

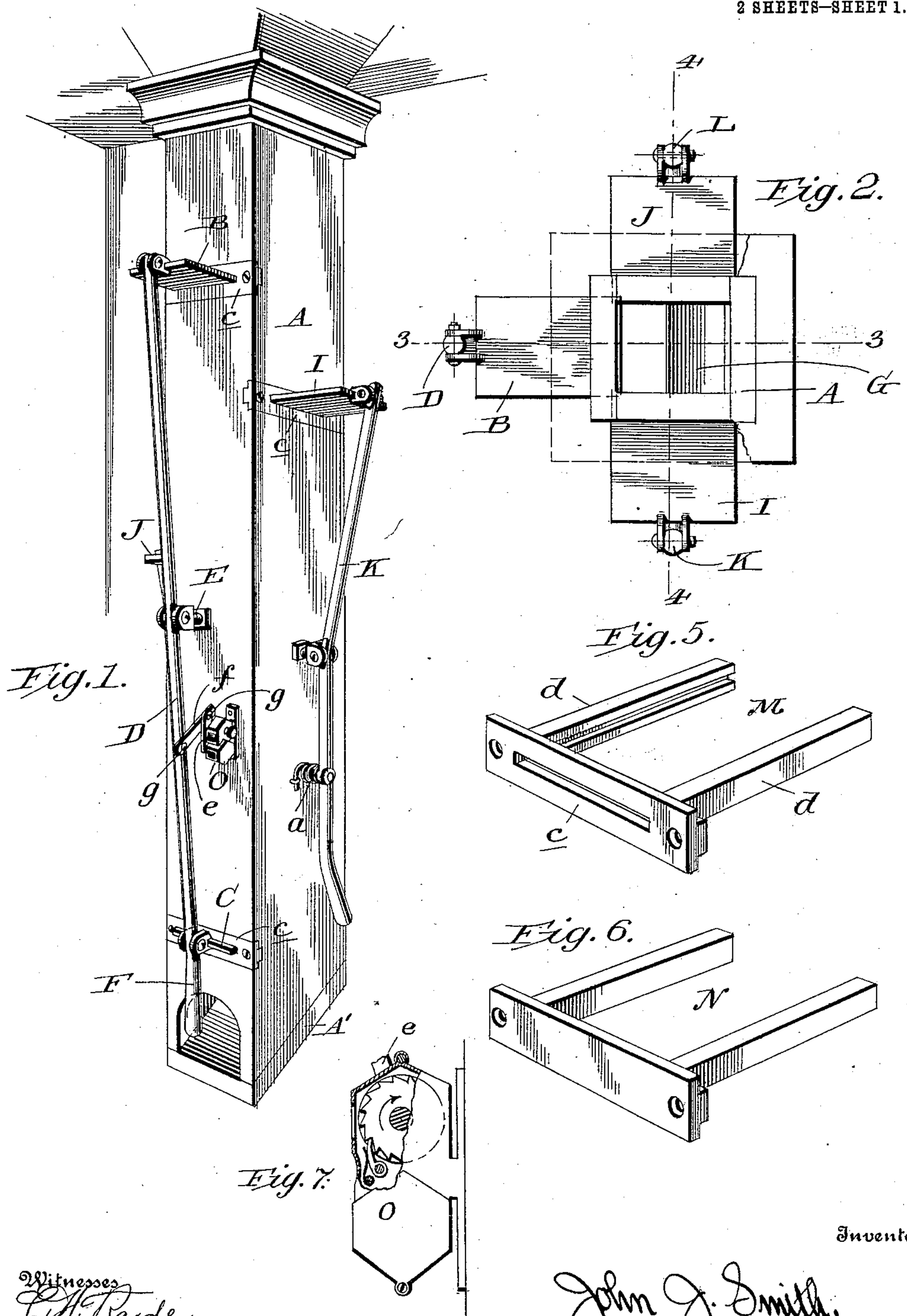
FEED MEASURING APPARATUS.

APPLICATION FILED SEPT. 4, 1907. RENEWED DEC. 6, 1909.

998,994.

Patented July 25, 1911.

2 SHEETS—SHEET 1.



Inventor:

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Witnesses:

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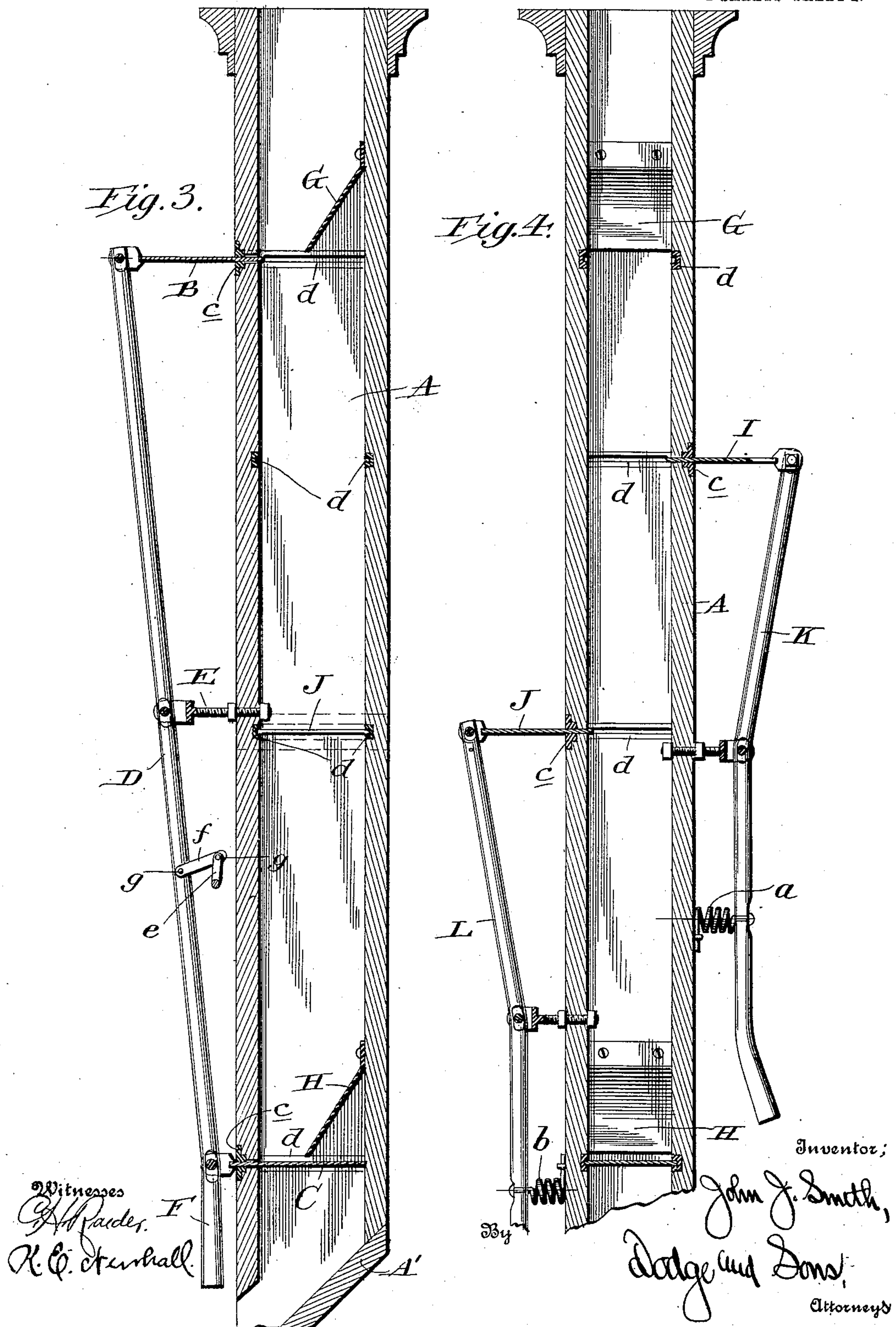
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UNITED STATES PATENT OFFICE.

JOHN J. SMITH, OF WEST HOBOKEN, NEW JERSEY.

FEED-MEASURING APPARATUS.

998,994.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed September 4, 1907, Serial No. 391,347. Renewed December 6, 1909. Serial No. 531,722.

To all whom it may concern:

Be it known that I, JOHN J. SMITH, a citizen of the United States, residing at West Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Feed-Measuring Apparatus, of which the following is a specification.

My invention pertains to spouts for delivering grain or other feed from a storage bin, and consists in combining therewith gates or slides, so constructed and arranged as to deliver, when properly manipulated, a measured and uniform quantity of feed; but which through the operation of auxiliary gates or slides, may be made to deliver only a definite proportionate part of the normal quantity.

The purpose of the invention is to insure accuracy and economy in feeding stock, and to enable the quantity to be varied at any instant, yet made always definite and certain, so that on those days when draft animals are working and require full feed it may be readily measured, while on Sundays or other days of rest a smaller feed may be measured with equal certainty and substantially the same facility.

To guard against waste, or unauthorized withdrawal of feed from the spout, there is connected with the main actuating lever a register which indicates either the number of times the lever is operated, or the quantity of feed passing through the spout, thus enabling the proprietor to ascertain at any time what quantity has been taken out.

The accompanying drawings illustrate my invention in a form that is found quite efficient.

In these drawings: Figure 1 is a perspective view of the feed spout in position; Fig. 2 a top plan view thereof at the floor line of the stock bin or hopper; Fig. 3 a vertical section on the line 3—3 of Fig. 2; Fig. 4 a similar section on the line 4—4 of Fig. 2; Fig. 5 a perspective view of the guideway for the slide; and Fig. 6 a similar view of a frame which is inserted into the spout in lieu of the guideway when a particular slide is done away with; Fig. 7 a view showing a pawl and ratchet to prevent the backward rotation of one set of the register wheels.

A indicates a spout of suitable cross section, the upper end of which communicates with the bottom of a stock hopper or bin, which may be conveniently located on an

upper floor. The lower end of the spout has preferably an inclined floor or bottom board A', above which is an opening for the escape of the feed. At two points between the upper and lower ends of the spout are located horizontally movable cut-off slides or gates, B and C, each pin-jointed or otherwise suitably connected with an actuating lever D, fulcrumed upon an intermediate post or stem E, and fashioned into a handle F at its lower end, as shown. The distance between slides or gates B and C is so related to the cross section of the spout as to give between them, and after making allowance for a guard plate H, a predetermined capacity or containing space, say six quarts. The guard H just mentioned, extends from the rear inner wall of the spout forward and downward to a point about midway between the front and rear walls, and directly above the level of slide C, and a like guard G is similarly located above slide B.

The purpose of the guards G and H is to prevent the opening of a passageway through the spout at the level of either gate until such passageway is closed at the level of the other gate. This will be readily understood upon referring to Fig. 3, where it will be seen that slide B has opened a passageway at its level, while slide C has closed the spout at its level and passed inward to the rear wall of the spout. As a consequence, the movement of lever D necessary to withdraw gate or slide C from beneath guard H will carry gate or slide B entirely across the open throat or passageway and start it beneath guard G, so that during the further movement necessary to open the throat or passage in front of guard H gate B will close the upper throat or passage, and merely move farther inward beneath guard G. This general arrangement of cut-off slides to deliver a measured charge is in itself very old, having long been used in powder flasks and other structures. It is, however, desirable to be able to vary the quantity delivered, and to do so quickly, with certainty as to quantity and without undue complication of the apparatus as a whole. To this end I provide additional gates or slides, (one or more), manually movable across the spout but normally held outward to leave a clear passageway. Two such slides, I and J, are indicated, and these are preferably located on

opposite sides of the chute or spout, as shown in Figs. 1 and 4, so that each may have its independent operating lever, and be actuated independently of and without interference with the other. Slide I is provided with an actuating lever K, and is normally retracted by a spring *a*, acting upon the lever. Slide J is similarly provided with an actuating lever L, with a spring *b* tending to move its lower arm or handle inward and thus to move the slide outward.

Assuming that the measuring chamber of the spout be of six quarts capacity, it will be evident that a cross slide located about one-third of the distance downward from the upper slide or gate B will leave between said cross slide and the bottom gate or slide a four quart space, slight allowance being made for guard H, as above noted. Similarly, a cross slide located about midway between gates B and C will give a three quart space between said cross slide and gate C. If then, the chute or spout A be furnished with the measuring gates B, C, and cross slides I and J, it is possible by merely manipulating lever D to deliver full charges of six quarts each; or by first opening and then closing slide B, then throwing in either cross slide I or cross slide J and while holding it in its inward position, withdrawing slide C, a four quart or a three quart charge can be delivered, all above the actuated cross slide being retained in the upper part of the spout. As soon as the slide C is again pushed in the cross slide is permitted to resume its normal position, and the apparatus is ready for delivery of the normal full charge. The several levers, D, K and L, are within easy reach of the attendant, and any two may be operated in proper order or sequence.

It is desirable, though not essential, that the slides be guided in metallic guideways to guard against binding in damp weather, or looseness in dry weather. Accordingly I provide guideway frames M, of the form shown in Fig. 5, each comprising a slotted front plate *c* and two inwardly extending arms *d*, both grooved longitudinally in their inner or opposing faces. These are let into the walls of the chute or spout and secured by screws passing through the front plate *c*.

Some users desire and others do not care for the cross slides, while it sometimes happens that purchasers desire to add the cross slides after using the spout for a time without them. To enable the structure to be economically made, with the same machine work for all the spouts, and to facilitate conversion or change, I provide blank frames N, devoid of the front slot or the guiding grooves, but otherwise of the same form and

dimensions as the frames M. These are applied in lieu of frames M if the cross slides are not employed, or in place of such as are not required to carry slides. They serve to fill up the seats and openings formed in the walls of the chute or spout, and can be quickly removed to permit substitution of slide frames M when desired.

In order to guard against unauthorized withdrawal of feed, I combine with lever D, which must be actuated to permit delivery of feed, a register O, of well known type, one set of the wheels of which cannot be turned backward. The actuating arm or lever *e* of this register is connected by a link *f* with lever D, the connections being made by rivets *g*, so that disconnection is impracticable; hence the register must show what amount has been passed, or how many times the lever has been operated. In this way the proprietor is enabled to ascertain whether the person in charge is withdrawing an excessive quantity of feed.

No claim is made to the construction of the register, *per se*, which may be of any well-known type having the common pawl and ratchet to prevent backward rotation of one set of the wheels thereof.

It will be noted that the gates are each slidable to one side of the feed spout only, permitting of the spout to be placed flat against a wall at the opposite side without interfering with the operation of the device, also, each slide in its inner position is substantially wholly contained within the spout, which enables the device to be compactly built. By providing the feed spout with the downwardly and outwardly-inclined bottom A', instead of discharging the feed directly through the lower end of the spout, the slides and guards are protected against being unauthorizedly tampered with, as by forcing an implement upwardly from the underside of the spout and punching or otherwise making an opening in these parts.

Having thus described my invention, what I claim is:

In combination with a spout having measuring slides substantially as described, and provided with an opening or seat for reception of a guideway for a cross slide; interchangeable frames, adapted to fit said opening or seat, one having a slot and guideways to receive a cut-off slide, and the other devoid of such slot.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN J. SMITH.

Witnesses:

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