

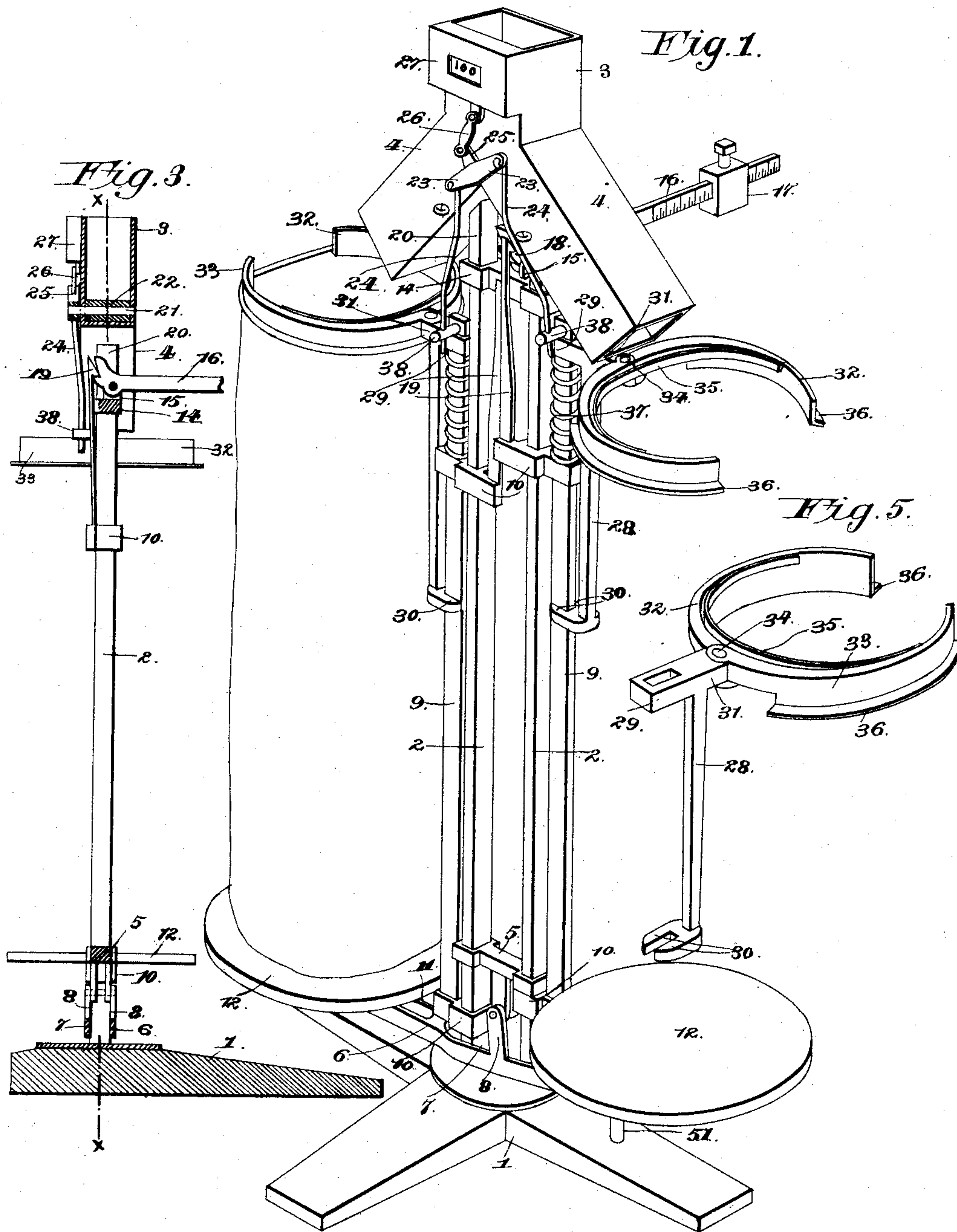
(No Model.)

2 Sheets—Sheet 1.

A. I. ANDERSON.
DEVICE FOR WEIGHING GRAIN.

No. 430,244.

Patented June 17, 1890.



Witnesses

W. L. Fowler

Wm. Baggett

Inventor

Alfred I. Anderson

By his Attorneys,

C. A. Snow & Co.

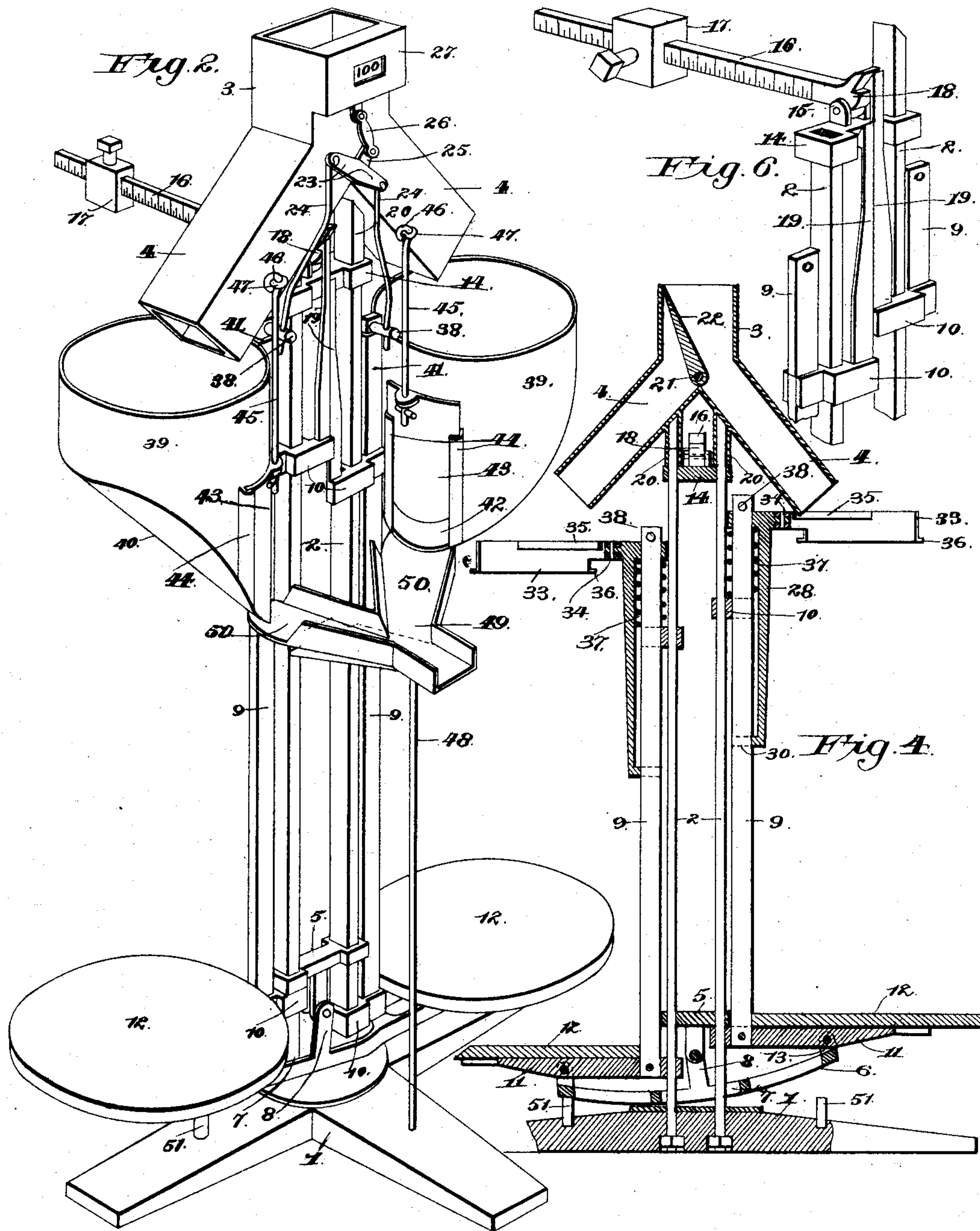
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Wm. Bagger.

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UNITED STATES PATENT OFFICE.

ALFRED I. ANDERSON, OF ODELL, NORTH DAKOTA.

DEVICE FOR WEIGHING GRAIN.

SPECIFICATION forming part of Letters Patent No. 430,244, dated June 17, 1890.

Application filed December 28, 1889. Serial No. 335,245. (No model.)

To all whom it may concern:

Be it known that I, ALFRED I. ANDERSON, a citizen of the United States, residing at Odell, in the county of Barnes and State of North Dakota, have invented new and useful Devices for Weighing Grain, of which the following is a specification.

This invention relates to devices for weighing grain and for delivering it into bags or into a wagon, as may be desired; and it has for its object to construct a machine of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view showing the apparatus arranged for delivering the grain into bags. Fig. 2 is a perspective view showing the device arranged for delivering the grain into a wagon. Fig. 3 is a vertical transverse sectional view of the machine arranged as in Fig. 1. Fig. 4 is a vertical sectional view taken on the line *xx* in Fig. 3. Fig. 5 is a detail view of one of the bag-holders used in connection with my invention. Fig. 6 is a perspective detail view of the scale-lever and weighing mechanism.

Like numerals of reference indicate like parts in all the figures.

1 designates a base or platform, having a pair of uprights 2 2, the upper ends of which support a chute or hopper 3, having diverging arms or branches 4 4.

5 designates a T-shaped brace or cross-bar, which connects the uprights 2 2 near their lower ends.

6 is a lever, which is provided with a slot 7 to accommodate the uprights 2 2, upon the lower ends of which the said lever is arranged. The lever 6 is provided with upwardly-extending arms or lugs 8 8, which are pivotally connected to the lower end of the T-shaped brace 5.

9 9 designate a pair of vertical rods, which are provided near their upper and lower ends

with sleeves 10 10, which encircle the uprights 2 2, upon which the said rods 9 9 are thus made to slide vertically. The lower ends of the rods 9 are provided with outwardly-extending arms or brackets 11, upon which the platforms 12 are mounted. The under sides of the arms 11 are connected pivotally with lugs or brackets 13, that extend upwardly from the ends of the lever 6.

The uprights 2 2 are connected near their upper ends by a cross-bar or brace 14, having upwardly-extending lugs 15, between which the scale-lever 16 is pivoted. The outer end of the scale-beam and lever 16 carries an adjustable weight 17, and the inner or rear end of said scale-beam is provided with a beveled tooth 18. Suitably secured to the sleeves 10, at the upper ends of the vertically-sliding rods 9, are spring-pawls 19, adapted to alternately engage the tooth 18 at the rear end of the scale-beam.

The hopper 3, which is provided on its under side with downwardly-extending sleeves or sockets 20, whereby it is mounted adjustably and detachably upon the upper ends of the uprights 2, is provided with a rock-shaft 21, upon which is mounted an oscillating valve 22, which is adapted to alternately close the upper end of the two branches 4 4 diverging from the said hopper. The outer end of the rock-shaft 21 is provided with laterally-extending arms 23 23, the outer ends of which are connected by means of pivoted rods 24 with the upper ends of the vertically-sliding rods 9. It will thus be seen that when the position of the latter is reversed motion is communicated to the rock-shaft carrying the valve 22, the position of which is thereby simultaneously and automatically reversed. The rock-shaft 21 is also provided with an upwardly-extending arm 25, which is connected by a pivoted rod or pitman 26 with the operating mechanism of a suitably-constructed registering device, which is contained in a casing 27, mounted upon the outer side of the hopper 3.

When the device is to be arranged for delivering the grain into bags, as shown in Figs. 1 and 3 of the drawings, I avail myself of the bag-holding devices, one of which has been shown in detail in Fig. 5 of the drawings.

Each of said devices comprises a vertical rod 28, provided at its upper end with a sleeve 29, which is adjusted upon the upper end of one of the vertically-sliding rods 9. The lower end of each of the vertical rods 28 is provided with a pair of lugs 30, adapted to straddle the vertically-sliding rod 9, upon which it is adjusted. Each of the rods 28 is, furthermore, provided at its upper end with a lateral outwardly-extending arm or bracket 31, having a pair of outwardly-extending curved arms 32 and 33, the latter of which is mounted upon a hinge 34, thereby enabling the said curved arms to be compressed against the tension of a spring 35, which normally separates them when it shall be desired to adjust a bag in position for operation. The lower outer edges of the arms 32 and 33 have flanges 36, which serve to hold the bags in position thereon. When the bag-holders are adjusted in position for operation upon the vertically-sliding rods 9, springs 37 are interposed between the sleeves 10, near the upper ends of said rods 9 and the sleeves 29 at the upper ends of the bag-holders, which latter are thereby held raised, so as to enable them to accommodate either long or short bags, as may be desired. The bag-holders are retained in position upon the upper ends of the vertically-sliding rods 9 by means of transverse pins 38, to the outer ends of which the lower ends of the pivoted connecting-rods 24 are connected. By this construction it will be seen that the rods 24 may be readily disconnected from the upper ends of the vertically-sliding rods 9 when it shall be desired to remove the bag-holders and to exchange them for the weighing-buckets, which I shall now proceed to describe.

The weighing-buckets consist of certain metallic vessels 39, having inclined bottoms 40 and provided upon their sides with sleeves 41, whereby they may be adjusted upon the upper ends of the vertically-sliding rods 9, with the sleeves 41 resting upon the sleeve 10 near the upper ends of said rods. The buckets 39 are provided at the lower ends of the inclined bottoms with openings 42, adapted to be closed by vertically-sliding doors 43, which slide between flanges 44 upon the outer sides of said buckets. The doors 43 are adapted to be connected by rods 45, the upper ends of which are provided with hooks 46, with eyes or staples 47 upon the front sides of the diverging branches 4 of the hopper. The weighing-buckets are adapted to be retained in position upon the vertically-sliding rods 9 by means of the transverse pins 38, in the same manner as the bag-holders, which have been already described. It will be seen that by this arrangement the sliding doors 43 are practically stationary, while the weighing-buckets 39 are moved alternately in an upward and downward direction by means of the vertically-sliding rods 9, upon which they are mounted; hence the opening

42 of the bucket, which is in a raised position, will be closed, while the opening of the bucket upon the opposite side of the device, which is in a lowered position, will be open. A standard 48, rising from the base or platform 1, supports a spout 49, having diverging branches 50, which are adapted to register with the discharge-openings of the two weighing-buckets, as will be clearly seen in Fig. 2 of the drawings.

Buffers 51 are arranged upon the base or platform 1 to support the ends of the lever 6, and to prevent unnecessary strain on the latter.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of my invention will be readily understood. When the bag-holders are in position for operation, bags of different lengths may be readily adjusted in such a manner that their lower ends shall rest upon the platforms 12. One of said platforms is normally in a lowered and the other in a raised position, and the position of the vertically-sliding rods 9 correspond with that of the platforms, said rods being actuated by the lever 6, upon the ends of which said platforms are mounted. The spring-pawl 19, which is attached to the sleeve 10 near the upper end of the rod 9, which is temporarily in a raised position, is made to engage the tooth 18 at the rear end of the scale-beam, the weight 17 of which may be adjusted to regulate the quantity of grain which shall be permitted to flow into the bag. The valve 22 in the hopper adjusts itself automatically by the mechanism herein described to cause the grain to flow into the bag, which rests upon the raised platform. When a sufficient quantity of grain has passed into the bag to overbalance the weight 17, the end of the lever 6, supporting the platform upon which the full bag rests, is depressed, thereby reversing the position of the vertically-sliding rods 9 and of the valve 22, and likewise causing the spring-pawl 19, which has heretofore been inactive, to engage the tooth 18 at the rear end of the scale-beam, while the spring-pawl 19, formerly active, disengages itself from the said tooth. The grain is now caused to flow into the bag supported upon the opposite side of the machine, and the bag which has been filled may be removed and replaced with an empty one. It will thus be seen that the operation of the machine is entirely automatic, the sole attention required being for the purpose of removing the full bags and placing the empty ones in position upon the bag-holders.

When the device is to be used for weighing grain for delivery into a wagon, the operation is precisely the same, the sole difference being that the grain is delivered into the weighing-buckets, and thence through the trough 49 directly into the wagon-box or other receptacle placed under the discharge end of said trough.

It is obvious that other material than grain may be weighed or measured by means of my improved apparatus, and that various minor modifications may be made in the construction of the same without departing from the spirit of my invention.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In a grain-weigher, the combination of a pair of uprights, a T-shaped brace connecting said uprights near their lower ends, a lever mounted pivotally upon the lower end of said T-shaped brace, a pair of vertically-sliding rods provided near their upper ends with sleeves, whereby they are mounted upon the said uprights, and provided at their lower ends with arms connected pivotally to the lever, a brace connecting the upper ends of the uprights and provided with upwardly-extending lugs, a scale-beam mounted pivotally between said lugs and having an adjustable weight at its outer end, and provided at its rear or inner end with a beveled tooth, and spring-pawls attached to the sleeves at the upper ends of the vertically-sliding rods and adapted to engage the beveled tooth of the scale-beam, substantially as and for the purpose set forth.

2. In a grain-weighing device, the combination of the uprights, the cross-bars or braces at the upper and lower ends of the same, the lever connected pivotally to the brace at the lower end of the uprights, the vertically-sliding rods having sleeves mounted upon said uprights, and provided at their lower ends with outwardly-extending arms connected pivotally with the outer ends of the lever, the scale-beam pivoted to the brace at the upper end of the uprights and having a beveled tooth at its rear end, the spring-pawls attached to the sleeves at the upper ends of the vertically-sliding rods and adapted to engage the beveled tooth of the scale-beam, the hopper mounted detachably upon the upper ends of the uprights and having diverging branches, a rock-shaft mounted in said hopper and having an oscillating valve, laterally-extending arms at the outer end of said rock-shaft, and pivoted rods connecting the outer ends of said arms with the upper ends of the vertically-sliding rods, substantially as and for the purpose set forth.

3. In a grain-weighing apparatus of the class herein described, the combination of the uprights, the vertically-sliding rods having sleeves mounted upon said uprights, the hopper having downwardly-extending sleeves or sockets, whereby it is mounted detachably upon the upper ends of the uprights, the rock-shaft mounted in said hopper and carrying an oscillating valve, and provided at its front end with laterally-extending arms, transverse pins at the upper ends of the vertically-sliding rods, and pivoted rods connecting the front ends of said pins with the arms of the rock-shaft mounted in the hopper and carry-

ing the oscillating valve, substantially as set forth.

4. In a grain-weighing apparatus of the class herein described, the combination of the uprights, the vertically-sliding rods, the transverse pins at the upper ends of the latter, the hopper having diverging arms or branches, the rock-shaft mounted transversely in the hopper and carrying an oscillating valve, arms extending laterally in opposite directions from the front end of said rock-shaft, pivoted rods connecting said arms with the transverse pins at the upper ends of the vertically-sliding rods, a registering device mounted in a casing upon the front side of the hopper, an arm extending upwardly from the front end of the rock-shaft mounted in said hopper, and a rod or pitman connecting said arm with the operating mechanism of the registering device, whereby the latter and the oscillating valve in the hopper shall be operated simultaneously and automatically by the vertically-sliding rods, substantially as herein set forth.

5. In a grain-weighing apparatus of the class described, the combination of the uprights, the vertically-sliding rods having sleeves mounted upon the said uprights, and arms connected pivotally with an oscillating supporting-lever, a scale-beam mounted upon a brace or cross-bar connecting the upper ends of the uprights and having a beveled tooth at its rear end, spring-pawls attached to the sleeves at the upper ends of the vertically-sliding rods and adapted to engage the beveled tooth of the scale-beam, the hopper mounted detachably upon the upper ends of the uprights and having diverging arms or branches, a rock-shaft mounted in said hopper and having an oscillating valve, and provided at its front end with the laterally-extending arms, pivoted rods connecting the outer ends of said arms with the transverse pins arranged detachably at the upper ends of the vertically-sliding rods, and the bag-holding devices comprising the vertical rods provided at their upper ends with sleeves and at their lower ends with lugs adapted to engage the vertically-sliding rods, and provided on their upper ends with outwardly-extending arms adapted to support the bags, said bag-holding devices being mounted detachably upon the said vertically-sliding rods, substantially in the manner and for the purpose set forth.

6. In a grain-weighing apparatus of the class described, the combination of the uprights, the vertically-sliding rods having sleeves at their upper and lower ends, the bag-holding devices comprising the rods provided at their upper ends with sleeves and at their lower ends with lugs adapted to engage the vertically-sliding rods upon which the said bag-holding devices are mounted detachably, and provided at their upper ends with outwardly-extending curved arms, and the coiled

springs adapted to be arranged upon the
vertically-sliding rods between the sleeves
near the upper ends of the latter and the
sleeves at the upper ends of the bag-holding
5 devices, substantially as and for the purpose
herein shown and specified.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in
presence of two witnesses.

ALFRED I. ANDERSON.

Witnesses:

H. WINTERER,

JOHN ANDERSON.