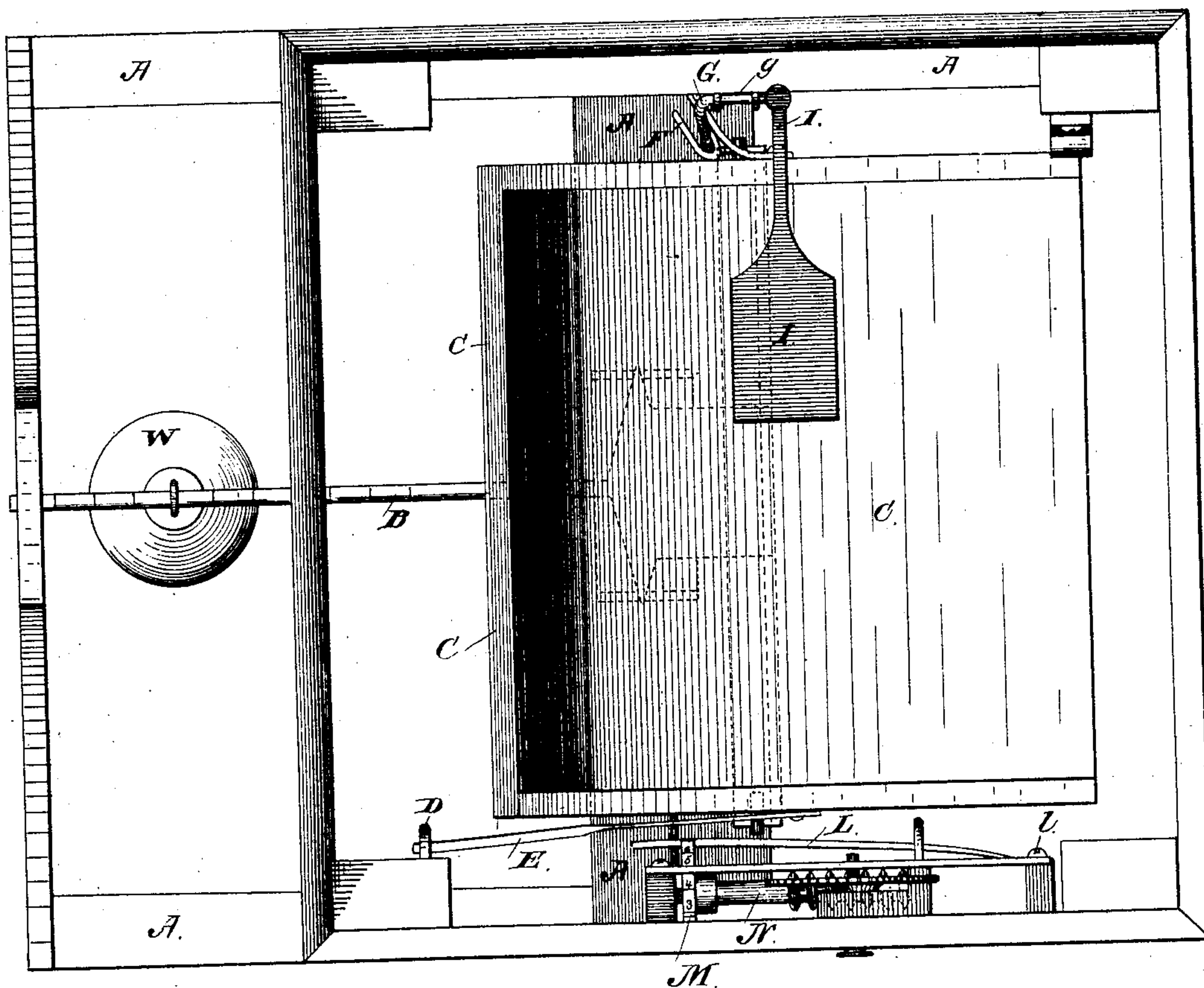


D. COLLINS.  
Grain-Meter.

No. 227,217.

Patented May 4, 1880.

*Fig 1,*



*Attest*  
*Geo. T. Smallwood Jr.*  
*Walter Allen*

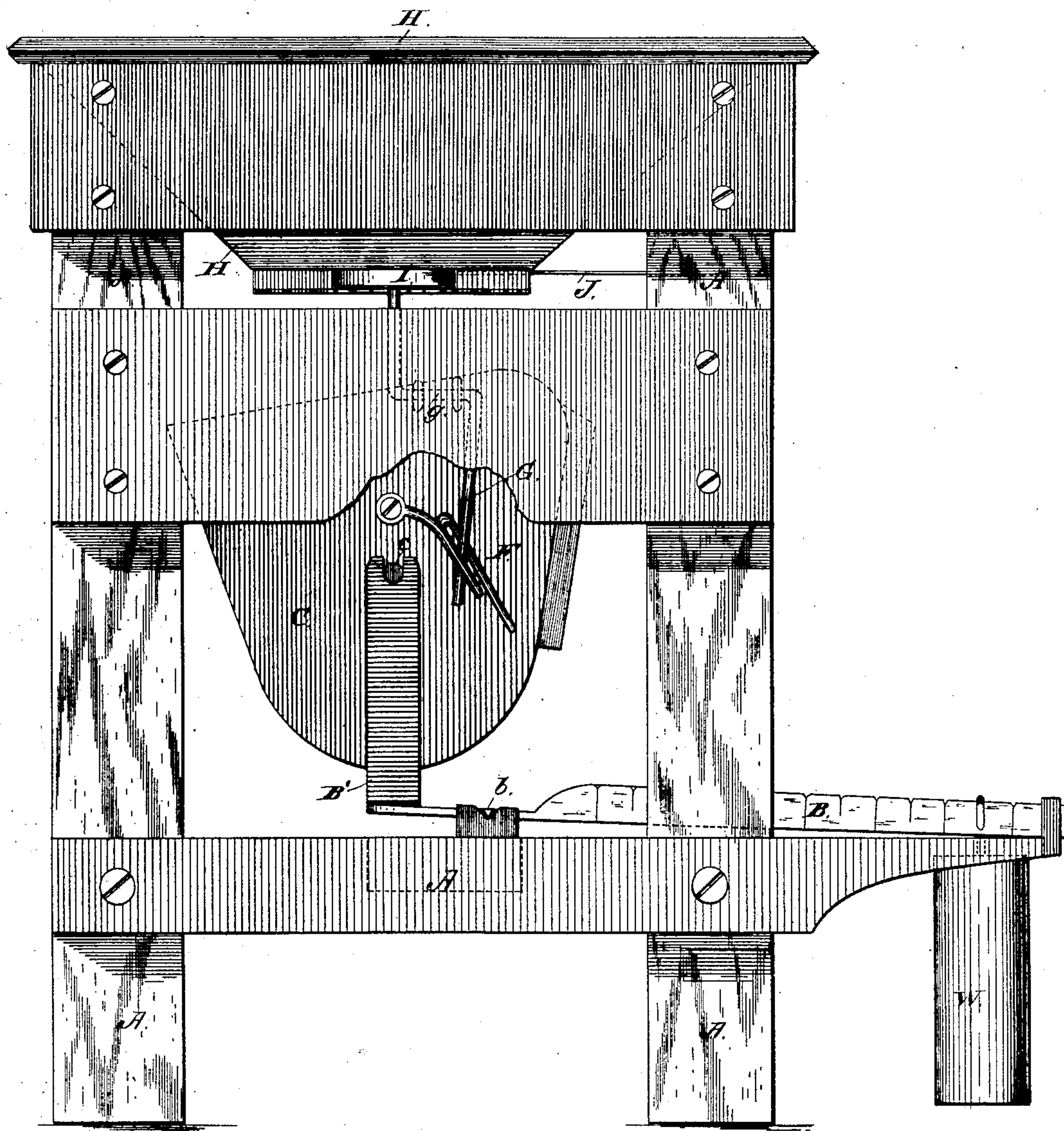
*Inventor:*  
*Daniel Collins*  
*By Knight Bros*  
*Cattys*

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*Fig. 2.*



*Attest:*

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*Inventor:*

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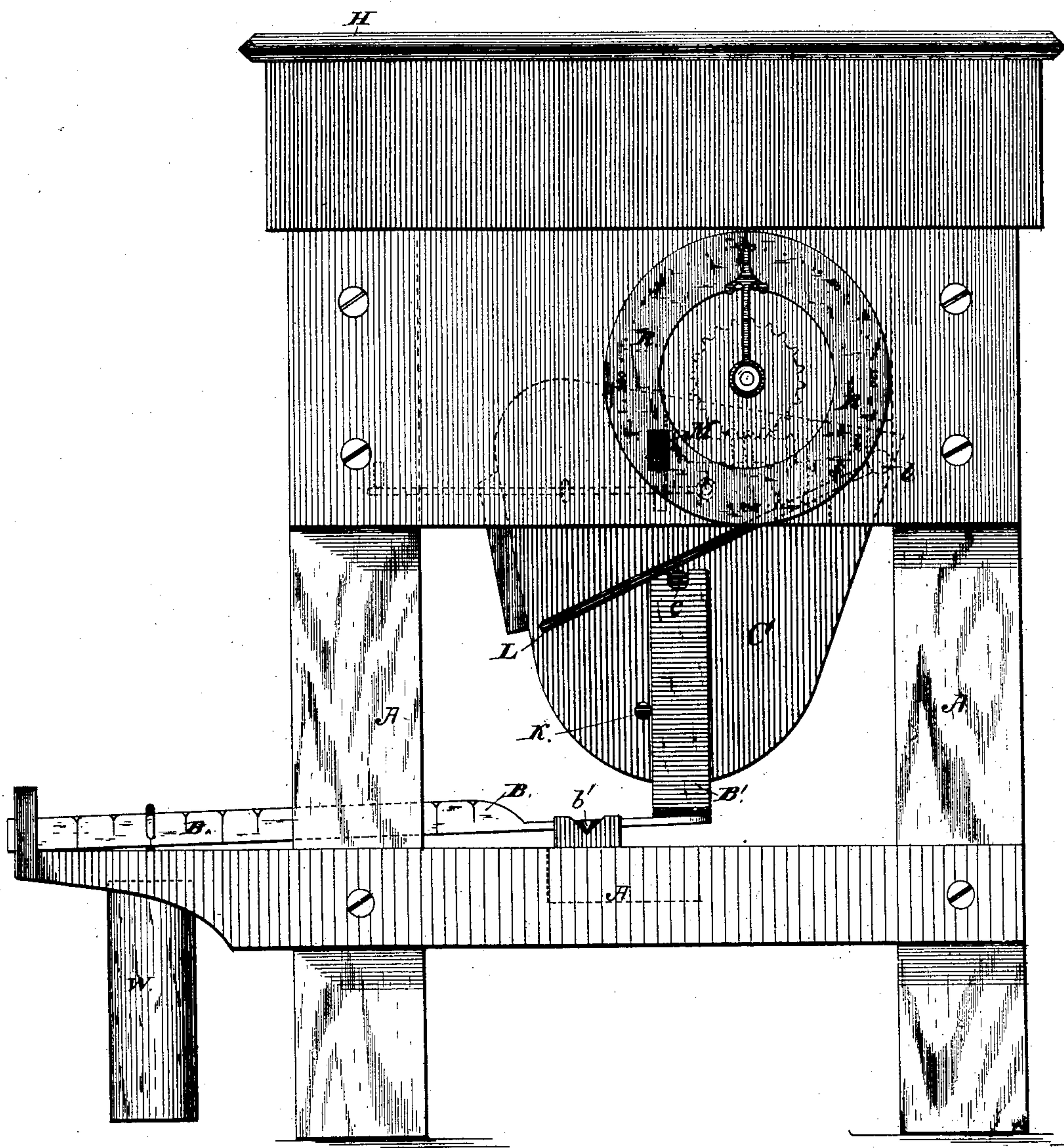


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*Fig 3,*



*Attest:*  
*Geo. P. Smallwood Jr.*  
*Walter Allen*

*Inventor:*  
*Daniel Collins*  
*By Knight Bros attys*



# UNITED STATES PATENT OFFICE.

DANIEL COLLINS, OF ZANESFIELD, OHIO.

## GRAIN-METER.

SPECIFICATION forming part of Letters Patent No. 227,217, dated May 4, 1880.

Application filed July 28, 1879.

*To all whom it may concern:*

Be it known that I, DANIEL COLLINS, of Zanesfield, in the county of Logan and State of Ohio, have invented new and useful Improvements in Grain Weighing and Registering Apparatus, of which the following is a specification.

The subject of this invention is an apparatus for weighing grain as it is delivered to a warehouse or elevator, or as it comes from a thrashing-machine, or as it runs into the stones to be ground, or in any other place where it may be desired to automatically weigh and register grain.

The apparatus consists of a pivoted pan supported on rigid standards rising from the forward end of a scale-beam, so that the turning of the beam may impart a horizontal motion to the pan, and held from tipping by a stationary catch, from which it is released by its own horizontal motion when the required weight is reached. The pan then tilts and empties.

The invention also consists in the combination, with the aforesaid automatic grain-scale, operated as described, of a sliding cut-off gate actuated by the tilting of the pan through the medium of a forked tappet secured to one side of the pan and a lever projecting downwardly from the gate and engaging the forked tappet, as hereinafter described.

In the accompanying drawings, Figure 1 is a plan view of my improved automatic grain-scale with the feeding-hopper removed. Fig. 2 is an elevation of one side thereof, a portion of the frame-work being broken away, in order to expose the mechanism for operating the cut-off gate. Fig. 3 is an elevation of the other side of the scale, with the register mechanism represented in dotted lines.

A A represent portions of the frame-work on which the beam B works by knife-edged gudgeons *b b*. The forward end of the beam consists of a rigid vertical frame constituting standards *B' B'*, on the upper ends of which the tilting pan C is pivoted by studs or gudgeons *c c*.

D represents a detent projecting inwardly from one side of the frame to catch a rigid horizontal arm, E, which projects backward from the adjacent side of the pan C, so as to prevent the said pan tipping before the beam turns.

The upper end of the detent D is inclined, as shown, to allow the tappet or arm E to slide easily over it and be caught when the pan returns to its normal position for filling.

F represents an inclined cam or tappet in the shape of a fork fixed on one side of the pan C, and engaging with the downwardly-projecting arm G of a lever, fulcrumed at *g* and connected at its upper end with a horizontal gate, I, which slides beneath the feeding-hopper H, in order to close the delivery-orifice thereof when the pan tips to discharge a load. The feeding-hopper H is further provided with an adjustable gate, J, for the purpose of regulating the flow from the said hopper as required.

On the side of the pan C opposite from the forked tappet F is a horizontal projecting stud, K, which, as the pan tilts, engages with a horizontal lever, L, fulcrumed at *l* and brought in contact with a ratchet-wheel, M, on a worm-shaft, N, which operates a register, R, of common construction. The beam B is provided with a sliding weight, W.

The operation is as follows: The adjustable gate J being set to regulate the rapidity of flow to correspond with the capacity of the stones, if the apparatus is used in a mill, or to agree with the capacity of the elevators or conveyers employed to remove the grain, the grain flows from the feeding-hopper H into the pan C, which is so hung upon the standards *B' B'* of the beam B that it will tend to tip forward when full. The weight W having been set in the required notch, the instant the corresponding weight of grain has run into the hopper the beam will turn, resulting in a forward horizontal movement of the pan C, which withdraws its arm E from beneath the detent D. The pan, being thus released, immediately tilts, by reason of the overbalancing weight of grain in its forward part and discharges its load, the sliding cut-off I being instantly closed and the register moved a point by the same movement of the pan. The pan, being relieved of its grain, is instantly and automatically restored to its filling position by the weight of its rear side causing the arm E to catch under the detent D and the cut-off I to be withdrawn by the forked tappet F, to permit a new charge to flow out of the hopper H into the weighing-pan C.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. An automatic grain-scale provided with  
5 a weighing-pan pivoted at the side near its center in rigid standards extending upwardly from the front end of the beam, substantially as described, so that the turning of the beam will impart a longitudinal movement to the  
10 pan, which releases it from a detent projecting inwardly from one side of the frame and engaging a horizontal arm projecting backward from the side of the pan and permits it to tilt and empty.

2. The combination, with an automatic 15 grain-scale provided with a weighing-pan pivoted in rigid standards on the beam, a detent projecting inwardly from the frame, and a horizontal arm projecting backward from the side of the pan, of a sliding cut-off gate, I, act- 20 uated by the tilting of the pan through the medium of a forked tappet, F, secured to one side of the pan, and lever G, substantially as described.

DANIEL COLLINS.

Witnesses:

LEVI JAMES,  
JOHN PLUMMER