

W. THORNTON.
Grain-Tally.

No. 226,635.

Patented April 20, 1880.

Fig. 1

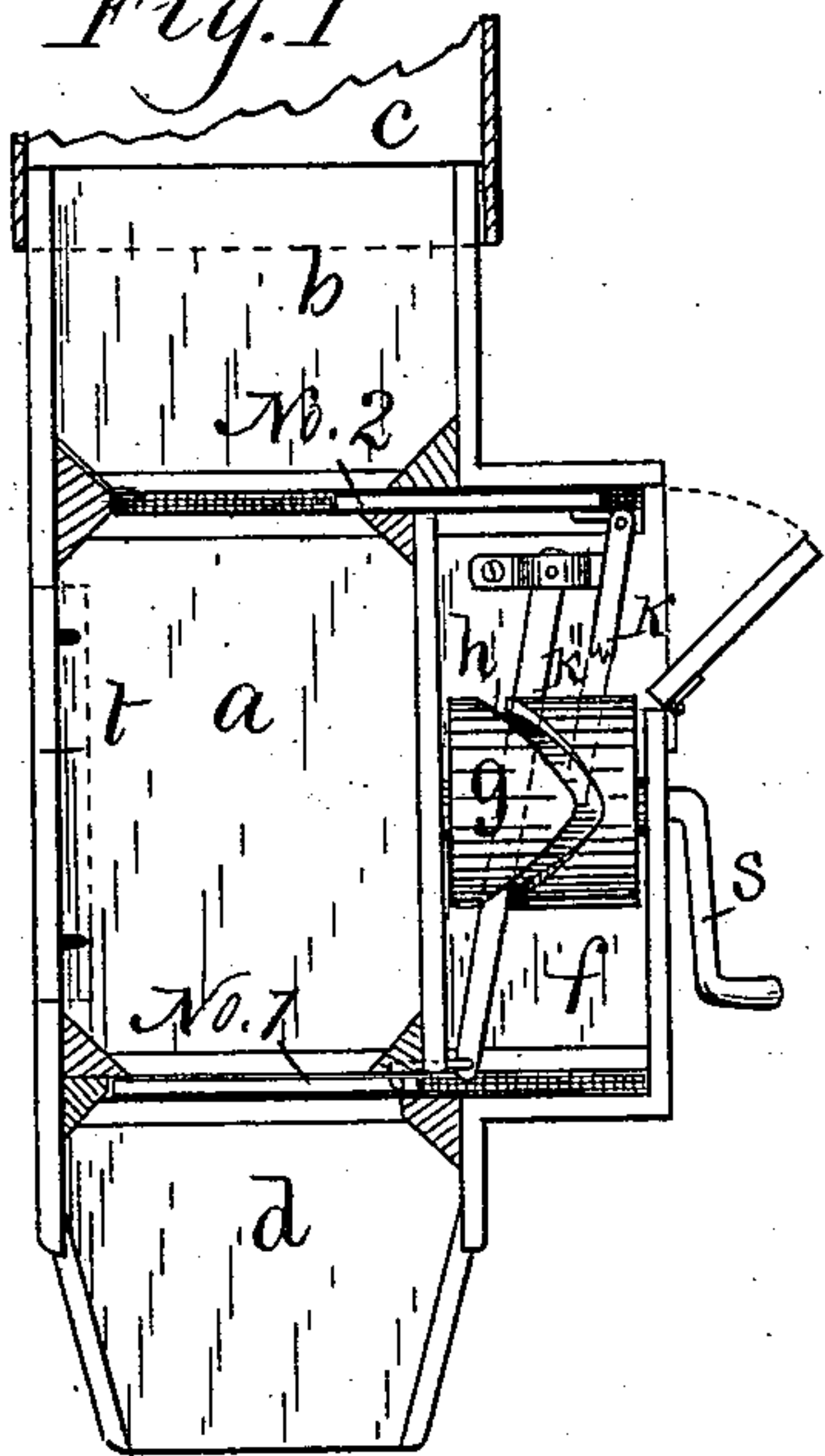


Fig. 2

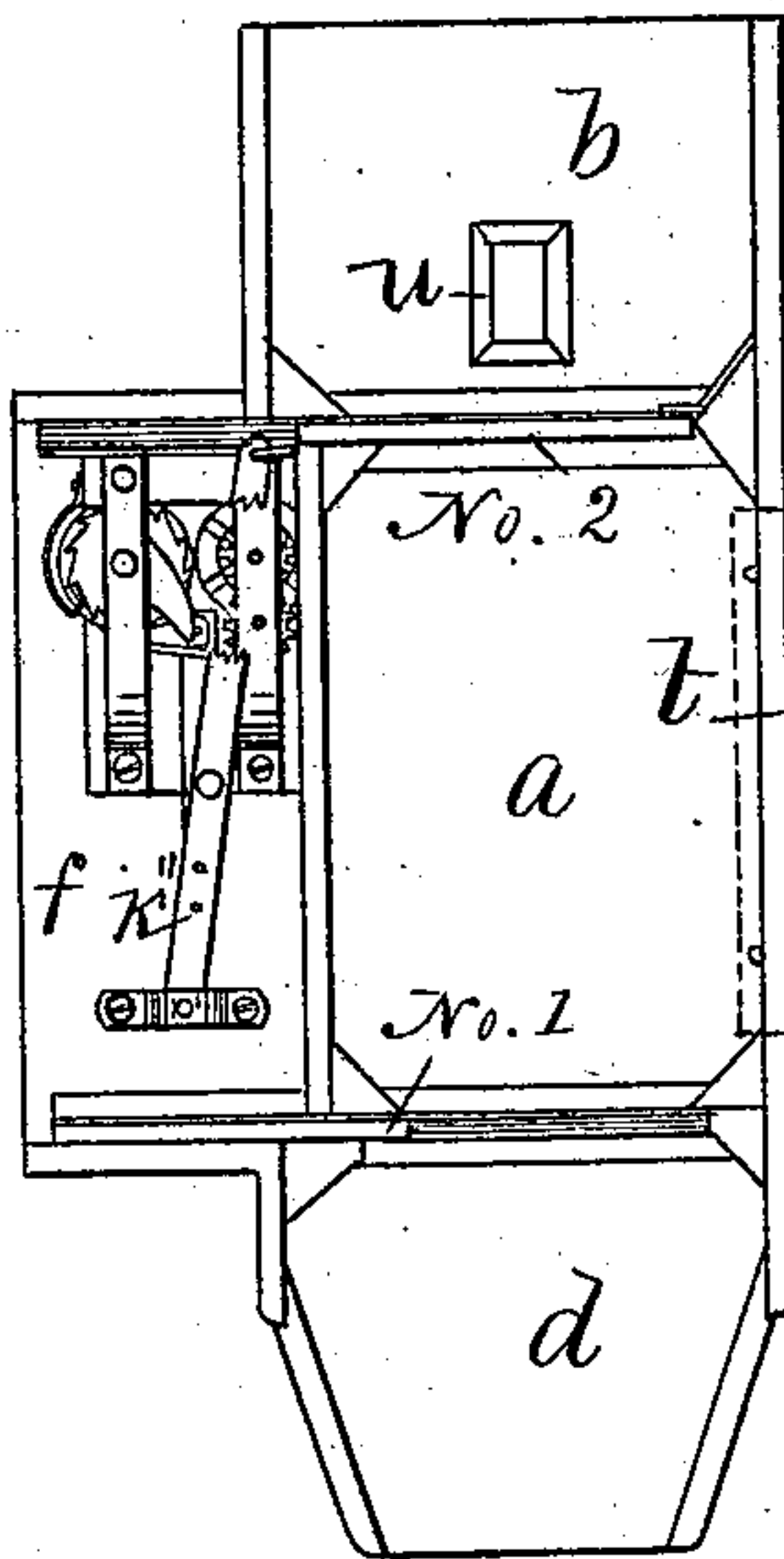


Fig. 3

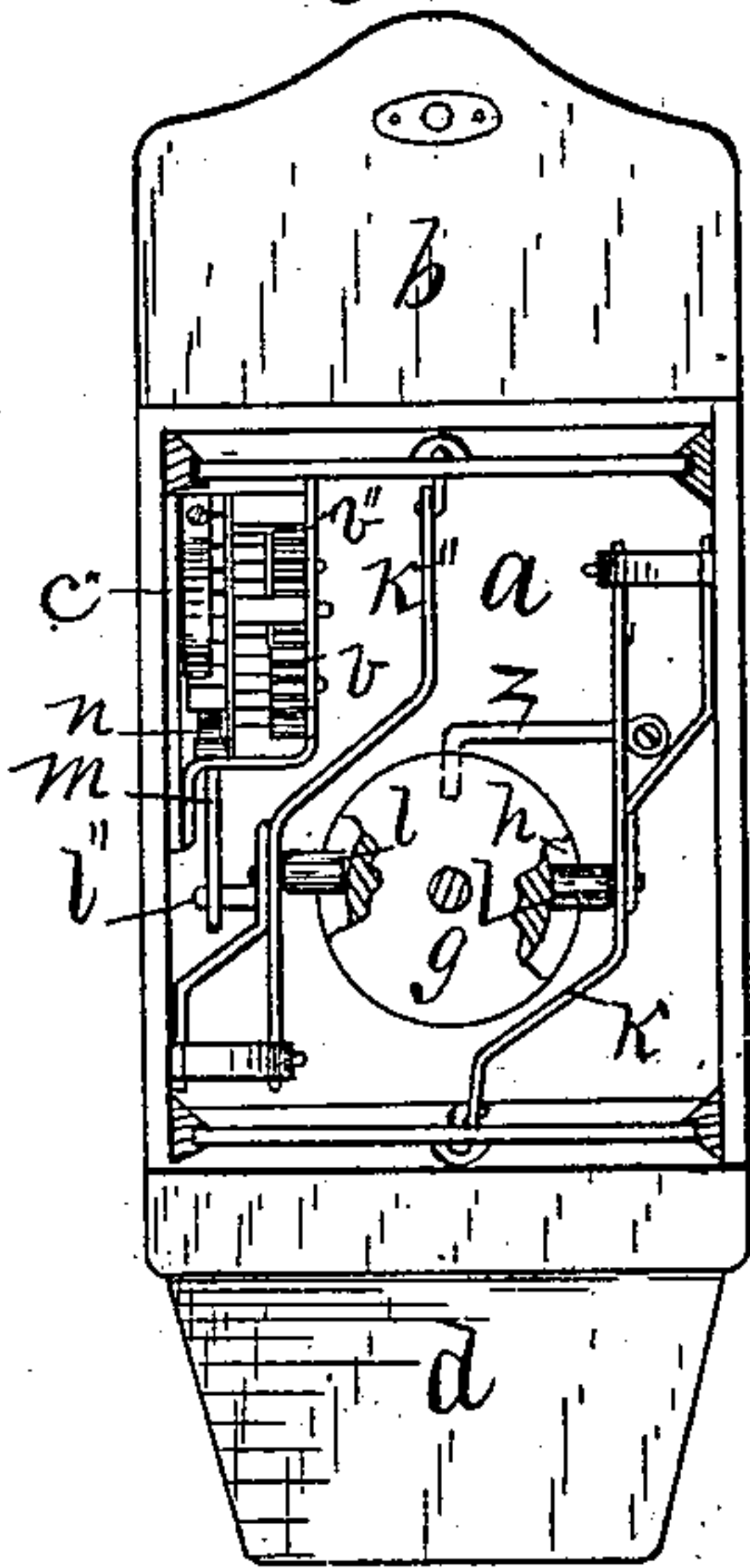
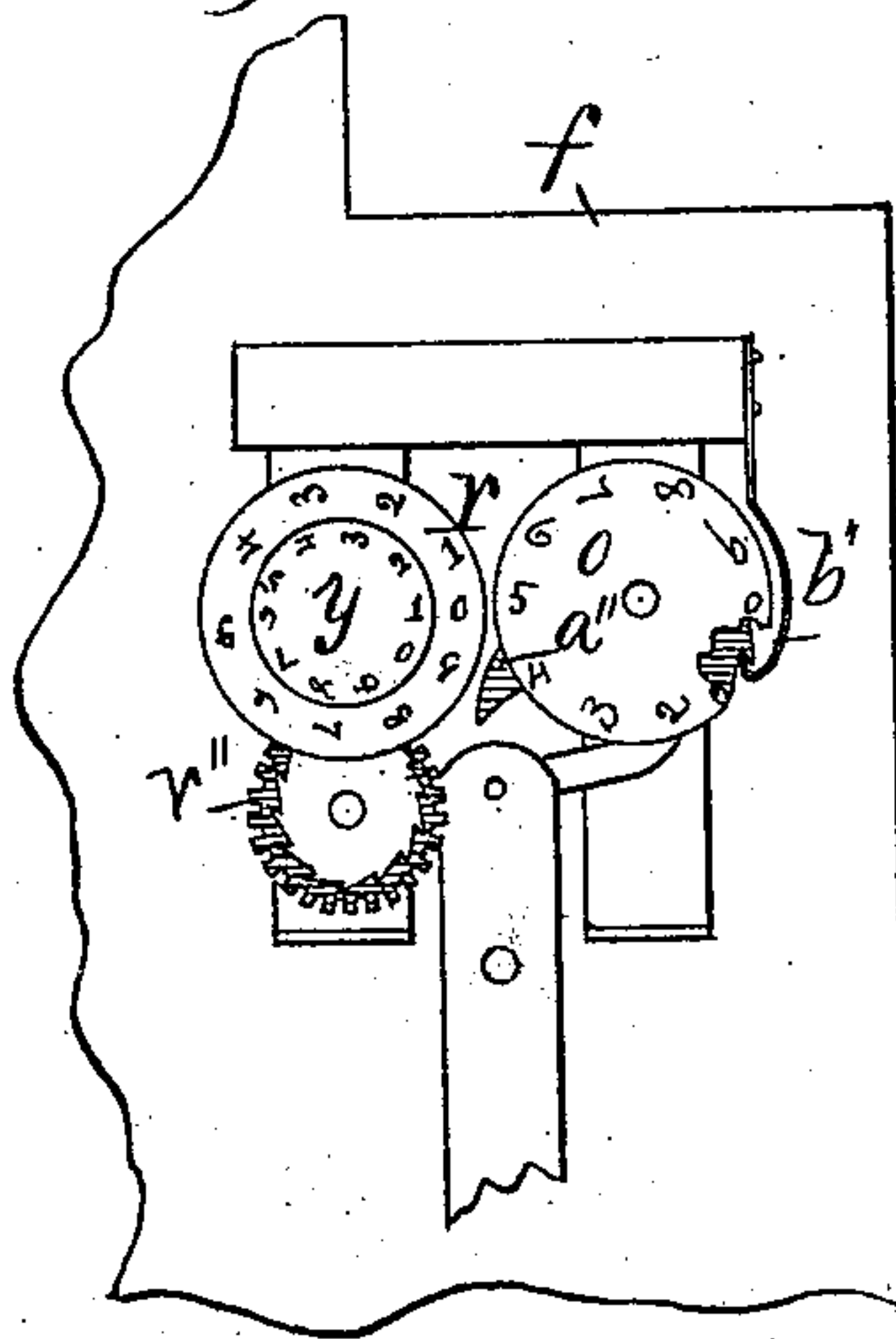


Fig. 4



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM THORNTON, OF TRENT, IOWA.

GRAIN-TALLY.

SPECIFICATION forming part of Letters Patent No. 226,635, dated April 20, 1880.

Application filed January 2, 1880.

To all whom it may concern:

Be it known that I, WILLIAM THORNTON, of Trent, in the county of Polk and State of Iowa, have invented a Grain Meter and Register, of which the following is a specification.

The object of my invention is to save time and labor and insure accuracy in measuring grain and registering the quantity as it passes from a separator, elevator-wagon, or wherever it is moved by gravitation from one place to another through a tubular conveyer.

It consists in a box-measure adapted to be connected with a conveyer having cut-offs operated by levers, a cam-groove, and a crank, and a register consisting of three dial-faced disks that are actuated by means of ratchets, pawls, and cams, and the same crank and motion of the operator that moves the measuring cut-offs, as hereinafter fully set forth.

Figure 1 of my drawings is a vertical sectional view of my combined meter and register. Fig. 2 is a side view, showing the registering mechanism. Fig. 3 is a front view, in which the facing and hinged door are removed to show the mechanism that operates the cut-offs and registering-dials. Fig. 4 is a side face view, showing the relative positions of the several registering-disks. Together they clearly illustrate the construction, application, and operation of my complete invention.

a a represent a box of rectangular form, made of wood or other suitable material, in any suitable way, so as to produce a tight, strong half-bushel box-form measure. *b* is the mouth of the measuring-box. It is adapted in shape to connect with a grain-conveyer, *c*, to which my complete apparatus is to be attached by means of set-screws or any other suitable fastening device. *d* is the lower end and throat of the measuring-box. *f* is an auxiliary box formed on the side of the box-measure *a a*. *g* is a cam wheel or cylinder mounted in the box *f*. *h* is a cam-groove in the periphery of the wheel.

k represents a bent lever pivoted to the side of the auxiliary box *f*. It is attached at its lower end to a cut-off, No. 1. *k''* is a corresponding bent lever, that is pivoted at the opposite side of the box *f*, and is connected with a cut-off, No. 2. These cut-offs slide horizontally in bearings formed in or attached to the

measuring-box *a*. *l l* are cams that project inward from the center of each bent lever *k* and *k''* to engage the cam-groove *h* in the wheel *g*. *l''* is a cam projecting outward from the lever *k''* to operate a revolving disk, *o*, that has a dial on its face and a ratchet formed in its periphery, by means of a lever, *m*, carrying a pawl, *n*, at its upper end. *r* is a dial contiguous to the dial *o*. *y* is a dial set in the face of the dial *r*. Each dial has ten notating-figures, placed at regular distances apart, so that the different numerals of each dial will be consecutively brought into juxtaposition, to denote units, tens, and hundreds, as the wheel *g* is revolved, by means of the crank *s* to measure and register grain.

t represents a movable section in the rear side of the rectangular box *a*. It is adapted to be set in and out, so that the capacity of the measuring-box *a* can be enlarged or diminished, as required, to measure different kinds of grain correctly.

u represents a window in the side of the mouth *b* of the measuring-box *a*. *a''* is a finger extending from the disk *o* to engage a ratchet-wheel that is formed on the rear side of the revolving dial *r*. This ratchet has also a finger that engages a ratchet and pinion, *v*, mating with a pinion, *v''*, that is adapted to operate the dial *y*.

b'' and *c''* are spring-pawls that engage the ratchets and prevent a reverse or backward movement of the revolving registering-dials *o*, *r*, and *y*.

In the practical operation of my invention, when attached to a spout or tubular conveyer, the dials can be adjusted by means of the crank *s*, or by reaching the hand in through the door to take hold of the dials and ratchets, so that the ciphers of all the revolving dials will be contiguous to each other and in a horizontal line. The cut-offs Nos. 1 and 2 can be opened and closed by means of the same crank. When the combined meter and register is properly adjusted the grain can readily fall into the measure and fill it. When full the operator can, by turning the crank *s* once around, cause the wheel *g* to revolve, and, by means of its cam-groove *h* and the cams *l l* upon the levers *k k''*, close the cut-off No. 2 and open the cut-off No. 1. A half-bushel of

grain is thus allowed to pass from the conveyer into a sack or other receptacle. The same motion of the operator, simultaneously with the measuring of the grain, causes the disk or dial *o* to make one-twentieth part of a revolution. This is occasioned by the cam *l''* upon the lever *k''* operating the lever *m*, carrying a pawl, *n*, at its upper end, that engages one of the twenty ratchet-teeth on the edge of the disk. When a second half-bushel of grain has been measured and passed, and a second revolution made by the crank *s*, and a second one-twentieth part of a revolution made by the dial *o*, the numeral 1 will be brought into line with the ciphers of the disks *r* and *y*, and will indicate that one bushel has been measured. When the tenth bushel is thus registered the finger *a''* of the dial *o* will rotate the dial *r* one-tenth of a revolution, and thus the figure 1 of the dial *r* and the cipher of the dial *o* will be brought together to indicate that ten (10) bushels have been measured and passed. Every successive half-bushel and bushel will be thus accurately measured and registered by the operator turning the crank around once each time the half-bushel measure is full until ninety-nine bushels have passed. When the one-hundredth bushel is passed a finger on the rear side of the dial and ratchet *r*, that engages the ratchet and pinion *v*, mating with the pinion *v''*, moves the dial *y* one-tenth part of a revolution, and brings its figure 1 in line with the ciphers of the dials *o* and *r*, as required, to denote that one hundred (100) bushels have been measured and passed.

Units, tens, and hundreds of bushels of grain are thus automatically and accurately

measured and registered by mechanism, and much labor thereby saved, and the mistakes incident to various ways of counting, marking, and tallying are avoided.

To lock the cylinder *g*, and thereby hold all the parts inoperative, I press the hook *z* into a perforation formed in the cylinder or wheel *g*.

I claim—

1. In a grain-meter, the measuring-box *a b c*, having cut-offs Nos. 1 and 2 at the top and bottom, the auxiliary box *f*, the wheel *g*, having a crank-handle, *s*, and a cam-groove, *h*, and the pivoted bent levers *k* and *k''*, each having a stud or cam, *l*, arranged and combined substantially as shown and described, for the purposes specified.

2. The combined ratchet-wheel and dial *o*, mounted in the box *f*, the lever *k''*, having a cam, *l''*, and the pivoted lever *m*, carrying a pawl, *n*, at its upper end, arranged and combined substantially as and for the purposes shown and described.

3. The combined grain meter and register composed of the following elements, to wit: the measuring-box *a b c*, the cut-offs Nos. 1 and 2, the auxiliary box *f*, the grooved cam-wheel *g*, having a crank-handle, *s*, the pivoted levers *k*, a stud or cam, *l*, the pivoted lever *k''*, having studs or cams *l* and *l''* on its opposite sides, the pivoted lever *m*, carrying a pawl, *n*, and the combined ratchet-wheels and dials *o*, *r*, and *y*, substantially as shown and described, to operate in the manner set forth.

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Witnesses:

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