2 Sheets—Sheet 1.

W. C. KNOX.

Grain Cleaner.

No. 92,061.

Patented June 29, 1869.

Fig. 1.

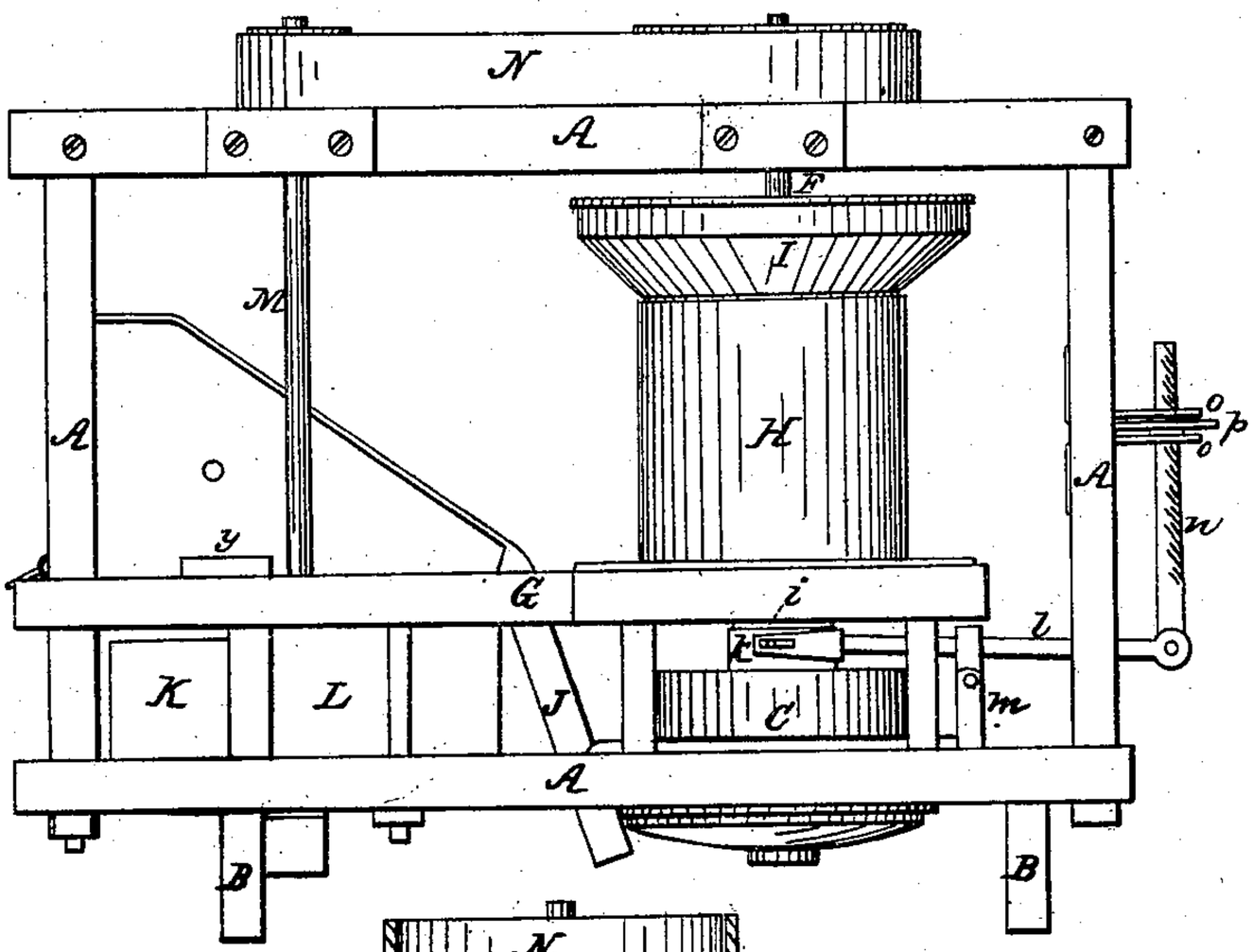


Fig. 2.

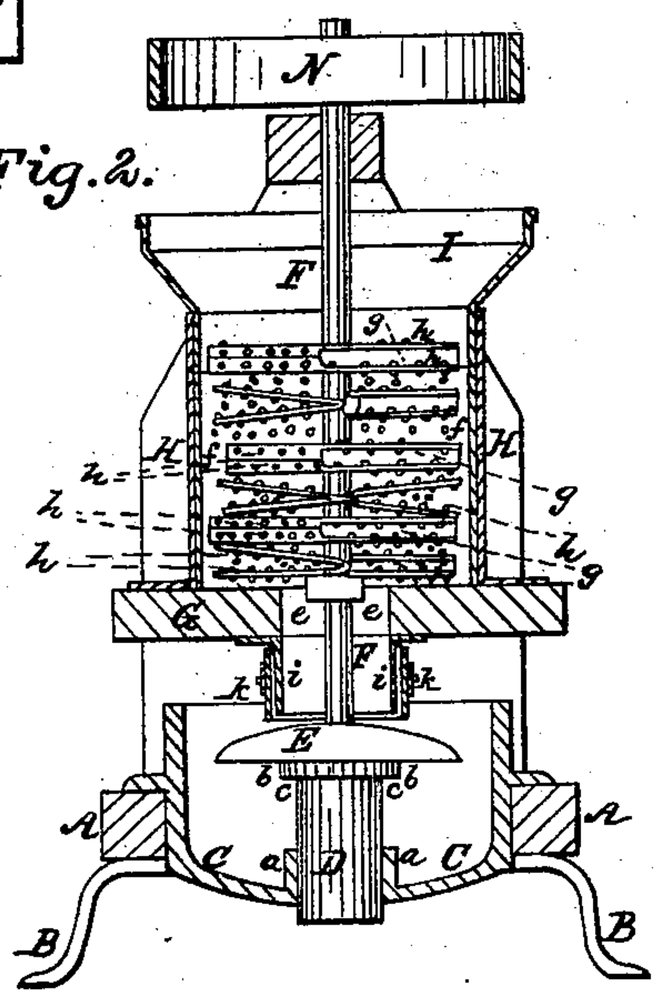
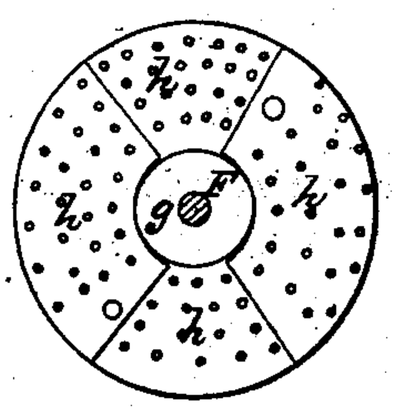


Fig. 3.



Witnesses:

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Inventor:

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Alexander Hudson Atty's

2 Sheets—Sheet 2.

W. C. KNOX.

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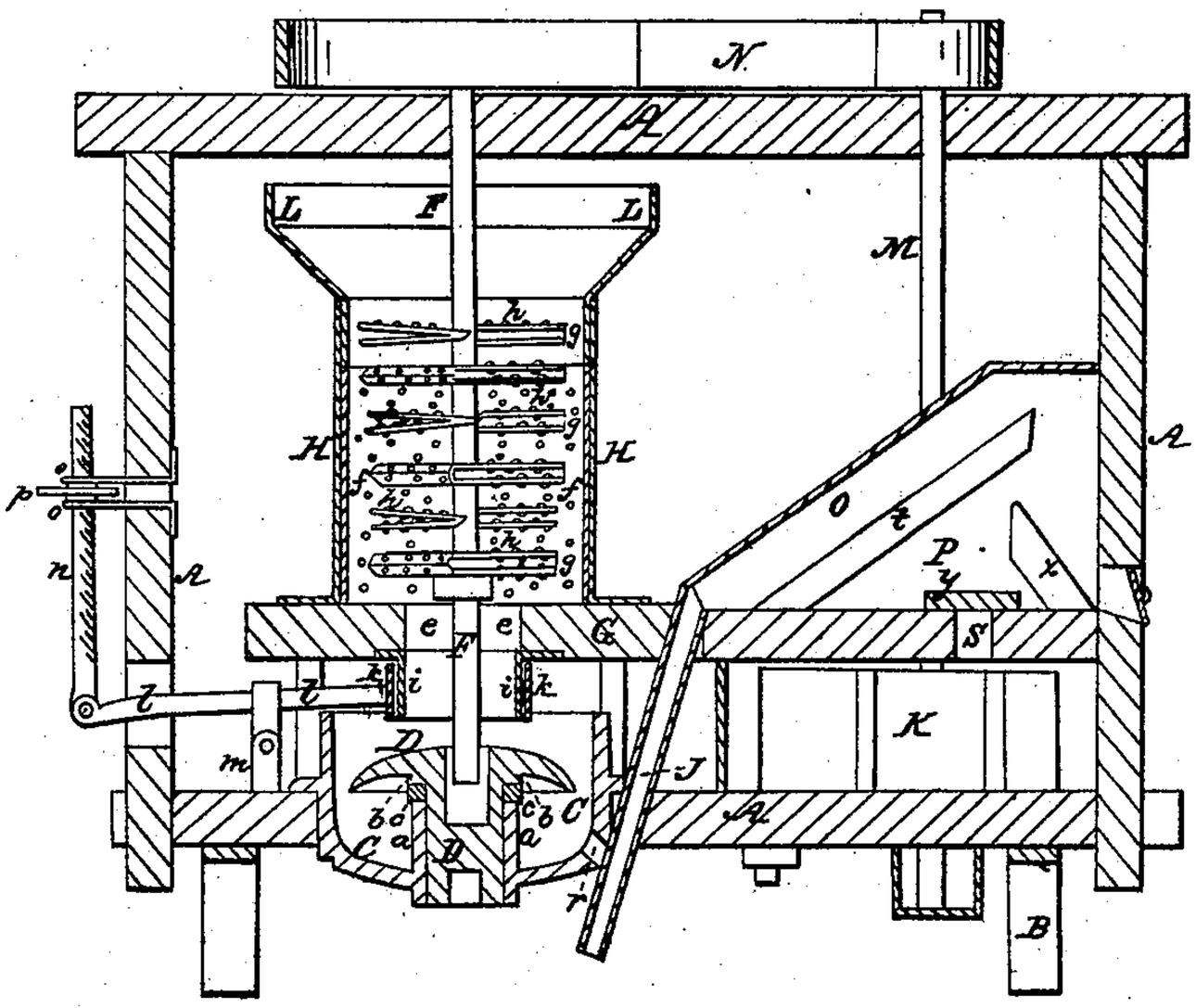
Fig. 4.



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United States Patent Office.

W. C. KNOX, OF JACKSONVILLE, ILLINOIS.

Letters Patent No. 92,061, *dated June* 29, 1869.

IMPROVEMENT IN GRAIN-SEPARATOR AND SCOURER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, W. C. KNOX, of Jacksonville, in the county of Morgan, and in the State of Illinois, have invented certain new and useful Improvements in Grain-Separator and Scourer; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the construction and general arrangement of a "grain-separator and scourer," but more especially in making the scourer in segments, of a spiral, or inclined-plane shape, so that by raising or lowering, or otherwise altering the outer or inner edges, or the back edge of these segments, the movement of the grain can be controlled at the will of the operator.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a side elevation;

Figure 2, a transverse vertical section;

Figure 3 is a plan view of the scourer; and

Figure 4 is a longitudinal vertical section.

A A represent the frame-work of the machine, supported, a suitable distance from the ground, by legs B B, or other suitable supports.

In the lower portion of the frame A, near one end, is secured a circular metallic receptacle, C, in which the grain falls from the scourer.

This receptacle is, in the centre of its bottom, provided with a small tube, *a*, extendig upward into the same, in which tube is placed a round shank, D, having, at its upper end, a round concave cap, E, the convex side of the said cap being up, and the concave side provided with a circular flange, *b*, which rests on the upper end of the tube *a*.

A washer, *c*, is, however, introduced between the two, the cap and shank revolving on the tube *a*.

In the centre of the cap E is inserted the lower end of the vertical shaft F, this end being square, so as not to turn in the cap.

The shaft F passes upward through an aperture, *e*, in a platform, G, and up through the upper part of the frame A, having its bearing therein.

On the platform G is placed a metal cylinder, H, having, at its upper end, a circular hopper, I, in such a position, that the vertical shaft F passes directly through the centre of said cylinder and hopper.

The cylinder H is provided with an inner cylinder, or lining, *f*, which is perforated with a number of holes, so as to present a rough, scouring-surface on the inside.

Inside of the cylinder H and jacket *f*, the shaft F is provided with a series of horizontal arms, *g g*, to which arms the scourers *h h* are attached. These scourers are made in the shape of a segment of a circle, perforated and placed on the arms *g g*, on an inclined plane. Two of these scourers are placed on each arm, on each side of the shaft, namely, one above and one below the arms, and as the sections are the size of one-fourth of the circle, it leaves every other section open.

The arms *g g* are placed on the shaft F in such a manner, that when the scourers are attached to said arms, the sections that are open above, are covered below by the next scourer, and so on throughout the whole cylinder, thus forming a complete scourer in spiral, or wedge-shaped form. The scourers may be of any number desired, and the larger the diameter of the scourers, the larger will be the scouring-surface.

The grain, as it passes through the scourer, falls down below the platform G, on to the cap E, the opening *e* in said platform being, on the under side, provided, with a tube, *i*, extending downward.

The space then left between the lower edge of the tube *i* and the cap E, may be lessened, by another tube, *k*, encircling the tube *i*.

The tube *k* is operated by a lever, *l*, to the end of which said tube is, in some suitable manner, pivoted, the lever itself being pivoted on a standard, *m;* and its other end extends through the side of the frame A, having a screw-rod, *n*, hinged to the same.

This screw-rod passes upward through two ears, *o o;* and between said ears a nut, *p*, is placed on the same, so that by turning this nut, the tube *k* may be raised or lowered at will, thus regulating the discharge of the grain on the cap E.

The grain then falls down into the receptacle C, and thence passes, through an opening, *r*, into the spout J, which opens below the machine.

The dust, chaff, &c., which necessarily follow the grain, are, however, not deposited with the same, but drawn upward through the spout J', by the action of a current of air produced by a fan, K, placed in a drum, L, between the lower portion of the frame A and platform G.

This fan is mounted on a vertical shaft, M, and receives its motion through a belt, N, which connects pulleys on the shafts F and M.

The suction of the fan K draws the dust, chaff, &c., up, through the spout J, into the inclined suction-chamber O, the current of air operating through an opening, *s*, in the platform G, on top of which the suction-chambers are placed.

The partition *t* divides the suction-chambers O and P, in the latter of which the aperture *s* opens.

The chaff and heavier substance fall down, after passing the upper end of the partition *t*, on to an inclined board, *x*, and pass out through an opening in

the end of the frame, while the dust is drawn through the suction-chamber P, into the drum, and is blown out through an opening in the side of the same.

The aperture *s* may be partially closed by a slide, *y*, thus regulating the degree of suction, which is very necessary, as, otherwise, it might happen the suction would be so great, as to draw the grain up the spout J.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. A grain-scourer, constructed of perforated sheet-iron or other metal, in segments, of a spiral, or inclined-plane shape, and so formed, that by opening or closing the outer or inner edges, the grain may be directed at the wish of the operator, substantially as set forth.

2. The arrangement of the circular receptacle C, tube *a*, shank D, with its cap E, having a circular flange, *b*, and washer *c*, all substantially as shown and described.

3. In combination with the perforated lining, or jacket *f*, the segmental scourers *h h*, secured to arms *g g* on the vertical shaft F, all substantially as and for the purposes herein set forth.

4. The arrangement of the tube *k*, lever *l*, screw-rod *n*, ears *o o*, and nut *p*, for the purpose of graduating the distance between the cap E and tube *i*, substantially as shown and described.

5. The arrangement of the suction-chambers O P, spout J, fan K, partition *t*, and opening *s*, all substantially as shown and described.

In testimony that I claim the foregoing, I have hereunto set my hand, this 13th day of February, 1869.

W. C. KNOX.

Witnesses:

ELIZUR WOLCOTT,

ISAAC ALLEN.