2 Sheets—Sheet 1

M. FORMAN.

Grain Scouring and Cleaning Machine.

No. 201,767. **Patented March 26, 1878.**

Fig 1

Fig 3

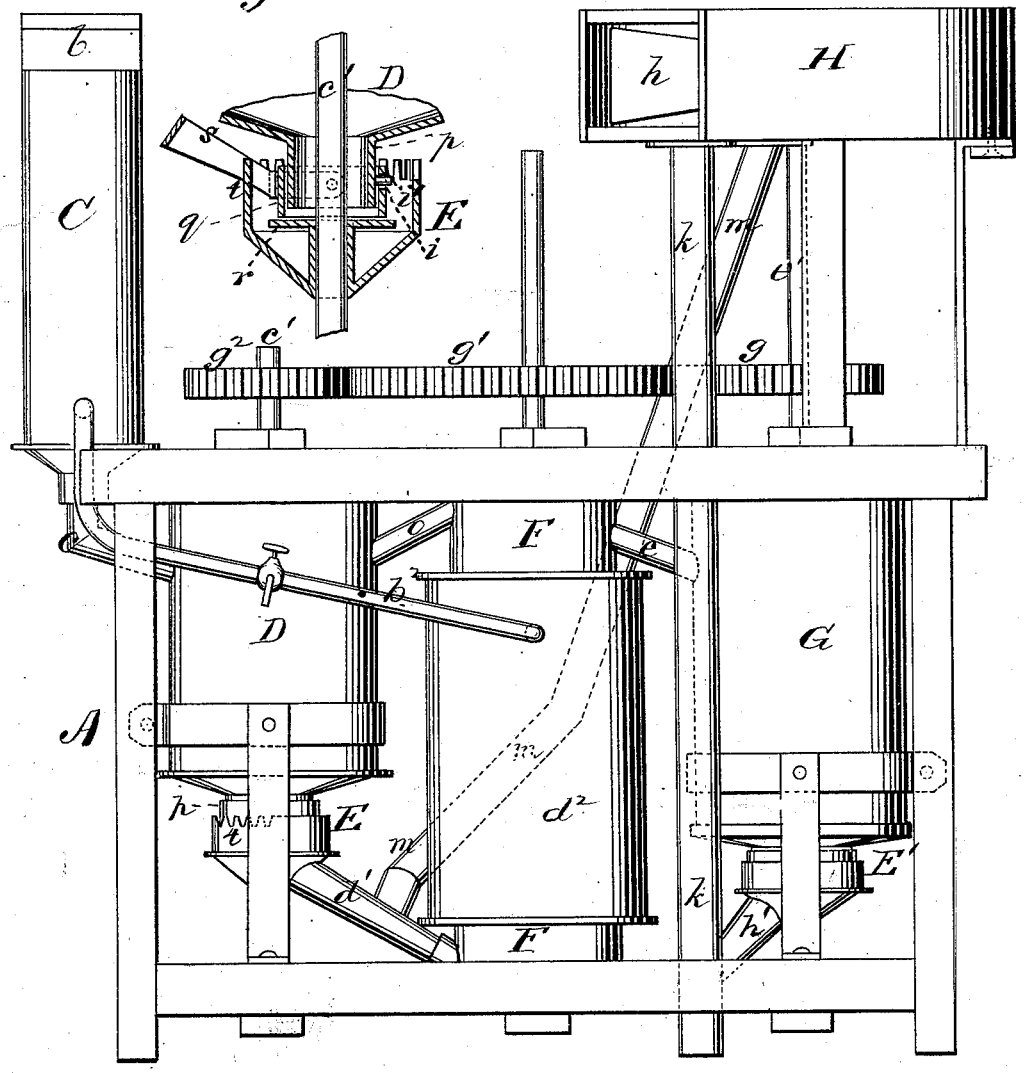
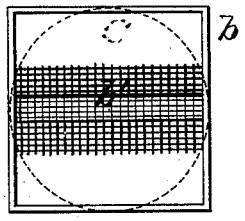


Fig 4



WITNESSES

Villette Anderson.

F. J. Masi

INVENTOR

M. Forman,

by E. W. Anderson,

ATTORNEY

2 Sheets—Sheet 2.

M. FORMAN.

Grain Scouring and Cleaning Machine.

No. 201,767. Patented March 26, 1878.

Fig 2

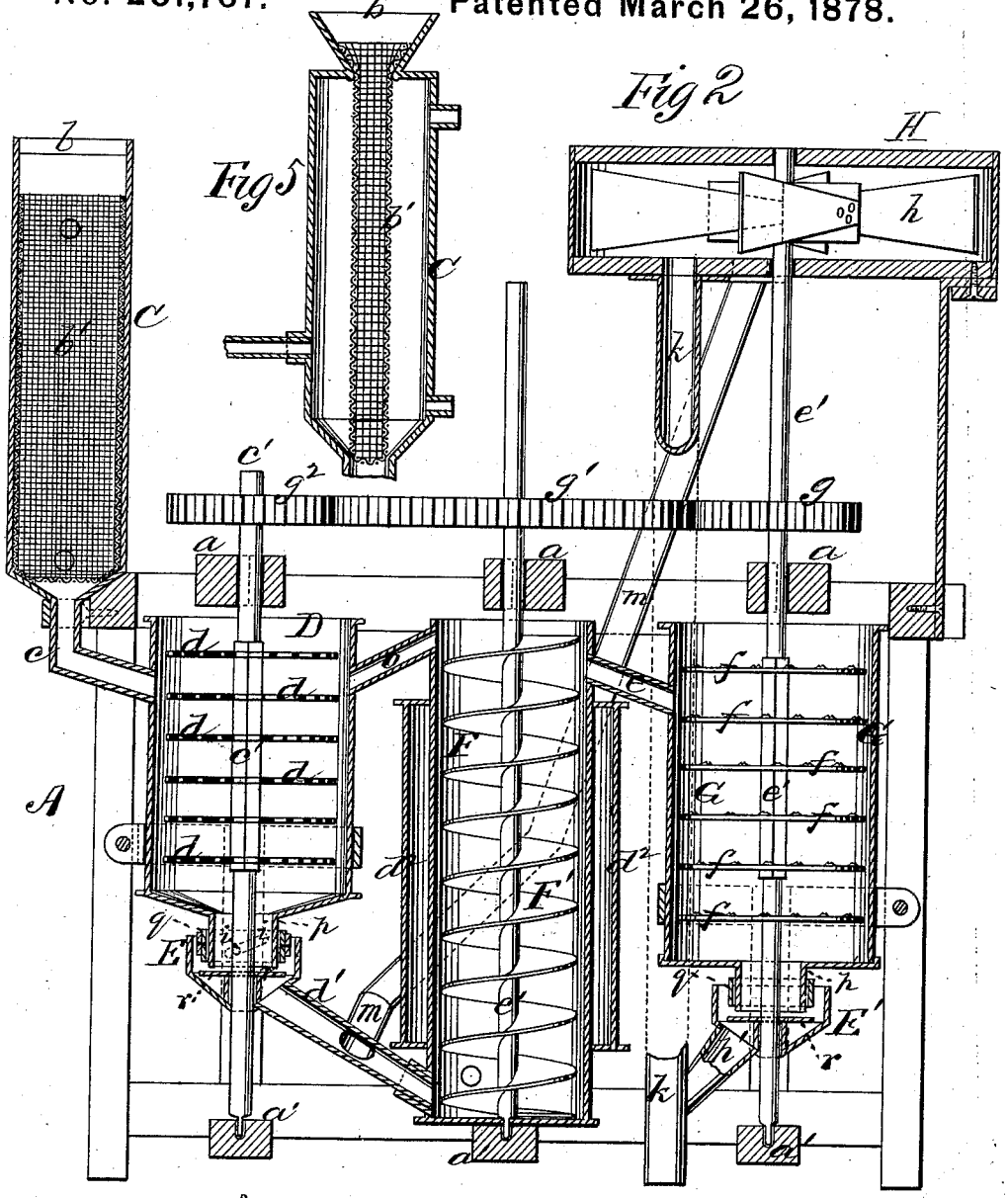


Fig 6

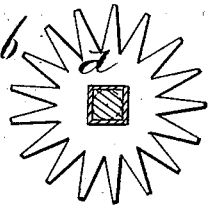
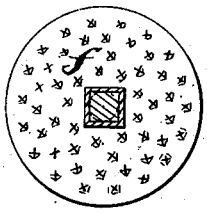


Fig 7



Witnesses.
Villette Anderson.
F. J. Masi

Inventor.
M. Forman.
by E. W. Anderson,
Attorney.

UNITED STATES PATENT OFFICE.

MADISON FORMAN, OF MEMPHIS, MISSOURI.

IMPROVEMENT IN GRAIN SCOURING AND CLEANING MACHINES.

Specification forming part of Letters Patent No. **201,767**, dated March 26, 1878; application filed May 26, 1877.

To all whom it may concern:

Be it known that I, MADISON FORMAN, of Memphis, in the county of Scotland and State of Missouri, have invented a new and valuable Improvement in Wheat Steamer, Scourer, Drier, and Polisher Combined; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side view of my invention. Fig. 2 is a longitudinal vertical central section thereof; and Figs. 3, 4, and 5 are details.

This invention has relation to improvements in means for preparing wheat, barley, and other grains for grinding.

The object of my invention is to so prepare wheat before grinding that a high grade of flour will be produced from an inferior quality of grain.

The nature of my invention will be fully understood from the following description and the claims appended thereto.

In the annexed drawings, the letter A designates the main frame of my apparatus. This frame is of oblong form and upright, and is suitably braced at top and bottom by beams *a a'*, respectively. C represents a strong, preferably metallic, vessel, having at its upper end a hopper, *b*, that opens into a laterally-flattened reticulated conduit, b^1, inside of said vessel. Instead of the conduit, I may use two spaced sheets of wire-cloth, having their edges secured to the side of the vessel. This latter I denominate a "steamer," and the object of the flattened conduit is to deliver the grain to the steamer in a thin sheet, whereby the removal or loosening of the woody coat is greatly facilitated. Steam is passed into the vessel through a pipe, b^2, and, after being utilized, escapes through a second pipe at the opposite side. The grain passes from vessel C to the decorticating-drum D through an elbow-pipe *c*. The drum is provided with an axial shaft, *c'*, upon which is arranged a number of saw-toothed wheels or plates, *d*. These wheels, by the rotation of the shaft aforesaid, are driven at a high speed through the wheat in the said drum, and, without breaking the kernels, effectually remove their fibrous or woody coating, which passes along with the grain through an inclined conduit, d^1, into the lower end of a second drum, F. This latter conduit d^1 has an adjustable feed-valve, E, the construction of which will be hereinafter explained, by means of which the flow of grain from the huller-drum may be regulated.

Drum F will be preferably of metal, and it is surrounded by a steam-jacket, d^2, that is supplied with steam through a suitable pipe. Within drum F is an endless elevating-screw, F', that, being rotated, will convey the grain from the lower end to the upper part of said drum, whence it will escape through a pipe, *e*, into a third cylindrical drum, G. This latter is provided with an axial shaft, *e'*, having a series of indented, corrugated, or roughened wheels, *f*. The grain while in the elevator-drum is thoroughly rid of any moisture which it may have acquired in the steaming-vessel by the jacket, and is delivered in a dry state to the drum G. In this latter it is thoroughly smoothed and polished by the abrasive action of the indented plates, which are rapidly rotated through the medium of a gear-wheel, *g*, upon its shaft, meshing with a larger one, g^1, on the shaft of the elevating-screw. The latter gear engages a gear, g^2, upon the shaft of the decorticating-wheels in the drum D. The various devices above set forth are simultaneously actuated by applying power to the shaft of the elevating-screw.

The shaft e^1 extends upward through the casing H of a fan, *h*, and the latter being keyed thereon, its rotation will impart rotary motion to the fan, thus creating a strong outward draft.

The grain, being thoroughly polished, is discharged from the bottom of the drum G, through an adjustable feed, E', into a spout, *h'*. This latter is connected with the fan-case by means of a tube, *k*, so that as the grain is delivered the suction of the fan will rid it of the fine dust produced during the polishing process. The fan aforesaid is also connected by a tube, *m*, with the pipe *d'* that conducts the grain from

the decorticating-drum into the elevator, so that when discharged into the latter it is already in a great measure cleaned.

When the grain is delivered faster from the decorticating-drum to the elevator than it is from the polishing-drum, the said elevator will become filled, and the excess therein will run back into the decorticator through a pipe, *o*, the entrance of which into the said elevator is above the level of the pipe aforesaid leading therefrom into the polishing-drum.

The feed-valves E E′, respectively, of the hulling and polishing drum are of the following description: Each of the said drums has a neck, *p*, Fig. 3, of suitable dimensions on its lower end, through which the discharge is made. Upon this neck is applied a broad ring, *q*, having an oblique slot, *i*, formed therein, by means of which and a pin, *i′*, the neck and ring are connected together. Below the necks *p* on the shafts of the drums are secured broad metallic collars *r*, against which the lower edge of the rings will bear when they are turned in the proper direction, thus closing up the interval between the lower end of the neck and the said collar. By widening or lessening this interval the delivery of the grain may be increased or diminished at pleasure. The rings are actuated by levers *s*, and are adjusted in position by engaging the latter with ratcheted collars or spout-hoppers *t* on the pipes *d′ h′* aforesaid.

Steam enters the jacket through an induct at its lower end, and will be regulated by a globe-valve. It then circulates through the jacket of the elevating-drum, and passes out therefrom through the pipe b^2 into the steamer, as aforesaid. This pipe will also have a globe-valve, by means of which steam may be cut off from the steaming-vessel.

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

1. The combination, with the elevating-drum F and the decorticating and polishing drums, of the valved induct d^1 and overflow-pipe *o*, respectively connecting the decorticating-drum at bottom and top with the elevating-drum, and the discharge-pipe *e*, connecting the latter with the polishing-drum, substantially as specified.

2. The elevator-drum F, having the elevator F′, and the steam-jacket d^2 surrounding said drum, to dry the grain in its ascent, substantially as specified.

3. The combination, in grain-cleaning apparatus, with a suspended fixed receiving-drum, having a neck, *p*, at its lower end, and a rotating shaft working in said drum and through said neck, of the horizontal annular flange *r*, the spout-hopper *t*, and the adjustable ring-valve *q*, substantially as specified.

4. The grain-cleaning apparatus described, consisting, mainly, of the upright steam-jacketed and reticulated feed, the steam-jacketed elevator-drum F, the decorticator and polisher, respectively delivering to and receiving from said drum, the suction-fan, valved conduits d^1 *h′*, elevator-conduit *e*, and draft-pipes *k* and *m* leading to the fan-case from said conduits, as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

MADISON FORMAN.

Witnesses:
R. D. CRAMER,
SETH FARWELL.