

O. MURRAY.

Cotton-Gins.

No. 135,485.

Patented Feb. 4, 1873.

FIG. 2.

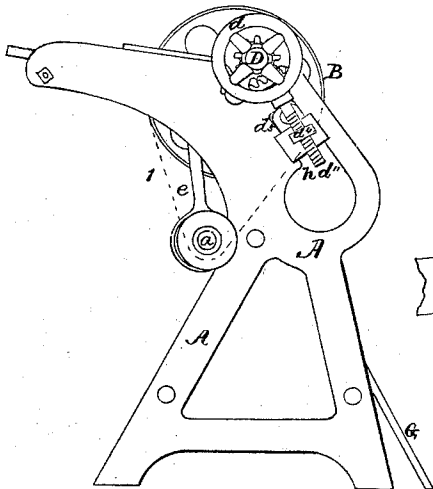


FIG. 3.

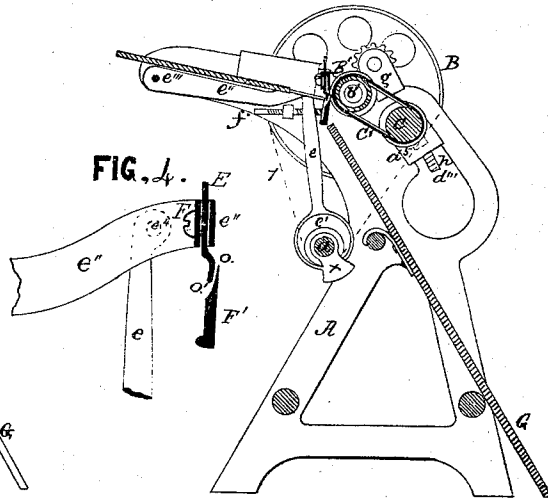


FIG. 4.

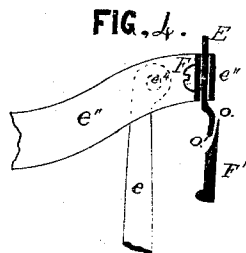


FIG. 1.

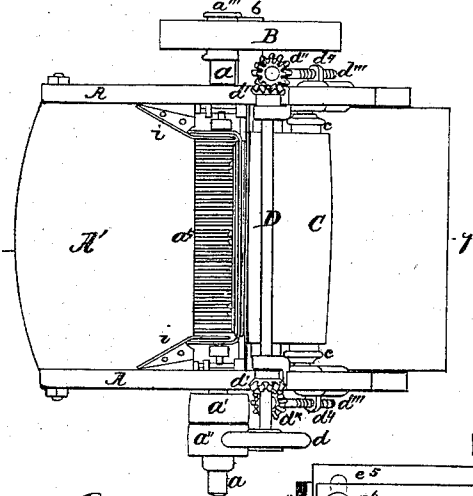


FIG. 6.



FIG. 8.

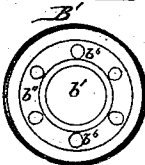


FIG. 7.

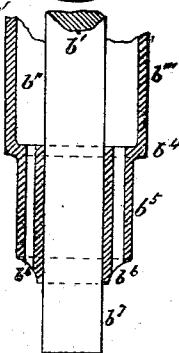
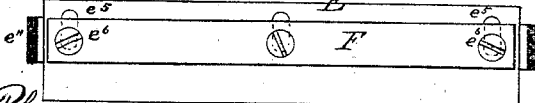


FIG. 5.



Witnesses.
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ORRIN MURRAY, OF NEW MARKET, NEW HAMPSHIRE.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. 135,485, dated February 4, 1873.

To all whom it may concern:

Be it known that I, ORRIN MURRAY, of New Market, in the county of Rockingham, in the State of New Hampshire, have made certain Improvements in Cotton-Gins, of which the following is a specification:

Cotton-gins are, for the most part, operated by unskilled workmen, who need the most simple machines in their construction, of the fewest parts, and so arranged that the persons operating them will not be likely to get them deranged or out of working position; and the object of this invention is to introduce such a machine into use. The invention consists in the construction and arrangement of parts that effect the object, as above stated, and is intended especially to improve the invention patented and dated March 26, 1867, numbered 63,136, as will be more fully hereinafter described.

In the drawing, Figure 1 is a top view of the machine; Fig. 2, a side view; Fig. 3, an upright sectional view on line *y y*; Fig. 4, enlarged parts of details in Fig. 3; Fig. 5, front view of Fig. 4; Fig. 6, a transverse section of the endless feed-belt; and Figs. 7 and 8, enlarged sectional views of the upper feed-roller.

A represents the frame of the machine. *a* is the main driving-shaft, with the driving-pulley *a'* fast on one end. *a''* is a loose pulley, upon which the driving-belt is run when the motion of the machine is to be arrested. *a'''* is a pulley on the opposite end of shaft *a*, and gives motion to the feed device. *A'* is the table upon which the unginned cotton is placed to be fed into the machine, and has a series of bars, *a⁴*, at its forward edge, through between which the cotton-seeds are forced in being stripped from the fiber. *B* is a pulley on transverse roller *B'*, and to which motion is communicated from shaft *a* by a belt, 1, that goes around pulley *a'''* on shaft *a*, thence over pulley *B* on roller *B'*. Roller *B'* is of metal, having a solid center, *b'*, with open space *b''* around it, and the rim *b'''* surrounding the space, while at *b⁴* a shoulder is made, so that the neck *b⁵* is less in diameter than the body of the shaft. A series of holes, *b⁶*, are made in the neck *b⁵* parallel with the axis of shaft *b'*, and communicate with the opening *b''* around said shaft *b'*, which has its journals *b'* working in bearings in frame *A*; and when thus con-

structed the air-space around the shaft will keep it cool, and no heat will be evolved in the operation of beating the seed from the cotton fiber as it passes through the machine. The rollers *B'* and *C* are made to be convex or curved longitudinally on their faces, which tends to keep the feed-belt in the proper position. *C'* is an endless feed-belt passing around rollers *B'* and *C*, and is made of five or more thicknesses of stout and heavy cloth with a strong fiber, which are completely cemented together with rubber in a fluid state, and then pressed with a heavy pressure, so as to force the fluid rubber intimately into the cloth. At each edge of the feed-belt, and on its inner side a narrow piece of leather, *c'*, is securely attached by cementing with rubber and pegging with wood pegs 2 2, as seen in Fig. 6. The purpose of this construction of inwardly-projecting border *c'* is to have the inner edge of the border *c'* embrace the shoulders *b⁴* of the roller *B'*, and thus prevent the possibility of the belt being displaced on the rollers *B'* and *C*. Upon shaft *a*, at the proper points, are eccentrics *e'*, around which go the upright pitmen *e e*, and, by the revolution of the eccentrics with shaft *a*, will give the pitmen *e* a reciprocating motion at their upper ends. The pitmen and eccentrics are held in position on shaft *a* by means of collars secured to the shaft *a*. *x x* are balances on shaft *a*, to neutralize the weight of the pitmen and stripper-bar as they reciprocate by the revolution of the eccentrics *e'*. *e'' e''* are bent horizontal arms, pivoted at *e'''* to frame *A*, and at *e⁴* to the pitmen *e*. These arms go forward to, and are then bent to be parallel with, the feed-belt *C'*, and are made from a single piece of metal, by preference; and to the forward straight portion that is nearly in contact with the feed-belt is attached an adjustable stripper, *E*, made, preferably, of metal, and having slots *e⁵* therein, through which holding-screws *e⁶* go and clamp the stripper *E* between the front bar of arm *e''* and a cap-plate, *F*, on the rear side of the stripper, as seen in Figs. 4 and 5. *F'* is a presser-bar going transversely across the machine and in the rear of the feed-belt *C'* and roller *B'*, and is adjustable toward or from the feed-belt *C'* by the temper-screws *f* attached to the frame *A*, and bear upon each end of the bar *F'*. *i i* are guide-plates upon

the feed-table A', to prevent the material from spreading out too wide while feeding into the machine. D is a transverse shaft, supported on the frame A by brackets g, in which it has its bearings, to allow it to freely revolve. At the proper points of its length, and fast thereon, are gear-wheels d' d'', that gear into other wheels, d'' d''', that are fast on screw-shafts d''' d''', which screw-shafts screw through nuts d⁴ in sliding boxes d⁵, and slide in slots h of frame A, whereby the feed-belt C' is kept in proper strain and equally on both of its edges, and by turning wheel d on shaft D will move the boxes d⁵, in which the roller C is journaled, so as to either tighten or loosen it, as the boxes on the opposite sides of the machine will be moved at the same instant, in the same direction, and the same distance, making it impossible to get greater strain upon one edge of the belt than upon the other.

When no provision is made for moving the boxes of the adjustable roller at each of its ends an equal distance in either direction at the same time and by a single device unskilled workmen are apt to put a much greater strain upon one side of the belt C' than upon the other, and, as a consequence, the belt will soon be torn asunder and become worthless, and a new one will have to be supplied; but by the use of the device as above described such calamity will be avoided, the belt will be securely held in its proper position and on an equal strain at both edges, and, consequently, will last much longer and do its work more perfectly.

The unginned cotton being placed upon the table A', and as equally spread as possible thereon—the machine being in motion—it is then pushed forward over the bars a⁴, coming under the reciprocating stripper E, above the presser-bar F', in contact with the revolving endless feed-belt C', which takes hold of the fiber and draws it in between the presser-bar and the feed-belt, while the blows of the strip-

per act upon the fiber, and strip or beat the cotton-seeds free from the fiber before they can advance to the feed-belt, when they are forced or drop through between the grate-bars a⁴, and the fiber, all unbroken, is carried around by the feed-belt C' until it is clear of the presser-bar, when the perfectly-cleaned fiber falls upon apron G, when it is ready for baling.

By this process of cleaning cotton fiber from its seed no damage of consequence is done to the fiber itself, as it comes out of the machine unbroken and uninjured, thus effecting a saving over other methods of a large percentage in the amount of cotton so cleaned.

Having thus described my invention, I do not claim broadly for a belt with thickened edges; but what I claim, and desire to secure by Letters Patent, is—

1. In a machine for ginning cotton, the hollow roller B', when constructed with the open space b'', neck b⁵, shoulder b⁴, and openings b⁶ in the neck, substantially as and for the purpose described.

2. The endless feed-belt C', constructed of five or more thicknesses of cloth cemented together with rubber, and having the interior projecting leather edge pieces c attached thereto by cement and pegs, in the manner substantially as and for the purpose described.

3. The adjustable stripper E, constructed, in the form shown in Figs. 4 and 5, with a convex face, o, and arranged to fit nearly upon the concave rear side o' of the presser-bar F', substantially as shown.

4. The combination of the endless feed-belt C', constructed as described, and having its interior projecting edges c' thereon, with the rollers B' and C, constructed and arranged to operate substantially as described.

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Witnesses:

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NEWTON CRAWFORD.