

(No Model.)

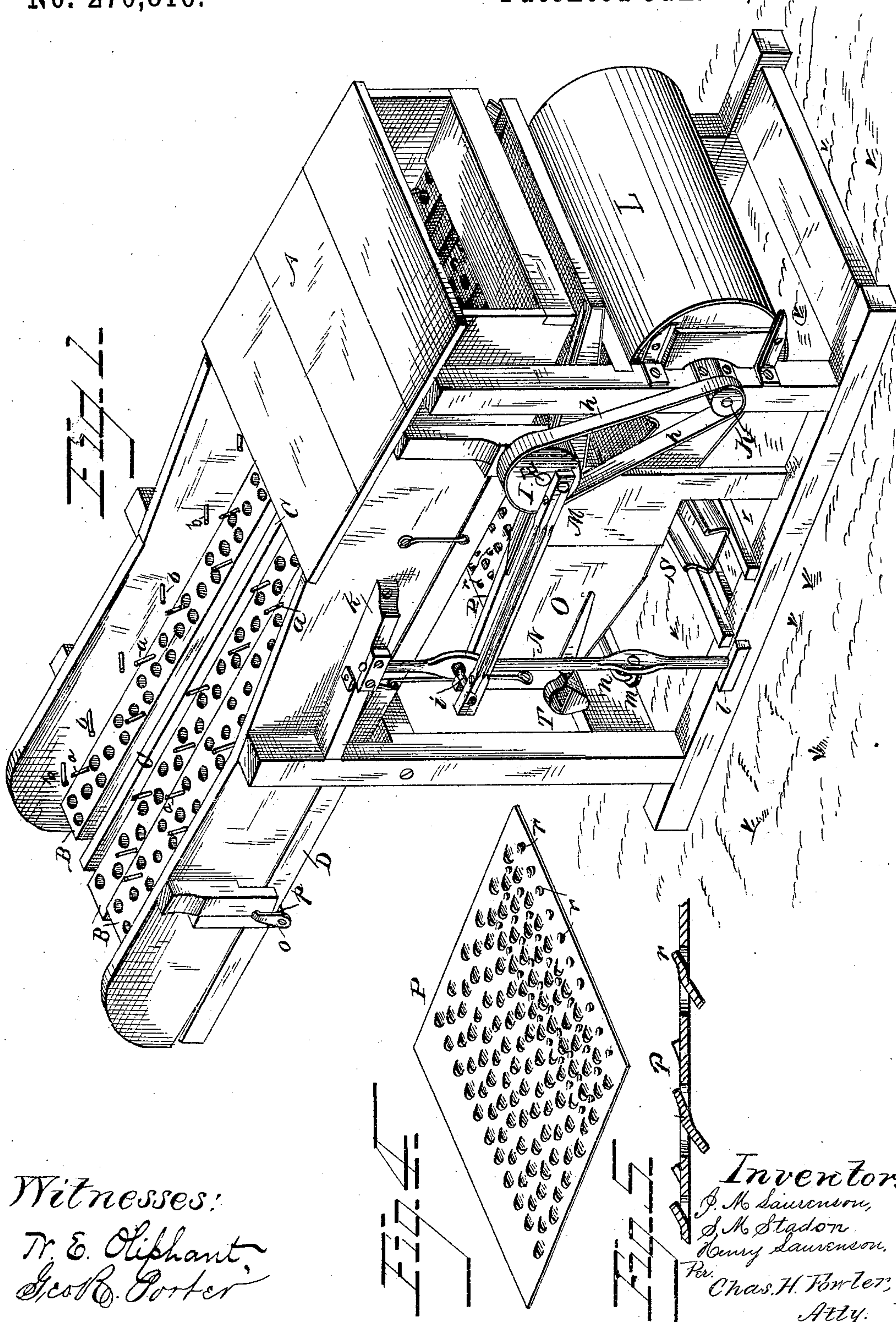
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J. M. LAURENSEN, S. M. STADON & H. LAURENSEN.

GRAIN SEPARATOR AND CLEANER.

No. 270,816.

Patented Jan. 16, 1883.



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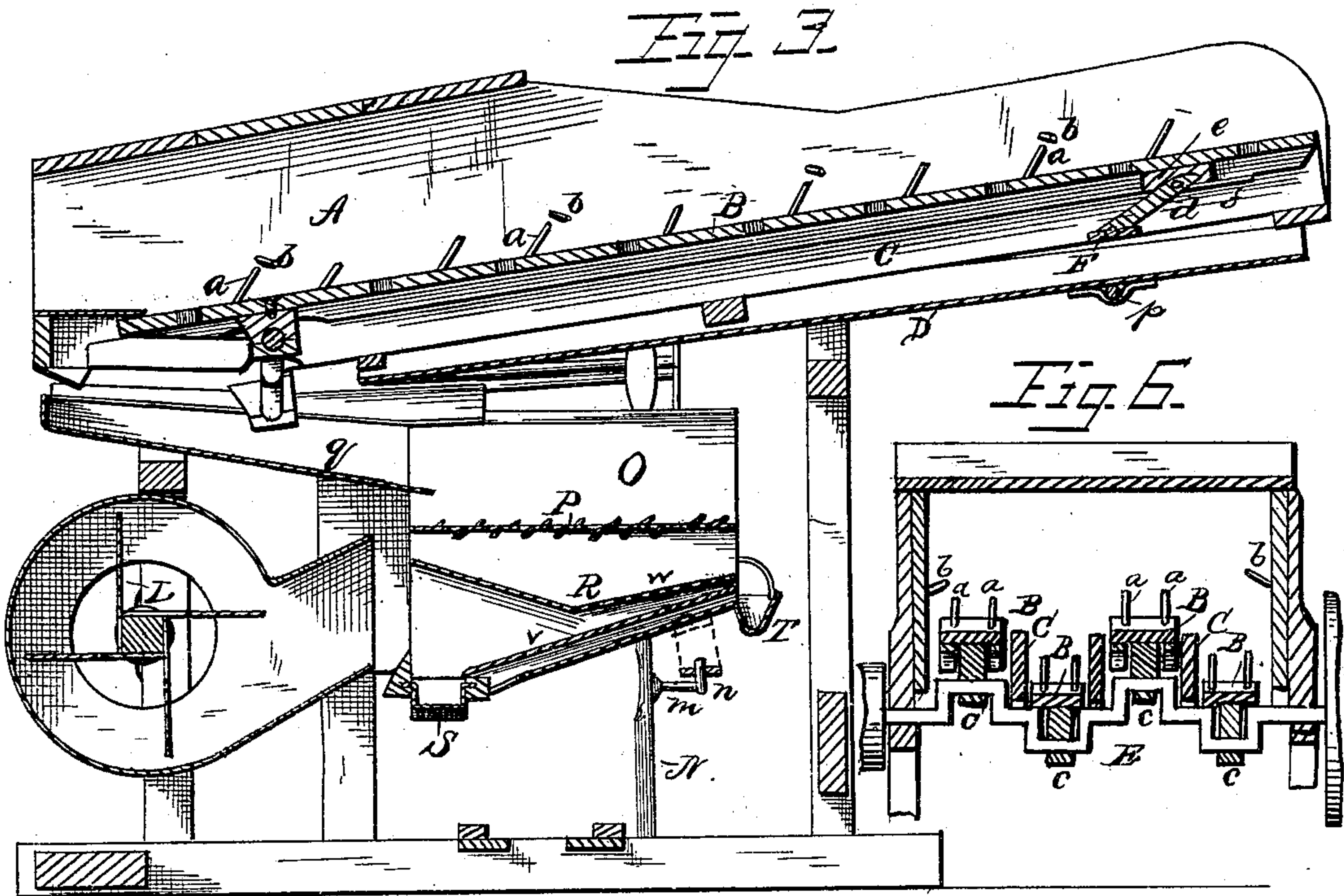
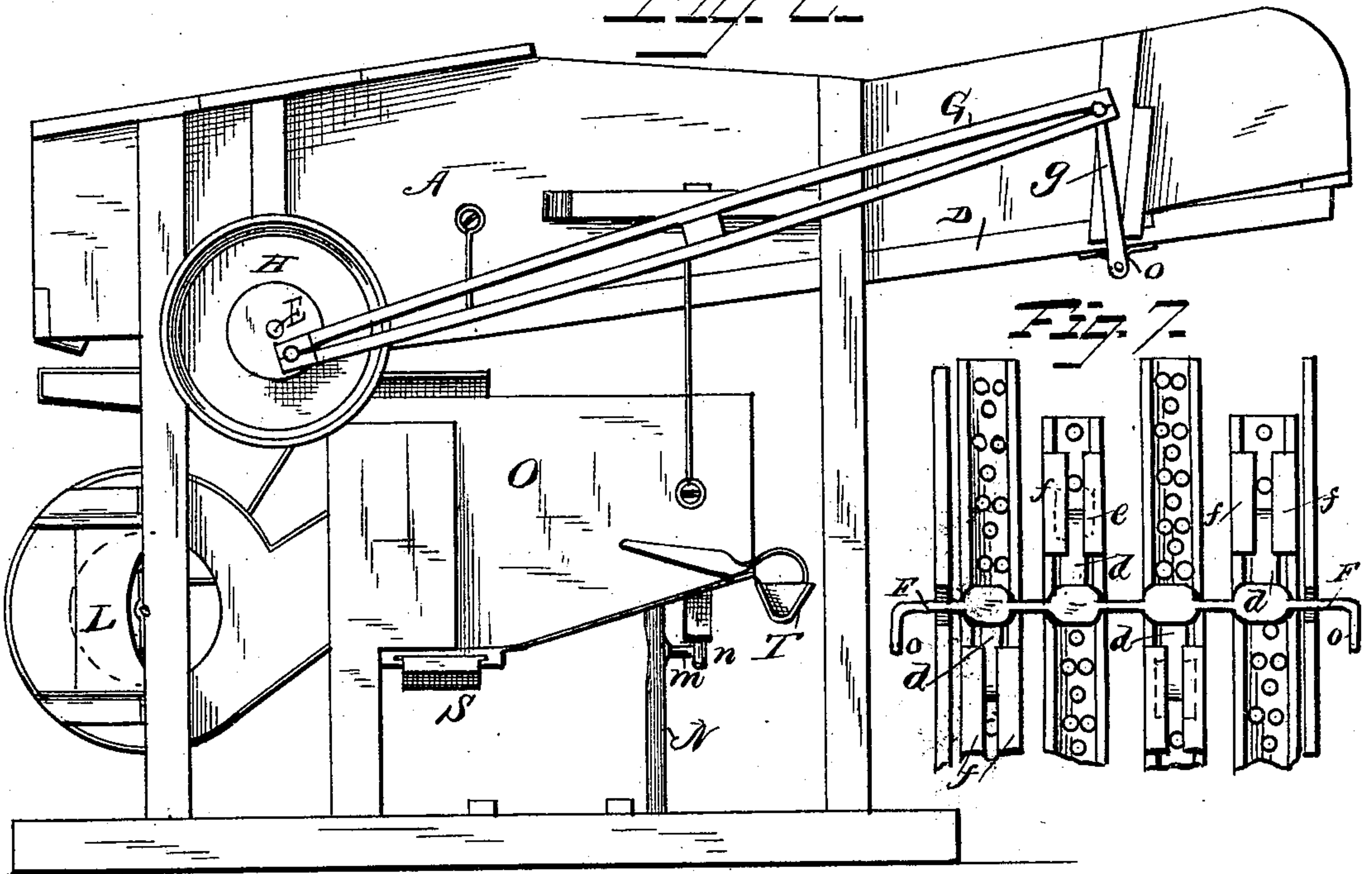
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Witnesses:
J. L. Curran
N. E. Oliphant

Inventors.
J. M. Laurensen, S. M. Staddon,
Henry Laurensen,
Per. Chas. H. Fowler, Atty.

UNITED STATES PATENT OFFICE.

JOHN M. LAURENSEN, SILAS M. STADON, AND HENRY LAURENSEN, OF
MORELAND, PENNSYLVANIA.

GRAIN SEPARATOR AND CLEANER.

SPECIFICATION forming part of Letters Patent No. 270,816, dated January 16, 1883.

Application filed August 29, 1882. (No model.)

To all whom it may concern:

Be it known that we, JOHN M. LAURENSEN, SILAS M. STADON, and HENRY LAURENSEN, citizens of the United States, residing at Moreland, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Grain Separators and Cleaners; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a perspective view of a machine embodying our invention; Fig. 2, a side elevation; Fig. 3, a longitudinal vertical section of the same; Fig. 4, a detail view of the upper screen; Fig. 5, a sectional view of the same; Fig. 6, a detail view of the mechanism for operating the inner ends of the shakers, and Fig. 7 a similar view of the mechanism for operating the outer ends.

This invention relates to certain new and useful improvements in machines for cleaning and separating grain, the objects thereof being to produce such a device as may be attached to any ordinary thrashing-machine to thoroughly shake the grain from the straw, cleanse it from chaff and other impurities, and at the same time throw the straw off clear of the machine, the invention consisting in the general construction and arrangement of parts, as illustrated in the accompanying drawings, and hereinafter described and claimed.

In the drawings, A represents the shaker-box, the front end of which is intended to be attached to a thrashing-machine, and in which operate shaker-boards B, extending the entire length of the box and separated one from the other by stationary comb-boards C. These shaker-boards B have perforations through which the grain drops onto the conveyer D, and are provided with pins *a*, which, in conjunction with pins *b* upon the interior sides of the shaker-box, serve to carry the straw along toward the rear end of said box, whence it is discharged, the said shaker-boards at their lower ends being operated by means of a plural crank, E, connected thereto by chair-blocks *c*, which give to the shaker-boards the same mo-

tion as the crank—viz., that of elevating alternately in a longitudinal direction two of said boards above, while the other two are lowered below the comb-boards C, as shown in Fig. 6. While the lower ends of the shaker-boards are raised and lowered alternately, as above described, the upper or tail ends are similarly operated by means of a rocking shaft, F, provided with noddle-arms *d*, having cross-heads *e*, working upon slides *f* upon the under sides of the said shaker-boards B in a longitudinal direction, as illustrated by Fig. 7, said rocking shaft F being propelled by a driving-rod, G, having one end thereof connected to the said shaft by an arm, *g*, and the other end eccentrically connecting with a driving-pulley, H, driven by a belt from the thrashing-machine to which this device may be attached, said driving-pulley being journaled to the plural crank E, operating the lower end of the shaker-boards B. The rocking shaft at its outer ends has short depending ears *o*, which connect with a rod, *p*, upon the under side of the conveyer D, so that when the shaft is operated motion is given to said conveyer. Journaled to the plural crank upon the opposite side of the machine is a pulley, I, over which passes a belt, *h*, said belt passing over a smaller pulley, K, upon the shaft of the fan L. Eccentrically connected to the pulley I is an arm, M, which unites with a projection, *i*, upon an upright shaft, N, said projection, where it unites with the arm, being made round, and working in bearings in the said arm, thus forming a universal joint to prevent binding or jarring. This upright shaft is journaled in a block, *k*, upon the shaker-box and block *l* upon the supporting-frame of the machine, and near its lower end is provided with a cockeye, *m*, set at right angles to the projection *i*, for the purpose of receiving one end of a rod, *n*, which connects with the shoe O to give the same a vibratory motion when the upright shaft is acted upon by the arm M. In this shoe O is fitted a plate, *q*, upon which the grain and chaff fall from the conveyer D, and from thence upon the screen P, said screen having lips *r*, struck up from its upper face, of a size smaller than those that project downward from the under face, to prevent the chaff and grain from

sliding too freely upon said screen. The grain falls through the openings of this screen P, formed by the metal being struck out to form the downwardly-projecting lips, onto another screen, R, said screen having its lowest point in the center, with perforations only upon its rear half, as shown at *w*, Fig. 3, the forward portion being plain and elevated a greater distance than the rear, so as to admit of a great part of the blast from the fan being carried under this plain portion and thrown upon the rear of both screens with greater force than is usually obtained in machines of this character. Under the screen R is located a chute or inclined plane, *v*, to conduct the grain to the spout S. The grain, having been cleared of the chaff and other impurities while passing through the screens by the action of the blast from the fan, now falls into the spout S, by which it is conveyed to bags or other receptacles, the lighter portions thereof being caught by the spout T.

Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a grain-separator, the perforated shaking-boards B, provided with pins *a*, in combi-

nation with means, substantially as described, for operating said boards, and the pins *b*, connected to the interior sides of the shaker-box, substantially as and for the purpose set forth.

2. The shaker-boards B, the plural crank E, and driving-pulley H, in combination with a rocking shaft, F, provided with noddle-arms *d*, having cross-heads *e*, slides *f*, the driving-rod G, arm *g*, and driving-pulley H, substantially as and for the purpose specified.

3. A grain separator and cleaner comprising the perforated shaking-boards B, provided with pins *a*, the pins *b*, means, substantially as described, for operating said boards, the comb-boards C, vibrating conveyer D, plate *q*, the screens P R, fan L, chute *v*, and spout S, constructed and arranged substantially as and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

JOHN M. LAURENSEN.

SILAS M. STADON.

HENRY LAURENSEN.

Witnesses:

B. S. LANGDON,

R. B. SMITH.