

No. 644,267.

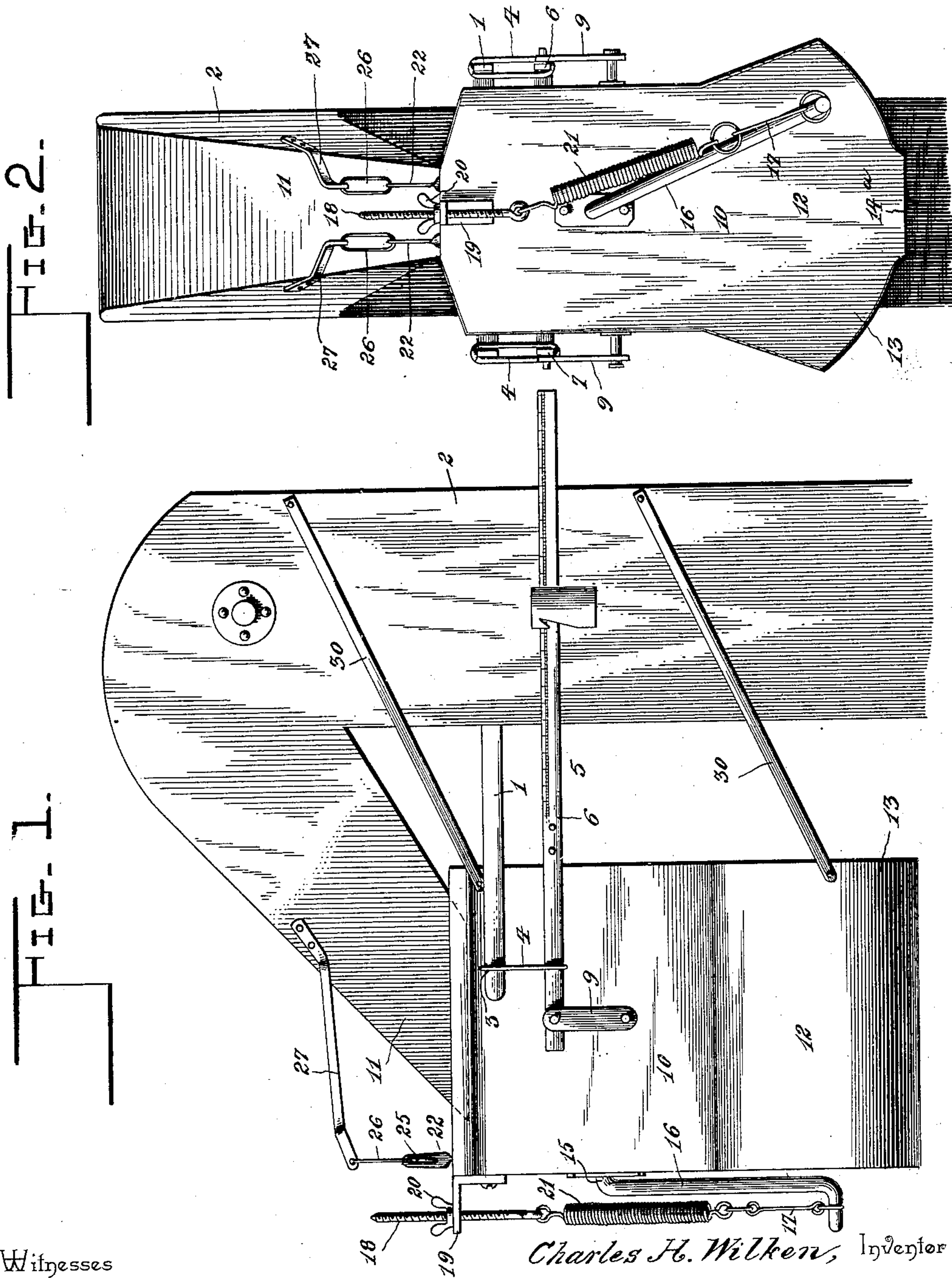
Patented Feb. 27, 1900.

C. H. WILKEN.  
AUTOMATIC GRAIN SCALE.

(Application filed June 4, 1898.)

2 Sheets—Sheet 1.

(No Model.)



Witnesses

John F. Deufferwiel.  
H. J. Wiley.

Charles H. Wilken, Inventor

By his Attorneys,

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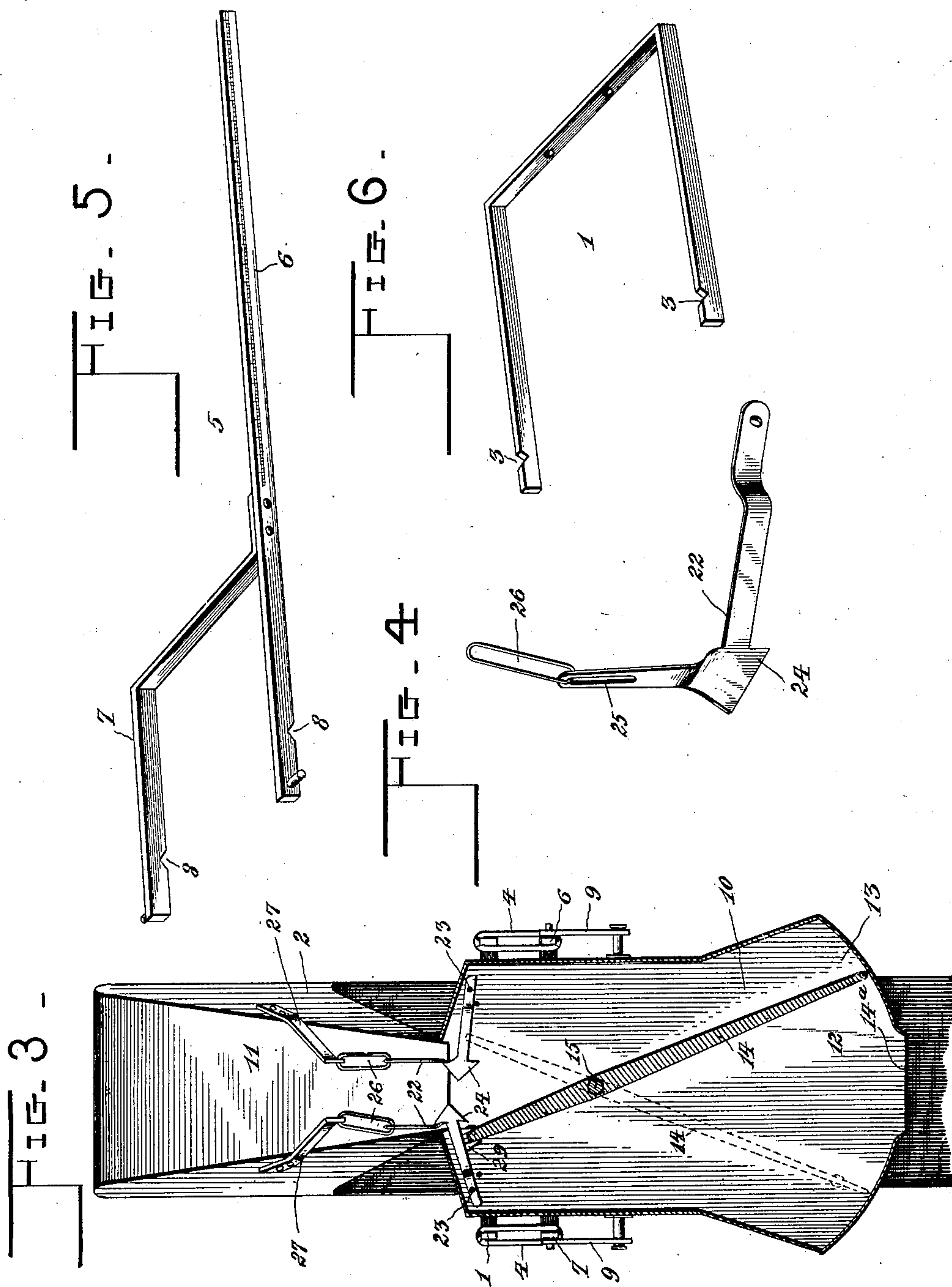
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(No Model.)

2 Sheets—Sheet 2.



Witnesses

*John F. Deufferwiel*  
*J. H. Riley*

By *his* Attorneys,

*Charles H. Wilken*, Inventor

*C. H. Wilken & Co.*



# UNITED STATES PATENT OFFICE.

CHARLES H. WILKEN, OF PRESTON, IOWA, ASSIGNOR OF ONE-HALF TO  
IRA LENKER, OF SAME PLACE.

## AUTOMATIC GRAIN-SCALE.

SPECIFICATION forming part of Letters Patent No. 644,267, dated February 27, 1900.

Application filed June 4, 1898. Serial No. 682,566. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. WILKEN, a citizen of the United States, residing at Preston, in the county of Jackson and State of Iowa, have invented a new and useful Automatic Grain-Scale, of which the following is a specification.

The invention relates to improvements in automatic grain-scales.

10 The object of the present invention is to improve the construction of automatic grain-scales and to provide a simple and comparatively-inexpensive one which will be positive and reliable in operation and capable of accurately weighing grain and similar material in bulk.

20 The invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

25 In the drawings, Figure 1 is a side elevation of an automatic grain-scale constructed in accordance with this invention. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical sectional view. Fig. 4 is a detail perspective view of one of the catches. Fig. 5 is a similar view of the scale-beam. Fig. 6 is a detail view of the supporting yoke or frame.

30 Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a substantially-rectangular frame secured to an elevator 2 and provided with outwardly-extending parallel horizontal arms having notches 3 at their outer ends to receive supporting links or hangers 4, upon which a scale-beam 5 is fulcrumed. The scale-beam consists of a straight bar 6, arranged at one side of the grain-elevator 2, and a substantially-L-shaped bar 7, having its outer arm offset from and arranged parallel with the adjacent portion of the bar 6. The parallel portions of the scale-beam are provided at their lower edges with notches 8, located near the end of the parts and fulcrumed on the lower ends of the links which receive the sides of the scale-beam. The outer terminals of the sides of the scale-beam

are pivotally connected to depending links 9, which support a hopper or receptacle 10.

The hopper or receptacle 10, which is arranged beneath a spout 11 of the grain-elevator 2, has its lower portion 12 enlarged and provided with downwardly-diverging sides, and the bottom of the hopper is provided with inclined downwardly-converging portions 13, separated by a central space or opening 14<sup>a</sup>, through which the material is discharged. Within the hopper or receptacle is arranged an oscillating partition 14, adapted to be shifted from one side of the hopper or receptacle to the other—from the position shown in full lines in Fig. 3 to that indicated by dotted lines in the same figure. The pivot of the partition 14 is located above the center and preferably consists of a horizontal shaft 15, extending through the walls of the hopper or receptacle and provided at one end with an arm 16, arranged on the exterior of the apparatus. The spout is contracted, and the upper portion of the partition is arranged beyond the same and is adapted to be shifted from one side to the other thereof, and the lower portion of the partition is carried from one side of the central opening 14 to the other. This partition divides the hopper or receptacle into two compartments, and while one of these compartments is receiving a charge of material the other compartment is discharging.

The arm of the horizontal shaft 15 and the partition are spaced from the walls of the hopper or receptacle by suitable plates, which are also provided with bearing-openings for the shaft. A spring of spiral form is connected by a wire 17 with the receptacle or hopper, preferably by means of an adjusting-screw 18, passing through a perforation of a horizontal arm of an L-shaped bracket and engaged by a thumb-nut 20. The screw is provided at its lower end with an eye which is linked into an eye of the upper end of the coiled spring 21, and the lower end of the latter is provided with a similar eye which is linked into an eye of the wire connection 17. The adjusting-screw and the thumb-nut regulate the tension of the spring which is adapted to complete the movement of the oscillating



partition after the same has been actuated by the material being weighed, when the said partition is disengaged from one of a pair of catches 22 through the downward movement of the hopper or receptacle incident to the poising of the scale-beam.

The catches 22, which are adapted to engage the upper edge of the shifting partition, are substantially L-shaped, as clearly shown in Figs. 3 and 4 of the accompanying drawings, and are pivoted at 23 at the outer ends of their lower substantially-horizontal arms and are provided at their angles with depending engaging portions or teeth 24, beveled at one side and forming vertical shoulders at the other side. The vertical shoulders are adapted to lock the partition against movement, and the beveled faces permit the partition to lift the catches in swinging from one side to the other, so that it may after being released by one catch automatically engage the other. The other arms of the catches extend upward and are provided with slots 25, which are engaged by links or rods 26, suspending the catches from a pair of outwardly-extending arms 27. The arms 27, which have converging outer portions, are mounted upon the spout of the grain-elevator and support the catches. As the hopper or receptacle moves downward in poising under the weight of a charge of material the partition is carried away by such downward movement from the catches, and as soon as the scale-beam is properly poised the partition is released, and as its lower portion is longer than its upper portion the weight of the material being weighed swings the partition toward the opposite side of the hopper, carrying the lower portion beyond the center, and the movement of the partition is completed by the spring 21, which after being carried beyond the center of the hopper or receptacle pulls on the arm 16 of the shaft. By this construction the grain-scale is not only rendered automatic, but is made exceedingly sensitive, and great accuracy in weighing is secured through the instantaneous shifting of the partition as soon as the scale-beam reaches the poising-point.

The partition 14 is provided at its upper edge with a pair of substantially-wedge-shaped blocks 29, which are arranged to be engaged by the catches 22. The slots 25 at the upper portions of the catches permit the same to move independently of the links 26 when they are being engaged by the partition.

The links or hangers 4, which support the sides of the scale-beam, are provided with knife-edged bearings, and the scale-beam is provided with a suitable weight or weights. The hopper or receptacle is supported by inclined braces 30, arranged in pairs at opposite sides of the elevator and pivoted to the same and to the hopper, as clearly shown in Fig. 1 of the accompanying drawings. The pivotal connections of the braces permit the neces-

sary vertical movement of the hopper or receptacle incident to poising the scale-beam.

The invention has the following advantages: The automatic grain-scales, which are adapted for weighing various kinds of material in bulk, are simple and comparatively inexpensive in construction and positive and reliable in operation. The catches automatically release the shifting partition at the poising-point, and the partition is instantly and automatically shifted by the weight of the material within the hopper or receptacle and by the action of the spring, causing the material to be discharged from one side of the hopper and to be delivered into the opposite side, and the automatic action will continue as long as material is discharged into the hopper or receptacle. The tension of the spring may be readily regulated so that the partition will be shifted with the desired rapidity.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What I claim is—

1. In an apparatus of the class described, the combination with a suitable support, of a vertically-movable hopper or receptacle, a counterbalancing-weight, an oscillating partition pivotally mounted within the hopper or receptacle and adapted to be shifted from one side of the same to the other side thereof, mechanical means for automatically shifting the partition when released, and a pair of catches pivotally mounted on the hopper or receptacle and arranged to engage the partition, said catches being connected with the support, whereby when the hopper or receptacle moves downward, the catches will be lifted out of engagement with the partition, substantially as described.

2. In an apparatus of the class described, the combination of a hopper or receptacle having an opening at its bottom and provided with an oscillating partition, a spring connected with the partition and adapted to swing the same, and means for holding the partition while the hopper or receptacle is receiving its charge and being automatically released by the movement of the said hopper or receptacle, substantially as described.

3. In an apparatus of the class described, the combination of a vertically-movable hopper or receptacle having an opening at its bottom and provided with an oscillating partition, a pair of substantially L-shaped catches provided at their angles with engaging portions, and pivoted to the hopper or receptacle, the upper portions of the catches being provided with slots, a pair of supporting-arms, links depending from the supporting-arms and connected with the slotted portions of the catches, and a counterbalancing-weight, substantially as described.

4. In an apparatus of the class described,



the combination of a hopper or receptacle having an opening at the bottom and provided with an oscillating partition, a pair of catches supported independently of the hopper and  
5 arranged to engage the upper edge of the partition, whereby the latter will be released when the hopper or receptacle moves downward, and a spring connected with the partition and adapted to swing the same, substantially as described.  
10

5. In an apparatus of the class described, the combination of a vertically-movable hopper or receptacle having an opening at the bottom, an oscillating partition mounted within the hopper, catches located at the top of  
15 the hopper or receptacle and supported independently of the same and arranged to engage the upper end of the partition, an exterior arm connected with the partition, and  
20 a spring connected with the arm and with the hopper or receptacle, substantially as and for the purpose described.

6. In an apparatus of the class described, the combination of a hopper or receptacle, an  
25 oscillating partition mounted within the same and provided with an exterior arm, an adjusting-screw mounted on the hopper or receptacle, and a spring connected with the screw and the arm, substantially as described.

7. In an apparatus of the class described, 30 the combination of a hopper or receptacle having an opening at the bottom, an oscillating partition pivotally mounted within the hopper or receptacle and adapted to be shifted from one side of the same to the other side  
35 thereof, said partition being provided with an exterior arm, and a spring connected with the arm and with the hopper or receptacle, substantially as and for the purpose described.

8. In an apparatus of the class described, 40 the combination of a hopper or receptacle having an opening at the bottom, an oscillating partition pivotally mounted within the hopper and adapted to be shifted from one side of the same to the other side thereof, means  
45 for holding the partition while the hopper or receptacle is receiving its charge, an arm connected with the partition, and a spring actuating the arm and adapted to swing the partition, substantially as and for the purpose  
50 described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES H. WILKEN.

Witnesses:

IRA LENKER,  
HELLEN M. BECKWITH.