

J. MERCER.

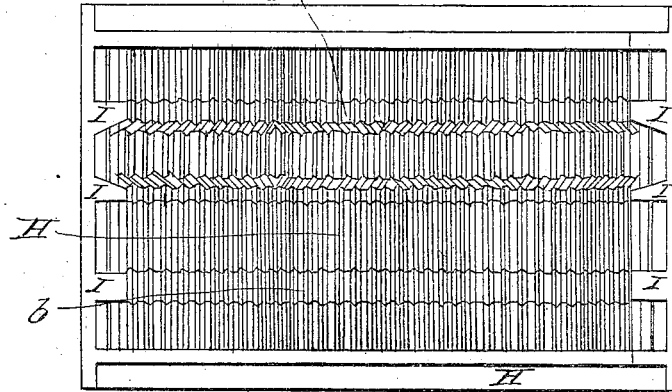
2 Sheets—Sheet 1.

Grain Huller.

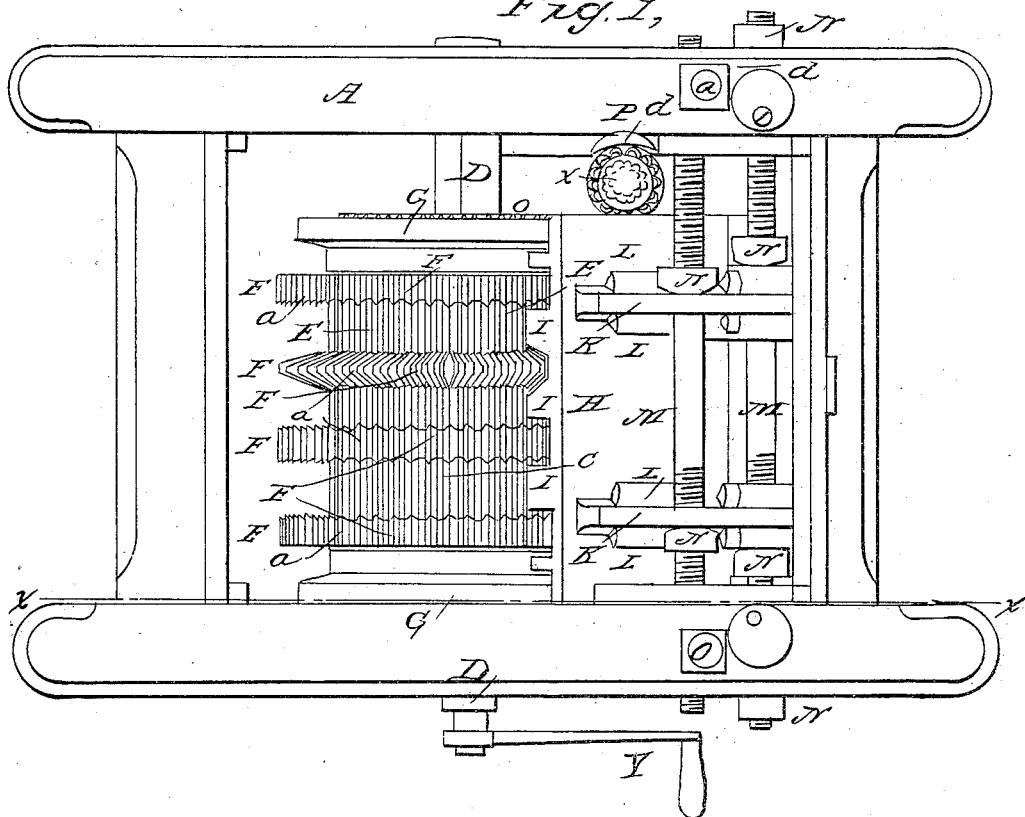
No. 1,187.

Patented June 24, 1839.

*Fig. 3,*



*Fig. 1,*



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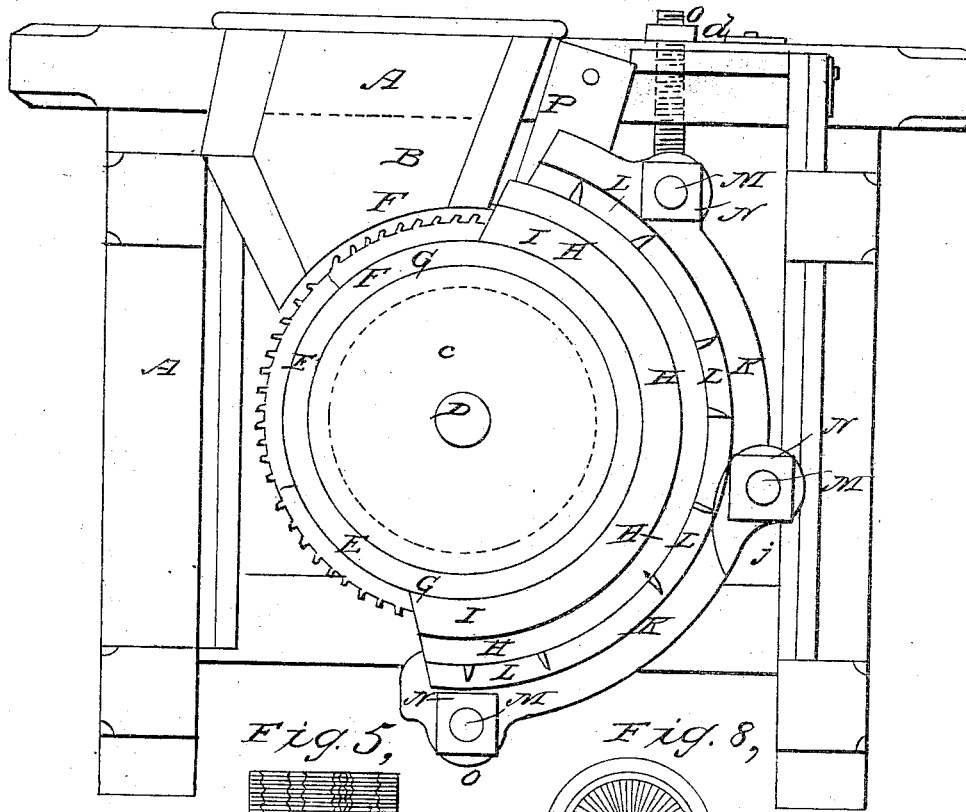
2 Sheets—Sheet 2.

Grain Huller.

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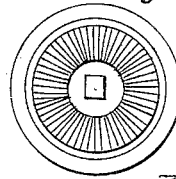
*Fig. 2,*



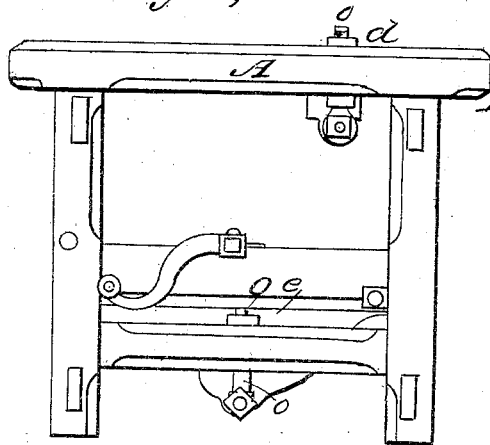
*Fig. 5,*



*Fig. 8,*



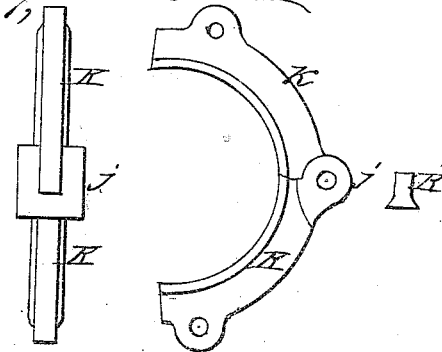
*Fig. 4,*



*Fig. 7,*



*Fig. 6,*



# UNITED STATES PATENT OFFICE.

JOHN MERCER, OF HARRISVILLE, OHIO.

## CORN-SHELLER AND MACHINE FOR HULLING GRAIN.

Specification of Letters Patent No. 1,187, dated June 24, 1839.



*To all whom it may concern:*

Be it known that I, JOHN MERCER, of Harrisville, in the county of Harrison and State of Ohio, have invented a new and useful  
5 Machine for Shelling Corn, Hulling Clover-Seed, Rice, Barley, Oats, Buckwheat, and other Grain, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

10 Figure 1 represents a top view of the machine, the top board and hopper being removed in order to show the cylinder and concave more clearly. Fig. 2 is a sectional  
15 view through the line X X of Fig. 1 showing part of one end of the cylinder and concave. Fig. 3 is a bird's-eye view of the concave, the cylinder being removed. Fig. 4 is a  
20 view of one side of the machine; Fig. 5, one of the segment plates of the cylinder detached; Fig. 6, side or edge view of the  
25 jointed segment bars or ribs dovetailed at their sides—also a section of the same; Fig. 7, concave to hold ears of corn; Fig. 8, circular  
rubber on the end of the cylinder, for shelling corn.

Similar letters in the figures refer to similar parts.

30 The frame of this machine, which is marked A, Figs. 1, 2 and 4 of the annexed drawings, and the hopper B, Figs. 2 and 4, are made so much like the frame and hopper of machines for similar purposes that  
35 it is not deemed necessary to enter into a minute description of their constructions: the frame however, must be made of sufficient size and strength for the purpose intended—say about 3 feet 6 inches high, 3  
40 feet 6 inches long, and 2 feet 6 inches wide, and may be composed of four posts, six rails—three on each side—and four cross ties. A cylinder C of proportionate length  
45 and diameter is placed in this frame near the center thereof in a transverse position having an axle D passing through the center  
50 of the same which turns in boxes on two of the side rails and whose ends project sufficiently far beyond the sides thereof to receive cranks, pulleys, cog wheels, or whatever  
55 kind of gearing may be used for turning said cylinder, propelled by manual, horse, or other power. On the surface of this cylinder are fastened by screws, and bands or other means, cast iron segment  
plates E, each plate (Fig. 5) being made

concave on the side toward the center of the cylinder and convex on the side from the center. On the convex surface of these plates are cast parallel ribs E. The cross sections of the first would present a figure thus  
60 , the second , thus, or other shape. On the sides and peripheries of these ribs are cast triangular projections on rubbers a for rubbing out the grain from the hull, between projections and similar projections b  
65 in the concave (hereafter described). By taking a triangular file and bending it over the sides of the before described ribs an idea may be had of the formation of said projections for rubbing out the grain. These  
70 segment plates are further secured to the cylinder by iron hoops or bands G driven over their ends.

The concave H, Figs. 1, 2 and 3, in which the cylinder revolves is also composed of  
75 cast iron segment plates H having the ribs I cast on the concave surface running longitudinally from one end to the other, of a shape to correspond with the spaces between the ribs of the cylinder which they enter  
80 when the cylinder is put in its proper place and having projections or rubbers cast in parallel lines on the sides and concave faces being of the same shape in their cross section (triangular) as those on the ribs of the  
85 cylinder, between which the rubbing of the hulls takes place in separating the seed therefrom.

The parallel segment plates H composing the concave are held in their proper positions around one side of the cylinder by two  
90 jointed segment bars or ribs J, Figs. 1, 2, and 6, placed parallel to each other on the back or convex sides of the plates H at right angles to them, the convex surfaces of the plates H being placed in the concaves of the segment bars K and held in that position by having the edges of said curved bars K dovetailed and inserted into corresponding  
95 dovetailed grooves L formed on the convex sides of the segment plates H. These parallel convex bars which thus suspend and hold the concave are each made in two parts K, K, Fig. 6, connected together by a  
100 clevis joint j, Figs. 2 and 6, and are themselves suspended by horizontal parallel transverse round iron bars M, M', M'', passing through said curved bars and through the sides of the frame—one of them M  
105 called the upper, one the middle, and one

the lower—having spiral threads cut on them, on which are screwed nuts N for moving said ribs with the concave to the right or left so as to bring the rubbers of the concave nearer to or farther from the rubbers of the cylinder according to the kind of grain or work to be performed. The upper and lower horizontal regulating bars M, M' which suspend and govern the position of the concave horizontally and the upper and lower ends vertically are controlled by vertical screws O at the sides of the frame which are connected to said horizontal bars by round openings in the lower ends thereof in which they are suspended. The upper suspending bar M with the upper end of the concave is raised by means of the nuts *d d* turning upon the top of the frame which raises the upper end of the concave from the cylinder and thereby increases the distance between them. By turning the nut in a reverse direction the concave is brought nearer to the cylinder which decreases the distance between them. The lower end of the bar K with the lower end of the concave is raised toward the cylinder and the distance between them thereby decreased by means of a nut *e* turning upon the top one of the lower side rails and the same is lowered in order to increase the distance between the concave and cylinder at the lower end by turning said nut in a contrary direction. The center horizontal cross bar M remains stationary, the jointed ends of the bars K moving on it. Between one side of the frame and the end of the cylinder is placed a cast iron concave P in an inclined position and fastened to the inside of the frame to hold ears of corn which are shelled by a circular fluted cast iron plate made in sections Q and fastened to the end of the cylinder toward said concave P—see Fig. 7, the concave P, and Fig. 8, the

circular fluted rubber Q; Y, the crank for turning the machine by hand.

In hulling small seed or grain the machine being set in motion the hulls are put into the hopper from which they descend between the rubbers *a b* of the cylinder and concave where they are rubbed and the seed separated therefrom—the whole descending to the under side of the machine where the seed and chaff may be separated by a fan. In shelling corn the ears *x* are put into the inclined concave P between the end of the cylinder and frame endwise in an inclined position and as the cylinder revolves the roughened plate Q (made in segments) on the end thereof shells the grains of corn from the cob—all of which descending to the under side of the machine.

It will be perceived on a moment's reflection the great advantage that must arise from the before described construction of the ribs, of the cylinder and concave ridged on three sides in the manner described by reason of the great increase of rubbing surface arising therefrom, besides other advantages not necessary to enumerate.

The invention claimed and desired to be secured by Letters Patent consists in—

The arrangement of the straight bars M and the curved parallel bars K for suspending and regulating the concave in combination with the vertical tempering screws *o o* and nuts *d e* for raising or lowering it so as to graduate the distance between the surfaces of the rubbers of the cylinder and concave for hulling and shelling various kinds of grain in the manner before described.

JOHN MERCER.

Witnesses:

WM. P. ELLIOT,  
WM. BISHOP.