

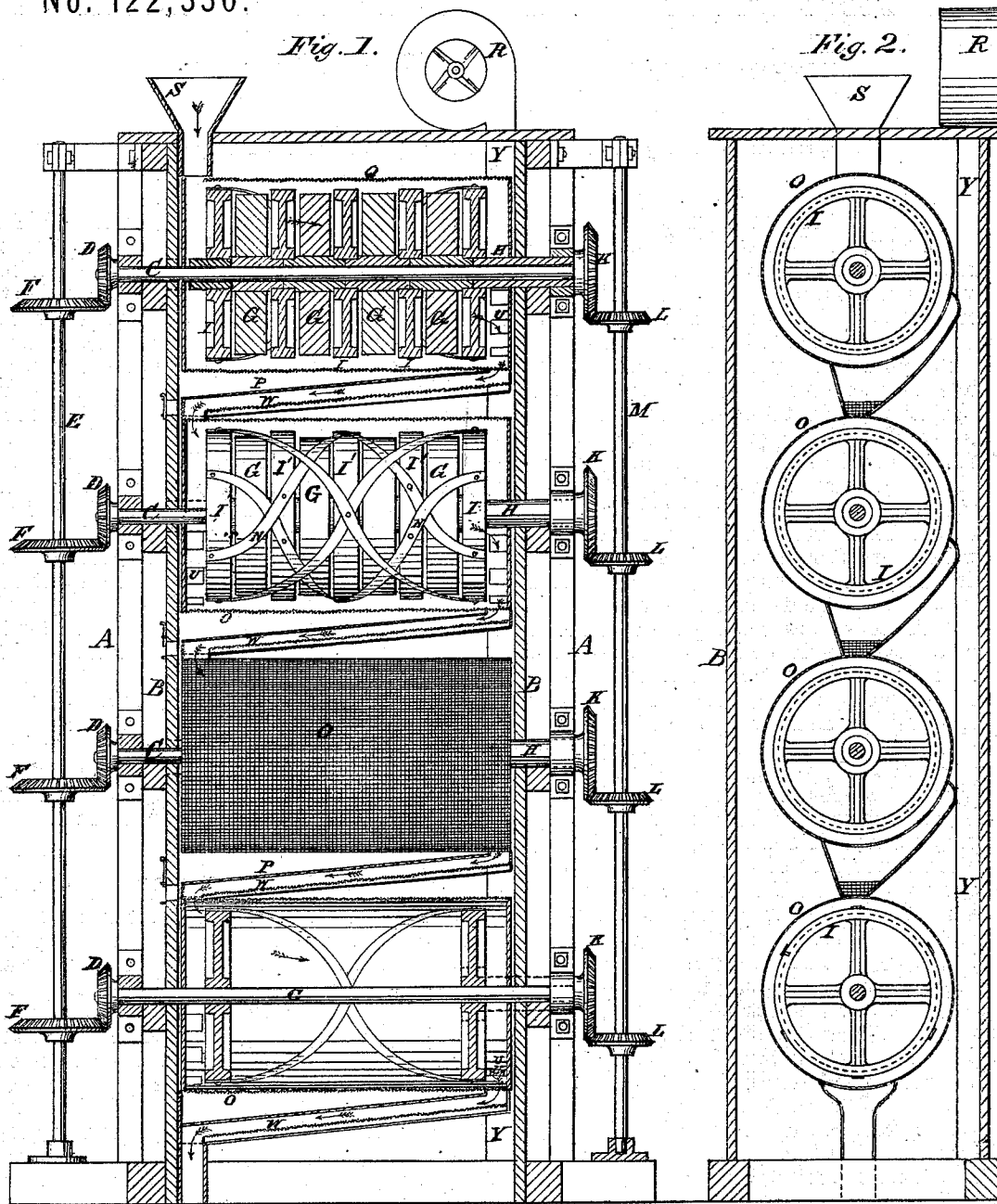
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Improvement in Grain Scourer and Cleaner.

No. 122,330.

Patented Jan. 2, 1872.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN GRAIN SCOURER AND CLEANER.

Specification forming part of Letters Patent No. 122,330, dated January 2, 1872.

SPECIFICATION.

I, AUSTIN B. PAIGE, of Washington, District of Columbia, have invented certain Improvements in Combined Scourers, Separators, and Polishers for Wheat, Rice, and other Cereals, of which the following is a description:

The object of my invention is to scour off the cuticle from the wheat, rice, or other cereals, to separate the dust thus produced; also, blighted kernels and foreign substances; finally polishing and delivering the grain perfectly clean.

In the accompanying drawing, Figure 1 is a side view of the machine, the outer case and some other parts being shown in section, as will be hereafter explained. Fig. 2 is an end view of the same with the outer-case section. Figs. 3 and 4 are detached views.

In the construction of my combined scourer, separator, and polisher I make a suitable frame, A, in connection with a case, B, to support and inclose the operating parts of the machine. Upon this frame I arrange a series of horizontal shafts, C, which are provided with bevel-gear wheels D, to be set in motion by the upright driving-shaft E; also, provided with bevel-gear wheels F. These horizontal shafts C carry a series of stones, G, shown in section in the upper part of Fig. 1. Each shaft has four stones, but the number may be more or less, as desired. A vertical series of short sleeves, H, are provided with bevel-gear wheels K, and receive motion from the bevel-gear wheels L and driving-shafts M. These sleeves carry the whole series of agitators I and I', which are arranged and bound together as follows: The first agitator I, on the right hand, is keyed or otherwise fixed upon the short sleeve; and the agitator I', on the left hand, has a bearing upon the shaft C. The intermediate agitators I' may have loose bearings on the hubs of the stones G, as seen in Fig. 1. The whole series of agitators I I' are connected by means of spiral bands N, so as to all move together with the sleeve H. These spiral bands N have a lip, n, Fig. 4, which assists in agitating the grain; and the agitators I have a rim and radial arms, as seen in Fig. 2, these radial arms being made with sharp edges, as shown in Fig. 3, (which is a cross-section of the radial arm,) in order to press the grain toward the side of the stones, and thus facilitate the scouring pro-

cess. These radial arms may be curved, if desired. I propose to rotate the stones in the direction opposite to the agitators; but both the stones and agitators may be rotated in the same direction, and at different rates of speed; or the stones may be left at rest and the agitators revolved, or the agitators left at rest and the stones revolved. Both the stones and agitators are inclosed in a wire-cloth screen or cylindrical holder, O, which I prefer to have made of square steel wire. This cylinder or screen is stationary. A spout, P, made of sheet metal, and inclosing a screen, W, or sieve of wire cloth is used to convey the grain from one series of stones to the next one below. This spout may be provided with a conveyer in the usual manner, if desired. Upon the top of the machine is a suction-fan, R, which is intended to draw the dust from the whole series of spouts through the passage Y, and to facilitate the separation of all other foreign substances from the grain. In the bottom and sides of the screens or cylindrical holders O are several valves or slides, which regulate the depth of grain, and can be opened when it is desired to draw all the grain from the machine.

Operation.

The grain is fed into the machine through the hopper S, entering the cylinder or holder O, and filling it as much as is desired. It is then rapidly scoured by means of the stones G and agitators I revolving in different directions. After being thus partially scoured the grain passes from the upper cylinder or screen through one of the valves or discharge-openings U in the side of the screen or holder, as seen in Fig. 2, to the next one below. Any one of these valves may be opened to regulate the depth of grain according to the work or scouring to be done in the screen or cylinder. As the grain passes along the spout P the screens or sieves, together with the suction-blast or fan, will separate the dust and foreign substances from it. Now, the grain enters the next screen-holder and series of stones, which stones may be finer than the upper ones; and thus the grain will pass and be operated upon by the several series of stones and agitators from the top to the bottom of the machine. The lower cylinders or screens may contain very

fine stones or two sets of metal agitators only, revolving in opposite directions, just for polishing the grain; and the series of cylinders or screens containing scourers, separators, and polishers, together with the spouts, may be increased or diminished, at pleasure. Also, the radial arms of the agitators may be divided vertically and transversely of the machine, and the two parts made adjustable to the working surface of the stones, as may be required by circumstances.

Having described my invention, I claim—

1. A series of rotating agitators arranged alternately with a series of either revolving or stationary stones, in combination with a screen or grain-holder and a horizontal shaft, substantially as set forth.

2. In combination with the agitators I I', I claim the spiral bands N, when provided with the lips n, substantially as set forth.

3. I claim the agitators I I', when provided with radial arms, either straight or curved, and having sharp edges for dividing the grain and pressing it against the sides of the stones or scouring surfaces, all constructed and arranged substantially as set forth.

4. In combination with a vertical series of sta-

tionary screens or grain-holders, I claim the agitators and stones, described, for repeating the process of scouring and also for separating and polishing the grain, substantially as set forth.

5. In combination with the above-mentioned vertical series of screens or holders, inclosing stones, and agitators, I claim the spouts P, screens W, and fan R, for separating and cleaning the grain, substantially as set forth.

6. I claim the machine, herein described, consisting of the case, a vertical series of screens or holders O inclosing the scourers and agitators, arranged alternately on horizontal shafts, as described, and operated by means of the vertical shafts E M and bevel-gear wheels K L F D, substantially as set forth.

7. I claim the cylindrical screen or grain-holder, when provided with the slide-valves and discharge-openings U placed on the side and bottom of said screen or holder in order to regulate the depth of the grain in said holder, substantially as set forth.

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