

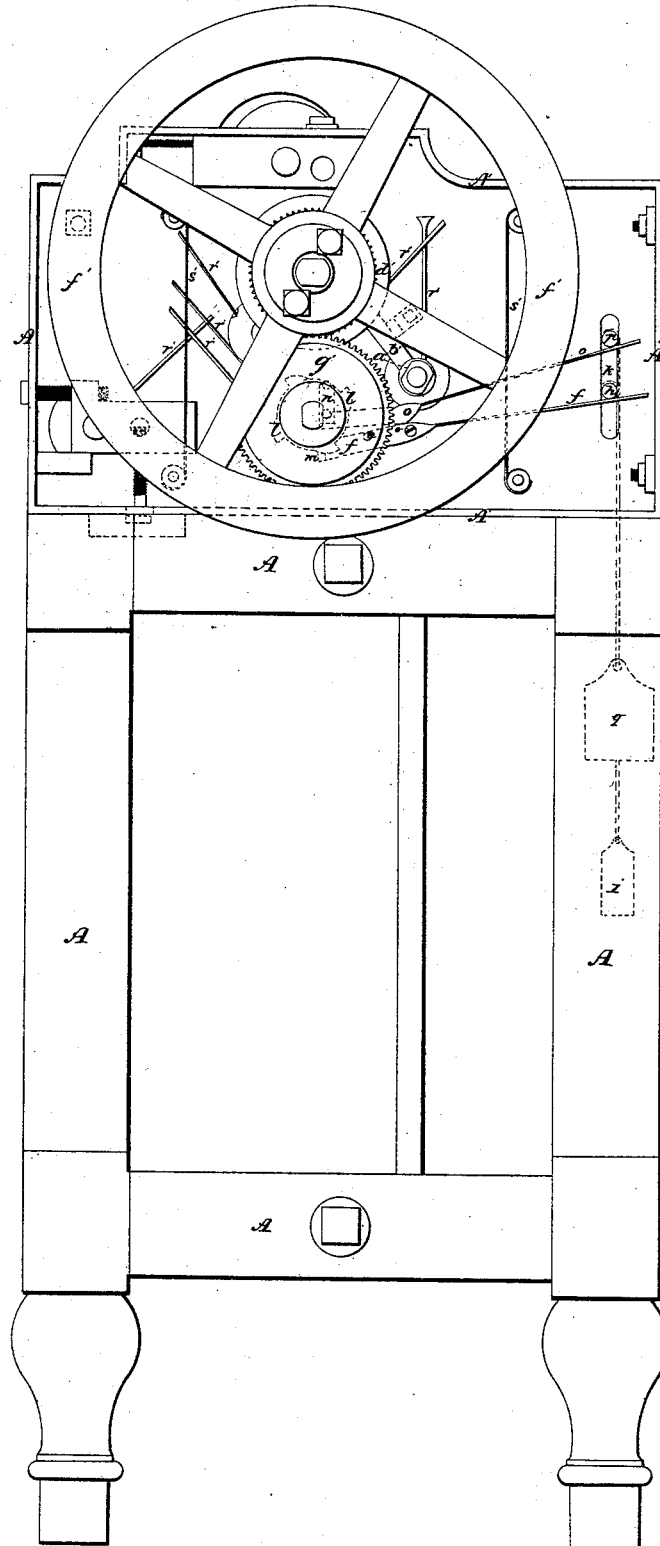
J. BEATH.

COTTON GIN.

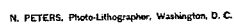
No. 1,233.

Patented July 12, 1839.

*Plate 1.*



Patented July 12, 1839.





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Plate 4

Fig. 5.

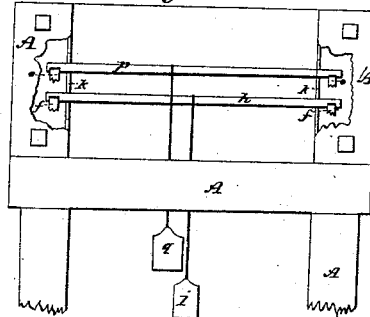


Fig. 1.

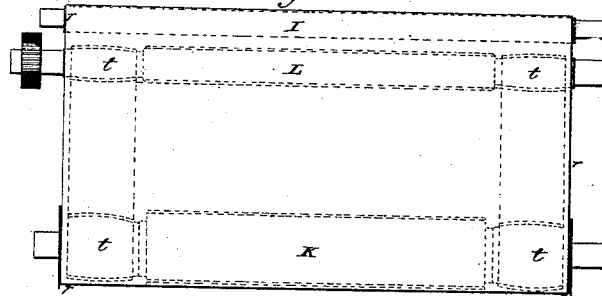


Fig. 3.

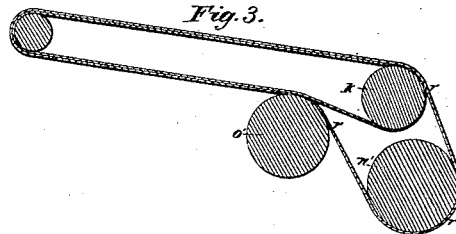
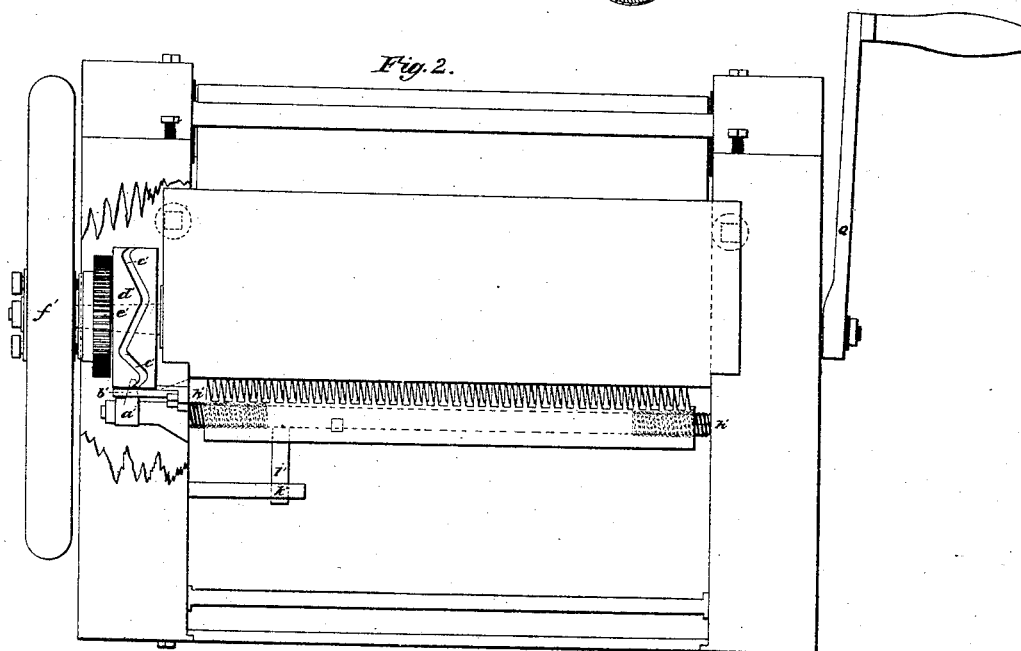


Fig. 2.



# UNITED STATES PATENT OFFICE.

JOHN BEATH, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. 1,233, dated July 12, 1839.

*To all whom it may concern:*

Be it known that I, JOHN BEATH, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Roller-Gins for Separating the Seeds and other Foreign Matters from the Cotton, of which the following is a specification.

These improvements, the principles thereof, and the manner in which I have contemplated the application of that principle or character by which it may be distinguished from other inventions, together with such parts, improvements, or combination as I claim as my invention and hold to be original and new, I have herein set forth and described in the following specification and accompanying drawings herein referred to.

Plates 1, 2, 3, 4 represent my improvements.

Plate 1 is a view of one end of my machine. Plate 2 is a view of the opposite end. Plate 3 represents a section of the same, the figures of Plate 4 representing some of the parts in detail.

A A A A, Plates 1, 2, 3, are the legs or standards for supporting the machine.

A' A' A' A' represent the frame-work for supporting the different parts of the machinery, which may be constructed in any proper manner and of any suitable material.

The cotton to be cleansed is first placed in the hopper B, which is curved, as seen in Plate 3, so that the cotton may slide to the drawing-rollers *a b*.

Immediately above the upper drawing-roller, *a*, is the driving-roller C, and above this roller there is another, D, over which an endless apron, *c c*, passes, the same turning round the driving-roller C and drawing-roller *a*, as represented in Plate 3. From thence it passes round the deflecting-roller E to the roller D, before mentioned. This band, moving in the direction indicated by the arrows, has a tendency, together with the action of the steel roller *b*, to draw in the cotton.

The situation and operation of the steel roller *b* are thus described. It rests in a groove in the rectangular cross-piece *d*. (Shown in section in Plate 3 and also in Plate 2.) On each end of this cross-piece *d*, near the bottom of the same, there are two little projections, *e e*,

Plates 1, 2, which rest in slots in arms of the levers *f f f f*, whose fulcrums are at *g g*. On the other end of these levers rests the rod *h*, to which is connected, by means of a rod and hook, the weight *i*, the rod *h* moving up and down in the slot *k*, Fig. 5. It will readily be perceived that this arrangement of the weight and lever has a tendency to keep the roller *b* in contiguity with the band over the roller *a*; but as this would impede the passage of the cotton it is necessary that this roller at times should be lowered. This is effected as follows: On each end of the axis of a roller, F, there is fixed a cam-wheel, *l*, (shown by dotted lines in Plates 1, 2,) the action of which cams on a proper-shaped projection, *m*, in the arms of the levers *f f f f* accomplishes the desired effect. The roller F is driven by means of the spur-gear wheel G on one end, operated by a spur-gear wheel, H, on one end of the driving-roller C. Immediately in front of the steel drawing-roller *b* is another roller, I, the journals of which rest in the groove in the upright pieces *n n*, (shown by dotted lines in Plates 1, 2,) this being connected, as shown in the drawings, with an arm of the levers *o o o o*, the other arms of said levers having a rod, *p*, Fig. 5, and weight *q*, resting in a similar manner to those on the levers *f f f f*, thus forming a sliding box or bearing for the roller I, which is kept up by the weight, but may be lowered by the pressure of the cotton in passing through. Over the roller I and another, K, of larger diameter, there passes an apron, *r r*, Plate 3, which, operating with the band or apron C C before described, serves to bear the cotton along, the position of that part of it toward the roller I preventing the cotton from falling after passing over the drawing-roller *b*. Between the rollers I K there is another roller, L, over which an apron, S S, may pass (to the roller K) underneath the apron *r r*, which roller, being driven or moved, bears the band *v v* along. Instead of the apron S S, there may be bands at each end of the roller L, arranged as represented by dotted lines in Fig. 1, Plate 4, at *t t t t*.

The manner in which the rollers L and A are driven may be thus described. On the axis of the driving-roller C, a little behind the geared wheel H, there is a geared wheel, M, (represented by dotted lines in Plate 2,)

which works into and turns the spur-gear pinion N on the axis of the drawing-roller A. Behind this pinion there is a spur-gear wheel, O, which works with a similar wheel, P, on the axis of the roller L, Plate 2. By this arrangement it will be seen that by moving the driving-roller C one roller in each system of rollers is turned, which moves the aprons along without creating any strain on the same, and also prevents the liability of parting them, which is a great desideratum where such bands are used. Should the aprons at any time become loose, they may be adjusted by the sliding boxes which support the axes of the rollers D and K. It will be sufficient to describe one of these, as the other is precisely similar.

U is a screw, one end of which is connected with the sliding box, the other end having a nut, V, on it, by loosening which and turning the screw W the box may be moved either forward or backward, as the case may require.

In order to loosen the seeds previous to separating them from the cotton, I apply a vibrating comb, x, having two sets of teeth, yz, shaped as seen in the drawings, Plate 3, and arranged as exhibited in Fig. 2, Plate 4.

The manner of vibrating the comb is as follows: On one end *a'* of the comb there is fixed a proper-shaped projection or tongue, *b'*, which works in the winding groove *c'* on the pulley *d'*, the revolutions of which, it will readily be perceived, produce a reciprocating rectilinear motion of the comb. This pulley *d'*, as well as the geared wheel *e'* and fly-wheel *f'*, connected with it, turn easily on the axis of the driving-roller C, and are caused to revolve by means of the spur-gear wheel *g'*, Plate 1, working with the wheel *e'*. The fly-wheel *f'* is for regulating the motion of the pulley and comb, the springs *h' h'*, Fig. 1, Plate 4, being affixed to assist the vibrating motion of the comb, and the projection *i'* working in the guide *k'*, steadying the same. The teeth on the comb operate with the teeth *l'* on the guard *m'*, Plate 3, which detain the cotton while the comb opens it a little. This operation, it is to be understood, has no tendency to injure the staple. The seeds drop through the teeth on the slide *m''*, which conducts them into any proper receptacle.

Instead of the arrangement of the bands over the rollers I L K, as represented in Plate 3, and Fig. 1, Plate 4, there may be two additional rollers, *n' o'*, (shown in Fig. 3, Plate 4,) the apron *r r* passing around the roller *n'* and over *o'*, as represented in the drawings. This is the preferable way of arranging this apron. The cotton is prevented from passing up or around on the bands by means of the guards *p' q'*, situated as shown in Plate 3. In the place of the guard *q'*, a piece of cotton cloth may be suspended in front of the roller K, which detains the cotton until it becomes sufficiently heavy to drop.

*r' r'*, &c, Figs. 1, 2, are tubes communicating with the axes or bearings of the different rollers, through which oil may be conveyed to the same, the ends of these tubes being supported in the cross-pieces *S' S'*.

The parts of the above machinery may be constructed of any suitable metal or material. The proportions will be readily perceived from the drawings, which are half the size of the machine.

The machinery is operated by power applied to the driving-roller C by means of the crank Q. (Shown in Plate 2, and Fig. 1, Plate 4.)

Having thus described and explained my improved machinery, I shall now proceed to specifically point out those parts I claim as my improvements and hold to be original and new, viz:

1. A comb constructed as above described, and vibrated horizontally by means of the winding grooved pulley on the axis of the driving-roller, the whole operating as above described.

2. Lowering the roller A, in order to allow the cotton to pass through, by means of the cams on the roller F, operating with the levers *f f f f*, as above described.

In testimony that the above is a true description of my said inventions and improvements I have hereto set my hand this 18th day of June, in the year 1839.

JOHN BEATH.

Witnesses:

EZRA LINCOLN, Jr.,

FRANKLIN DARRACOTT.