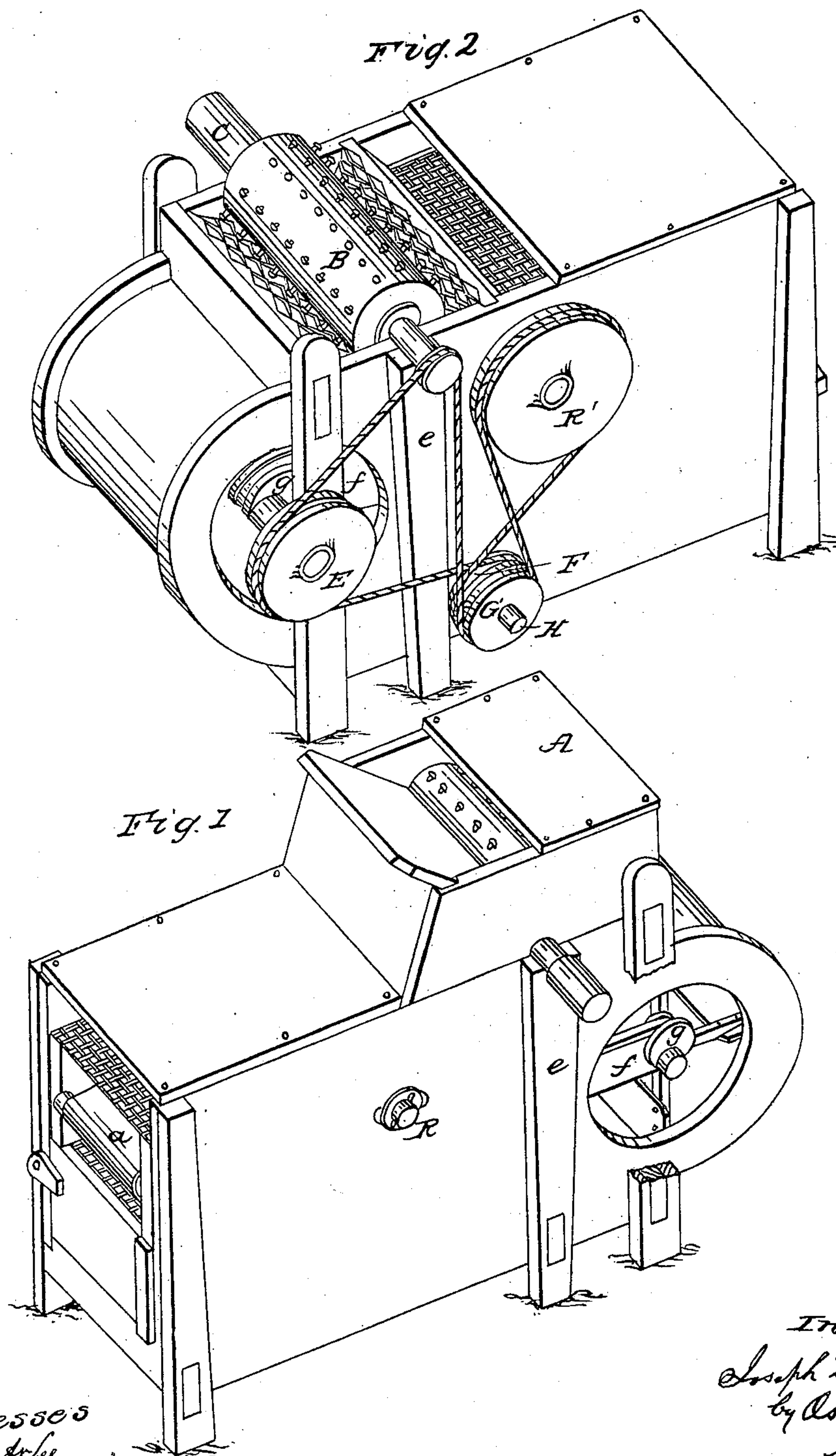


J. D. FORREY.

Clover Huller.

No. 30,962.

Patented Dec. 18, 1860.



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UNITED STATES PATENT OFFICE.

JOSEPH D. FORREY, OF LEWISTOWN, PENNSYLVANIA.

MACHINE FOR HULLING CLOVER.

Specification of Letters Patent No. 30,962, dated December 18, 1860.

To all whom it may concern:

Be it known that I, JOSEPH D. FORREY, of Lewistown, in Mifflin county and State of Pennsylvania, have invented certain new and useful Improvements in Clover Hullers and Cleaners; and I do hereby declare that the following is a true and exact description of the same, reference being had to the accompanying drawings thereof, which are a part of this specification.

Figure 1 is a perspective view of the rear end and left side of the machine, as it would appear to a person standing in the rear and toward the left side of it. Fig. 2 is a similar view of it, as it would appear to a person standing in front of it, looking at the front end and right side of the same—the hopper of it being removed.

The object of my invention is to provide an improved clover huller and cleaner, for beating the heads of the clover by such improved devices therefor as shall beat out all the seeds, and at the same time avoid breaking any of them; and for cleaning the same from the chaff and dust, by such an improved method, as will accomplish that purpose, without wasting any of the seed.

To enable others skilled in the art, to understand, and construct my improved clover huller and cleaner, I proceed to state its mode of construction and principle of operation.

In its exterior construction and figure it is nearly similar to a common fanning mill, used in cleaning wheat and other small grain; and is constructed upon four posts, as is shown in the drawings. On the front end of this machine is a hopper, marked A, in Fig. 1, into which the clover seed in the head is placed, preparatory to its being beaten out; and under this hopper, is a concave, extending from one side to the other of the machine, and it is made to fit, and rest in a groove, on either side of the machine, with its front and rear edges rising to a line with the top of the machine; it is to be made of cast iron, and is of regular concave form from one side to the other of it, and is furnished with teeth of the following character, that is to say, in the casting of the concave, acute angular depressions, or grooves, are run from one end to the other of the concave, upon its face, of equal distances apart, of a depth of about one half the thickness of the concave, and coming together at the surface; another series of

similar acute depressions are run across those first mentioned, at an angle of about 22° , and the upper edges of them come together, while a third series of like acute depressions are made to cross those first mentioned, in a direction the reverse of those secondly enumerated, at such distance apart, as shall bring their top edges together, whereby a series of rows of teeth, of equal shape and size are raised on the face of the concave. It is obvious that the depressions that cross the depressions first mentioned, angularly from each side, cut the teeth in such shape as to leave them somewhat in the shape of a section of a diamond, with the longitudinal ends of them of considerably less elevation than the middle portion of them; and the effect of the depressions running angularly to those first mentioned, is to leave the teeth of the different rows passing each other, the several series of depressions running a short distance below the lower than the lower ends of the teeth. A section of the concave is represented in Fig. 2, on each side of the cylinder B.

A cylinder, plays in boxes on the posts *e*, *e*, Figs. 1, and 2, and is made to revolve in the concave above mentioned, and is shown in the drawings Fig. 2, by the letter B. It is made on an iron frame, covered with hard wood, and with sheet iron, to receive and hold the spikes or beaters. The cylinder is provided with spikes or beaters, made of cast or other metal, with round heads, as shown in the drawings, and said beaters are so placed on the surface of the cylinder, as to act, as well against or near to the exterior, or highest parts of the teeth, as against the lower parts of them. The concave is furnished with its peculiarly shaped teeth, overlapping each other in their transverse positions, and with the depressions of the ends of each of them in each row, or series of them, and with the acute angular depressions deeper than the lower ends of the several teeth, for the purpose of securing the greatest amount of friction and the most efficient surface against which to beat the heads of the clover to hull it perfectly, and which shall at the same time avoid breaking any of the seeds; and the spikes or beaters are made of a rounded shape at their exterior ends, that in their revolution with the cylinder they may thoroughly beat out all the seed, and not be liable to break any of them, while the angular shoulders under their heads shall serve,

with the longitudinal part of the teeth, in their revolution, to carry the chaff and seed out upon the screens. The action of the beaters above described, upon the before mentioned concave, is held, in the opinion of the undersigned, to be an improvement upon any clover huller now in use, as securing a more perfect hulling of the seed, and at the same time it avoids breaking any of it.

10 An ordinary fan, such as is used in ordinary wheat fans, is placed in the front end of this clover huller and cleaner, and moves in boxes made by brackets on the front posts of the machine, as is shown in the drawings, and the machine is provided with screens, 15 used in cleaning the chaff from the seed, and with an endless apron of light cotton or linen cloth, all of which are moved in the manner hereinafter more fully described.

20 The screens, and endless apron, are made to move backward and forward, in the revolution of the fan, by eccentrics on either end of the shaft of the fan, marked *g, g*, in Figs. 1, and 2, which move levers *f f*, marked in 25 Figs. 1, and 2, attached to said eccentrics, at one end, and to the screen box at the other. The screens are supported at their rear end in swinging stirrups fastened to the machine near the top of it, and to the lower sides of 30 the screen box; and at their front end on a roller marked in Fig. 1 by the letter *R*, and in Fig. 2 by the letter *R'*, which moves backward and forward when the machine is in motion in the slot in the side of the machine, 35 in which it rests, as shown in Fig. 1 at the letter *R*. The stirrups are not shown in the drawings. The screens are marked *s, s*, in Figs. 1, and 2. The endless apron, marked 40 *a* in Fig. 1, is placed between the screens, and on a roller, at the rear end, which is rested in boxes in the screen box, or frame, and is marked by the letter *r*, and at the front end it passes over the roller *R, R'* which supports the front end of the screens, 45 but the endless apron does not extend as far forward as the screens; and it is made to revolve forward, to avoid the blast from the fan, in the operation of the machine, that the seeds that have passed through the upper 50 screen, with any of the finer dust and chaff, may thereby be brought upon it, and be dropped upon the lower screen, whereby it is subjected to a second blast from the fan, and thereby be more thoroughly cleaned.

55 It is obvious that the endless apron conforms to the action of the screens, in their backward and forward movement, both of them being moved by the revolution of the eccentrics on the fan shaft, marked *E* in Fig. 2.

60 The operation of the machine is as fol-

lows: The cylinder is made to revolve by a power applied to the end of the shaft thereof, marked *C*, Fig. 2, and a pulley cord being passed over the other end thereof, marked *D*, and thence over the pulley on 65 the end of the fan shaft, marked *E*, and thence over the inner pulley on the shaft *H*, and marked *F*, and thence up and rearward over the pulley on the roller *R'*, and thence down and rearward over the outer pulley 70 on the shaft *H*, and marked *G*, and thence being united to and forming part of the pulley cord first mentioned, which puts the whole machine in operation. The heads of the clover being placed in the hopper, are 75 beaten, by my peculiarly shaped beaters against the peculiarly shaped teeth and corrugated surface of my concave, and the seeds are thereby completely hulled from the chaff; and the chaff and seed are carried 80 from the concave out upon the screen by the angular shoulders, and the longitudinal part of the beaters, in the revolution of the cylinder, whence the seed is shaken down upon the endless apron, and all the coarser 85 part of the chaff and dust is blown away; and as the cylinder revolves, it will be perceived that the roller *R*, Fig. 1, at one end of it, and *R'*, Fig. 2, at the other, is made by the peculiar position of the pulley cord 90 represented in Fig. 2, to revolve toward the blast of the fan, which in carrying the seed forward upon the endless apron which passes over it, brings the seeds forward to a second blast of the fan, whence they are 95 dropped upon the lower screen and any remaining dust is cleaned from it.

Having thus stated my invention, what I claim as new therein, and desire to secure by Letters Patent, is— 100

1. The combination of the peculiarly shaped concave, with the peculiarly shaped beaters, or spikes for the purposes, and substantially as described.

2. The arrangement of the sieves *s, s*, the 105 apron *a*, and the movable roller *R*, actuated simultaneously by the means of the eccentric *g*, all constructed and operated as, and for the purpose set forth.

3. The arrangement of the peculiarly 11 shaped concave, and beaters, with the endless apron, for the purposes, and substantially as described.

In testimony of which invention, I hereunto set my hand.

JOSEPH D. FORREY.

Witnesses:

SAMUEL CUTS,

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