J. COLEMAN.

Grain Cleaner.

No. 3,337.

Patented Nov. 15, 1843.

Fig. 2

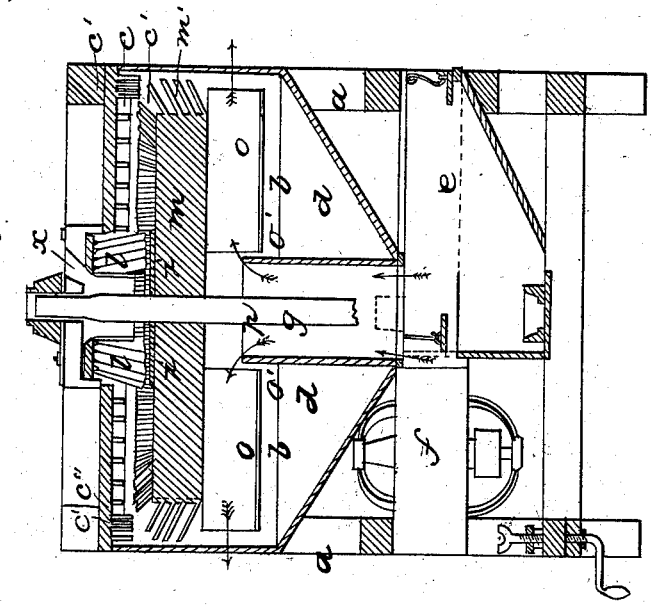


Fig. 4

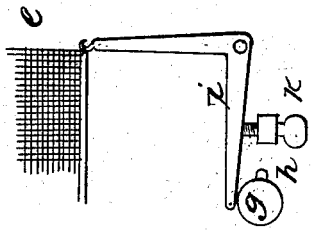


Fig. 3

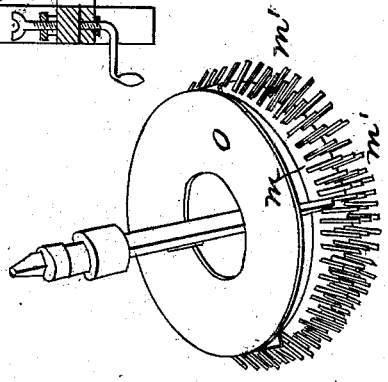
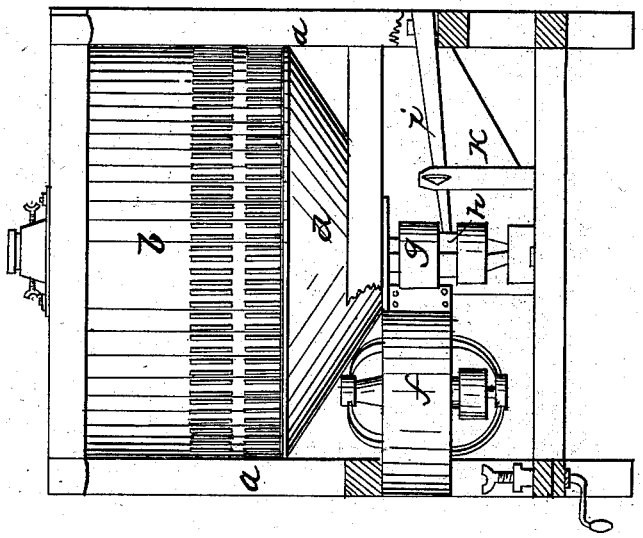


Fig. 1



UNITED STATES PATENT OFFICE.

JOHN COLEMAN, OF BLACKLEGS, PENNSYLVANIA.

SMUT-MACHINE.

Specification of Letters Patent No. 3,337, dated November 15, 1843.

To all whom it may concern:

Be it known that I, JOHN COLEMAN, of Blacklegs, in the county of Indiana and State of Pennsylvania, have invented a new and useful Machine for Cleaning Grain which I denominate "Coleman's Grain-Refiner;" and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a side elevation; Fig. 2, a vertical section; Fig. 3, runner detached.

The nature of my invention consists in constructing a runner with spikes standing out at an angle of about 20° more or less from the periphery and upper face near the edge the points of said spikes running near the case which in the cover has inserted a flanch and spikes near the rim; and also attaching a fan below the upper disk, having a head as broad as the wings are long on their under side, the hole in the middle of said head being large enough to admit air from below.

In constructing this machine I form a suitable frame (*a*) consisting of four posts and proper cross ties in which I place a cylinder (*b*) of wrought iron or other material with a flat cover (*c*) at the top and a cone formed bottom (*d*) the lower half of the cylinder is punched or cast full of oblong vertical slits, in one or two rows, for a purpose hereafter mentioned.

The cone shaped bottom has an aperture in one side (*d'*) shown in dotted lines in section Fig. 2, by which it is connected with a screen (*e*); below this is an oblong box with a sieve in it, and a fan behind placed in a case (*f*) horizontally and of common construction which receives its motion by a band from the shaft of the runner as hereafter described.

Through the center of the cylinder of the machine a shaft (*g*) passes vertically, its lower end resting in a step, in a bridge-tree, in the frame; and the upper end is supported by a box, that can be made adjustable; on this shaft below the cylinder there are two pulleys, by one of which the shaft is driven; the other communicates motion to the fan of the screen, by means of an endless band. There is also on this end of the shaft a cog (*h*) which strikes a bent lever (*i*) having its fulcrum, at the angle, attached to the frame; the other end of the lever is connected with the screen (*e*) and gives it motion with each revolution of the shaft; the amount of motion being regulated by a set screw (*k*) which allows the lever to fall back, more or less near to the shaft; this lever is more clearly represented in Fig. 4.

Around the aperture (*k*) at the center of the cover (*c*) of the cylinder, (which is large enough to admit the grain to be cleaned near the shaft) there is a series of elastic metal springs (*l*) made of thin slips of metal, that project down from the cover; these form a ring or band of projecting springs in concentric rows about two or three inches wide all around the shaft and aperture (*k*); below the ends of these springs there is a flat ring of metal (*i*) cut like a rasp on the upper surface, and affixed to a runner or disk (*m*) the circumference of which is within two or three inches of the inside of the case. The periphery of this disk is studded with spikes (*m'*) that are made to incline upward at their points which are close to the interior of the case at the side; the cover has a rim or flanch (*c'*) colored red in the section Fig. 2, extending down from it at a little distance from the side of the case, and between them are vertical spikes, a row of which (*c''*) are also driven into the cover, inside of the flanch all around.

When this machine as above constructed is driven to the proper speed, grain to be cleaned is admitted into the cylinder through the hole in the cover around the shaft and is rubbed between the springs and rasp for the purpose of cleaning from vat dirt, &c.; from thence it is thrown out into the rows of spikes at the periphery of the disk and the white caps and smut beaten out; from this it falls down below the disk and is met by a current of wind, which blows outward through the slits formed in the case opposite. This blast is made by a series of vanes (*n*) attached to the under side of the disk (*m*). The ends of said vanes project beyond the disk about half the length of the spikes above. Below these vanes there is a circular head (*o*) the same circumference as the outer edge of the vanes, attached to, and revolving with them; an aperture (*o'*) is made in the center of the head, large enough for admitting the air

tube (*p*) beyond which the vanes do not extend inward; the tube (*p*) is attached to the apex of the inverted cone above named, and as large in diameter as the aperture to the fan, and furnishes the supply of air from below, which is directed out between the disk (*m*) and head (*o*) through the apertures in the case as shown by the arrows. The grain after passing this blast, and having the small dirt blown from it falls down through the cone onto the riddle or screen where it is sifted from the larger pieces of chaff, &c.

What I claim as my invention and desire to secure by Letters Patent is—

1. The runner (*m*) having a rasp at its center and projecting angular spikes at its periphery constructed and arranged as herein specified.

2. I also claim in combination with the rasp above named the spring (*l*) around the aperture in the cover in the manner and for the purpose above described.

3. Lastly I claim in combination with the disk above named the fan having a lower head (*o*) and tube (*p*) combined therewith for the purpose of admitting and directing the blast, constructed and arranged substantially as herein set forth.

JOHN COLEMAN.

Witnesses:
L. CALDWELL,
J. J. GREENOUGH.