

2 AUTOMATIC GRAIN WEIGHING MACHINE, 1906

This type of machine has a ball mechanism for discharging the grain-bucket and the wooden model shown was built to demonstrate how it worked.

The machine has a weighing-beam on which the grain-bucket with two compartments is suspended from one arm and a predetermined measuring-weight from the other arm.

When grain is fed from the hopper at the top into the grain-bucket the beam descends when the required amount collects. An arm, operated by the balance-beam, engages with a stirrup and closes the feedgate. A ball, which is free to move in a runway, operates a lever and pawl for opening the discharge door and emptying one of the compartments. The lightened bucket then rises with the balance-beam and in so doing operates a lever and pin for opening the feedgate of the other compartment. The cycle is then repeated.

Two grain-compartments are employed to allow more time for emptying and filling.

Henry Pooley & Son, Ltd. first manufactured the version of this machine in metal in 1903.

Presented by John Brian Esq. Inv. 1928-1221

BALL AUTOMATIC GRAIN WEIGHING MACHINE, 1906.

Made and presented by JOHN BRIAN, Esq.

This model, in wood, represents one of the constructions patented by Mr. John Brian during the development from 1899 onward, of his automatic weighing machine utilising the movement of a ball weight to effect some, or all, of the motions required for opening, closing, and discharging the bucket. The manufacture of these weighers was taken up by Messrs. Pooley & Co., who put the device on the market in 1903 as the "Simplex" automatic grain scale.

In the earlier design the movement of the ball was used to open the feedgate and the bucket discharge door; in the model shown the ball only opens the discharge door, the feedgate being opened by the swing of the balance beam. The action is as follows:—In combination with the beam, A, there is a ball runway, B, pivotted on the frame, on which the ball weight travels, and a lever, C, pivotted on the frame and so placed that it is struck by the ball, D, so as to cause a pawl, E, to engage with and open the bucket discharge door, F, when the bucket, G, is at its lowest position.

The balance beam is raised to the filling position by the lightening of the bucket during discharge, and so opens the feedgate, H, by raising a weighted lever which engages with a pin on the feedgate. When a certain quantity of grain has run into the bucket the beam descends, during which movement the feedgate is caught by a falling trigger piece, J, at the "dribble" position. Meanwhile the beam system is quite free and descends as the feed of grain continues. When the correct weight of grain has run into the bucket, the beam closes the feedgate entirely through an arm, K, set on the cross-beam of the balance beam, engaging with a stirrup, and at the same time the movement permits the weighted lever, L, to fall, and striking the ball runway, B, tilts it so that the ball runs inward and strikes the discharge door as described above when the grain runs out.

The cycle of operations is then repeated, except that the grain now runs into the other half of the bucket, the deflecting plate on top of the bucket having been thrown over by the action of the lever, M. This diversion is found necessary in order to give the grain ample time to run out, and to afford no opportunity for the new feed of grain to mix with the preceding charge.

(See Patent Specns. Nos. 3068/1899; 1344/1903; 27,266/1906.)

Brian Ball Automatic Weigher.

Extracts from Mr Brian's letters.

"Divided Bucket Automatic Weigher.

In combinay^Aion with the beam^B, there is an auxilliary balance beam or ball race^C, pivoted on the frame, and a lever^D, pivoted on the frame is so^E arranged that one end can be struck by the moving ball^F to ca^Guse another part^H to act on a catch on the bucket to allow the bucket door^I to open, when bucket^J is at the lowest position.

The balance beam^A is raised to normal position by the rising of the bucket end of the weigh beam^B, which also opens the feed gate^C and raises^D a weighted lever by^E a pin on the feed gate. When a certain quantity of grain has run into the bucket, the beam descends. The feed-gate is now caught by a catch or trigger^F at the dribble position. The beam^G is now perfectly free. When the determined weight has run into the bucket the beam^H on its fullest descent tips the feed-gate catch^I through an arm^J provided on the cross-beam of weigh-beam^K, and allows feed-gate to entirely close, and at the same time, allows the weighted lever^L to fall, and strike the ball race^M, thus tilting it and allowing the ball^N to strike lever^O and release the bucket door catch, the grain than runs out. The operation is than repeated, only that the grain runs into the other division of bucket, the deflecting plate on top of bucket having been turned over by a lever connected to bucket door.

I find this machine was patented in 1906, No. 27,226.

Other patents found are :- A.M. Robinson & J. Brian, 1899-3068.

J. Brian alone, 1903-1344.

SML
12/11/28

J.Brian. Ball Automatic Grain Weigher.

Notes from letter of 12/11/28.

Thought he had the original model but now remembers that he left it with Messrs Hy. ~~Poppley~~ Pooley to whom he sold the first patent, 1899-3068. The model sent is of same type, the difference is that ⁱⁿ the first machine the ball opened the feed gate and the bucket door, in the type sent, the ball only opens the bucket door, the feedgate being opened by the beam. The first type made commercially (Pooley, 1903) as leaflet, was a good automatic, but after much use became a bit unreliable unless given good care and the various parts looked after. Told a few years ago that one of these old machines was still running in a mill in Liverpool, it had then been running nearly 20 years. When originally offered to Pooley's Henry Pooley told Brian that Brian's model was the first that he or his colleagues had seen that would work.

SM
12/11/28