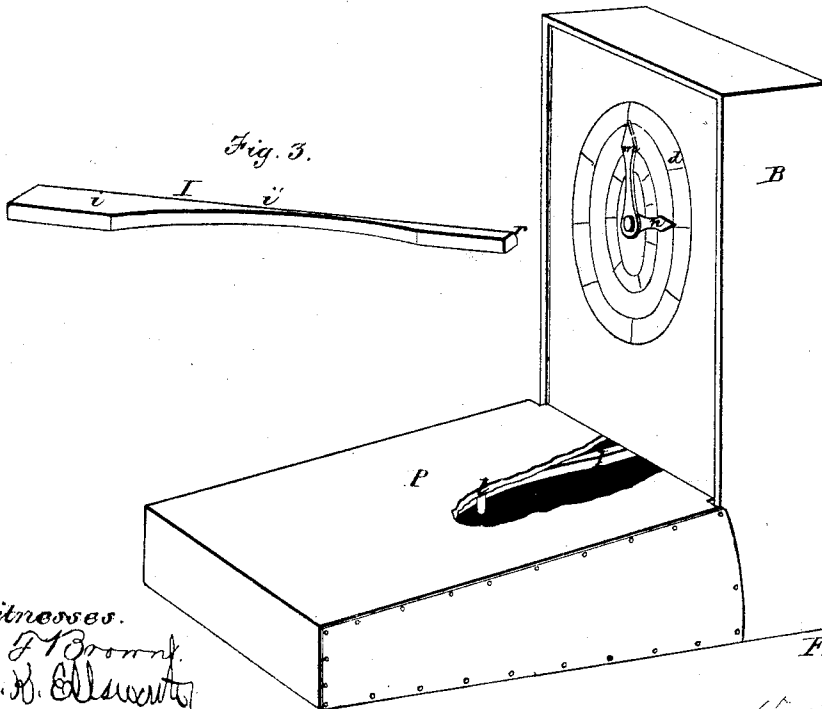
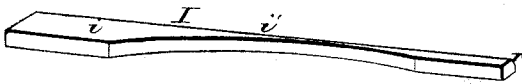


Fig. 3.



Witnesses.

C. F. Brown.
D. B. Ellinger.

Inventor.
F. C. Burchell.
by his Attys.

Hell & Ellinger

UNITED STATES PATENT OFFICE.

FREDERICK C. BURCHELL, OF SOMERSET, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO IRVING W. HOTALING, OF SAME PLACE.

IMPROVEMENT IN GRAIN-REGISTERS.

Specification forming part of Letters Patent No. **146,429**, dated January 13, 1874; application filed August 22, 1872.

To all whom it may concern:

Be it known that I, FREDERICK C. BURCHELL, of Somerset, in the county of Niagara and State of New York, have invented a new and Improved Grain-Register; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1 is a rear elevation, portions of the wheels having been broken away to show the construction more clearly. Fig. 2 is a perspective view, a portion of the platform having been removed to reveal the spring-lever; and Fig. 3 is a perspective view of the spring-lever.

Similar letters of reference in the accompanying drawings indicate the same parts.

The object of this invention is to improve the construction of grain-registers, so as to render them more certain and uniform of operation, and less liable to get out of order than heretofore; and to this end the invention consists in the arrangement of a peculiarly-constructed spring-lever, in combination with the platform and with a train of gear-wheels which impart motion to the indexes, substantially as I will now proceed to describe.

In the drawings, P is a platform hinged to a suitable support at *h*, so that its opposite end will be depressed by the weight of the grain when a certain amount has accumulated in the bag or measure placed upon it. Any suitable springs or weights may be connected to the platform, and rendered adjustable by any of the usual means, to prevent it from being depressed until a given quantity of grain has accumulated upon it, and to vary at will the quantity necessary to move it. To the under side of this platform is attached a spring lever or arm, I, which is secured firmly to it at *l*, so that the opposite end of the arm will project beyond the upper or movable end of the platform to engage with the train of ratchets and gears hereinafter described. The lever is made in the form represented in Fig. 3, one end of it being wide and flat, as shown at *t*, to enable it to be fastened rigidly by screws or otherwise to the platform, the middle of it being narrow, as shown at *v*, to give it sufficient flexibility and spring, and the opposite end

being somewhat stouter and nearly square, as represented at *v*, to impart sufficient strength, and beveled on its upper corner next to the ratchet-wheel, as represented at *r*, to enable it to pass back over the ratchet-teeth more easily. At the free end of the platform is a vertical case or box, B, containing the train of gear above referred to, and supporting the index-fingers *m n* and the dial *d*. The back of this case is removable in order to reveal the mechanism within, as shown in Fig. 1. The train consists of a ratchet, A, mounted upon a shaft, *a*, which carries a small pinion, A', both being rigidly attached to the shaft or to each other, one or more large intermediate cog-wheels, W, a large cog-wheel, E, attached to the index-shaft *e*, and a ratchet-wheel, E', attached to a sleeve, which is mounted loosely on the shaft *e*, for the purpose of supporting the short index-finger *n*. A spring-pawl, *t*, is employed to prevent back movement of the ratchet A, and another, *t'*, to prevent any similar movement of the ratchet E'. A swinging arm, G, attached to one corner of the case B, projects down nearly to the edge of the ratchet E' and supports a dog, F, which engages with the ratchet-teeth to move the wheel forward. A spring, *s*, is employed to hold the dog in contact with the teeth, and another, *r*, to hold the arm G in the position shown in Fig. 1. A pin, *o*, projects from the side of the wheel E, and comes in contact with the arm G once during each revolution of said wheel. The arm, dog, ratchet-wheel, and pawl *t'* are all contained in the narrow space between the back of the dial-plate and the front side of the wheel E, which keeps them in place, and prevents any disarrangement of the acting parts.

The operation of the machine is as follows: The measure, bag, or other grain-receptacle, when filled with the required quantity of grain, depresses the platform, and causes the arm I to move the ratchet A one degree, which movement is communicated to the long index *m* by means of the train A' W E, and is indicated or registered on the dial-plate by the fingers of the outer circle, which denote the number of bushels or other quantitative unit measured or weighed. The outer circle is divided, preferably, into fifty degrees, so that one revolu-

tion of the wheel E is accomplished by the measuring of fifty bushels of grain. As the pointer *m* comes round to the figure 50 on its appropriate scale, the pin *o* catches against the arm G and causes it to draw forward the dog F and move the ratchet E' and short index *n* one degree, which movement is indicated by the figures of the inner circle on the dial. This circle is divided, preferably, into twenty degrees, each of which represents fifty bushels, so that when the pointer *n* traverses the whole circle it indicates the weighing of one thousand bushels. The series of indexes may, if desired, be further multiplied to indicate any higher numbers.

The great practical advantages claimed for my improved machine result, chiefly, from the employment of the spring-arm I, in connection with the train of gear-wheels and ratchets that communicate the movement to the indexes. This arm is attached at the middle of the platform, so that the latter will not sag at either side after long-continued use.

The construction and arrangement of the arm under the platform enable me to make it long and thin at the center, so as to be flexible to any required degree, and thereby pass back over the ratchet-teeth with the utmost ease, while the platform, extending nearly to the end of the arm, firmly supports it when actuating

the ratchet, and enables it to apply great pressure to the latter.

The effect of the whole arrangement is to combine great firmness and strength with great flexibility and ease of operation.

The train of gear is greatly preferable to the ordinary rod by which such platforms are caused to move the pointers in other machines, in consequence of its greater durability and certainty of operation, and its diminished liability to get out of order.

Having thus described my invention, what I claim is—

The combination of the hinged platform P; the beveled spring-arm I, constructed as described, and arranged under the middle of the platform, with its arm projecting from the free end thereof, and capable of a lateral springing movement; the case B, containing a ratchet-wheel, A, arranged at right angles with the spring-arm I, and operated thereby in the manner described; the index hands and plate; and the train of gear-wheels connecting the ratchet-wheel A with the index-hands, substantially as described, for the purposes set forth.

FREDERICK C. BURCHELL.

Witnesses:

LORIN CHURCH,
DAVID HUNTINGTON.