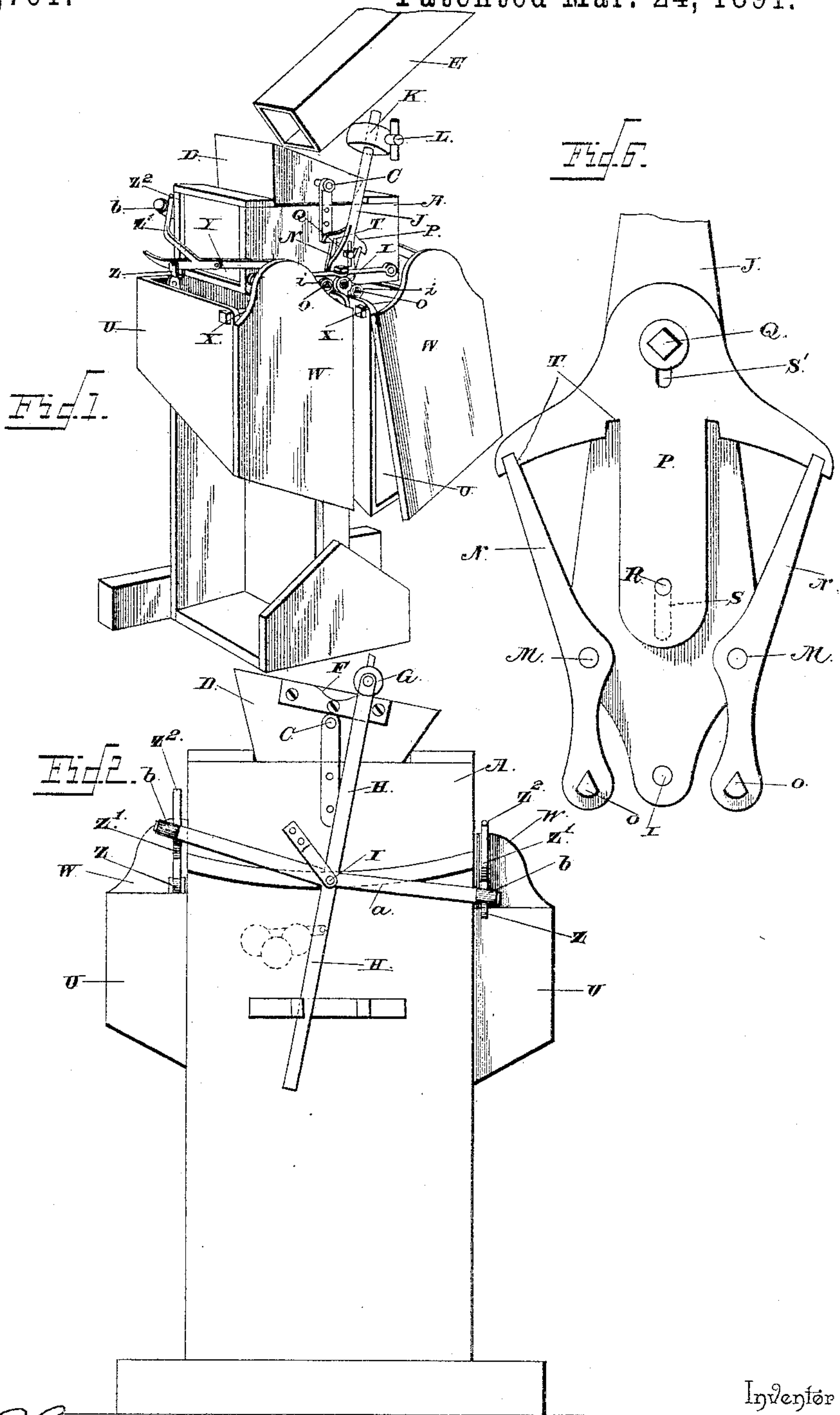


G. C. FLAGG.
GRAIN SCALE.

No. 448,761.

Patented Mar. 24, 1891.



Witnesses

M. Fowler
A. L. Collamer

By his Attorneys,

Chas. Snow & Co.

Inventor

George C. Flagg

(No Model.)

2 Sheets—Sheet 2.

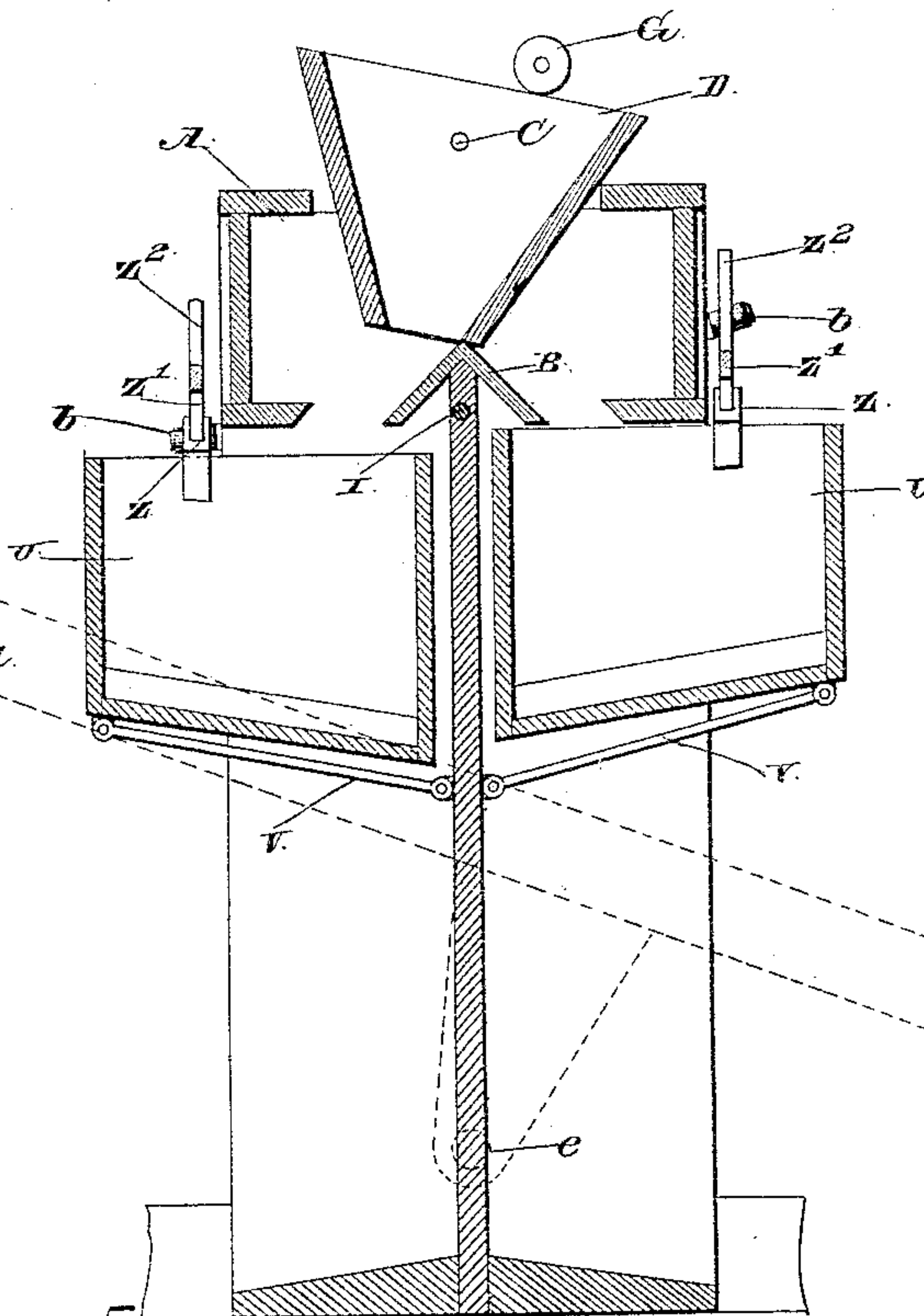
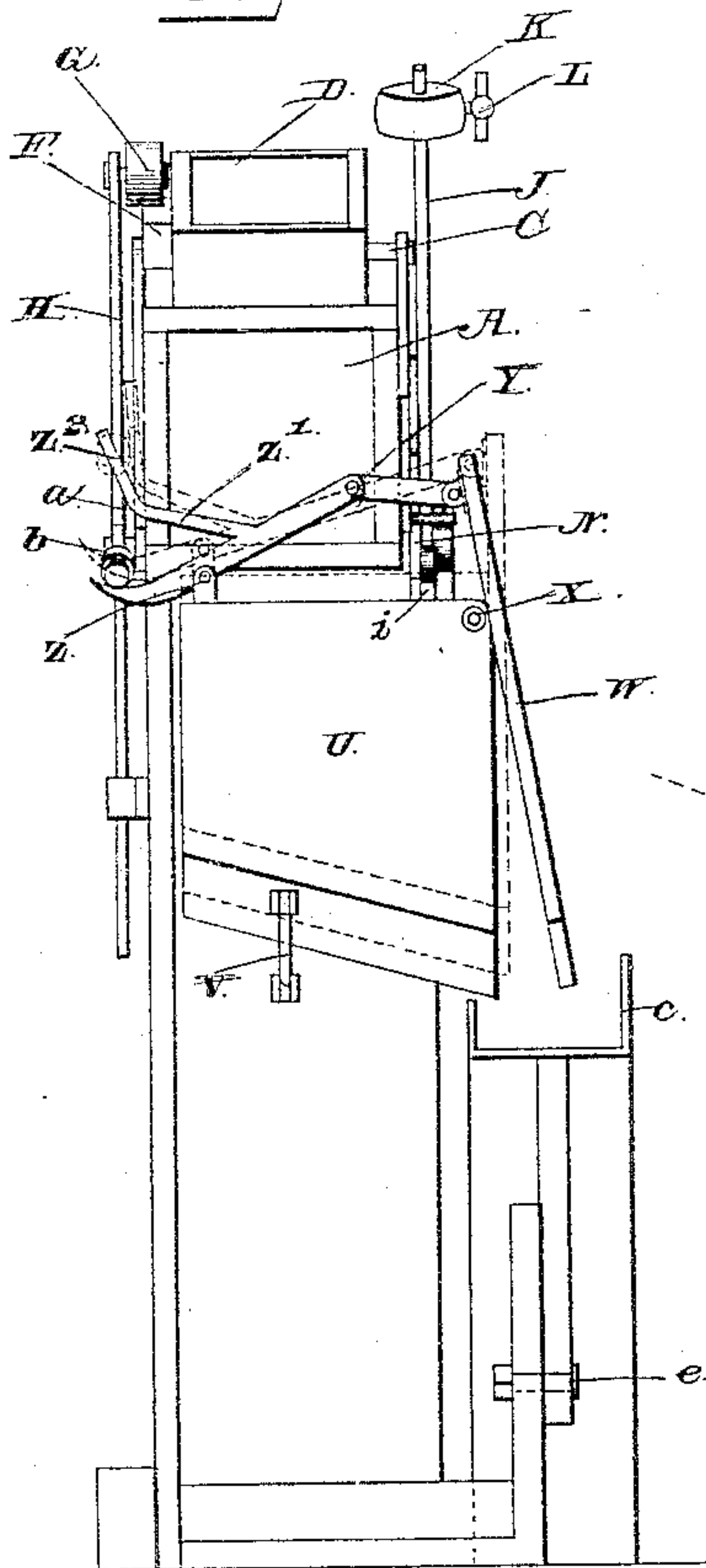
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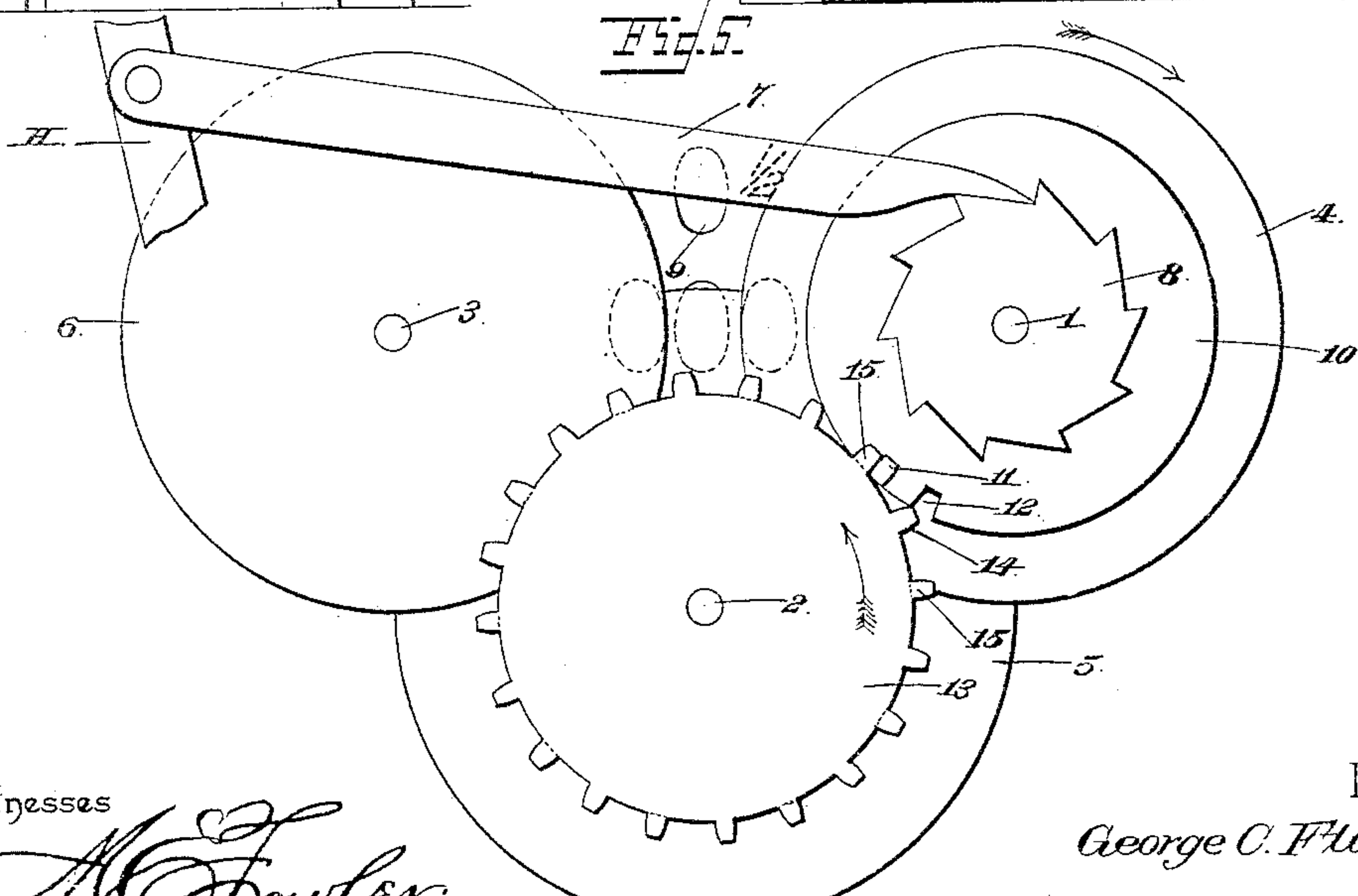
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Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE CORNER FLAGG, OF LEWISTOWN, ILLINOIS.

GRAIN-SCALE.

SPECIFICATION forming part of Letters Patent No. 448,761, dated March 24, 1891.

Application filed October 18, 1890. Serial No. 368,587. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CORNER FLAGG, a citizen of the United States, residing at Lewistown, in the county of Fulton and State of Illinois, have invented a new and useful Grain-Scale, of which the following is a specification.

This invention relates to improvements in grain-weighing machines, the object of the same being to provide a machine of this character possessing improvements over others of a similar nature heretofore made.

To this end the invention consists of the details of construction hereinafter more fully described and claimed, and as illustrated in the drawings, in which—

Figure 1 is a perspective view of this machine complete. Fig. 2 is a rear elevation. Fig. 3 is a side elevation showing the door of one of the boxes as open in full lines and as closed in dotted lines. Fig. 4 is a central transverse vertical section of the machine. Fig. 5 is an elevation of the register I preferably employ, with the outer side of the casing removed. Fig. 6 is a detail view of the lower end of the weighing-beam.

Referring to the said drawings, A is the casing of this machine, within which is the divider B, arranged across the center thereof. Above this divider on pivots C is mounted an oscillating hopper D, which is of funnel shape, as shown, and into whose upper end projects the feed-pipe E, leading from the elevator or other source of grain-supply.

Upon the rear of the hopper is a cam F, as best seen in Fig. 2, and a roller G upon the upper end of an arm II engages this cam and throws the hopper so that its lower end will deliver to one or the other side of the divider B, as will be clearly understood by persons familiar with this class of machines. The arm II is keyed upon a spindle I, extending through the casing A from the rear to the front thereof, and keyed to the front end of this spindle is the scale-beam J, rising upwardly and provided with the shifting weight K, adapted to be adjusted upon the scale-beam and held in position by means of the set-screw L.

Pivoted to the scale-beam J at points M are two levers N, whose lower ends are provided

with knife-edged bearings O and whose upper ends are reduced.

P is a catch having the slot S', sliding over a stud Q on the scale-beam, and having a set-screw R, taking loosely through a slot S in said beam, whereby the catch may be raised and lowered and held in either position. The lower face of this catch is curved and is provided with four notches T, one pair being located nearer the center of the scale-beam than the other pair, and in these notches the reduced upper ends of the levers N are adapted to be seated, for a purpose to be described hereinafter.

U U are boxes whose bottoms incline inwardly and forwardly, and which are provided with eyes i, rising from their inner side walls, which embrace and rest upon the knife-edged bearings O, above mentioned, by which means the boxes are pivotally supported from the levers N, and V V are links which are pivoted at one end to the base of the casing and at the other end to the bottom of the boxes, their function being to prevent the latter from swinging and thus interfering with the operation of the machine. The front W of each box is pivoted or hinged at X along the upper corner thereof and extends above its pivot, Fig. 3, and pivotally connected to the upper end of this front is a toggle-lever Y, whose rear arm is pivoted at Z to the box and extends slightly beyond and in rear of such pivot.

Z' is a branch arm rising from the toggle Y near its pivot and having an upright bend or portion Z², as shown. Rigidly connected at right angles to the arm II is a horizontal arm a, carrying rollers b at its extremities, which rollers operate between the arms Z and Z².

With the above construction of parts when the grain is flowing down the feed-pipe E and the hopper D is turned to one side one box U is being filled. As soon as it is filled to the desired extent its weight overcomes the force of weight K and throws the scale-beam J over to the other side. This motion turns the spindle I, moves the arm II, and throws the roller G the length of the cam F, thereby moving the hopper D upon its pivots C and

shifting the flowing stream of grain across the divider B into the other box U. At the same time the horizontal arm *a* is moved to its opposite position, and this motion lowers the roller *b*, engaging the toggle Y of the box which has just been filled, opens the front W thereof, and delivers the grain into a chute *c*, whence it may be conveyed to a wagon or to any suitable and desirable point. The front *d* of this chute rises to a considerable distance above the bottom thereof in order to prevent the grain flowing out of the boxes from overflowing from the chute, and the entire chute is pivoted at *e*, so that it may be shifted from side to side to deliver the grain at either side of the separator upon which my improved machine may be placed. The scale-beam weighs half-bushels of grain at each draft, the same being regulated according to the weight of that much bulk of the grain being measured. The same weight may be used on the scale-beam and without adjustment by adjusting the pivots O O, on which the two boxes are suspended—that is to say, when the reduced upper ends of the levers N are in the innermost notches T sixteen pounds of oats will tip the beam, the same as will thirty pounds of wheat move it when said reduced ends are in the outer notches; and as sixteen pounds of oats or thirty pounds of wheat make a half-bushel it will be obvious that this adjustment of the fulcrum of the scale will cause the latter to measure out half-bushels of oats or wheat, and no adjustment of the counterbalancing-weight will be necessary.

Referring now to Fig. 5, which illustrates the register I preferably employ for indicating how much grain has been passed through my machine, 1, 2, and 3 are shafts carrying, respectively, disks 4, 5, and 6, each marked with the ten digits, and the shaft 2 arranged below the other shafts, as seen, the disks, however, being so arranged that the digits will stand in proper position to indicate a number of three figures. Pivoted to the arm H is a pawl 7, having marked thereon the fraction " $\frac{1}{2}$," and the tip of this pawl engages a ratchet 8, keyed upon the shaft 1. At every movement of the arm *a* in one direction the fraction is exposed through the face-plate 9 of the register, and when the pawl moves in the other direction the fraction is carried out of sight and the ratchet 8 and disk 4 are turned one space, thus raising by one the number indicated. Upon the shaft 1 is a disk 10, having a single tooth 11 on one face thereof and a notch 12 in its edge in rear of said tooth, and on the shaft 2 is a gear-wheel 13, whose teeth 14 rest upon the edge of the disk 10, but whose alternate teeth 15 are of half-length, so as to pass by said disk, as will be understood. When ten numbers have been exposed by the disk 4, the single tooth 11 strikes one of the half-teeth 15, and at the same time the notch 12 comes beneath one of the full teeth 14. As the disk 4 turns to "0," at its next

movement the tooth 11, engaging the half-tooth 15, causes the shaft 2 to turn and to expose one higher figure in the next opening through the face-plate. In the act of turning the notch 12 engages the full tooth 14 and carries the disk 13 around until the next two full teeth 14 rest against the edge of the disk 10, when the gear 13 will be locked in this position, because its full teeth rest against the edge of the disk 10, and it cannot move until the disk makes another complete revolution, again bringing the notch 12 opposite one of the teeth. Although I have not illustrated it, it will be understood that the shafts 2 and 3 are connected in a similar manner in order to cause the register to indicate hundreds, and, if desired, other shafts can be added, increasing the capacity of the register almost indefinitely. I prefer to apply this register in connection with my improved grain-weighing device, although I make no claim thereto in the present application.

What is claimed as new is—

1. In a grain-weighing machine, the combination, with the pivoted funnel-shaped hopper and the divider below the hopper, of the scale-beam having an adjustable weight, the boxes pivotally supported thereby at either side of said divider, the vertical arm mounted on the supporting-shaft of said beam and carrying a roller at its upper end, and a cam on the hopper adapted to be struck by said roller when the scale-beam moves, as set forth.

2. In a grain-weighing machine, the combination, with the scale-beam mounted on a pivot, the pivoted hopper, and connections between said beam and hopper for moving the latter on its pivots, of the boxes pivotally supported by said scale-beam and having hinged fronts, toggle-levers pivotally connected at one end to said fronts and near their rear ends to said boxes and having upwardly-extending arms at their rear end, a horizontal arm keyed to the pivotal shaft of said scale-beam, and rollers on the extremities thereof, each engaging between the rear end and the upwardly-extending arm of one of said toggle-levers, as and for the purpose set forth.

3. In a grain-weighing machine, the combination, with the pivoted scale-beam, levers pivoted thereto near its supporting-pivot and provided with knife-edged bearings at their lower ends, a catch sliding longitudinally on said beam and having notches engaging the upper ends of said levers, and a means for locking said catch, of boxes mounted upon said knife-edged bearings, a pivoted hopper, and connections between the scale-beam and hopper for moving the latter on its pivots, as and for the purpose set forth.

4. In a grain-weighing machine, the combination, with the pivoted scale-beam, an adjustable weight thereon, levers pivoted to said scale-beam near its supporting-pivot and having reduced upper ends, knife-edged bearings at the lower ends of said levers, a slotted catch sliding longitudinally on said beam and hav-

ing inner and outer pairs of notches engaging said reduced ends, a pin in the beam loosely engaging the slot in the catch, and a set-screw passing through a slot in the beam
5 and taking into the catch, of boxes mounted upon said knife-edged bearings, links pivotally connecting said boxes with the casing, a pivoted hopper, and connections between said hopper and scale-beam for moving the mouth
10 of the hopper alternately over the boxes, substantially as and for the purpose set forth.

5. In a grain-weighing machine, the combination, with the pivoted funnel-shaped hopper, a cam thereon, the scale-beam keyed to
15 an oscillating shaft, an upright arm keyed to said shaft and having a roller engaging said cam, a transverse arm integral with said upright arm, and rollers at the extremities of said transverse arm, of boxes pivotally connected to said scale-beam and having hinged
20 fronts, a toggle-lever connecting each front with its box, the rear end of said toggle-lever standing below the roller at one end of said transverse arm, and an inclined arm secured

to said lever and having an upright bend 25 standing above such roller, the whole operating substantially as described.

6. In a grain-weighing machine, the combination, with the pivoted scale-beam, the boxes connected thereto with their bottoms 30 inclining inwardly and forwardly, hinged fronts to said boxes, an oscillating hopper, and means, substantially as described, for simultaneously opening one front and shifting the hopper from that box when filled, of 35 a delivery-chute pivotally connected to the casing below and in front of the lower edge of said fronts, said chute having a raised front, all substantially as and for the purpose hereinbefore set forth. 40

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

GEORGE CORNER FLAGG.

Witnesses:

GEORGE W. MCGREW,
CHAS. A. NEWTON.