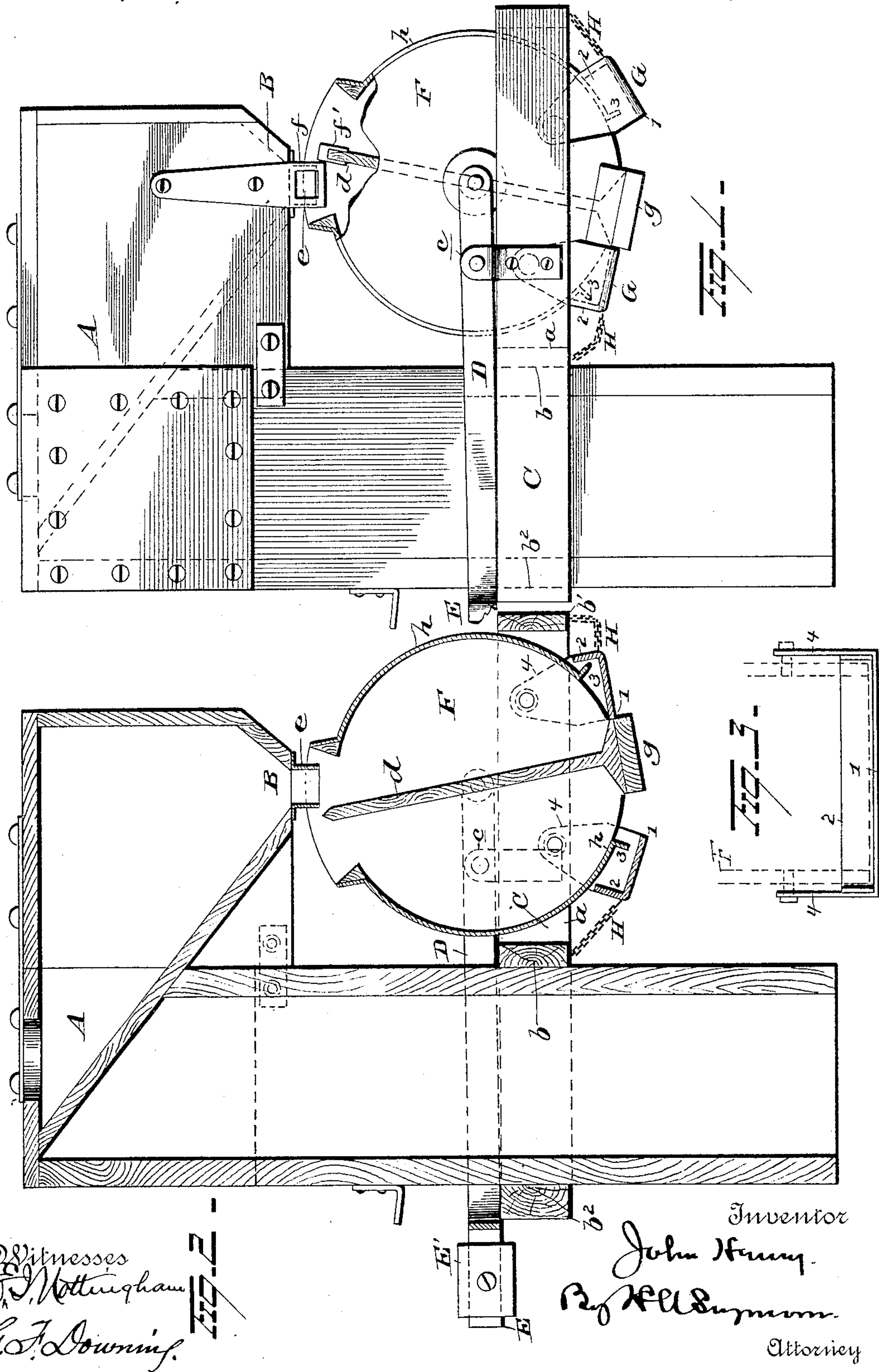


(No Model.)

J. HENRY.
GRAIN METER.

No. 462,006.

Patented Oct. 27, 1891.



UNITED STATES PATENT OFFICE.

JOHN HENRY, OF ARDOCH, NORTH DAKOTA.

GRAIN-METER.

SPECIFICATION forming part of Letters Patent No. 462,006, dated October 27, 1891.

Application filed January 8, 1891. Serial No. 377,117. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY, of Ardoch, in the county of Walsh and State of North Dakota, have invented certain new and useful
5 Improvements in Grain-Meters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to an improvement in grain-meters, and more particularly to such as are adapted to be used in connection with thrashing-machines.

Heretofore in the construction of grain-meters it has been customary to employ a number of pieces pivotally joined together for the purpose of operating the valves. In such cases the valves must open and close in exact proportion to the turning or tilting of the hopper, so that when the valves are closed the hopper can turn no farther and the hopper must turn just that far or the valves would not close. This necessitates a very accurate adjustment of the parts, and is very liable to
25 get out of repair when subjected to rough usage, as they are when used on thrashing-machines.

It is the object of my invention to obviate these objections and to produce a grain-meter
30 which shall be of simple construction, comprising a small number of operating parts, one which shall be comparatively cheap to manufacture, and which shall be effectual in the performance of its functions.

35 A further object is to provide the hopper of a grain-meter with valves adapted to be automatically operated without the use of supplemental rods and levers.

With these objects in view the invention
40 consists in the combination, with a frame, of a hopper mounted therein to vibrate, valves connected to said hopper, and flexible connections between said valves and the frame; and the invention also consists in certain
45 novel features of construction and combinations and arrangements of parts, as herein-after set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of my improved device. Fig. 2
50 is a sectional view on the line xx of Fig. 1. Fig. 3 is an elevation of one of the valves.

A represents the grain-chute of a thrashing-machine, and B the outlet thereof. Secured to the chute A below the outlet B is a frame C, comprising side bars $a a$ and cross-bars $b b' b^2$. Secured to the side bars $a a$ of the frame C are brackets c , in which a yoke or frame D is mounted, said yoke or frame being adapted to extend rearwardly from its pivotal connection with the frame C and terminates in an arm or scale-beam E, on which a weight E' is adjustably mounted. Pivotal-ly supported in the forward ends of the yoke or frame D is a hopper F, divided centrally into two compartments by a partition d .
65 The outlet B of the chute A is provided with a spout e , adapted to project alternately slightly into the compartments of the hopper, and secured to the side of the outlet B is a stop f , adapted to project slightly into the
70 hopper and engage a metallic stop f' on the upper edge of the partition d , for a purpose presently explained.

Secured to the bottom of the hopper and adapted to project at each side of the parti-
75 tion d is a plate g , between which and the curved (preferably metallic) sides h of the hopper-spaces are left, through which the grain may be discharged. Each of these openings is provided with a valve G, which is
80 made in the form shown in Fig. 3—that is to say, each of said valves comprises a piece of metal or other suitable material having a portion 1, adapted to lie flush with the edge of the plate g when the valve is closed, a flange
85 2, adapted to engage a flange 3 at the lower ends of the curved sides h of the hopper, and ears 4, by means of which it is pivotally connected to the flat sides of the hopper. The valves G are preferably made somewhat
90 longer than the hopper is wide, so that the grain will not be liable to be secreted between the sides of the hopper and the ears 4, and thus cause the valves to bind.

The valves G are connected with the cross-
95 bars $b b'$, respectively, by means of a cord or chain H, said cords or chain H being of such length that when the spout e is in communication with one of the compartments of the hopper the valve of the other compartment
100 of the hopper will be held open by said cord or chain.

Assuming now that the hopper is in the position shown in the drawings and the weight E' adjusted on the scale-beam to the desired amount of grain to be discharged, the stop *f* will engage one side of the stop *f'*. When a sufficient amount of grain has entered the hopper to overbalance the weight E', the hopper will descend and the weight of the grain will cause it to turn and bring the other compartment into communication with the spout *e*. The valve G of the compartment just filled being connected with the cross-bar of the frame, it will be held when the hopper turns, and thus the valve will be opened, and simultaneously the other valve G will be automatically closed by its own weight. After the grain has been discharged from the first compartment the hopper will again rise and the stop *f* will engage the other side of the stop *f'*. From this construction of the valves it will be seen that the hopper in turning may move more or less than is just sufficient to open or close the valves without liability of affecting the accurate operation of said valves. Slight changes might be made in the details of construction of my invention, without departing from the spirit thereof or limiting its scope. Hence I do not wish to restrict myself to the precise details of construction herein set forth; but,

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

1. The combination, with a frame, of a vibratory hopper, valves for opening and closing the hopper, and flexible connections extending from the valves to the frame and adapted to limit the drop of the valves when the hopper vibrates, substantially as set forth.

2. The combination, with a frame and scale-beam fulcrumed thereon, of a hopper pivotally supported on the beam to one side of its fulcrum, and valve for automatically opening and closing the hopper as it vibrates, substantially as set forth.

3. The combination, with a frame, of a hopper mounted therein to vibrate, valves connected to said hopper, flexible connections between the valves and frame, flanges on said hopper, and flanges on the valves to engage said flanges on the hopper, substantially as set forth.

4. The combination, with a chute and a frame, of a hopper in said frame and adapted to vibrate, said hopper being divided into two compartments, a valve pivoted to the hopper for each compartment, flexible connections between said valves and the frame, and a stop on the chute and adapted to retain one of said compartments of the hopper at a time in communication with the spout of the chute, substantially as set forth.

5. The combination, with a frame, of a hopper mounted therein to vibrate, valves connected to said hopper, flexible connections between the valves and frame, said valves being provided with flanges to engage flanges on the hopper, and made somewhat longer than the hopper is wide, substantially as set forth.

6. The combination, with a chute, of a frame secured thereto, a yoke pivotally supported in said frame and having a weighted arm, a hopper mounted in the free ends of said yoke and within the frame, a partition dividing said hopper into two compartments, a valve for each compartment, a cord or chain connecting each valve with the frame, and a stop secured to the chute and adapted to maintain one of said compartments at a time in communication with the outlet of the chute, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN HENRY.

Witnesses:

W. T. SHEPPARD,
C. T. GORDON.