

A. G. YERK.
 AUTOMATIC GRAIN WEIGHER.
 APPLICATION FILED MAY 13, 1909.

936,593.

Patented Oct. 12, 1909.
 2 SHEETS—SHEET 1.

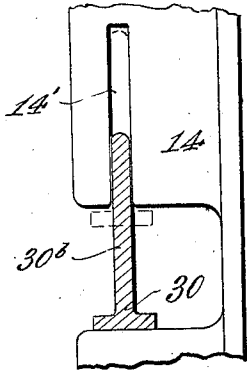


Fig. 5.

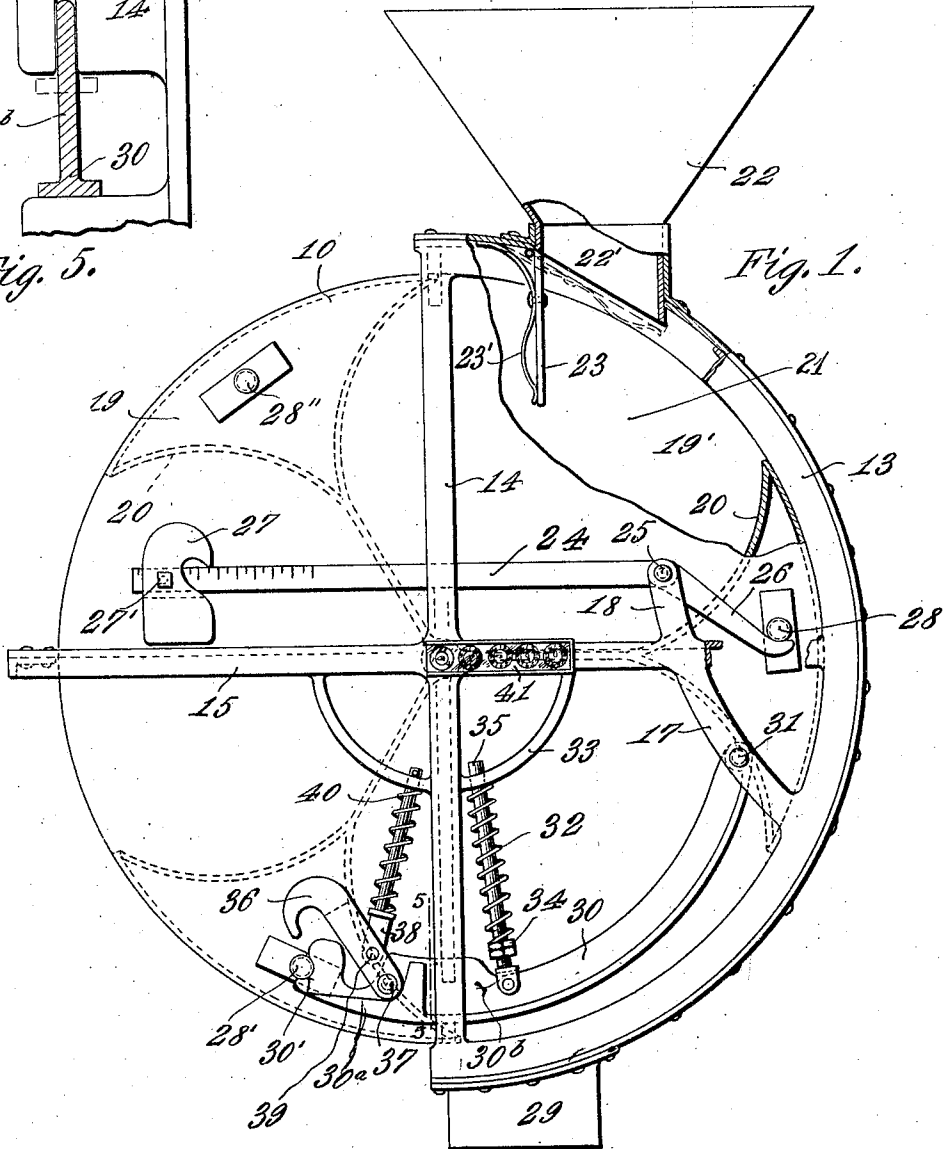


Fig. 1.

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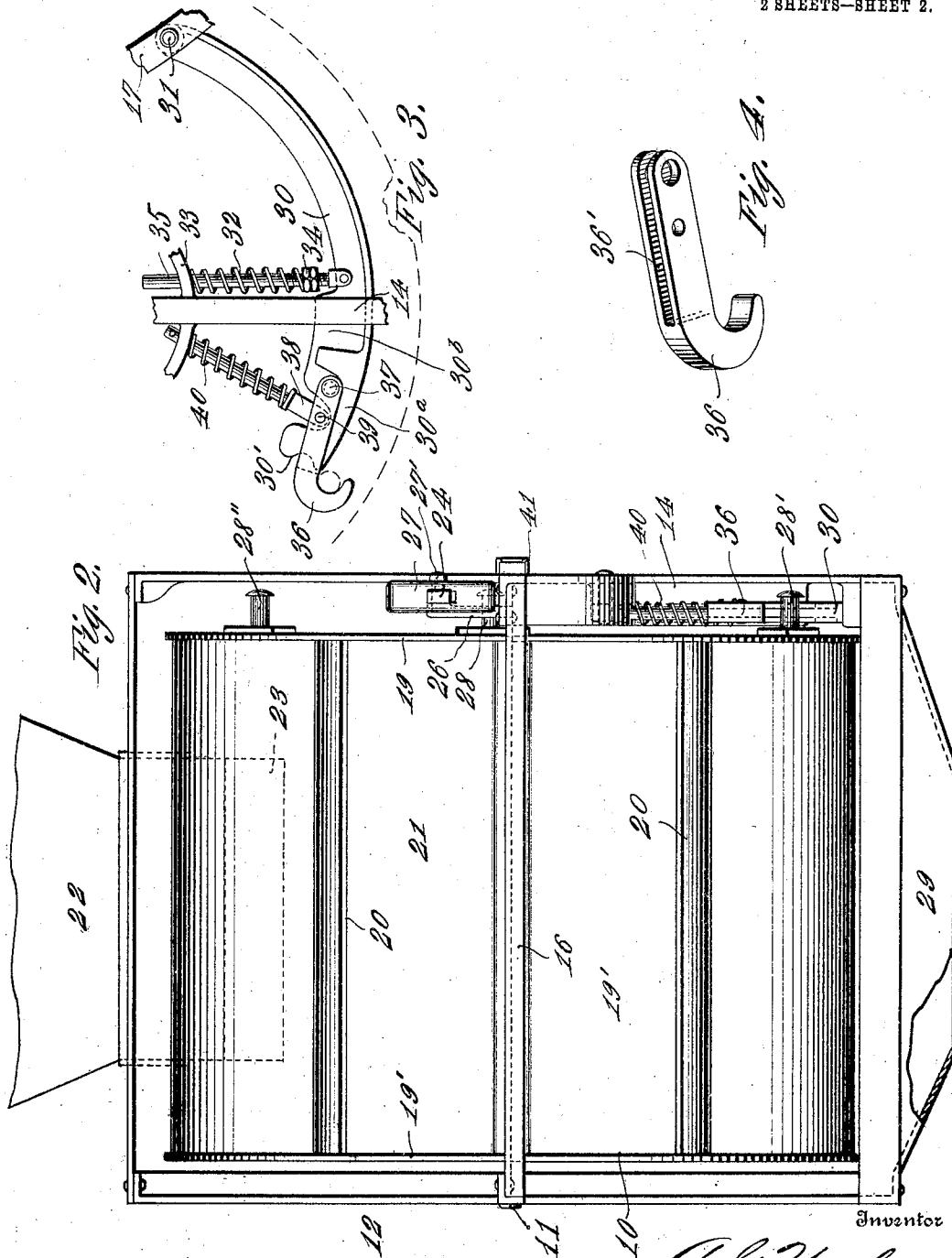
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UNITED STATES PATENT OFFICE.

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AUTOMATIC GRAIN-WEIGHER.

936,593.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed May 13, 1909. Serial No. 495,696.

To all whom it may concern:

Be it known that I, ALBERT G. YERK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Grain-Weighers, of which the following is a specification.

This invention relates to automatic weighers or meters for grain, or the like, and has particular reference to certain details of construction which render devices of this kind more accurate and durable with respect to their automatic operation.

The invention comprises certain specific details of construction hereinafter fully described and claimed and illustrated in the accompanying drawings, wherein similar parts are referred to by like reference characters, and in which—

Figure 1 is a side elevation, partly broken away; Fig. 2 is a front elevation; Fig. 3 is a detail of the controller, the parts being in a different position from that indicated in Fig. 1; Fig. 4 is a detail perspective of one of the parts of the controller; Fig. 5 is a sectional detail on the line 5—5 of Fig. 1.

The invention comprises a drum 10 mounted to rotate with and upon a central shaft 11 journaled at or near its ends in a rigid frame 12. Said frame comprises arc-shaped members 13 opposite the ends of the drum, vertical connecting bars 14, horizontal bars 15, and a longitudinal brace 16 connecting the otherwise free ends of the bars 15. As shown in Fig. 1 the members 15 and 13 are connected by a brace or bracket 17 having an upward extension 18.

The drum 10 is substantially cylindrical in general configuration having circular ends 19 and 19' and between said ends being provided with longitudinal partitions or webs 20 whereby a plurality of pockets 21 are provided. As illustrated there are three of said pockets 21 extending throughout the length of the drum. A hopper 22, adapted to receive grain or other material to be handled from a threshing machine or any other suitable conveyer is supported upon the frame 12 in such a manner as to direct the material through the spout 22' thereof into the adjacent pocket 21. A trap door 23 is adapted to close said spout when it is desired to stop the flow of material from the hopper.

A scale beam 24 is pivoted at 25 to the ex-

tension 18 aforesaid and is provided with a finger 26 extending on the side of the pivot opposite that end of the scale beam which carries the adjustable weight 27. Said weight indicates the amount of material to be received at each charge or operation of the device in the usual manner and may be provided with a set screw 27' to hold it in adjusted position if desired. The end 19 of the drum carries as many studs 28, 28', and 28'' as there are pockets 21, said studs being adapted to engage said finger 26 successively. In the position indicated in Fig. 1 one of the pockets is supposed to be receiving material from the hopper 22, the stud 28 at such time being engaged by the finger 26. The pocket below the one receiving the material is supposed to be dumping its load through a discharge spout 29, and the third pocket having its mouth open as shown in Fig. 2 is awaiting its turn to be brought beneath the hopper 22 on the next operation. As soon as the desired weight of material is received into the pocket being loaded, such weight will cause the stud 28 to slide over the end of the finger 26, the scale beam 24 being lifted at such time. The web 20 at the upper side of said loaded pocket will then wipe against the bottom of the trap door 23 closing the same and holding it closed until the next pocket is reached, when the trap door will open permitting the flow of material into said next pocket.

The weight of the material which causes the rotation of the drum automatically would tend after such rotation is permitted by the finger 26 to cause the drum to rotate either too far or too rapidly and hence interfere with the proper discharge of material therefrom. To provide for a proper regulation of such rotation both as to speed and precision of stoppage there is provided a peculiar controller comprising a brake shoe 30 pivoted at 31 to the bracket 17. In the operation just described this stud 28 after leaving the finger 26 will wipe against the lower curved surface of the brake shoe 30, which surface is eccentric to the axis of rotation of the drum, said eccentricity being normally maintained by virtue of a spring 32 which bears against an abutment 33 of the frame at one end and against adjustable nuts 34 at its other ends, and said nuts are carried by a plunger 35 pivoted to the brake shoe. The purpose of said adjustment is to vary the control of the speed of rotation in

accordance with the different weights of materials operated upon. The free end of the brake shoe carries a hook 36 pivoted thereto at 37. The hook as indicated in Fig. 4 is slotted at 36' and straddles the lower end of the brake shoe. A connecting rod 38 is pivoted at 39 to the hook and serves normally to hold the hook in the position indicated in Fig. 1. A spring 40 surrounds the connecting rod 38 but is lighter than the aforesaid spring 32. The extreme free end of the brake shoe 30 is notched at 30' which receives the stud 28' at the time the stud 28 is being held by the finger 26. Pursuing the operation above begun when the stud 28 leaves the finger 26 and subsequently cooperates with the brake shoe to control the speed of rotation of the drum, the mass of material carried by the moving pocket will cause the said stud 28 to lift the brake shoe into the position indicated in Fig. 3 against the tension of the spring 32. At such time the spring 40 will insure that the hook 36 will be depressed into the path of said stud 28 to receive the same and thereby positively stop the rotation of the drum. The downward movement of the hook is limited by a shoulder 30^a of the brake shoe. Substantially coincident with the engagement of the stud 28 with the hook 36 the stud 28'' will impinge against the finger 26, the finger and its lever 24 being held in receiving position by the fact that the weight 27 would be supported by the bar 15 at such time. A spring 23' associated with the trap door 23 may be employed to cushion the impact of the drum therewith and to insure that the trap door will be held properly closed, when intended. After the hook 36 is struck by the stud there will be a slight reverse rotation or recoil of the apparatus due to the engagement of the stud 28'' with the finger 26, the momentum of the moving parts and the force of the spring 32 operating upon the shoe and hook. Such recoil is utilized to free the hook from the stud received thereby and permitting the shoe 30 to be restored to its normal position and for the stud to be received in the notch 30' thereof. Further direct rotation of the drum will now be prevented by the stud 28'' upon the finger 26 and the hook 36 will be withdrawn out of the path of the stud 28 so as to permit the subsequent rotation. The vertically extending web 30^b of the brake shoe cooperates with a slot 14' of the upright bar of the frame, whereby the brake shoe is held in a proper operative plane. It will be understood that the webs of the frame members will be so positioned and formed as to not prevent the rotation of

the drum in the manner above described. Any suitable indicating or registering means such as indicated at 41 may be employed in connection with this apparatus, such means being preferably connected to the central shaft 11 whereby the rotation thereof will be duly recorded.

Having thus set forth the preferred embodiment of this invention, but without desiring to be limited thereto except as required by the state of the art, what is claimed as new is:

1. In a device of the character set forth, the combination of a frame, a drum mounted to rotate in said frame and having a plurality of pockets, a scale beam pivoted on said frame, means carried by the drum to engage the scale beam, a controller pivoted on the frame and adapted to be engaged successively by the scale beam engaging means to regulate the rotation of the drum, and means for varying the effect of the controller.

2. In a device of the character set forth, the combination of a frame, a drum mounted to rotate therein and having a plurality of pockets, weight indicating means connected to the frame, a brake shoe pivoted to the frame eccentric to the axis of the drum, and a series of studs carried by the drum and adapted to successively engage the weight indicating means and said brake shoe for the purpose set forth.

3. In a device of the character described, the combination of a frame, a drum mounted to rotate therein and having a series of pockets to successively receive material, a weight indicator connected to the frame, a brake shoe pivoted to the frame, a series of studs carried by the drum to successively cooperate with the weight indicating means and said shoe, and means associated with the brake shoe to positively stop the rotation of the drum.

4. The combination of the frame, a drum mounted to rotate therein, a scale beam, a brake shoe connected to the frame, means carried by the drum to cooperate with the scale beam and brake shoe, adjustable means to vary the effect of the said engaging means with the shoe to frictionally control the rotation of the drum, and means connected to the shoe to positively stop said rotation of the drum.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT G. YERK.

Witnesses:

JOHN OLSON,

GUST. P. CARLSON.