





# UNITED STATES PATENT OFFICE.

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## AUTOMATIC FEED-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 771,764, dated October 4, 1904.

Application filed July 10, 1903. Serial No. 165,031. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY H. BOUSSER, a citizen of the United States, residing at Halstead, in the county of Harvey and State of Kansas, have invented certain new and useful Improvements in Automatic Feed-Regulators, of which the following is a specification.

This invention provides a novel form of regulator for supplying wheat or other grain to the first breaker of a roller-mill in determinate quantity in a unit of time, as per minute or hour. The governor is constructed so as to be automatic in action when once set, increasing the supply or feed when the grain is damp or wet and tends to fall below the required amount and reducing the supply when the grain is heavy and dry and tends to flow too rapidly, whereby the amount of grain in weight fed to the breaker is practically uniform under all conditions.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a governor specially devised for attaining the objects of this invention. Fig. 2 is a vertical central longitudinal section showing the operation by full and dotted lines.

Corresponding and like parts are referred to in the following description and indicated in both views of the drawings by the same reference characters.

The grain to be fed to the first breaker or other machine in regulable quantity is stored in a bin, granary, or the like and is directed into hopper 1 by means of a chute, spout, or other conductor. (Not shown.) Beneath hopper 1 and in line therewith is arranged spout 2, communication being controlled between them by means of a cut-off 3. The lower or delivery end of spout 2 is preferably inclined, as shown most clearly in Fig. 2, and

the delivery of the grain therethrough is adapted to be retarded more or less by means of regulating-slide 4, which is loosely and adjustably mounted so as to vary the space between it and spout 2, according to the amount of grain to be delivered to the breaker or machine in a given time. The regulating-slide 4 is preferably constructed of sheet metal, and its front end is cut away or notched, as shown at 5, and a stem 6 projects from its rear end and is longitudinally curved and terminates in an upwardly-bent end provided with the nut 7, secured thereto in any manner or forming a part thereof, said nut coöperating with a threaded shaft 8 to admit of part 4 being slid either forward or backward to regulate the delivery of grain as may be required. A bracket 9 is secured at one end to the spout 14, so as to move therewith, and its outer end forms a bearing for the outer end of threaded shaft 8, the inner end of said shaft being mounted in a standard 12, projected upward from the inner end of bracket 9. The stem 6 of regulating-slide 4 passes loosely through opening 13 of standard 12 to admit of movement of the said slide to vary the distance between it and spout 2, as will be described more fully hereinafter.

A spout 14 is connected to the inner end of a scale-beam 15 and preferably tapers throughout its length, being smaller at its discharge end, so as to retard in a measure the passage of the grain therethrough. The grain is further retarded in its passage through spout 14 by having the latter offset between its upper and lower ends, as shown at 20, whereby a deflector is formed for changing the straight passage of the grain, with the result that the spout may be used as a means for sustaining a portion of the weight of the grain in transit therethrough, advantage being taken of this result to properly control the amount of grain to be supplied to the breaker or other machine in a given time. A deflector 16 is applied to the lower end of spout 14 to further retard the passage of the grain therethrough, the same consisting of a plate having portions oppositely inclined, so as to shed the grain to each side of the spout. The spout 14 is secured to the scale-beam 15 in any convenient



and substantial way, and said scale-beam is fulcrumed to bracket 10 of framework 11 by the accustomed knife-edged pivot 21. The scale-beam is suitably graduated to indicate  
 5 the number of pounds per minute or number of bushels per hour, as may be determined upon. A weight 17 is slidably mounted on the scale-beam 15 and is adapted to be secured in the located position so as not to be displaced  
 10 by any shock. An indicator 18 is applied to the outer end of the scale-beam to facilitate determining when said scale-beam is level or in an equipoise state.

To prevent too rapid movement of the scale-  
 15 beam in either direction, a dash-pot 19 of any type of construction is provided and coöperates therewith, same in the present instance consisting of a cylinder containing a liquid, such as glycerin, and a plunger arranged to  
 20 work in said cylinder.

The operation of the governor is as follows: The weight 17 is adjusted on the scale-beam to the point representing the number of pounds or bushels of grain to be supplied to  
 25 the breaker or other machine in a given time. The cut-off 3 is now opened to permit the grain to pass into spout 2, thence into spout 14 and through same, after which the regulating-slide 4 is adjusted by means of threaded  
 30 shaft 8 until scale-beam 15 balances, which may be determined by the indicator 18. Under normal conditions a like quantity of grain will be fed through spout 14; but should the grain be damp or wet and tend to stick the spout  
 35 14 being relieved of a part of the weight will ascend under the superior force of weight 17 and move slide 6 to uncover more of the spout 2, whereby the grain is permitted to flow more readily through spout 2 into spout 14. On  
 40 the other hand, should the grain be heavy the spout 14 will descend under the excessive weight and move slide 4 upward, so as to cover more of the spout 2, whereby the quantity of grain passing through spout 2 to spout 14 is  
 45 proportionately diminished through the excess of weight. The operation is automatic in controlling the amount of grain to be fed to the breaker or other machine, as will be readily comprehended.

50 Inasmuch as the spout 14 and slide 4 are carried by the scale-beam 15, it will be readily understood that as said scale-beam turns on its pivot-support 21 the slide 4 will move across the lower end of the support 2 in an  
 55 arcuate path and uncover more or less thereof, so as to permit the grain to pass there-through more or less freely, as will be readily appreciated.

60 Having thus described the invention, what is claimed as new is—

1. In a governor of the character described, a delivery-spout, a pivoted scale-beam, a measuring-spout rigidly connected to the scale-

beam and movable therewith in an arcuate path and adapted to receive the grain from 65 the delivery-spout, means for retarding the passage of the grain through the measuring-spout to affect the equipoise of the scale-beam, and a slide carried by and movable with the measuring-spout across the path of the deliv- 70 ery-spout to regulate the discharge of grain therefrom and maintain a uniform delivery, substantially as specified.

2. In a governor of the character described, a delivery-spout, a pivoted scale-beam, a meas- 75 uring-spout rigidly connected to the scale-beam and movable therewith in an arcuate path and adapted to receive the grain from the delivery-spout, means for retarding the passage of the grain through the measuring- 80 spout to affect the equipoise of the scale-beam, a slide carried by and movable with the measuring-spout across the path of the delivery-spout to regulate the discharge of grain therefrom and maintain a uniform delivery, and 85 means for adjusting said slide with reference to the delivery and measuring spouts and the counterbalance coöperating with the scale-beam, substantially as set forth.

3. In a governor for regulating the feed of 90 grain, a supply-spout, a counterbalanced measuring-spout mounted for pivotal movement and having a deflected portion for retarding the passage of the grain therethrough, said deflected portion being tapered through- 95 out its length, and a slide carried by and movable with the measuring-spout across the path of the grain delivered by said supply-spout, substantially as set forth.

4. In a governor for regulating the feed of 100 grain, a delivery-spout, a counterbalanced measuring-spout mounted for pivotal movement, a regulating-slide carried by the counterbalanced measuring-spout and movable therewith across the delivery-spout to control 105 the discharge of grain, and means connected with the measuring-spout for adjusting the regulating-slide with reference to the delivery and measuring spouts, substantially as specified. 110

5. In a governor for regulating the feed of grain, the combination of a delivery-spout, a pivoted scale-beam, a measuring-spout rigidly connected to and movable with the scale-beam, an adjustable counterbalance and dash- 115 pot coöperating with the scale-beam, and a feed-regulating slide carried by and having adjustable connection with the measuring-spout, substantially as specified.

In testimony whereof I have affixed my sig- 120 nature in presence of two witnesses.

HARRY H. BOUSSER. [L. s.]

Witnesses:

D. S. MARCY,  
 J. M. STEELE.