(No Model.)

# J. W. KERSHAW, Jr.

## ROTATING GRAIN MEASURE.

No. 462,560. Patented Nov. 3, 1891.

*Fig. 1.*

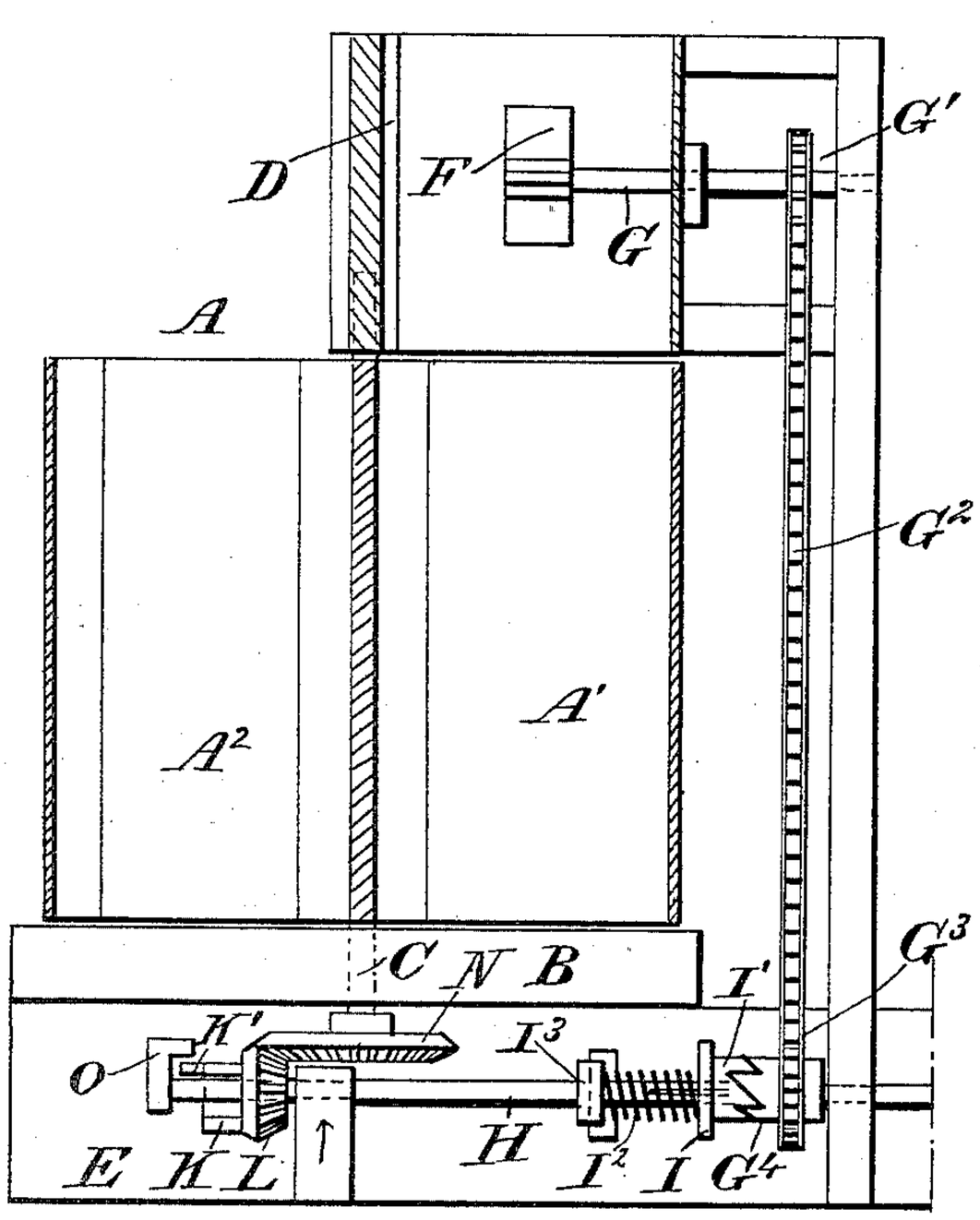



*Fig. 2.*

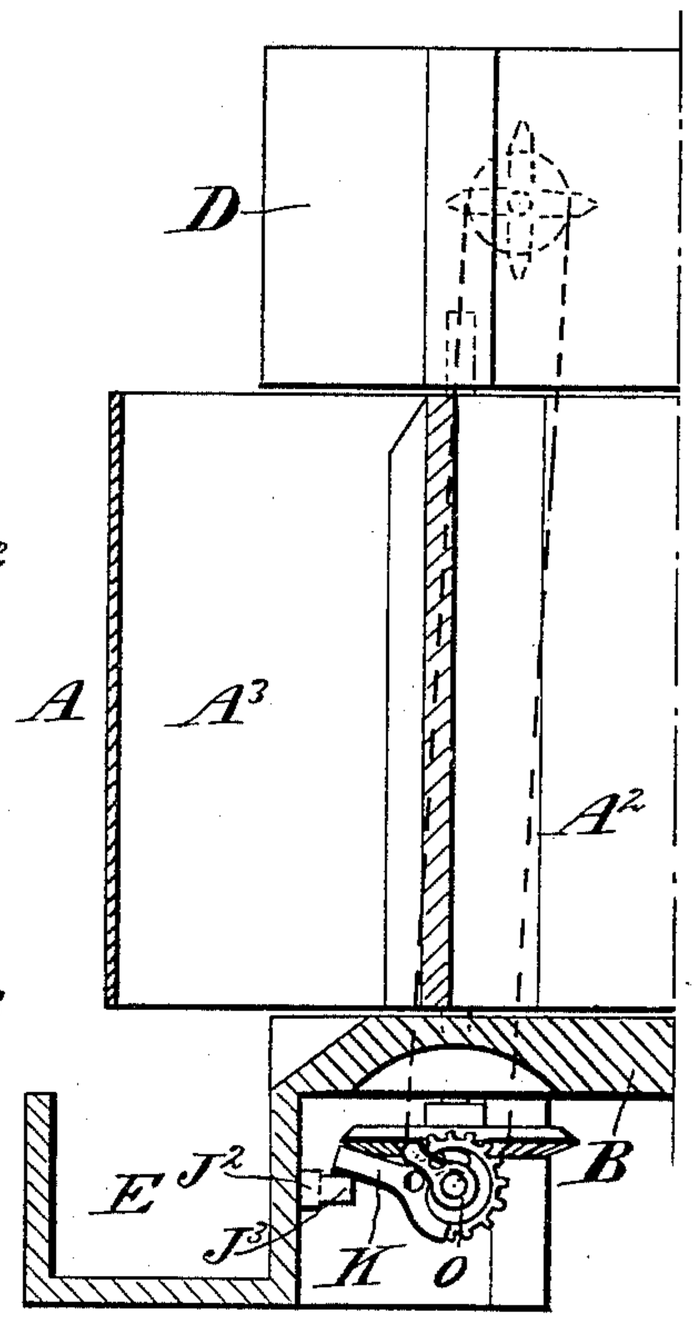



*Fig. 3.*

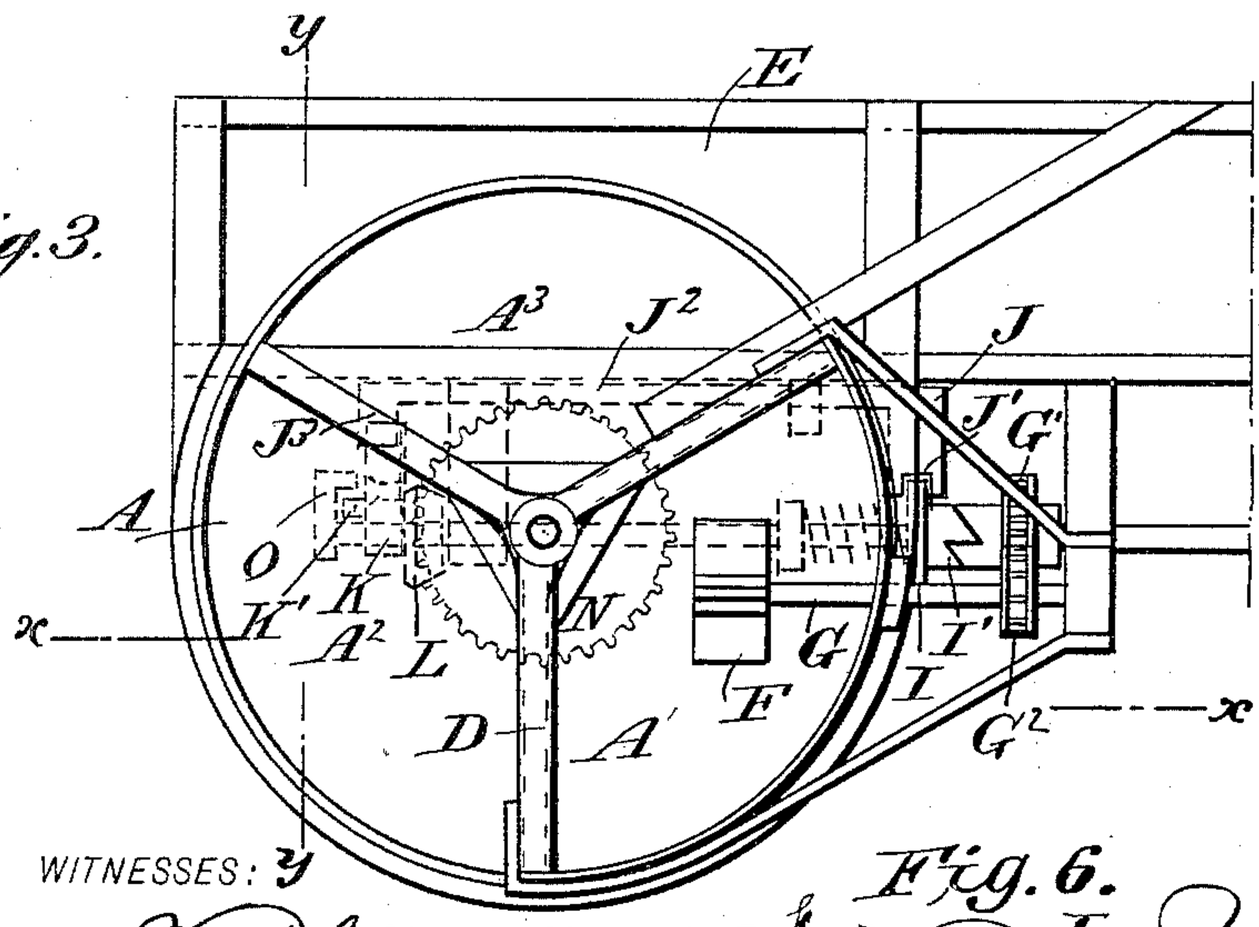



*Fig. 4.*

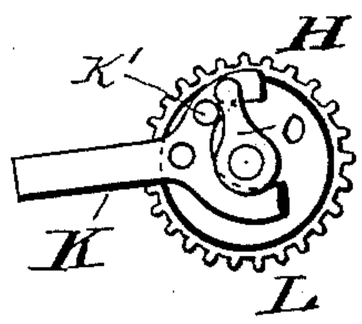



*Fig. 5.*

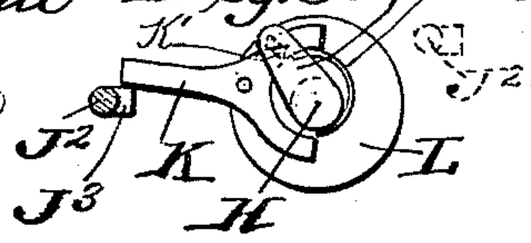
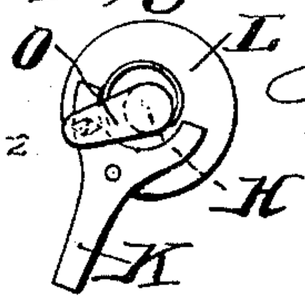



*Fig. 6.*

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# UNITED STATES PATENT OFFICE.

JOHN W. KERSHAW, JR., OF BURNSIDE, IOWA.

## ROTATING GRAIN-MEASURER.

SPECIFICATION forming part of Letters Patent No. 462,560, dated November 3, 1891.

Application filed April 2, 1891. Serial No. 387,360. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. KERSHAW, Jr., of Burnside, in the county of Webster and State of Iowa, have invented a new and Improved Grain-Measuring Machine, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved grain-measuring machine which is simple and durable in construction, very effective and automatic in operation, and more especially designed for use in connection with thrashing-machines to measure the grain as it leaves the latter.

The invention consists of a revoluble grain-receptacle having several compartments, of which one is adapted to be filled at a time while another is discharging, and a hopper discharging into the filling-compartments and provided with a wheel driven from a main shaft adapted to intermittently revolve the grain-receptacle.

The invention also consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement on the line *x x* of Fig. 3. Fig. 2 is a transverse section of the same on the line *y y* of Fig. 3. Fig. 3 is a plan view of the same, and Fig. 4 is an enlarged end view of the tripping device. Figs. 5 and 6 are details illustrating the operation of the trigger and trip-head.

The improved grain-measuring machine is provided with a grain-receptacle A, preferably made in cylindrical form, open at the top and bottom, and formed with two, three, or more compartments A′, A², and A³. The lower ends of the compartments are adapted to engage a bottom B, part of which is cut out for the purpose of discharging the grain from one of the compartments at a time.

The receptacle A is mounted on a shaft C, the lower end of which is journaled in the said fixed bottom B, while the upper end has its bearing in a hopper D, having its cross-section corresponding to the cross-section of one of the compartments A′, A², or A³ of the grain-receptacle A. The lower ends of the compartments A′, A², and A³ are adapted to discharge alternately into a trough E, arranged alongside the cut-out portion of the bottom B. (See Fig. 2.)

The grain to be measured is discharged into the hopper D from the thrashing-machine. Within the hopper D is held the rimless wheel F, secured on a shaft G, mounted to turn in suitable bearings and carrying a sprocket-wheel G′, over which passes a sprocket-chain G², also passing over a sprocket-wheel G³, mounted to turn loosely on a drive-shaft H, held to rotate continuously in suitable bearings secured to one side of the trough E, previously mentioned. The shaft H has a sprocket H′ or other gear adapted to be drawn from any suitable source of power. One face of the sprocket-wheel G³ is formed with clutch-teeth G⁴, adapted to be engaged by clutch-teeth I′, held on a wheel I, mounted to turn with and to slide on the shaft H. A spring I² presses against the face of the wheel I, so as to hold the clutch-teeth I′ in contact with the clutch-teeth G⁴ to rotate the sprocket-wheel G³ when the shaft H is rotated. The spring I² is preferably coiled on the shaft H and rests with its outer end on a collar I³, secured on the said shaft. The tension of the spring I² is such that when the shaft H is rotated the wheel I, with its clutch-teeth I′ engaging the clutch-teeth G⁴, rotates the sprocket-wheel G³, so as to impart movement to the chain G² to revolve the sprocket-wheel G′, the shaft G, and the wheel F. Now when the motion of the latter is interrupted by accumulating grain, as hereinafter more fully described, and the sprocket-wheel G³ is held stationary, on the further rotation of the shaft H the clutch-teeth I′ glide over the clutch-teeth G⁴, so that the wheel I is moved to the left against the tension of the spring I². The rim of the wheel I engages a groove J′, formed in a lug J, secured on a rod J², mounted to slide longitudinally in suitable bearings on one side of the trough E. On this rod J² is formed a second lug J³, adapted to engage a spring-pressed yielding trigger K, pivoted on one face of a gear-wheel L, held loosely on the shaft H and meshing into a bevel gear-wheel N, secured on the lower end of the shaft C of the grain-receptacle A. The trigger K is provided with a lug K′ in the path of a projection on a trip-

head O, secured on the shaft H to turn therewith, so that when the trigger K is released by the lug $J^3$ the said trip-head O turns the trigger K once around. As the trigger K is fastened to the gear-wheel L, the latter is rotated and by meshing into the gear-wheel N causes a rotation of the receptacle A corresponding to one-third of its circumference, so that the respective compartments A′, $A^2$, and $A^3$ change position. When the trigger-lug K′ engages the trip projection, however, prior to the release of the trigger by the lug $J^3$, the trigger K will yield against the action of its spring *k* and permit the rotation of the drive-shaft and its trip-head without rotating it until said lug $J^3$ is moved away from the trigger, in which case the trigger-spring *k* will hold it against yielding and with sufficient force to permit the trip-head to rotate the trigger, the other parts being operated by it.

The operation is as follows: When the device is in the position illustrated in Fig. 1, the receptacle A′ is under the hopper D, and the grain passing into the latter from the thrashing-machine accumulates in the said compartment A′, fills the same, and also accumulates in the hopper D to finally engage the revolving wheel F, so that the latter is stopped, which causes the stopping of the sprocket-wheel $G^3$ and a consequent sidewise sliding of the wheel I, as previously described. The sliding movement of the wheel I on the shaft H shifts the bar or rod $J^2$, so that the trigger K is released, and the trip-head O revolves the trigger K once, whereby the receptacle A is turned and the compartment A′ takes the position which the compartment $A^2$ had previously had. It will of course be understood that the drive-shaft rotates a number of times while the receptacle is being filled, and that during this time the trigger yields whenever its projection is struck by the trip-head, so as not to rotate the hopper D until a receptacle has been filled. The trip-head O will carry the trigger around with it until the lug $J^3$ is brought back into position by the spring $I^2$, and then the trigger will yield to the trip-head projection until the lug $J^3$ is again moved from under it. In case the compartment $A^2$ had previously been filled it would now discharge into the trough E as the said compartment $A^2$ moves over the trough E. The compartment $A^3$, by the revolving of the grain-receptacle A, moves under the hopper D to be filled by the incoming grain in the manner above described. The operation is then repeated.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a grain-measuring machine, the combination, with a revoluble grain-receptacle having several compartments, of which one is adapted to be filled at a time while another one discharges, of a hopper discharging into the filling-compartments of the said receptacle, a wheel held in the said hopper and adapted to be stopped by the accumulating grain, and a main driving-shaft adapted to revolve the said wheel and also adapted to impart an intermittent motion to the grain-receptacle, substantially as shown and described.

2. In a grain-measuring machine, the combination, with a revoluble grain-receptacle having several compartments, of which one is adapted to be filled at a time while another one discharges, of a hopper discharging into the filling-compartments of the said receptacle, a wheel held in the said hopper and adapted to be stopped by the accumulating grain, a main driving-shaft adapted to revolve the said wheel, and also adapted to impart an intermittent motion to the grain-receptacle, and intermediate mechanism for loosely connecting the said wheel in the hopper with the said main driving-shaft, substantially as shown and described.

3. In a grain-measuring machine, the combination, with a grain-receptacle mounted to revolve and formed with several compartments, of which one is adapted to be filled while another is discharged, of a gear-wheel held on the shaft of the said grain-receptacle, a pinion in mesh with the said gear-wheel and provided with a trigger, a main driving-shaft on which the said pinion is mounted to rotate loosely, and a trip-head held on the said main driving-shaft and adapted to connect with the trigger on the said pinion, substantially as shown and described.

4. In a grain-measuring machine, the combination, with a grain-receptacle mounted to revolve and formed with several compartments, of which one is adapted to be filled while another is discharged, of a gear-wheel held on the shaft of the said grain-receptacle, a pinion in mesh with the said gear-wheel and provided with a trigger, a main driving-shaft on which the said pinion is mounted to rotate loosely, a trip-head held on the said main driving-shaft and adapted to connect with the trigger on the said pinion, a bar having projections and adapted to lock or unlock the said trigger, a spring-pressed wheel held to slide on and to rotate with the said main driving-shaft, the said wheel being adapted to actuate the said bar, a sprocket-wheel mounted to rotate loosely on the said main shaft and provided with clutch-teeth adapted to be engaged by clutch-teeth on the said wheel, a second shaft carrying a sprocket-wheel connected by a chain with the said first-named sprocket-wheel, a rimless wheel held on the said second shaft, and a hopper in which is held the said rimless wheel and which is adapted to register with one of the said compartments of the grain-receptacle, substantially as shown and described.

JOHN W. KERSHAW, JR.

Witnesses:
JOHN R. CONKLIN,
JOHN HAMMERLY.