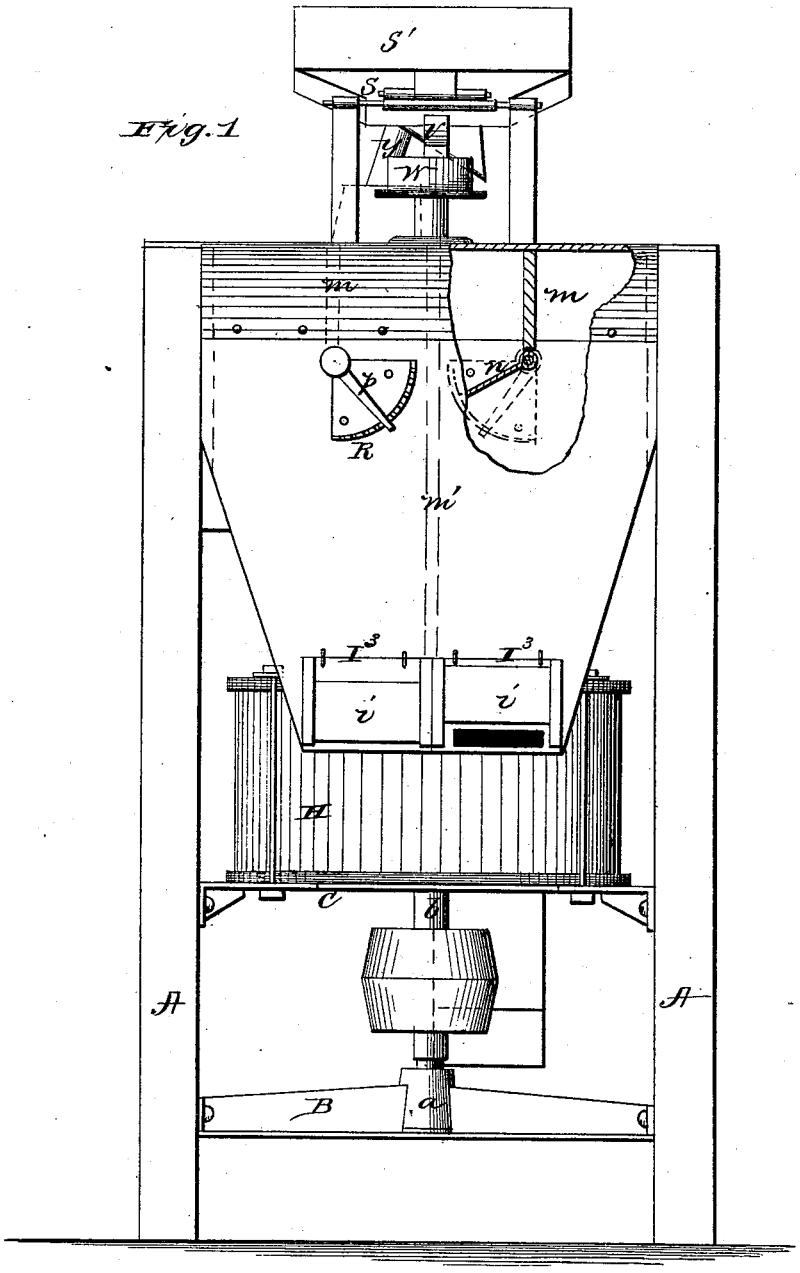
3 Sheets—Sheet 1.

J. H. TEAHL.

Grain Cleaning and Scouring Machine.

No. 201,300. **Patented March 12, 1878.**

Fig. 1.



WITNESSES

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3 Sheets—Sheet 2.

J. H. TEAHL.

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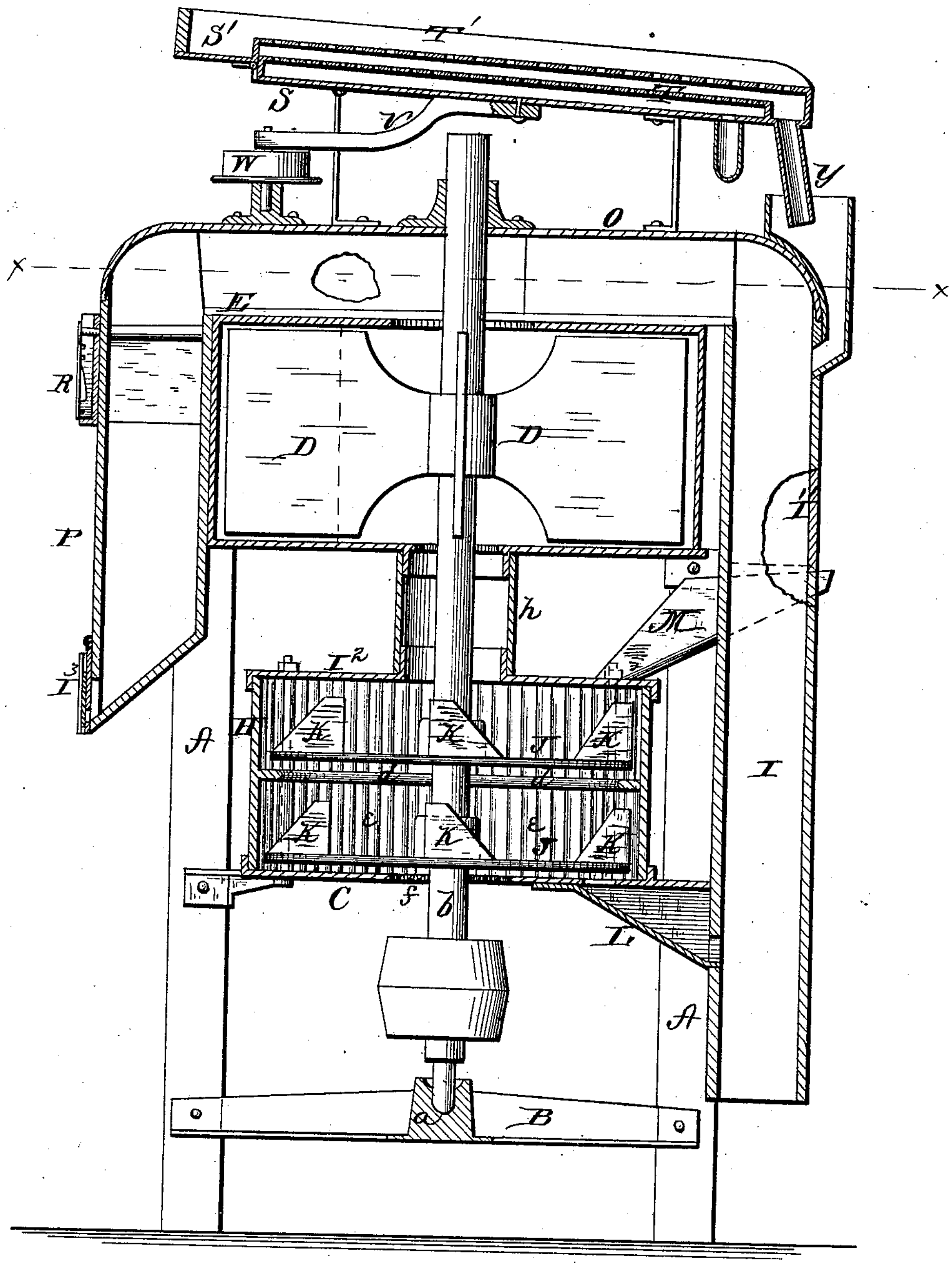
Fig. 2.



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Grain Cleaning and Scouring Machine.

No. 201,300. **Patented March 12, 1878.**

Fig. 3.

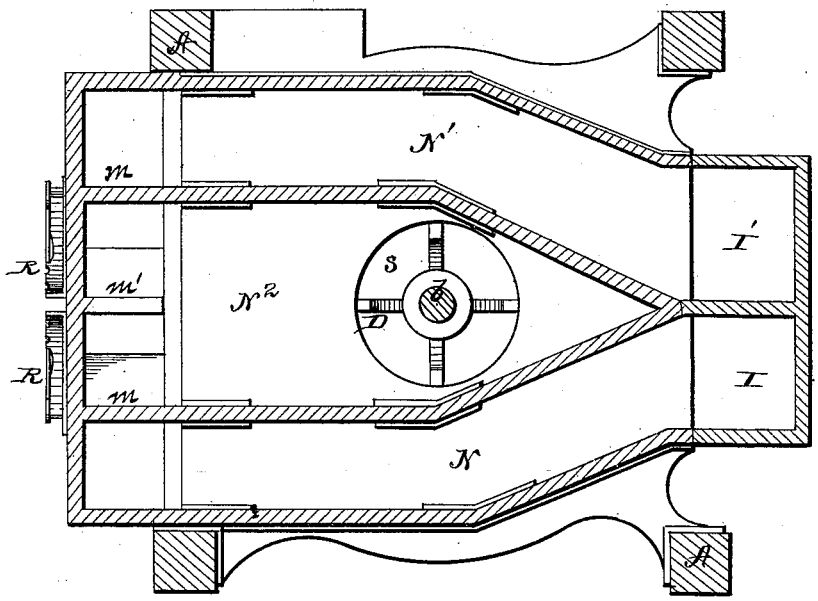


Fig. 4.

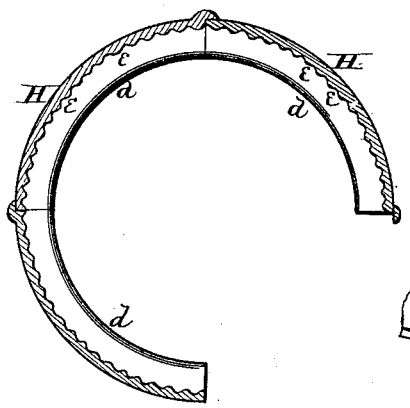
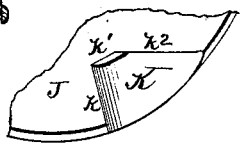


Fig. 5.



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INVENTOR
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UNITED STATES PATENT OFFICE.

JOHN H. TEAHL, OF READING, ASSIGNOR TO E. G. SMYSER, OF YORK, PA.

IMPROVEMENT IN GRAIN CLEANING AND SCOURING MACHINES.

Specification forming part of Letters Patent No. **201,300**, dated March 12, 1878; application filed December 19, 1877.

To all whom it may concern:

Be it known that I, JOHN H. TEAHL, of Reading, in the county of Berks, and in the State of Pennsylvania, have invented certain new and useful Improvements in Grain Separator and Polisher; 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, making a part of this specification.

The nature of my machine consists in the construction and arrangement of a grain cleaning and polishing machine, as will be hereinafter more fully set forth.

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, in which—

Figure 1 is a rear elevation of my machine. Fig. 2 is a central vertical section of the same. Fig. 3 is a horizontal section on the line *x x*, Fig. 2. Fig. 4 is a horizontal section of the grain-cylinder. Fig. 5 is a detailed view of one of the polishing-plates.

The frame of the machine consists of four upright corner-posts, A A, connected near their lower ends by a spider, B, a suitable distance above said spider by a plate, C, which forms the bottom of the grain-cylinder, and in the upper part by the fan-case E, the plate C and fan-case E having suitable arms or projections to connect with the corner-posts.

In the center of the spider B is a step, *a*, in which rests a vertical shaft, *b*, to which the grain-polishing devices are attached, as also the fan D, which latter operates within the fan-case E.

Upon the plate C is placed a cylinder, made of cast-iron, of a series of sections, H, having flanges at the ends to overlap each other, and covered by a top plate, I^2, which is fastened to the plate C by bolts or other suitable or convenient means, so as to clamp and hold the sectional cylinder firmly between the two plates.

The sections H, which form the cylinder, are formed with vertical corrugations *e*, as shown, and have also a central horizontal rib or flange, *d*, extending inward, so that when the cylinder is put together there will be formed a continuous flange, at or about the center, around the inside of the cylinder.

In the center of the plate C, around the shaft *b*, is an opening, *f*, for the admission of air, and in the center of the top plate I^2 is a similar opening, provided with a tube, *h*, which leads to the bottom plate of the fan-case, and communicates with the interior thereof.

Within the cylinder H, to the shaft *b*, are secured two horizontal circular plates, J J, one of which is located above the flange *d* of the cylinder, and the other in the bottom of the cylinder, but slightly elevated from the plate C. Each of the plates J is provided at its outer edge with a series of upwardly-extending projections, K K, equidistant from each other. These projections have each a vertical rounded front edge, *k*, top end k^1 horizontal, and the back edge k^2 inclined, as shown in Fig. 5, and said projections are not set to coincide with the outer circular edge of the plate J, but are set at an angle, so that the front edge k^1 will be farther out from the shaft than the heel or back edge.

On the front of the machine are two vertical air or suction flues, I I^1, as shown. The flue I is long, and the grain, after passing through the polishing-cylinder, enters said flue near the bottom through a spout or conductor, L, from the bottom plate C of the polisher.

The flue I^1 is short, and the grain enters the same at the top, and discharges through a spout or conductor, M, into the polisher through an aperture in the top plate I^2 of the polisher. The upper ends of the flues I I^1 open into inclined side flues N and N^1, respectively, formed between the top of the fan-case and a top plate, O, secured on the upper ends of the corner-posts A A. The flues N N^1 diverge toward both sides, as shown, and then run parallel to a box, P, attached on the rear end of the machine. This box has at the top three partitions, *m*, *m*, and *m'*, the flues N N^1 entering between the sides of the box and the partitions *m m*. At the lower end of each partition *m* is hung a valve, *n*, upon the outer journal of which is secured an arm or lever, *p*, for turning the valve, and the arm or lever held at any point desired in a rack, R, as shown.

The lower end of the box P tapers to form two discharge-spouts for the screenings, the central partition *m'* extending all the way down to divide the box into such discharge-spouts. Each of these spouts has an opening at the outside of the box, over which is hung a door, I^3, and in said door is a slide, *i*, to regulate the admission of air.

The flues in the box P, formed by the central partition *m'* and the partitions *m m*, open at the top into a central flue, N^2, between the two flues N N^1, and from said flue N^2 there is an opening, *s*, into the fan-case through the top plate thereof.

On top of the machine is a shaking-shoe, S, with sieve T, and to this shoe, at the upper end, is hinged a frame, S', with another sieve, T'. The hinging of the frame S' allows of the top sieve being easily and quickly raised for cleaning the lower sieve when required.

The shoe S obtains its shaking motion by means of a pitman, V, connecting the same with a crank-pin on a pulley, W, and this pulley is rotated by a belt from a pulley on the shaft *b*.

The wheat is delivered on the shaking-shoe, and, after passing through the sieves, is conducted by a spout, Y, into the suction-flue I^1, which has an upward current produced by the fan, to carry the light grains and refuse upward into the horizontal side flue N^1, and allow the good grains to drop downward through the spout M into the polisher. Here the grain is delivered centrally upon the upper plate J, passing over the polishers K, polishing the grain upward and then downward, outside of the running polishers, and inside of the stationary cylinder to the middle flange *d*, from which it is again delivered central on the lower plate, and again polished upward on the inside and downward on the outside of the lower polishers K.

It will be understood that from each plate J the grain passes over the inner rear edge of the polishers, and is then polished between the rounded front edges of the next polisher in succession and the inner corrugated surface of the stationary cylinder.

From the bottom plate G of the stationary cylinder H the grain passes through the spout L into the long suction-flue I, and the light grains and refuse still remaining with the grain carried upward by the current from the fan, while the good grains are discharged at the bottom.

The two currents of air through the flues I and I^1, which carry the light grains and refuse with them, pass through the flues N N^1 into the box P, in which the screenings are deposited, while the refuse matter is carried around the valves *n n*, and up into the center flue N^2, and thence into the fan and out into the air. The valves *n n*, by their adjustment, regulate the draft, and, also, the slides *i* in the doors I^3 aid in regulating the currents.

The screenings are removed from the box P through the doors I I.

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

1. The horizontal solid rotating plates J, provided at their edges with the angular polishers K K, set tangential to their arc of revolution, and dressed as shown and described, in combination with the corrugated cylinder H, substantially as and for the purposes herein set forth.

2. The doors I^3, with slides *i*, arranged over the openings in the discharge-spouts of the box P, for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of December, 1877.

JNO. H. TEAHL.

Witnesses:
FRANK GALT,
J. M. MASON.