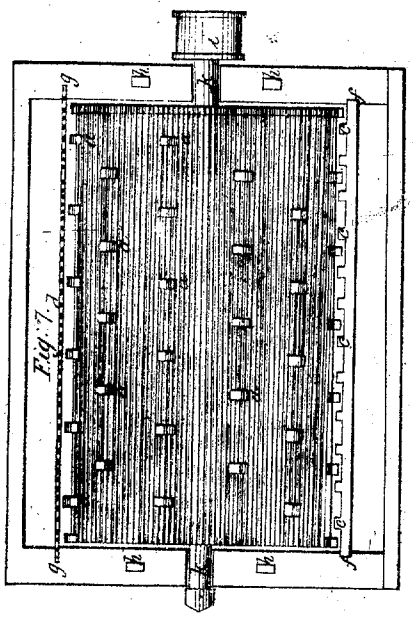
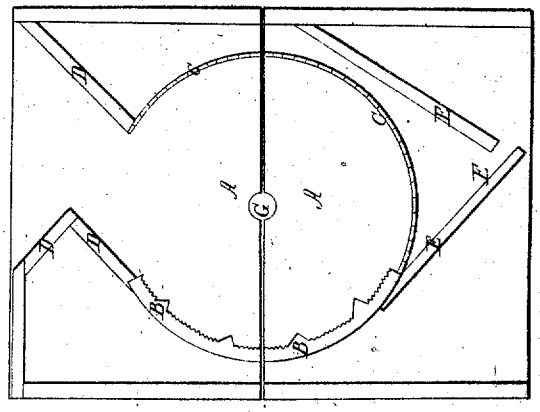
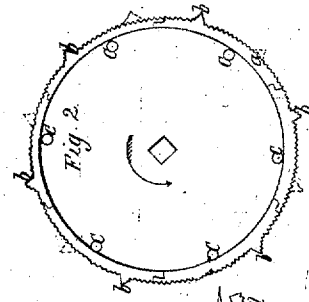
9810X

Hopner & Douty.
Clover Huller.

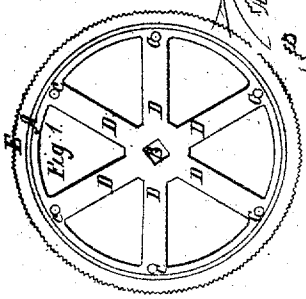
Patented Jun. 30, 1836



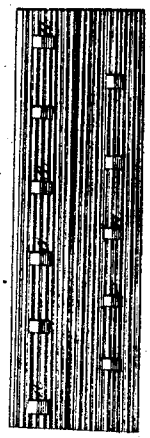


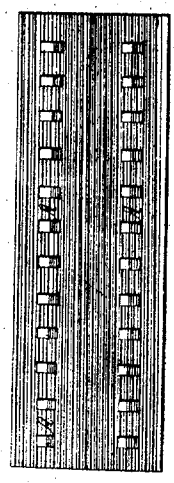












June 30 1836 9810X 30

John Hopper & Andrew Dority, of Moreburgh

— — — — — — State of Pennsylvania —

Letters Patent

The schedule referred to in these Letters Patent and making part of the same, containing a description in the words of the said John Hopper & Andrew Dority themselves of their improvement in the Machine for Hulling Clover Seed —

Be it known that we John Hopper and Andrew Dority of Moreburgh in the County of Columbia and State of Pennsylv. have invented an improvement in the "Clover Huller" viz This Machine consists of a cast iron cylinder, furnished with triangular teeth, a cast iron concave, also, furnished with triangular teeth, a screen a shaft, through the cylinder with a wheel on one end of the shaft, hopperboards, and tail boards, — all of which are placed in a wooden or plank frame, consisting of two parts (an upper and lower) which separate horizontally, about the center, The cylinder is hollow about eighteen inches in diameter, and may be made thirty inches in length, more or less, to suit the power to be applied or the inclination of the corner. It is composed of two cast iron heads, forming the end and of the staves, the staves are put together by setting the ends thereof into a groove, cut in the rim of each head about three forths of an inch from the out edge thereof; and when the staves and heads are thus fitted together, they are fastened together by iron wrought iron rods passing through the heads, immediately within the circle of the staves; each rod having a head on one end, and a screw and nut on the other end, by which they are to be firmly screwed together, The convex surface of the cylinder is to be fluted longitudinally, and the outer edges of the heads are to be notched or made concave-

with the fluting of the cylinder. The head consists of a rim about two inches wide, six arms, and a circular piece in the centre, of two or more inches radius, through which a square hole is left to admit a shaft of suitable thickness for the cylinder to revolve on and immediately within the grooves above mentioned, and where the arms unite with the rim, six circular holes are to be made for the bolts to pass through by which the several parts of the cylinder are to be fastened together, each head with all its arms, rim, grooves and the notches round the edge is to be moulded and cast complete, The thickness of the cast iron, in the heads and stays, to be about an half inch

Each staves of the cylinder is to be curved to a radius suitable to the intended diameter, and to be wide enough to form one sixth part of a circle exclusive of the lap at each edge; and is to be furnished with triangular teeth set in rows at a proper distance from each edge, in alternate order so that the several teeth forming a longitudinal row shall in making a revolution, work precisely between the tracks marked out by the teeth of the adjacent rows, The number of teeth must be varied, to suit the length of the cylinder, and for cleaning Cotton seed, for which this is principally intended the teeth of the cylinder and of the concave should work within about a quarter of an inch of each other; and the teeth of one should work within about a quarter of an inch of the surface of the other, The teeth of the cylinder are to be dressed back, and notched on the front from the base to the vertical angle, and they are to be three fourths of an inch high, The notched rims of the heavy extending also three fourths of an inch above the surface of the cylinder are each intended to retain the fillets, of a ring of teeth, — The concave consists of five cast iron staves, half an inch thick, made to correspond with the cylinder in curvature, the radius thereof being one inch longer than that of the cylinder, The teeth are to

be triangular and of the same height as height above the surface with those of the cylinder. — Two rows of teeth are to be set in regular order along each staave on the concave side. The surface of the concave is also to be fluted longitudinally.

The staves of the concave are to be fixed with their ends into grooves to be cut in the end planks of the frame, at a proper distances from the centre of motion of the cylinder, one staave in the lower part of the frame and the other in the upper part so that when the two parts are put together, the two staves come in contact and form together a segment of about one third of a circle round the cylinder — one half being above, and the other half below, the centre of the cylinder —

The screen is to consist of woven wire, or, perforated sheet iron, and is to be fixed into the frame in a manner similar to that described for fixing the concave, about two thirds thereof is to be fixed into the lower part of the frame, forming double the lower staave of the concave, a continued curve, of equal radius with the outside of the concave, and making with the lower half thereof a complete semicircle. The remaining part of the screen is to be fixed in the upper part of the frame, so that when put together it will continue the curve up to a horizontal line with the top of the upper staave of the concave — the radius of the curve formed by the upper part of the screen, gradually increasing from the bottom upwards, so that the upper edge of the screen may stand rounded about an inch further from the centre than the lower edge is, in order to give more room between the screen and the cylinder at that place.

The upper boards are to be fixed also to the end planks of the upper part of the frame and attached to the upper edge of the concave, at one side, and to the upper edge of the screen at the other side and to be so placed as to form a kind of sluice, to conduct and confine the material to thrown into it to the action of the revolving cylinder

The last boards are to be placed below the screen that every thing which passes through the screen may be conducted by them, through the opening between them, to the winnowing fan, to be placed beneath the machine. The frame is composed of timber or plank; The ends of the lower part upon which the cylinder revolves, should be four inches and a half by three inches thick many other part may be much thinner, the parts of the frame are so constructed that they may separate horizontally at the centre of the shaft; the upper part carrying with it, when lifted off the upper part of the concave, the upper part of the screen, and the upper boards, and leaving all the cylinder, from the centre afterwards, exposed to view and ready to be removed at pleasure. The upper and lower parts of the frame are kept in their proper places, in relation to each other, by dowels. The position of the cylinder when the Machine is put together is horizontal, and it is nearly enclosed in the inverted curve formed by the concave and the screen.

The motion of the cylinder must be so directed, that its teeth and convex surface will keep the corn, downward and never in a contrary direction. The cylinder is to be put in motion by means of a strap and a wheel carefully attached to one end of the shaft.

Explanation of the Drawings

Fig 1st represents the head of the cylinder, of which A is the gudgeon B. the square hole in which to insert the shaft. C.C.C.C.C.C. the six circular holes through which to pass the rods used for fastening and holding the several parts of the cylinder together. D.D.D.D.D. the six arms. Two such heads are required for the cylinder. The outer edge of the arm (E) is notched to answer the purpose of a ring of teeth. Fig 2. Represents a transverse section of the cylinder when put together, and cut through a ring of teeth in which a.a.a.a.a.a. are the six arms showing the top of the edge and the fluting of the surface. b.b.b.b.b.b. are a ring of teeth shaped back and notched in the front from

the base to the vertical angle, they are three forths of an inch in height from the surface of the cylinder to the vertical angle or point c,c,c,c,c, are the lip iron pins used for fastening and holding the several parts of the cylinder together and are immediately within the ring or circle formed by the staves. d, the square shaft in the centre. The dart (e) shows what direction ought to be given to the mallet to suit the cut and shape of the teeth they being notched on the front. Fig. 3rd. Represents a cross section of the concave composed of the staves cut through a transverse row of teeth showing the shape of the teeth as at A, and the fluting of the concave surface as at B,B, &c.

Fig. 4th. Represents a transverse section of a single stave of the cylinder. Fig. 5th. is a convex view of a single stave of the cylinder showing the manner of distributing or placing the teeth upon it which are represented at a,a,a,a,a,a,a, &c.

Fig. 6th. Is a concave view of one stave of the concave showing the manner of distributing the teeth upon it. The teeth appear in two regular rows, as at a,a,a,a,a,a,a, &c. Fig. 7th is a top view of the cylinder placed in the lower part of the plank frame, exhibiting the situation of the teeth on the cylinder, as at a,a,a,a,a,a,a,a, &c. and the upper edge of the lower stave of the concave at b) with the upper row of teeth at c,c,c,c, &c. and on the opposite side of the cylinder, the upper edge of the lower part of the screen k, c,c. are the end boards of the frame into which the ends of the concave are let at f,f, and into which the ends of the screen are let at g,g. — h,h,h,h, are mortises for the dovetails which are fast to the upper part of the frame — i the wheel and k, k, the gudgeons upon which the cylinder turns.

Fig 8th Representing a transverse section of the frame including the concave, screen, hopper, boards, and tail boards. The cylinder being cut at A,A, are the end boards of the upper and part of the frame B.B. the upper and lower staves of the concave C, C, the upper and lower parts of the screen — D.D.D.

the hopper boards C. C, the tail boards, D the opening through which
every thing, after passes through the screen is conducted to the drawing
pan beneath the machine and E, a hole in the end for a gudgeon
of the shaft to work in. When the cylinder is placed in as at fig.
7. and the upper part of the frame is put on, as at fig 8. the
Machine is prepared for use.

Manner of using the mill or Machine. When the
Machine is prepared as above described it is then adapted to the
hulling of Clover seed only a quick revolving motion being
communicated to the cylinder by means of a strap and wheel as
aforesaid the hopper is to be filled with the chaff containing
the seed, which must there be permitted to remain until it
becomes fine enough to pass, (chaff and all) through the screen, and
be drawn through the opening between the tail boards D the pan
The operation is attended with no further trouble than that of keeping
the hopper filled, and the process of hulling will be rapidly
performed by the operation of the machine — In order to adapt it
to the hulling or threshing of other seeds or grain, the upper part of
the concave and the whole of the screen must be removed.

What we claim as our invention is the manner of constructing
the cylinder, (as we are aware that cylinders have been long in
use, but not constructed after the manner of ours) We therefore
claim the method of fluting the circumference, and the
outer edge or periphery of the heads.

Secondly the manner of fastening the staves and heads
together by means of the wrought iron rods as described

Lastly the manner of combining the fluted and notched
teeth with the fluted cylinder as set forth above.

In testimony that the above is a full and
true description of our improvement as invented by us we have hereunto
set our hands,

Witness David Petrikin — John Hopper.
Joseph Hoke — Indiana County.

Entered