(Model.)

J. NAFZIGER.

GRAIN MEASURING MACHINE.

No. 292,346. Patented Jan. 22, 1884.

Fig 1

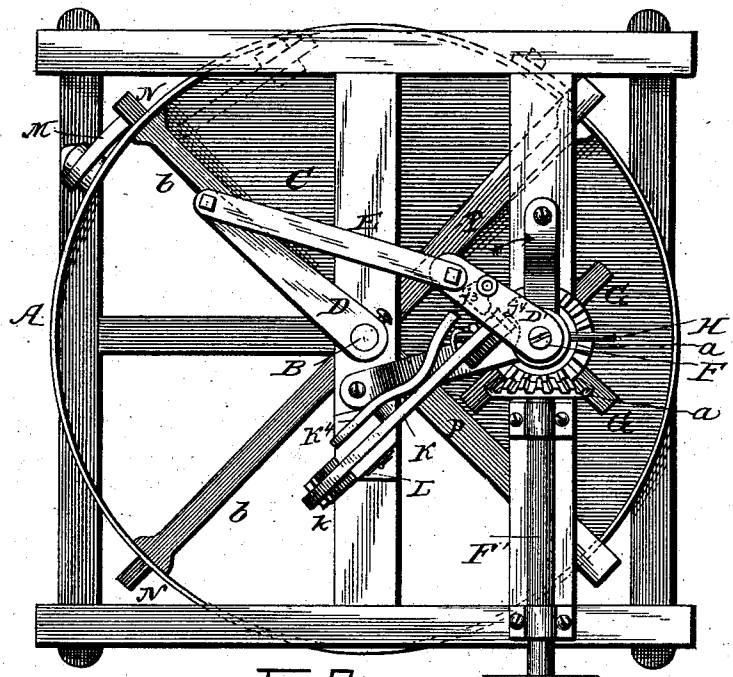


Fig 2

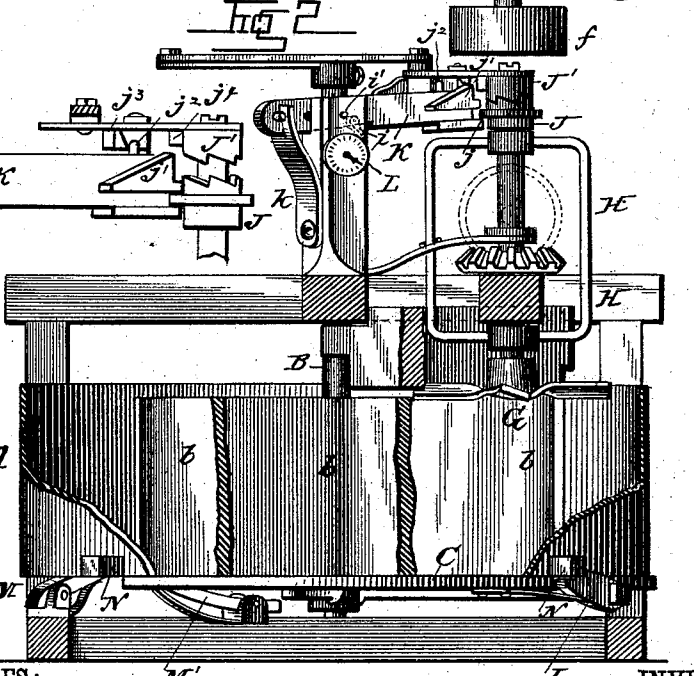
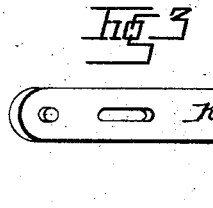


Fig 3



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UNITED STATES PATENT OFFICE.

JOSEPH NAFZIGER, OF HOPEDALE, ILLINOIS.

GRAIN-MEASURING MACHINE.

SPECIFICATION forming part of Letters Patent No. 292,346, dated January 22, 1884.

Application filed May 29, 1883. (Model.)

To all whom it may concern:

Be it known that I, JOSEPH NAFZIGER, a citizen of the United States, residing at Hopedale, in the county of Tazewell and State of Illinois, have invented a new and Improved Grain-Measuring Machine, of which the following is a full, clear, and exact description.

My invention relates to a measuring device for grain adapted to be attached to and operated from the separator of a thrashing-machine, for automatically measuring the grain as it is thrashed; and the invention consists in the peculiar construction and arrangement of the parts, as hereinafter more fully set forth, and 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 like parts in all the figures.

Figure 1 is a plan view of my automatic grain-measuring machine. Fig. 2 is a broken side elevation of the same, and Fig. 3 is a detail view of the clutch mechanism.

The bottomless cylindrical measure A is placed loosely upon the rotary reciprocating shaft B, and is divided into four equal measuring-compartments by the radial partitions *b b*.

C is a semicircular board, secured rigidly to the shaft B, under the cylindrical measure A, and forms a floor for two of the compartments at a time, shifting with each intermittent rotary reciprocating movement through one quarter of a complete revolution, as the compartments of the measure A become successively filled with grain, by means of the crank D, secured to its upper end, shorter clutch-lever D′, pivoted upon the upper end of the vertical shaft F, connecting-rod E, beveled cog-wheels *a a*, drive-shaft F′, vertically-movable bladed wheel G, feathered to the lower end of the shaft F, yoke H, and vertically-movable clutch J, feathered to the shaft F just below the clutch-lever D′.

L is a spring-actuated pawl pivoted to the semicircular bottom board, C, adapted to engage successively with the four studs N N on the cylindrical measure A, as illustrated clearly in Fig. 2; and M M′ are two oppositely-arranged spring-actuated stops pivoted to the frame of the machine, the former for holding the measure from backward movement, the latter for stopping it at the proper point and holding it there while the board C is being moved back to place. The board C, in being brought back to place, rides upon the stop M′ as it nears the limit of its backward motion, and depresses it, leaving the measure A free to be moved forward again by the pawl L with the next movement of the shaft B and board C.

To insure positive disengagement of the clutch J from the clutch J′ of the clutch-lever D′ at the proper time, I employ the lever K, which is notched to receive the flange *j* of the clutch J, and is provided with a cam, *j′*, and lug j^2, and provide the clutch-lever D′ with cams j^3 and j^4, which, in connection with the curved bar K′, secured to the support of the bar K, causes the said bar K to be first moved forward upon the pin *i′* to engage the rim *j*, then downward, forcing the clutch J downward just at the time the clutch-lever completes each revolution, thus causing it, the measure A, and board C to remain at rest. When the cam j^4 of the arm D′ shall have passed the lever K, the spring *k* will then draw the lever back to its original position, releasing the rim *j*, and thus leaving the wheel G free to be raised again by the grain in the next compartment. The downward movement of the lever K also serves, through the medium of the pawl *i*, to operate the dial-plate I for registering the measures of grain. The measuring-machine will be attached to the thrashing-machine separator, so that the grain will empty from a suitable spout into that compartment of the bottomless measure A immediately under the bladed wheel G, and the drive-shaft F will receive slow continuous rotary motion from a belt passing over the pulley *f*, attached to the end of said shaft.

The machine being thus arranged, its operation will be as follows: The compartment of the measure A that happens to be under the bladed wheel G being empty, this wheel and the clutch J will stand at their lowest points on the shaft F, and, being feathered thereto, will of course revolve continuously with it, while the other parts of the machine remain at rest. The grain now filling into the measuring-compartment, upon reaching the top thereof the wheel G will run in contact with the grain, which will lift the wheel on the

shaft F and cause the yoke H to lift the clutch J into engagement with the clutch J′ of the clutch-lever D′, causing the same to revolve in the direction of the arrow in Fig. 1. The first half of the revolution of this lever will draw the crank D, shaft B, board C, and measure A forward through one-quarter of a revolution, carrying the full compartment of the measure from under the spout, and bringing an empty one in proper position under it to receive the grain from the spout, the measure being properly stopped in its revolution by the dog M′ and held from backward movement by the dog M. The measure being thus held by the stop M, the revolution of the lever D′ continuing, the crank D, shaft B, and board C will be moved backward, independent of the measure A, to their original position, emptying the full compartment, depressing the stop M′. and causing the pawl L to engage with the succeeding stud N. Simultaneously with the board C reaching the limit of its backward movement, the cam j^3 of the clutch-lever D′, coming between the lug j^2 and the curved bar K′, will cause the bar K to be moved forward to cause its notch to receive the flange j of the clutch J, and by the further revolution of the clutch-lever D′ its cam j^4 will act upon the cam j' of the lever K and depress the same, which movement and depression will move the register and move the clutch J and wheel G downward on the shaft F, thus putting the clutch-lever D′ at rest to await the filling of the compartment now receiving the grain, when the operation will be repeated, and so on throughout the run.

P is a board held in the frame of the machine, in front of the wheel G, which serves to strip the grain, as the measure A revolves, from the full compartment into the next empty compartment, so that the measuring will be accurate, and so that no grain to speak of will be wasted, and thus making the measure perfectly practical and entirely automatic.

Instead of using the dial shown for registering the grain and adapting it to be operated by the lever K, any other desired form of register may be used and operated from any desired part of the machine.

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

1. In a measuring-machine, the compartment-measure A and board C, in combination with means, substantially as described, for intermittently revolving the measure and intermittently reciprocating the board, as and for the purposes described.

2. The wheel G and clutch J, adapted to be raised on the shaft F by the grain in the measure, in combination with the clutch-lever D′, connecting-rod E, arm D, shaft B, measure A, and board or disk C, substantially as and for the purposes set forth.

3. The clutch-lever D′, formed with the cams j^3 and j^4, in combination with the lever K, clutch J, the bar K, and wheel G, the lever being notched and provided with cams, and the clutch formed with the rim j, substantially as and for the purposes set forth.

4. The continuously-revolving shaft F, in combination with the wheel G and clutch J, adapted to slide on the shaft, for imparting intermittent rotary motion to the clutch-arm D′ for operating the measure A and board C, substantially as described.

5. The combination, with the intermittently-revolving arm D′, formed with the cams j^3 and j^4, of the lever K and register I, substantially as and for the purposes set forth.

6. The intermittently-revolving measure A, formed with the studs N N, in combination with the stops M M′ and rotary reciprocating board C, provided with the pawl L, substantially as and for the purposes set forth.

7. The rotary reciprocating board C, provided with the pawl L, and placed under the measure A, in combination with the said measure and the stops M M′, substantially as and for the purposes set forth.

JOSEPH NAFZIGER.

Witnesses:
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