

M. K. & F. S. LEWIS.
AUTOMATIC GRAIN WEIGHER.

No. 344,663.

Patented June 29, 1886.

Fig. 1.

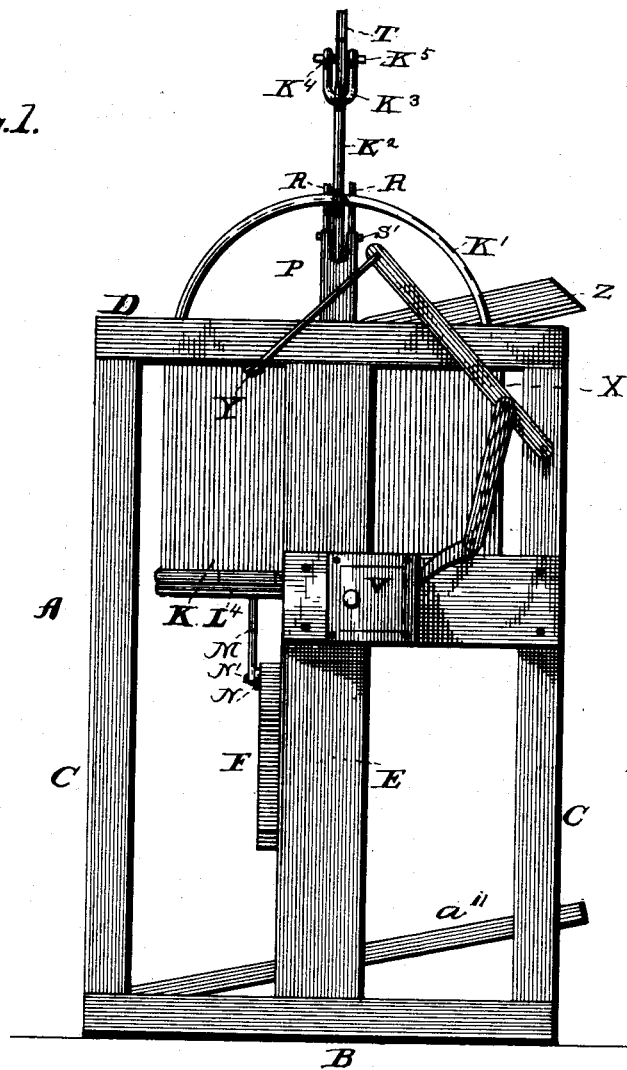
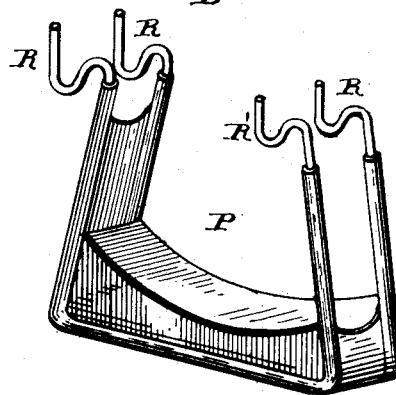


Fig. 2.



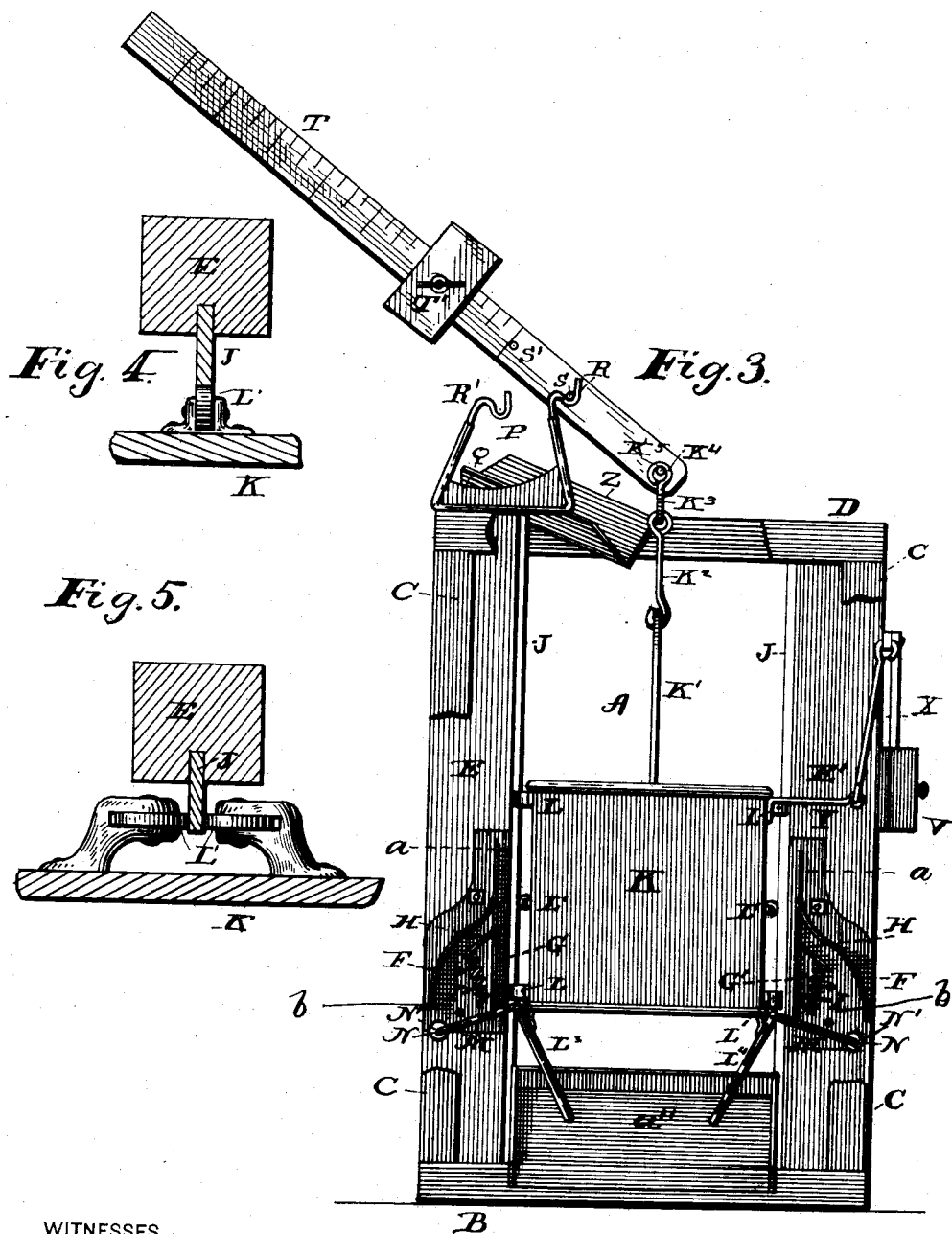
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UNITED STATES PATENT OFFICE.

MILES K. LEWIS AND FRANCIS S. LEWIS, OF HASTINGS, NEBRASKA.

AUTOMATIC GRAIN-WEIGHER.

SPECIFICATION forming part of Letters Patent No. 344,663, dated June 29, 1886.

Application filed August 20, 1885. Serial No. 174,869. (No model.)

To all whom it may concern:

Be it known that we, MILES K. LEWIS and FRANCIS S. LEWIS, citizens of the United States, residing at Hastings, in the county of Adams and State of Nebraska, have invented certain new and useful Improvements in Grain Weighers and Loaders; and we do 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a representation of side elevation of our device. Fig. 2 is a perspective view of the fulcrum P removed from the main frame. Fig. 3 is a side view of the device complete with the car in a dumping position with two of the corner-posts broken away; and Figs. 4 and 5 are sectional detail views.

This invention has relation to grain weighers and loaders; and it consists in the construction, novel arrangement, and adaptation of devices, as will be hereinafter more fully set forth and claimed.

In the accompanying drawings, A indicates the main frame of the machine, which is composed of a suitable base, B, and four corner-uprights, C, which are connected by girders D.

E E are two opposite vertical posts, firmly secured to the main frame and carry the car locking and tripping mechanism. These posts are wider than the corner-posts and extend inward beyond them, as shown.

K indicates a car having lateral guide-eyes or loops L, and J J are vertically and oppositely arranged guide-rods for the said eyes of the car. The same side of the car that carries the guide-eyes may also be provided with friction-rollers, as L', engaging the said vertical guide-rods or the vertical posts E E.

The car or receptacle K is provided with a drop-bottom composed of two hinged sections, L² L⁴, the hinge-connection being at their outer longitudinal edges, and from such edges extend at a little greater than a right angle arms M M, carrying at their outer ends friction-rollers N. One side of each vertical post E is provided near its inner edge with a fixed

vertical flange, G, the lower edges of which stop at or about the bottom of the car when at its lowest or discharging point. Above the upper end of these flanges and coincident therewith are fixed vertical flanges a a, which are carried outward and downward from their lower ends to or about the lower ends of the flanges G, leaving a short interval between the upper ends of the said flanges, and a lateral or vertical interspace, b, between the same. To the upper ends of the flanges G are hinged short strips H, which engage by their upper ends the inner curved sides of the flanges a, and in such position form with the flanges G and a continuous vertical flange, by which the rollers of the drop-doors of the carriage are engaged in their downward movement and the said doors held in a closed position. These rollers engage the inner side of the curved flange F during the upward movement of the car which serve to close the doors of the car.

The hinge-strips H are provided with angular extensions, as shown, and are connected with the said posts E by means of spiral or other suitable springs to hold the upper edge of the strip H against the curved flange F and at the base of the vertical branches a.

P indicates a fulcrum which is of a peculiar construction, and is arranged on the top of the main frame and above one of the vertical posts E. This fulcrum is provided with two inner vertical bearings, R R, the forward or inner ones of which are slightly above the outer stop-bearings, R' R', for a purpose that will be presently explained.

T indicates the scale-beam, which serves the additional function of operating the car. This scale-beam is graduated and provided with a slide weight or pea, T', which carries a set-screw for securing the same to the beam at any desired point thereon. This beam is also provided near its inner end with two lateral fulcrum-pins, S S, and two similar stop-pins, S' S', which are designed to bear in the brackets or branches R and R' during operation, and the inner end of the beam is connected to the bail K' of the car by means of the links K² and K³.

At one side of the main frame we provide a register, V, which may consist of a train of wheels of any ordinary construction inclosed in a suitable case and having a lever, X, pro-

jecting at one end of said case in a position to be engaged by the arm Y on the car when the latter has been elevated to the proper height, so that the register may be operated at each ascent of the car.

Z indicates an inclined chute arranged on the top of the main frame and in a position to discharge the grain into the car as it is received from an elevator or other source.

a" indicates an inclined chute or pan, which is arranged in the bottom of the main frame, and is designed to receive the grain as it is discharged from the car and convey the same to any suitable receptacle.

This device is designed to work automatically, and the operation is as follows: The car, when empty, by the weight of the sliding pea on the scale-beam will be held at the upper portion of the main frame with the drop-doors closed, as shown in Fig. 1 of the drawings, and in this position the outer or stop pins of the said beam will rest in the outer bearings, R'. The grain being now let into the car from the chute Z, the inner end of the beam will be brought down by the car, when the friction-rollers N of the arms M will travel down against the inner faces of the vertical flanges on the posts E E until they reach the lower end of the lower flange-section, G, when they will throw outwardly and allow the doors to fall open and consequently discharge the grain from the car. In this position of the car (see Fig. 3) it will be observed that the friction-rollers on the arms M of the doors L³ L⁴ are in a position to engage the inner sides of the curved flanges F when the car is elevated, which is effected by the weight of the scale-pea, and when the said rollers reach the upper end of the curved portion of these flanges F they engage the upper ends of the short hinged strips H and press them inward until they pass on to the inner faces of the flanges a, when the doors of the car will have been closed and held so until the rollers again reach the lower ends of the flanges G, when the operation will be repeated. When the car is raised, as before described, it will be seen that the outer or stop pins of the scale-beam will rest in the outer or stop brackets, R', and remain in such position until the proper quantity of grain has been

weighed and deposited in the car. The fulcrum-point will then be transmitted to the inner brackets, R, and the inner or fulcrum pins of the lever during the descending and ascending movements of the car. It will also be seen that by the employment of the additional or stop bearings R', the car will be prevented from a too harsh and rapid upward movement, as the said bearings will serve as a check or means of retarding the downward motion of the outer end of the scale-beam, and consequently lessen the throw of the said beam.

Having described this invention, what we claim is—

1. A grain weighing and loading machine having a traveling carriage provided with a sectional hinged bottom, arms secured to the sections carrying friction-rollers, and a curved flange and a straight flange secured to a vertical member, so as to be engaged by the said rollers to automatically open and close the doors of the car when the latter ascends and descends, substantially as specified.

2. In a grain-weighing machine, the combination, with the vertical posts E E, of the curved flanges F, the straight flanges G, the hinged spring-actuated strip H, and the vertically-traveling car, having the hinged bottom and the arms secured to the said bottom and carrying friction-rollers at their outer ends, substantially as specified.

3. In a grain-weighing machine, the combination, with the main frame, of the traveling car, the scale-beam connected with the said car and provided with the fulcrum-pins S and the stop-pins S', and the bracket having the vertical fulcrum branches R and the stop branches R', all adapted to operate substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

MILES K. LEWIS.
FRANCIS S. LEWIS.

Witnesses for M. K. Lewis:

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L. B. PALMER,
S. M. WRIGHT.