

M. W. & G. W. NESMITH'S GRAIN MEASURER.
75187

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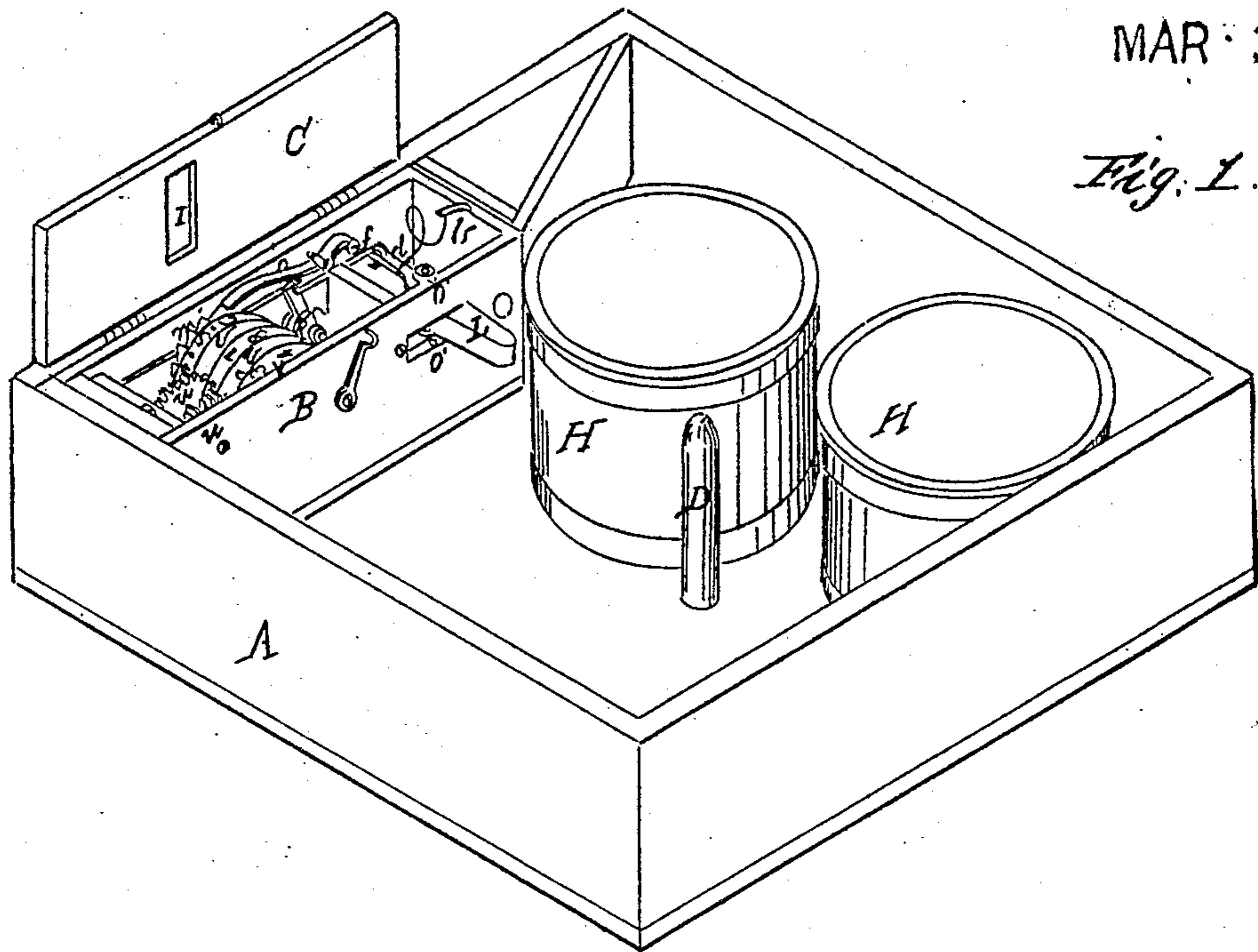


Fig. 1.

Fig. 2.

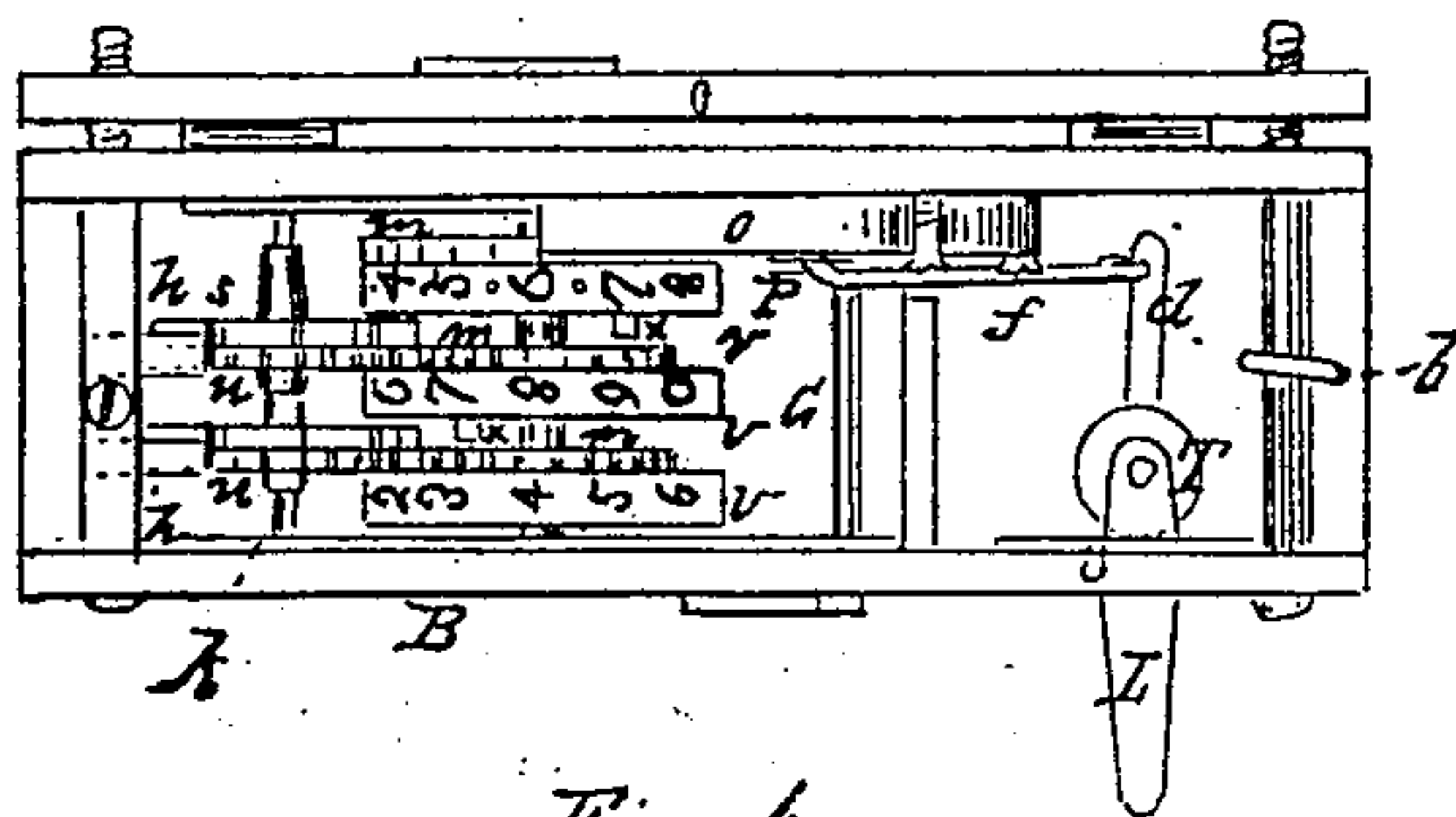


Fig. 4.

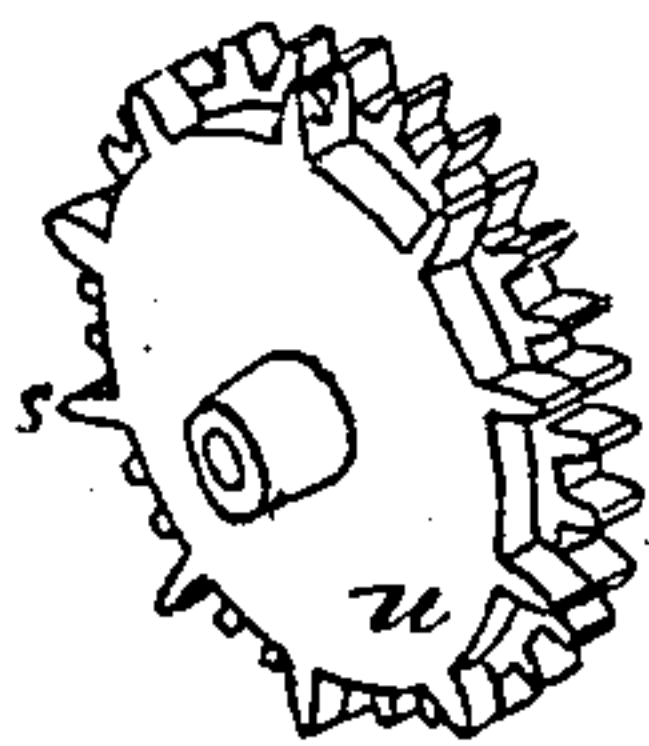
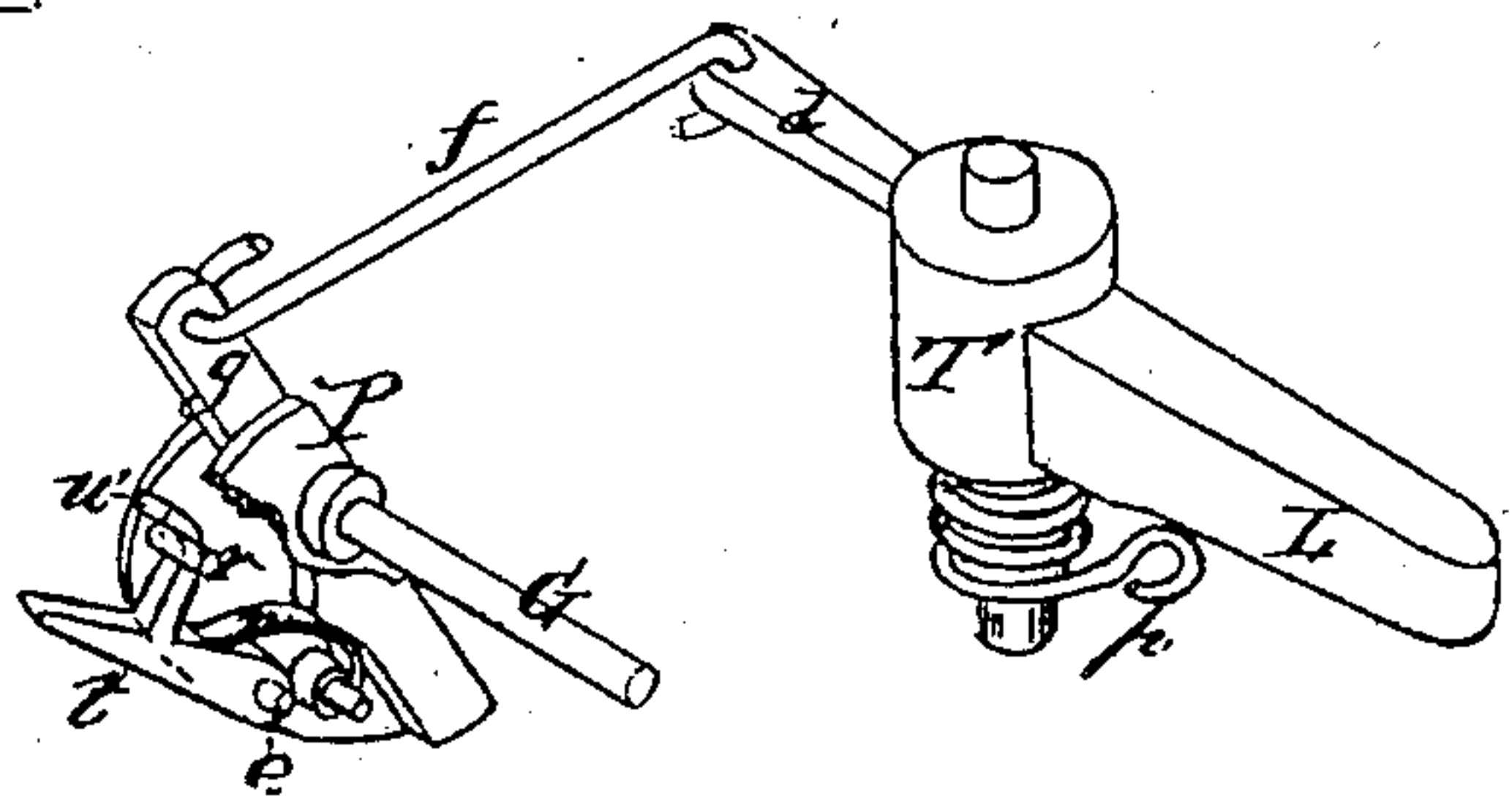


Fig. 3.



Witness.
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MILTON W. NESMITH AND GEORGE W. NESMITH, OF METAMORA, ILLINOIS.

Letters Patent No. 75,187, dated March 3, 1868.

IMPROVEMENT IN GRAIN-REGISTERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, MILTON W. NESMITH and GEORGE W. NESMITH, of Metamora, in the county of Woodford, and State of Illinois, have invented certain new and useful Improvements in Grain-Registers; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use our invention, we will proceed to describe it.

Our invention consists in a novel construction of an apparatus for registering with accuracy and certainty, the quantity of grain measured, as it is delivered from threshing-machines, or from bins or other places where it may be stored. In the drawings—

Figure 1 is a perspective view of the apparatus complete.

Figures 2, 3, and 4, are views of the registering-mechanism detached, for the purpose of showing its construction more in detail.

In the grain-growing regions of the country, it is customary to employ the proprietors of threshing-machines to thresh the grain at a specified price per bushel; and it is desirable, both for the owner of the grain and the thresher, to have some certain and accurate means of ascertaining the exact quantity of the grain threshed, and also to provide means for preventing either accidental or intentional errors in the registration of the amount or quantity. To accomplish these purposes is the object of our invention, which is as follows:

We provide a box, A, in which we secure a registering or counting-mechanism, enclosed in a suitable case or box, B, provided with a cover, C, to exclude grain, dust, or other substances that might interfere with the operation of the mechanism, this cover being provided with a small window, I, through which the numbers on the registering-wheels may be seen when the box B is closed, these parts being shown in fig. 1.

The registering-mechanism consists of a series of wheels, *v*, having numbers arranged in regular order on their peripheries, in the usual manner. The outer one of the series of wheels *v*, is provided also with a series of ratchet-teeth, *m'*, double in number to the number of figures on said wheel, and both this and all succeeding wheels of the series, except the last one, have, projecting from their opposite side, a pin, *x*, as shown in fig. 2, these wheels *v* all being mounted side by side, upon a common journal, on which they turn loosely, so that each may be moved independent of the others. Upon a counter-shaft or journal, *k*, we mount a corresponding series of wheels, *u*, which latter are provided, on their periphery, with two sets of cogs, one set corresponding in number and size with the cogs *m*, secured to each of the wheels *v*, except the first, and the other set being only one-third as numerous, and disposed at regular intervals, as represented in fig. 4. These wheels *u* are so placed that their first or more numerous series of cogs will engage with the cogs *m* on wheels *v*, and thus turn the latter whenever they themselves are moved, the wheels *u* being moved only when the pins *x* of wheels *v* are brought around in contact with the cogs *s*, and which can occur but once at each revolution of the wheels *v*, a spring-pawl, *h*, being arranged to engage with the cogs of wheels *u*, and prevent their being accidentally turned, this arrangement of the parts being more clearly shown in fig. 2.

For operating these wheels, we provide a lever, L, which is pivoted by a journal, T, to the case B, in such a manner as to have the lever L protrude from the side of the case, as shown in figs. 1 and 2, for a purpose to be hereinafter explained. An arm, *d*, protrudes from the opposite side of the journal T, from the end of which extends a rod, *f*, connecting it with an arm, *g*, of a rock-shaft, G, as shown more clearly in fig. 3. To this rock-shaft we secure a pawl, consisting of a frame or plates, P, between which is pivoted a dog, *t*, at *e*, this dog *t* being provided with an arm, *u'*, which is arranged to strike against a pin or stop, *r*, by which its forward movement on its pivot *e* is limited, a spring, *n*, being arranged to press against the rear or upper side of the dog *t*, and keep it pressed forward, except when pushed back, as hereinafter explained. This pawl is so located, that the dog *t* will engage with the ratchet-teeth *m'* on the first wheel *v*, so as to move the wheel one notch every time the lever L is moved forward, there being a spring, *p*, applied to the journal T, by which means the lever is thrown back as soon as released, after being operated, the dog *t* yielding, so as to let its end pass by one of the ratchet-teeth *m'*, as the lever L resumes its position. A spring-pawl, *o*, is so arranged as to engage with the ratchet-teeth *m'*, and thus prevent the wheel *v* from moving backward by any means.

With the mechanism thus constructed and arranged, it will be seen that when the lever L is operated twice, the first wheel *v* will be moved a distance equal to that at which the numbers on its periphery are placed from each other, this arrangement being adopted for the reason that while the grain is measured in a half-bushel measure, it is desired to register the number of bushels only. When the wheel has thus been moved until the number nine is under the window I, the pin *x* on said wheel will have passed around, so as to be in contact with one of the teeth *s* on the first wheel *u*, and as the wheel *v* is moved so as to bring the next figure under the window, the wheel *u* will be moved with it, and as this latter moves, it will also carry with it the next dial-wheel *v* the distance of one figure, after which the pin *x* will be disengaged from the cog *s*, and pass on, leaving the other wheels remaining stationary until the pin *x* shall have passed entirely around, when it will repeat the operation, thus at each revolution moving the adjoining dial-wheel one interval or figure. This operation is continued until the second dial-wheel will have made one revolution, when its pin *x* will, in the same manner, move the next dial-wheel one interval, and so on to any required extent, the drawing representing but three dial-wheels, which, with the ten numbers on each, will register as high as nine hundred and ninety-nine, which is as much as can ever be required in any one day by a threshing-machine. By adding to the series of wheels, the capacity of the machine may be increased to any desired extent.

Having thus constructed our registering-apparatus, and secured it in its case, B, we secure the whole in a box, A, which box we make of such a size as to permit two half-bushel measures, H, to be placed and easily moved about therein, as represented in fig. 1. In the centre of the box A, we place a post, D, at such a distance from the case B that the measure H can be passed between the post and the case, and in so doing strike against the protruding part of the lever L, and thereby operate the register.

The operation is as follows: The box A is to be placed under the delivery-spout of the thrasher, in such a position that the cleaned grain may be received into one of the empty measures placed behind the lever L, as represented in fig. 1. When the measure is full, it is drawn forward between the post D and the case B, striking the lever L as it passes it, the other measure H being at the same time placed under the spout as the full one is removed. The full one is emptied by the attendant while the other is being filled, and thus the process is continued, the registering-apparatus thus indicating with accuracy the number of bushels measured. It is obvious that, if preferred, the spout may deliver the grain into the measure on the opposite side of the lever L, the latter, in that case, being operated by the empty measure behind, as it is drawn forward to take the place of the full one. It is also obvious that instead of the box being made of such a size, with the post D, to guide the measure in its movement, the box A may be made of half the width, and the measures, as they are drawn forward, be lifted out and then replaced, one behind the other, thus accomplishing the same object, the essential requisite being that the lever L shall be operated by each of the measures as they are moved. Any surplus grain that may chance to fall from the spout, and not be caught in the measures, or that may be removed from the measure, in case it is allowed, by accident, to become too full, will be caught in the box A, from which it may be removed and measured at any time. The case B should be provided with a lock, so that it cannot be opened, or the mechanism interfered with by others; and there is a pin, *b*, arranged to fit into a hole, *o'*, in front of the lever L, by which the latter may be locked, and prevented from being moved when the machine is left, as will be necessary during meal times, nights, and other times when the work ceases. This pin *b* is shown in fig. 1, attached by a cord, and inserted, for convenience, in a hole in the end of the case, where it is kept when not required to lock the lever L. It is obvious that our apparatus may be used with equal facility for measuring and registering grain taken from bins, storehouses, and all similar places, especially where the grain is delivered through a spout.

By these means we provide an apparatus that is especially adapted to the wants of the community, that is reliable, and being portable, and detached from the threshing-machine, can be used with equal facility with any style or make of machine, and also independent of threshing-machines. for measuring grain elsewhere.

Having thus described our invention, what we claim, is—

1. A grain-measuring apparatus, constructed substantially as described, and provided with a registering-device operated by a lever, so arranged that by drawing the measure past it in one direction, the register will be operated substantially as described.
2. The registering-device, consisting of the dial-wheels *v*, provided with the pins *x*, and having the gear-wheels *m* attached, in combination with the double wheel *u*, when said parts are arranged as described, and operated by the pawl P, as and for the purpose set forth.
3. The pawl P, having the dog *t*, with the stop *r* and spring *n*, all arranged substantially as described.
4. The combination of the registering-device, the pawl P, and the lever L, all arranged to operate as and for the purpose set forth.

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GEORGE W. NESMITH.

Witnesses :

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JAMES DELPH.