

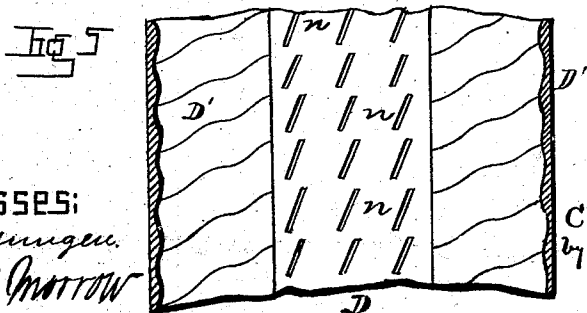
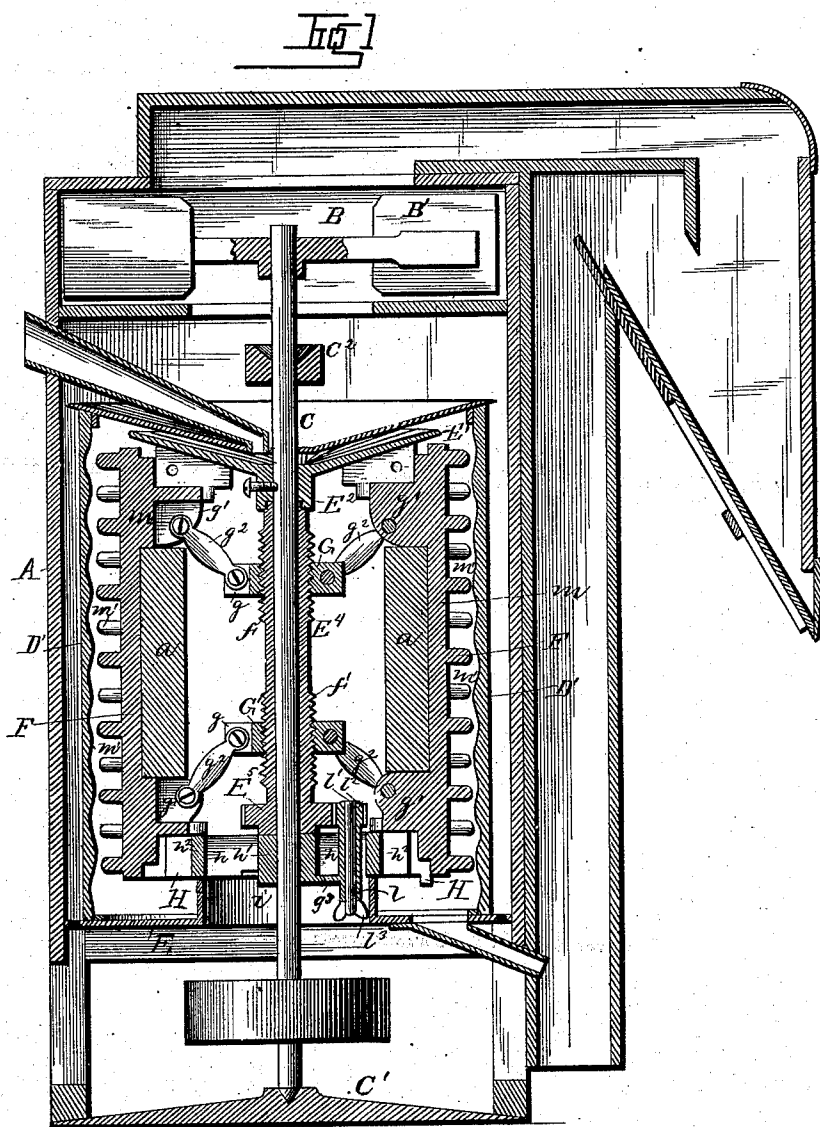
(No Model.)

2 Sheets—Sheet 1.

C. M. GILBERT.
GRAIN SCOURER.

No. 293,159.

Patented Feb. 5, 1884.



Witnesses:
Chas. Munger.
John C. Morrow

Inventor:
Charles M. Gilbert.
by *Anderson & Smith*
his Attorneys-

(No Model.)

2 Sheets—Sheet 2.

C. M. GILBERT.

GRAIN SCOURER.

No. 293,159.

Patented Feb. 5, 1884.

Fig 2

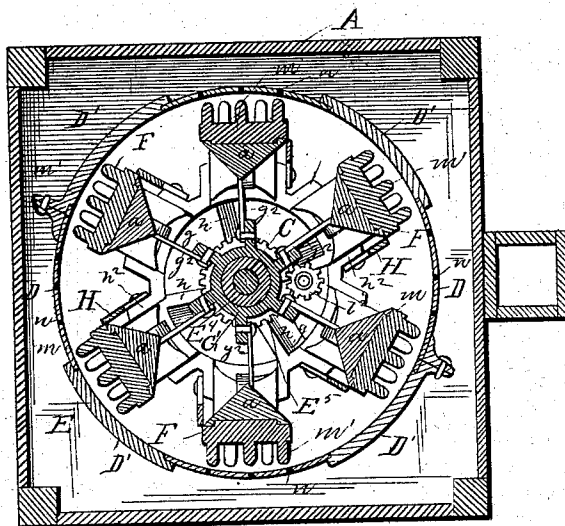


Fig 3

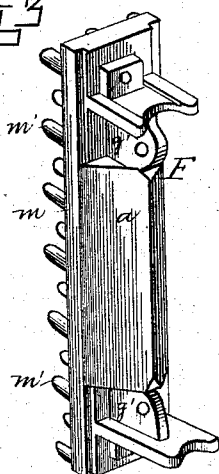
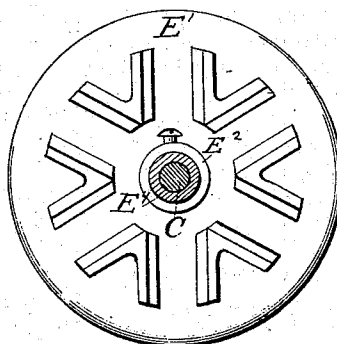


Fig 4



Witnesses:

Thos. Mungen.
John D. Morrow

Inventor:
Charles M. Gilbert,
by *Auderson & Smith*
his attorneys

UNITED STATES PATENT OFFICE.

CHARLES M. GILBERT, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE RICHMOND MANUFACTURING COMPANY, OF LOCKPORT, NEW YORK.

GRAIN-SCOURER.

SPECIFICATION forming part of Letters Patent No. 293,159, dated February 5, 1884.

Application filed November 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. GILBERT, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Smut-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a vertical sectional view of the machine. Fig. 5 is a detail view of the staves. Fig. 2 is a horizontal sectional view, and Figs. 3 and 4 are detail views.

This invention has relation to grain-scourers or smut-machines; and it has for its object to rub and scour the berries of wheat and other grain, and thereby to remove from the outer coating of the berry the dirt, fuzz, and other impurities adhering to it; and it consists in the construction and novel arrangement of devices, as will be hereinafter fully described, and particularly pointed out in the claims appended.

Referring by letter to the accompanying drawings, A designates the frame of the mill, which frame is properly housed in.

B designates a fan-case, in which are applied fan-blades B', the arms of which are made fast on a vertical shaft, C, which is stepped in a bridge-tree, C', and guided by a cross-bar, C".

D designates a scouring-case, composed of alternate staves D', of cast-iron or other suitable material, and perforated sheet-steel or other suitable sheet metal. The staves D' are corrugated on their inner faces, the corrugations being wave-shaped in cross-section and inclining upwardly from the plane of rotation of the revolving scouring-plates within said scouring-case. This cylindrical scouring-case D is confined between a bottom plate, E, and a dished radially-corrugated top plate, E', inside of the frame A. Between the case D and the walls of the frame A is a space having for its bottom a perforated portion of the plate E, through which matter that is too heavy to be carried off by the fan may escape freely. In

side of the scouring-case D are the studded scouring-plates F, the backs of which are angular or double-beveled, as shown at *aa*. The object in thus constructing the backs of the plates F is to prevent the accumulation of dust, &c., on them when the mill is in motion. The upper corrugated plate, E', is provided on its under face with a boss, E², in which the upper end of a sleeve, E¹, revolves. The lower end of this sleeve E¹ is provided with a gear-wheel, E³. The bottom plate, E, has a central passage, *i*, through it, and arms *h* connect the hub *h'* with the ring *h*². The arms *h* are feathered and set obliquely, so that when the mill is in operation they will induce strong currents of air to rush up through the passage *i*, which will greatly assist in the cleaning operation of the scourers. The hub *h'* is keyed to the shaft C, and its upper face furnishes the lower bearing for the gear-wheel E³. The revoluble sleeve E¹ is provided for a portion of its length, between its middle portion and its ends, with reversely-cut screw-threads *f* and *f'*, and these threaded portions are provided with spiders G G', having female threads, so that when the sleeve E¹ is revolved they will move in opposite directions. The radial arms or studs *g* of the spiders G G' are connected to lugs *g'*, near the ends of the scouring-plates F, by arms *g*², pivoted to the studs *g* and to the lugs *g'*.

H indicates vertical flat bars, which are secured at their upper and lower ends, respectively, to the tangential perforated lugs of the upper corrugated plate, E', and lower ring, *h*², upon the vertical shaft C. These bars are arranged alternately with relation to the scouring-plates, and serve to connect and brace the corrugated plate and lower ring upon said shaft C.

To the under side of the hub *h'* is secured or cast with it an arm, *g*³, having a vertical sleeve, *l*, at its end, which forms the bearing for a short shaft, *l'*, carrying a pinion, *l*², at its upper end, which meshes with the gear-wheel E³. This shaft has a thumb-nut, *l*³, at its lower end outside of the case, by which to turn the pinion to operate the plates F, to adjust them nearer to or farther from the scouring-case to suit the different kinds of grain being treated. I do not, however, wish to be understood as claim-

ing this means for adjusting the scouring-plates within the cylinder, as such has been used for adjusting plates carrying brushes.

The scouring-plates F are preferably composed of bases *m*, having rounded studs *m'* projecting from their outer faces, and secured in any suitable manner to their seats. These scouring-plates take the places of the brushes and beaters heretofore employed, and are intended, in connection with the wave-corrugated staves D', as the scourer revolves, to carry the grain along the corrugations of the staves and turn it over end for end, and thereby give it a thorough rubbing, scouring, and polishing, both by the revolving scouring-plates and by the stationary staves in the scouring-case. When the grain reaches the perforated sheet-steel sections or staves of the scouring-case, the dirt, fuzz, and other impurities which have been loosened by the action of the revolving scouring-plates and the stationary corrugated staves in the scouring-case are at once driven through the perforations of the sheet-steel and drawn away by the fan in the usual manner, so that when the centrifugal action of the revolving scouring-plates carries the grain onto the next corrugated section of the scouring-case the grain reaches it free from the dirt, fuzz, and other impurities which have been previously detached. I prefer to use alternate sheet-steel sections having parallel diagonal slits *n*; but I may make the slits horizontal and irregular or vertical and irregular, or I may even use wire-

cloth to form the perforated sections, without departing from the character of this portion of the invention. 35

Although I have shown a complete machine with my improvements applied, they may be applied to any other form of machine. The grain is distributed around the inside of the case, as in other machines, by the dish-shaped top plate, E'. The case is preferably made in halves secured together by bolts. 40

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is— 45

1. In a grain-scourer, the combination, with a scouring-case composed of alternating solid corrugated and open-work sections, of a revolving scourer within the scouring-case, having adjustable studded scouring-plates adapted to be moved nearer to or farther from the scouring-case, substantially as specified. 50

2. In a grain-scourer, the combination, with the scouring-case composed of alternate staves or sections of solid material, having wave-corrugations on their inner faces and perforated sections connecting them, of a revolving scourer provided with scouring-plates having friction-projections, substantially as specified. 55 60

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES M. GILBERT.

Witnesses:

WILLIAM RICHMOND,
SIMON OBERMEYER.