T. Ely,
Burring Machine.

No. 3,269. Patented Sept. 14, 1843.

Fig. 1.

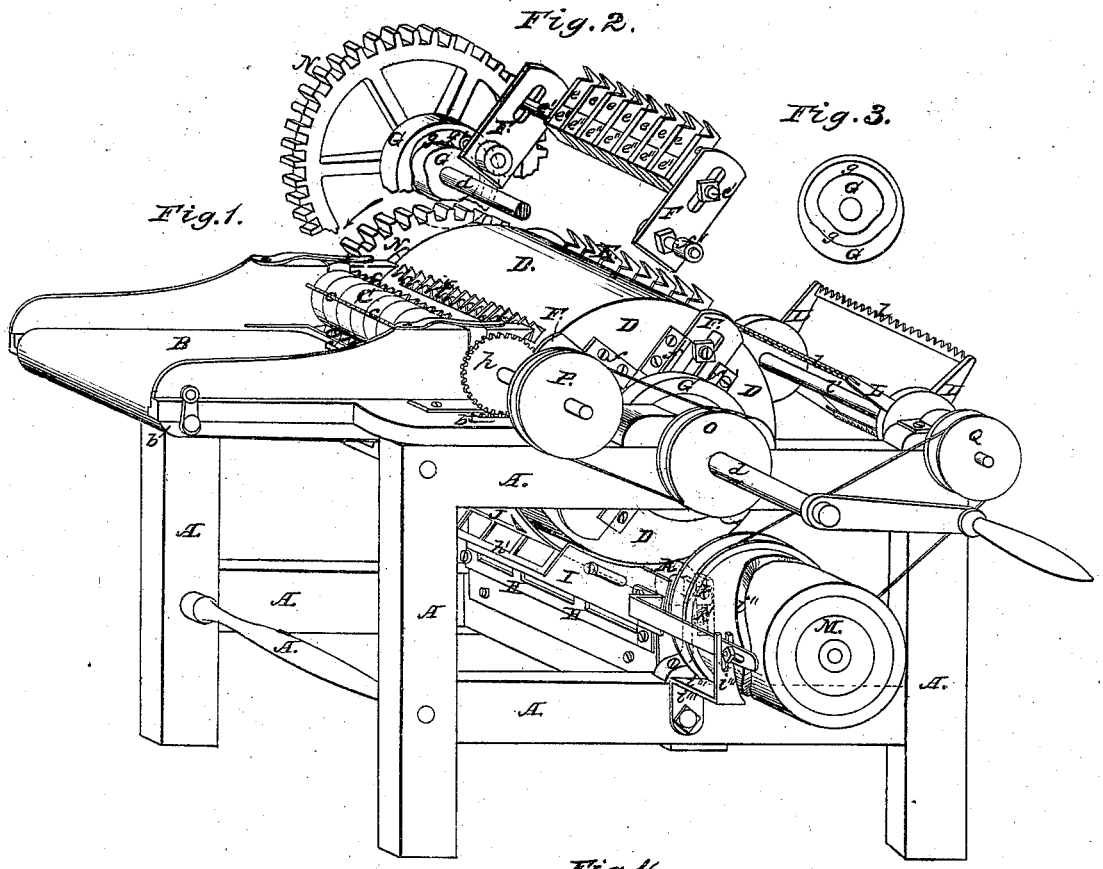


Fig. 2.

Fig. 3.

Fig. 4.

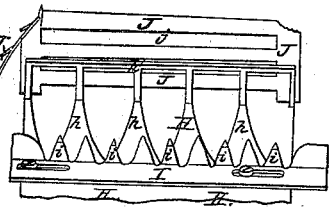
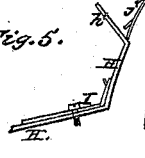


Fig. 5.



UNITED STATES PATENT OFFICE.

THEO. ELY, OF NEW YORK, N. Y.

MACHINE FOR CLEANING BURS FROM WOOL AND SEEDS FROM COTTON, &c.

Specification of Letters Patent No. 3,269, dated September 14, 1843.

To all whom it may concern:

Be it known that I, THEODORE ELY, of the city of New York, in the State of New York, have invented a new and useful Machine for Removing Burs from Wool and Seeds from Cotton; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure I is a perspective view of the machine, and Figs. II, III, IV and V, views of detached parts of it.

The several parts of the machine rest upon, or are attached to, a strong frame of timber (A A), generally about 5 ft. long, 2 ft. wide, 4 ft. high, or in this proportion. At one end of the frame is an endless cloth (B), passing around rollers (*b*), for feeding the wool or cotton to the machine. Above the endless cloth is placed a feeding roller (C) which takes the wool, or cotton, from the cloth and passes it to the main cylinder (D), hereafter to be described. This roller is made by inserting in the surface of a wooden roller, and in a line with its axis, a number of toothed or saw blades (*c*). The main cylinder (D) is a large drum, provided with hooks, teeth, or combs (E) as they are variously called, which receive the wool, or cotton, from the feeding roller. It has cavities or recesses in its periphery, extending from end to end of the cylinder, and parallel to the line of its axis, and the combs E, as I shall call them, are placed in these cavities, being so arranged that, during a part of the revolution of the cylinder, they project beyond the periphery far enough (say $\frac{1}{2}$ inch or thereabout) to take the fiber from the feeding roller, while at another part of the revolution, they are drawn in so as to be even with the face of the cylinder. The construction of the combs, and the arrangement by which they are drawn in and out of the cylinder, is as follows: (See Fig. II). A number of thin slips of metal (*e*), about $\frac{3}{8}$ of an inch wide and $1\frac{1}{2}$ inches long, and having a hook at one end, are placed upon a rod (*e'*) at short distances apart, with collars (*e''*) between them; the rod is fastened at each end to a plate of metal (F), which slides in grooves (*f*) upon the ends of the cylinder D, and upon the outer face of this plate is attached a friction roller (*f'*), which travels in an eccentric groove (*g*), cut in the face of a circular plate (G), fastened immovably to the frame (A) of the machine. The shaft (*d*) of the cylinder D, passes through the centers of the plates G, containing the eccentric grooves, and the combs E are thus alternately drawn into, or thrown out from, the face of the cylinder D as it revolves. I have adopted two modes of arranging the combs. When the fiber of the wool to be burred is fine, the slips of metal (*e*), or teeth as they may be called, are placed so closely together that the burs cannot get between them, and the cavity in the cylinder is left uncovered in the spaces between the teeth. When the fiber is coarse, the teeth are placed farther apart, and the cavity is covered in the spaces between them. Both of these methods are shown.

An apparatus for removing the burs, or seeds, is placed beneath the main cylinder, and opposite that part where the combs are drawn in so as to become flush with the periphery. It consists of two thin metallic plates (H, I) lying one against the other, placed lengthwise of the cylinder, to the surface of which they conform by having a slight degree of concavity. The upper edges of the plates have V shaped notches in them, leaving points (*h i*) resembling saw teeth, the ends of which are turned outward to prevent the fibers of the wool, or cotton, from catching over them. In the drawings the teeth of one of the plates are connected by a band (*h'*) to stiffen them. The inner plate, H, is fixed permanently to the frame of the machine, and lies close to the cylinder although not in actual contact with it, so that the burs, or seeds, in passing around are detached by getting between the teeth (*h*) of the plate; the sides of the teeth are beveled to a thin edge, for the purpose of more easily separating the burs, or seeds. The outer plate I is movable, and slides back and forth along the fixed plate H, by which means its teeth are made to free the teeth of the fixed plate from any burs that may stick to them. The requisite motion may be given to it by causing a pin (*i'*), attached to the end of the plate, to work in an eccentric groove (*i''*) in the pulley M. When the machine is used for ginning cotton the movable plate I is not used.

Above the apparatus just described, is placed a concave plate (J), to keep the wool, or cotton, against the face of the cylinder D; this plate is provided with openings (*j*) through which the loose burs, or seeds, may fall, without being carried to the toothed

plate H. Directly beneath the main cylinder, is a small roller (K), for assisting the combs to draw away the fiber from the seeds, or burs. When the latter have been caught between the teeth of the plate H, the journals of this roller turn in movable boxes, resting upon spiral springs, the object of this being to let the roller yield as the cotton or wool passes between it and the cylinder D.

A clearing apparatus is placed on the opposite end of the frame from the feeding roller, to take from the combs E the cotton, or wool, after the seeds, or burs, have been removed; this is made by affixing, toothed blades (l), or brushes, to several sets of arms (L), radiating from a shaft or axle (l').

Motion may be communicated from the prime mover, either to the main cylinder D, or the drawing roller K beneath it, and from these again to the several parts of the machine by means of cog gearing, or bands and pulleys.

To recapitulate the several parts of the machine by reference to the drawings: A A, frame; B, endless cloth; b b', roller beneath it, and spur wheel upon a second roller through which it derives motion from the wheel p; C, feeding roller; c c, toothed blades in feeding roller; D, main cylinder; d, shaft of main cylinder; E, combs, (see Fig. II.); e, comb teeth; e', rod upon which the teeth are placed; e'', collars between the teeth; F, plates to which the ends of the rod containing the comb teeth are attached, (see Fig. II); f, slides in which plate F moves; f', friction roller attached to plate F; G, circular plate having in it (see Fig. III) g, an eccentric groove; H, fixed plate of apparatus for separating the seed and burs, (see Figs. IV and V); h, teeth of plate H; h', band connecting the teeth h; I, sliding plate of apparatus for separating the seeds or burs, (see Figs. IV and V); i, teeth of plate I; i', pin attached to plate I; i'', eccentric groove in the pulley M in which the pin i' works; i''', rest or guide to keep the plate I steady; J, concave plate, for keeping the wool, or cotton, close to the main cylinder, (see Figs. IV and V); j, openings in plate J to let the seeds or burs fall through; K, drawing roller, beneath the main cylinder; k, movable boxes (indicated by dotted lines); k', spiral springs (indicated by dotted lines); L, clearing apparatus; l toothed blades upon clearing apparatus; when the machine is used for cotton brushes are substituted for these blades; l', axle of clearing apparatus; M, main pulley; this pulley is placed upon the axle of the drawing roller K; the farther end of which has a pinion upon it (not seen in the drawing) working into N, a spur wheel upon the shaft of the main cylinder; O, pulley upon shaft of main cylinder; P, pulley upon feeding roller deriving motion from O; p, wheel upon axle of feeding roller which imparts motion to b' before referred to; Q, pulley upon axle of clearing apparatus which derives motion from main pulley M.

The operation of the machine is as follows: Let us suppose that it is employed in burring wool. The wool being laid upon the endless cloth B, is moved forward until it comes to the feeding roller C, which lifts it from the cloth and places it against the face of the main cylinder D, when it is seized by the combs E and carried around in the direction of the arrow. In passing between the cylinder and concave plate J, all the loose burs fall through the openings j. The combs meanwhile are gradually drawn into the cavities of the cylinder, so that the remaining burs may be detached from the fiber by passing into the openings in the plate H, and up the beveled edges, or inclined planes, of the openings, until they are seized by the sliding plate I. After the combs have passed the roller K beneath the main cylinder, they are by the action of the plate G forced out of the cavities, in order that the wool may be taken from them by the clearing apparatus L.

The action of the machine is the same in ginning cotton as in burring wool, except that as the seeds are entirely separated from the fiber by passing up the beveled edges of plate H, the sliding plate I is dispensed with.

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

1. The combination and arrangement of the several parts herein before described (to wit, the endless cloth B, feeding roller C, main cylinder D, having movable combs or teeth E; the apparatus for removing the burs or seeds, consisting of the plates H and I, with their appendages; the drawing roller K, and clearing apparatus L; together with the gearing, eccentric plates, and grooves, necessary to give the desired motions to the parts) forming a machine for removing burs from wool, and seeds from cotton; and this I claim, whether the several parts are placed relatively to each other as shown herein, or in any other manner substantially the same, and producing the same results.

2. I claim the movable combs E, whether actuated as herein shown, or in any other way which will give them an alternate motion in and out of the cylinder.

3. I claim the apparatus for removing the burs, or seeds, consisting of the fixed plate H, and the sliding plate I, whether the latter be actuated as herein shown, or by any other means which will give it a like motion.

THEODORE ELY.

Witnesses:
P. F. Stirling,
John S. Worth.