

W. Rowe,
Clover Huller.

No. 893.

Patented Aug 25, 1838.

Fig. 1.

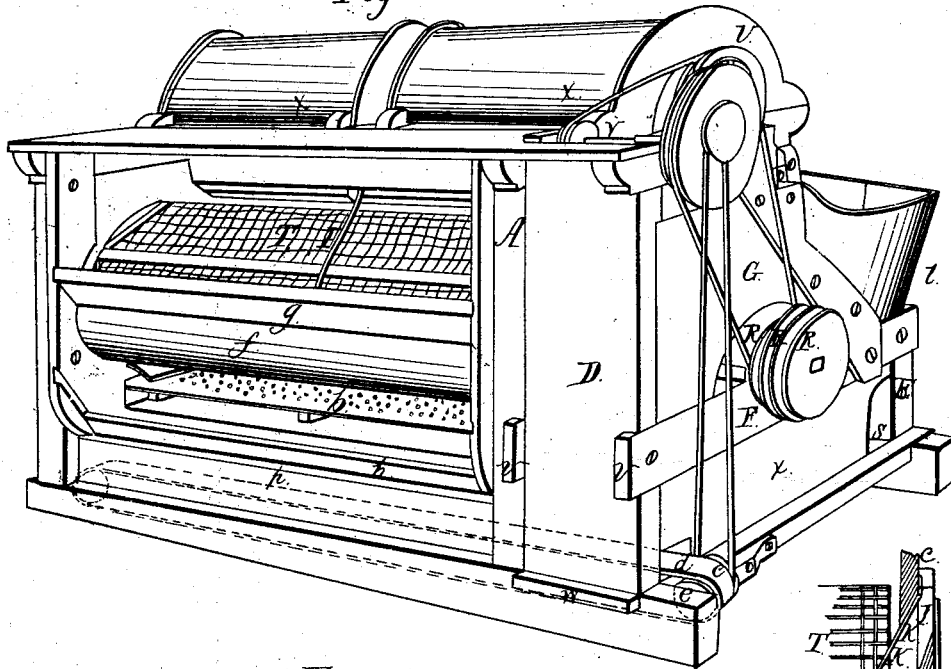


Fig. 14.

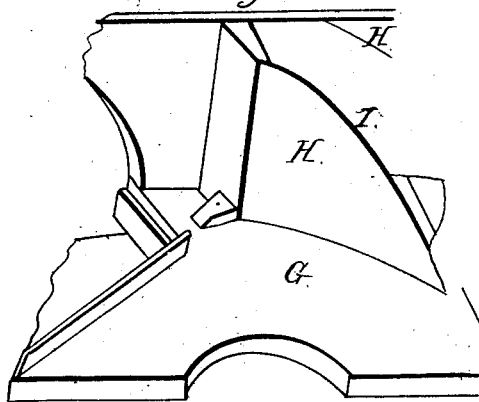


Fig. 16.

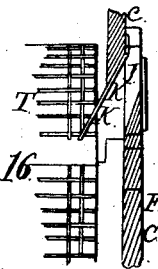


Fig. 13.

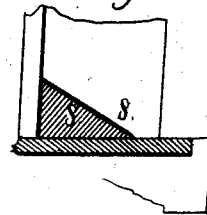
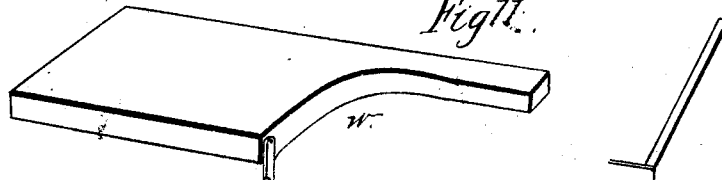


Fig. 11.



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Fig. 2. Patented Aug 25. 1838.

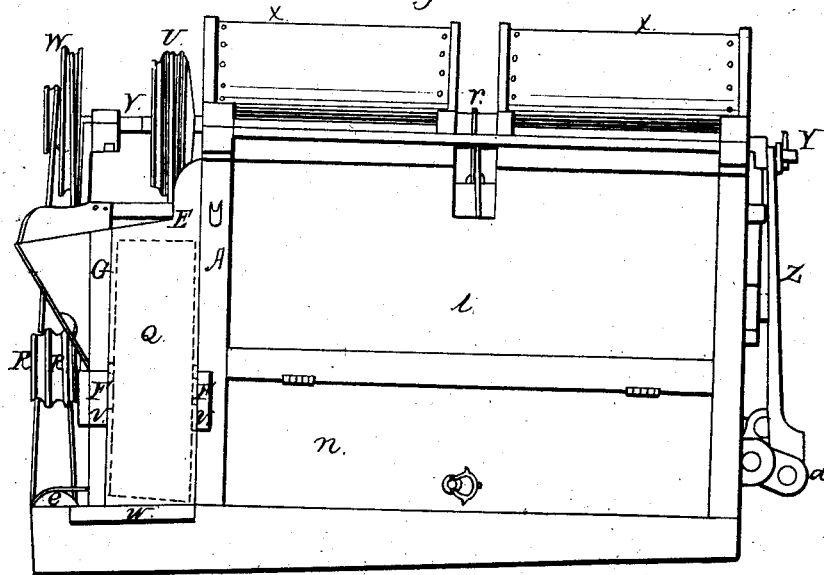


Fig. 7.

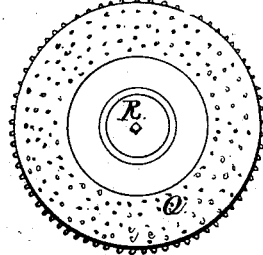


Fig. 12.

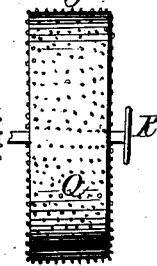


Fig. 8. Section of Cap seen from inside

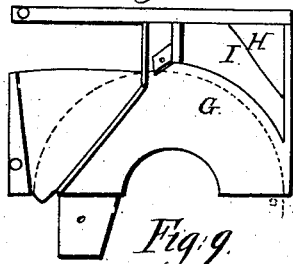


Fig. 9.

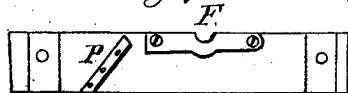
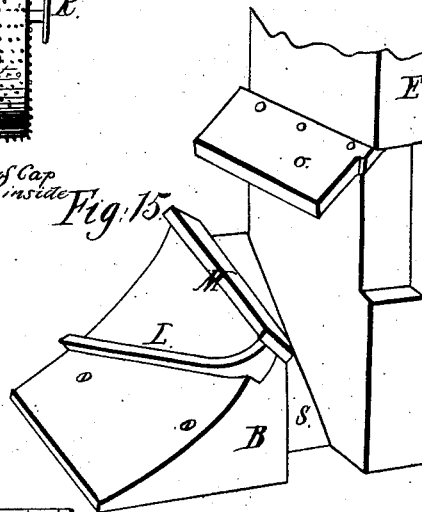


Fig. 15.



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3 Sheets, Sheet 3.

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Fig. 3

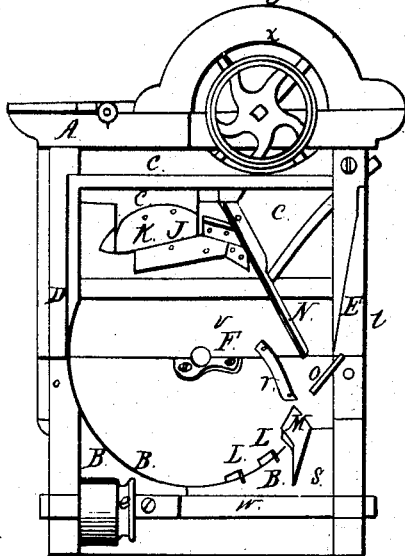


Fig. 4

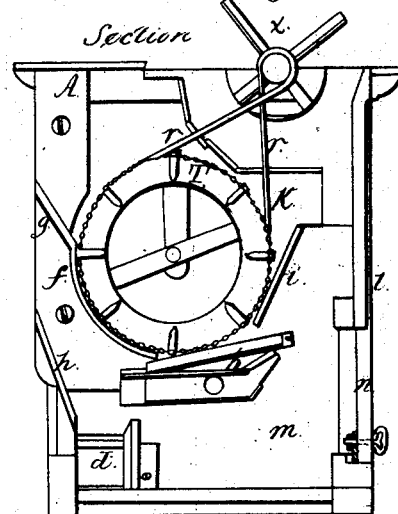


Fig. 5

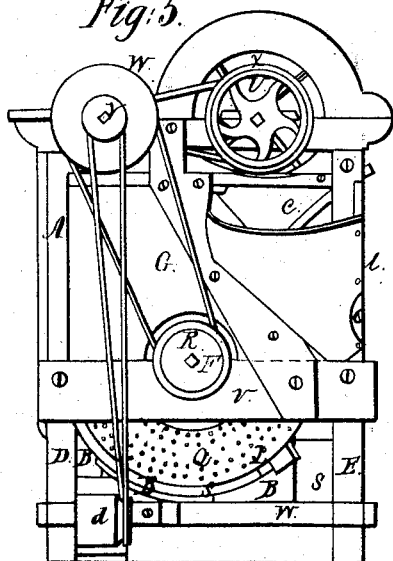


Fig. 6

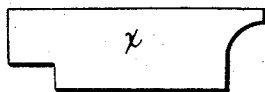
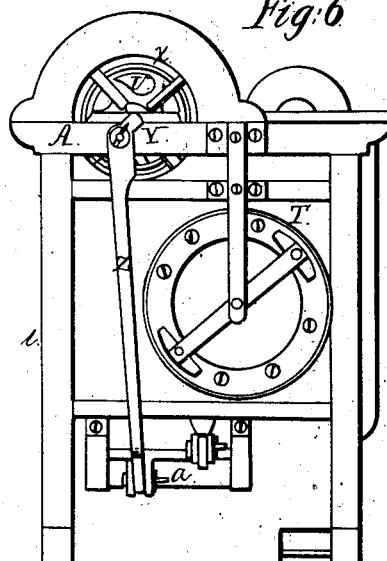


Fig. 10

UNITED STATES PATENT OFFICE.

WILLIAM ROWE, OF FREDERICK, MARYLAND.

MACHINE FOR THRESHING AND CLEANING CLOVER-SEED.

Specification of Letters Patent No. 893, dated August 25, 1838.

To all whom it may concern:

Be it known that I, WILLIAM ROWE, of the city of Frederick, in the county of Frederick and State of Maryland, have invented a new and useful Machine for Separating Clover-Seed from the Hulls and Cleaning the Seed, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

In the accompanying drawings Figure 1 is a perspective view of the machine. Fig. 2 are elevations taken from the front. Fig. 3 transverse section of the threshing chambers through the line of the inside box F, the cylinders being removed. Fig. 4 transverse sections through the screen, fan &c. Fig. 5 end elevation with a part of the boarding removed to show the threshing cylinder. Fig. 6 end elevation opposite the thrasher showing the end of the screen and fan and the mode of vibrating the sieve. Figs. 7 and 12 show the threshing cylinder represent parts of the internal arrangement will be described in their appropriate places.

The same letters indicate similar parts in all the figures in which they are represented.

The distinguishing feature of this machine consists in a very simple combination and arrangement of an apparatus for threshing out the seed from the hulls—a circular revolving screen into which the seed and chaff are delivered for separating the one from the other—a revolving fan for cleaning the seed—vibrating screen placed below the revolving screen for more perfectly cleaning the seed and an endless movable apron or conveyer for conveying the seed to any place desired—all contained in a frame having an inclination backward for throwing the seed and chaff from the front to the rear of the machine—the several operations before mentioned being performed at the same time by the same moving power.

The frame A Figs. 1, 2, 3, 4, 5, 6, to contain and support the several parts of the machine may be made of a rectangular figure, of suitable size and strength to contain and support the several parts of the machine before mentioned; but it may be varied in size, strength, and materials to suit the views of the constructor; it must however have an inclination from front to rear to cause the revolving screen to discharge the chaff at the lower end of it—which inclina-

tion may either be produced by making the sills thicker at one end than at the other—or by putting a block of wood under the sills at one end so as to raise it at that end.

The concave B, Figs. 3, and 5, in which the threshing cylinder revolves for threshing out the seed from the hulls is constructed at the elevated or feeding end of the machine.

The end of the main frame just mentioned is boarded up close by boards C Fig. 3, except at certain places hereafter mentioned where openings are left through which the seed and chaff are conducted to the revolving screen, and for the movement of the conveyer in discharging the seed. The sills are extended lengthwise beyond the end of the frame a sufficient distance to receive and support the concave and hopper. Across the machine from one sill to the other and on top of the projecting ends just mentioned is framed a strong piece of timber *w* Figs. 1, 2, 3, 5 for supporting the concave, &c.

The lower part of the concave consists of blocks of wood B, B Figs. 3 and 5 concave on the upper side; the curve of which being a little greater than the curve of the revolving cylinder turning therein and flat on the lower sides resting on the cross piece and vertical on the other sides. The concave is extended on one side by means of a vertical piece of timber D, raised on the projecting end of one of the sills and secured to the main frame. Another piece of timber E, is raised on the other sill in a similar manner. Two cross bars *v v* for supporting the boxes F, in which the axle of the cylinder turns are secured to the edges of the two last mentioned upright pieces about one third their height from the sills. The cylinder revolves between these bars. Below the outside bar is fitted a piece of board *x* Fig. 1 extending to the bottom of the concave (which is removed in Fig. 5 in order to show the lower parts of the cylinder). Above said outside cross bar is fitted the cap or covering G of the cylinder for preventing the escape of the seed, &c., the side of said cap being cut away at one corner and covered with a piece of strong leather swelling outward and forming a hopper for feeding the machine—the top of the cap near this piece of leather is also cut out as represented in section at *w* Fig. 11 in order to form an open space for the admission of the hulls to the hopper. On the inside of the cap is fas-

tened a block of wood H Figs. 8 and 14 which gives an inside view of the cap made concave on the side toward the cylinder and it is grooved out in the form of a curved spout at I for conducting the chaff and seed to the revolving screen T through the opening J Fig. 3, more clearly represented in Fig. 16, which is a section of that part of the machine, in the board C at the end of the frame. This opening is covered in front by a piece of leather K Figs. 3 and 16 forming an apron for directing the seed and chaff from the threshing machine to the lower part of the revolving screen and thus preventing the seed, &c., being thrown out at the lower end of screen before being separated.

The space *s* Fig. 5 between the concave and cylinder is about $\frac{3}{4}$ or 1 inch.

In the concave are placed strips of leather L, Fig. 3 and Section 15, which gives an inside view of part of the concave, apron O and chute S, either obliquely, or at right angles, to act as stops against which the hulls are arrested and threshed by the cylinder, and revolved or turned over and repeatedly threshed until the seed is completely separated from the hulls.

At the commencement of the concave is fastened a strip of leather or steel M Figs. 3 and 15 for preventing stones, nails, and other hard substances entering between the cylinder and concave and is inclined in such a manner as to direct them out of the machine through an inclined chute S Figs. 1, 3, 5 and 13 and 15. At the side of the hopper is secured a piece of leather N (Fig. 3,) in an inclined position for preventing hard substances passing between the side of the cylinder and the frame. At the bottom of the hopper and over the entrance to the concave is fastened an inclined spring apron O for directing the hulls against the cylinder and into the concave and at the same time yielding when hard substances enter the hopper with the hulls allowing them to escape at the inclined chute S before mentioned without injuring the machine. Strips of leather P, may also be nailed to the boards forming the sides of the concave.

The cylinder Q Figs. 5 and 7, 12, 2 revolving in the before described concave may be about 32 inches diameter and 1 foot in length, covered on the outer surface with perforated or punched sheet iron or other rough substances except about 22 inches diameter of the center which is not covered and may be of sufficient weight to act as a fly wheel—revolving about 1000 revolutions per minute. The axle extends beyond the end of the machine to receive grooved or other pulleys R, R, R, for bands leading from the driving power and to other pulleys for revolving the fan and conveyer.

The circular revolving screen T for separating the seed from the chaff is made of

wire gauze of suitable meshes extended around a circular frame composed of parallel rings and parallel longitudinal ribs or bars, said screens turning on gudgeons projecting from pieces of wood or iron extending across the diameter of the cylinder and in boxes supported in hanging pieces of the main frame, or in horizontal cross girts. There is no axle passing through the center as generally used in screens of this construction. One of the cross pieces containing the gudgeon at the lower end is fastened on the outside of the outer ring—the other cross piece in the upper end is fastened on the inside of the ring at the upper end of the screen and its gudgeon is generally made to turn in a box fixed in the frame, but the box fixed in the hanging piece is preferred. The screen is turned by a band *r* Figs. 1, 2, 4, passing around it near the center crossed and extended to and around the shaft of the revolving fan hereafter described. Both ends of the screen are open—the upper one is placed opposite the opening J in the end boarding of the frame through which the seed and chaff pass from the threshing cylinder—the lower end extends through the lower end of the frame at which the chaff is discharged—it is placed longitudinally near the center of the machine.

The axle of the revolving fan turns in boxes on the top of the frame a little to the right of the revolving screens near the front side of the machine and projects so as to receive a pulley U for a band leading to a pulley on the end of a short shaft V Fig. 1, on which there is another pulley W around which passes a band leading to a pulley R, on the threshing cylinder shaft. There are two fans X, X, on the same shaft and both are covered with semi-circular covers fastened to the top of the frame. On the other end of this shaft is a crank Y from which extends a pitman rod Z, leading down to a double crank shaft *a*, of the ordinary construction for shaking the vibrating screen *b*, Figs. 1 and 4, hereafter mentioned. The vibrating screen is made in the ordinary manner and is suspended at one end by a strap and spring and at the other end by a rod extending horizontally to the double crank. Below the screen and fastened to its frame is placed a plain board of the same size for catching the seed and delivering it on the conveyer. A plain board or table may be substituted for said screen to receive the seed from the revolving screen and deliver the same on to the endless apron or conveyer.

The endless apron or conveyer *d*, is placed at the rear of the screen near the bottom of the frame and passes around two rollers—the axle of one of which having a grooved pulley *e* on it around which passes a band leading to another pulley on the short shaft before mentioned which is turned by a band

extending from a pulley on the shaft of the threshing cylinder, Fig. 2.

In the rear of the revolving screen is a curved board *f*, placed angularly also an inclined board *g*, for preventing the escape of the seed at the side of the machine and for directing it on to the vibrating table below. There is an inclined slide *h* below the curved piece just described also for preventing the escape of the seed. Another inclined board *i* Fig. 4 is placed behind the screen for the like purpose just mentioned and another above the screen for the same purpose and which also forms part of the circle of the fan, leaving a space *K* between the two last mentioned for the air from the fan to pass to the revolving screen.

The machine at *l* is boarded up in front so as to form an air chamber *m* Fig. 4 under the fan and in front of the revolving screen, into which chamber the air is constantly forced by the revolving fan until it becomes compressed and by its elasticity and the motion of the fan is driven in a strong current through the several openings of the machine but particularly through the lower end of the circular screen for driving the chaff out of the machine.

A door *n*, is made in the front of the machine in order to gain access to the inside of it.

The air is admitted to the fans through the openings in the ends of the covers or caps in the usual mode.

The endless apron or conveyer moves in a box or trough *p* composed of three boards one forming the bottom and the other two the sides.

Operation: The clover heads being threshed from the straw the machine is put in motion by animal or other power by means of a band leading from the horsepower to the pulley on the shaft of the threshing cylinder—the hulls or heads are put into

the hopper and descend between the concave and cylinder where the seed is separated from the hulls and all is thrown by the motion of the cylinder against the curved chute or spout which conducts it into the revolving screen where the seed is separated from the chaff—the former falling through the meshes of the revolving screen on to the inclined vibrating table and the chaff being driven out at the lower end of the screen—the smaller particles of chaff, &c., which pass through the screen with the seed are driven out of the machine at the rear side thereof and the seed is then delivered upon the revolving apron or conveyer which conveys it to any place desired.

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

1. In the combination and arrangement of the cylinder and concave with the revolving screen, revolving fans, vibrating table, and endless conveyer for threshing and cleaning clover seed in the manner before described.

2. The arrangement of the spring apron for directing the seed and hulls between the concave and cylinder and at the same time yielding when stones, nails, and other hard substances enter so as to allow them to escape through the inclined chute constructed in front of the concave as before described.

3. The arrangement of said chute as before described.

4. In boxing up the frame so as to form a space below the fan and screen for the reception of a large quantity of air for the purpose and in the manner above described.

5. The curved spout or chute for throwing the seed into the revolving screen and the apron for preventing the seed flying through the screen in combination with the screen.

WM. ROWE.

Witnesses:

WM. P. ELLIOT,
EDMUND MAHER.