(No Model.)

B. E. FISCHER.

COMBINED GRAIN HULLER, SCOURER, AND POLISHER.

No. 498,510. Patented May 30, 1893.

Fig 1

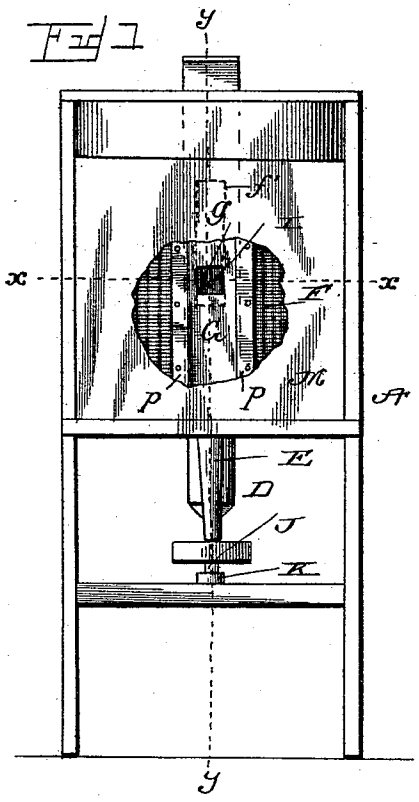


Fig 2

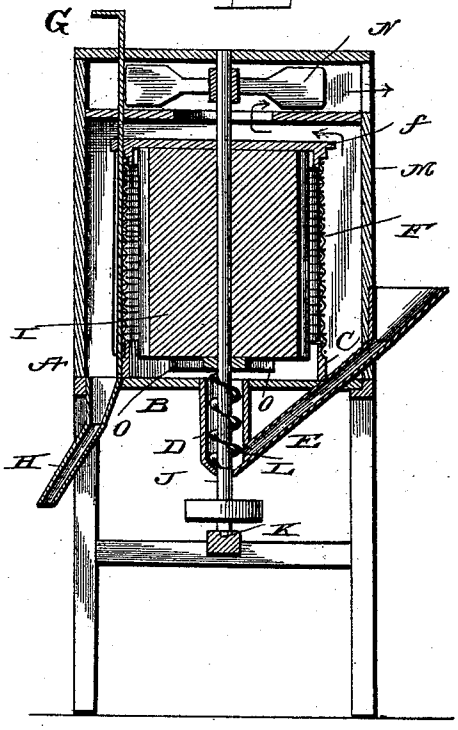


Fig 3

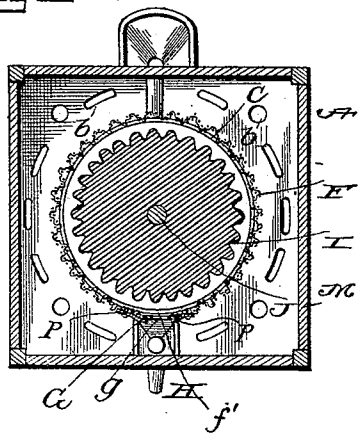
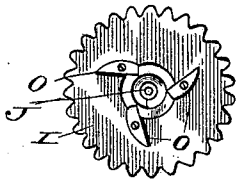


Fig 4



Witnesses

J. [illegible]

Thos. E. Robertson.

Inventor

Bernhard E. Fischer

By T. J. W. Robertson

Attorney

UNITED STATES PATENT OFFICE.

BERNHARD E. FISCHER, OF DEFIANCE, OHIO.

COMBINED GRAIN HULLER, SCOURER, AND POLISHER.

SPECIFICATION forming part of Letters Patent No. 498,510, dated May 30, 1893.

Application filed June 17, 1892. Serial No. 437,093. (No model.)

To all whom it may concern:

Be it known that I, BERNHARD E. FISCHER, a citizen of the United States of America, residing at Defiance, Defiance county, Ohio, have invented certain new and useful Improvements in a Combined Grain Huller, Scourer, and Polisher, of which the following is a specification, reference being had therein to the accompanying drawings.

This improvement relates to that class of scourers in which the grain is under great compression while being acted upon, and which compression can be increased or decreased at pleasure, and the invention consists in the peculiar construction, arrangement and combinations of parts by which these ends are obtained, which are hereinafter more particularly described and then definitely claimed.

In the accompanying drawings—Figure 1 is an elevation of a scourer constructed according to my invention with part broken away. Fig. 2 is a section of the same on the line *y y*, Fig. 1. Fig. 3 is a horizontal section on line *x x* Fig. 1. Fig. 4 is a reversed plan of the lower end of the scouring cylinder.

Referring now to the details of the drawings by letters—A represents the frame of the machine of any suitable material or construction on which is set a plate B having a cylindrical flange C and perforations *b* to admit air. Below this plate is a tube D into which leads a spout E. Surrounding the flange C is a steel wire cloth cylinder F corrugated as shown in Fig. 3, above which is a head *f*, and in one side an opening *f'* (shown in dotted lines in Fig. 1). On its side is a slide G having a perforation *g*, through which the scoured grain passes into the discharge spout H. On the side of the opening *f'* are guide plates *p* to keep the slide G in its proper position.

I is a cylinder having a corrugated surface as shown and provided with a shaft J mounted in a step K on the frame and carrying on its lower end a spiral conveyer or screw L working in the tube D, said tube and conveyer forming a "forced feed." Surrounding the wire cloth cylinder is a casing M of any suitable material and above the top of the same is a fan N for drawing away the fluffy matters, dust, &c., but as there is nothing new in this feature a further description of it is unnecessary. On the lower end of the cylinder are three tangential discharge blocks O which act to force out the grain as it is brought up by the conveyer or screw L. These blocks may be reversed if desired, so that the cylinder may be made to run in either direction required.

The operation is as follows: The grain is fed into the spout E and is carried up by the conveyer and forced out by the tangential blocks into the space between the cylinders F and I, and each grain, by contact with the corrugations, and with the others, rapidly becomes scoured and polished under the pressure caused by the forcing of the grain in at the bottom of the cylinder, and as it becomes polished, passes out at the hole *g* in the slide G. The amount of scouring and polishing can be regulated perfectly by raising or lowering the slide G, which will retain the grain under the scouring operation a longer or shorter time according to whether the opening is high or low. The degree of compression will also be governed by the same means, as it is obvious that the more grain there is in the scourer, the greater will be the compression.

A little steam admitted to the wheat, where steam can be conveniently applied, will improve the rapidity of the operation, but it is not absolutely necessary as very good results can be obtained with the grain in a dry condition.

By the use of my improved scourer the outer hulls of the wheat berries are rapidly loosened by the friction and then taken away by the draft of the fan, and the berries polished as they rise in the cylinder. It will be observed that the hard, outside skin is operated on under the greatest pressure due to the weight of the superincumbent grain, while the final polishing is done where the pressure is the least and when the softer portion of the shell is under action.

I consider the vertical corrugations in cylinder F as an essential feature of my improvement, because by their action the grains, as they come in contact with said corrugations, are caused to rotate and thus rub one against the other, without the tendency to carry them upward or to impede their upward motion which results from diagonal or spiral corrugations. I also consider it important that the spiral conveyer shall be below the cylinder and in

a vertical position, for owing to the weight and pressure of the grain above it, there is considerable scouring action on the grain by said spiral conveyer as it feeds the grain into the scouring cylinders proper.

What I claim as new is—

1. The combination in a grain scourer of two vertical corrugated cylinders, one within the other, and one of which revolves, a tube or casing entering the lower end of one of said cylinders, a vertical screw conveyer working within, and a spout leading into the lower end of said tube or casing, and a discharge opening in one of the cylinders, substantially as described.

2. The combination in a grain scourer, of two vertical cylinders, one having a discharge opening and the other revolving within it, a vertical spiral conveyer around the shaft of said revolving cylinder, a tube entering the lower end of one of said cylinders and surrounding the conveyer, a spout leading into the lower end of said tube, and an adjustable slide having an opening therein to govern the discharge through the opening in the stationary cylinder, substantially as described.

3. The combination in a grain scourer, of two corrugated cylinders, one of which revolves, a conveyer around the shaft of said revolving cylinder, tangential blocks between said cylinder and the conveyer, and a discharge opening in the fixed cylinder, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 3d day of June, 1892.

BERNHARD E. FISCHER.

Witnesses:

BENJ. B. KINGSBURY,

EDWIN PHELPS.