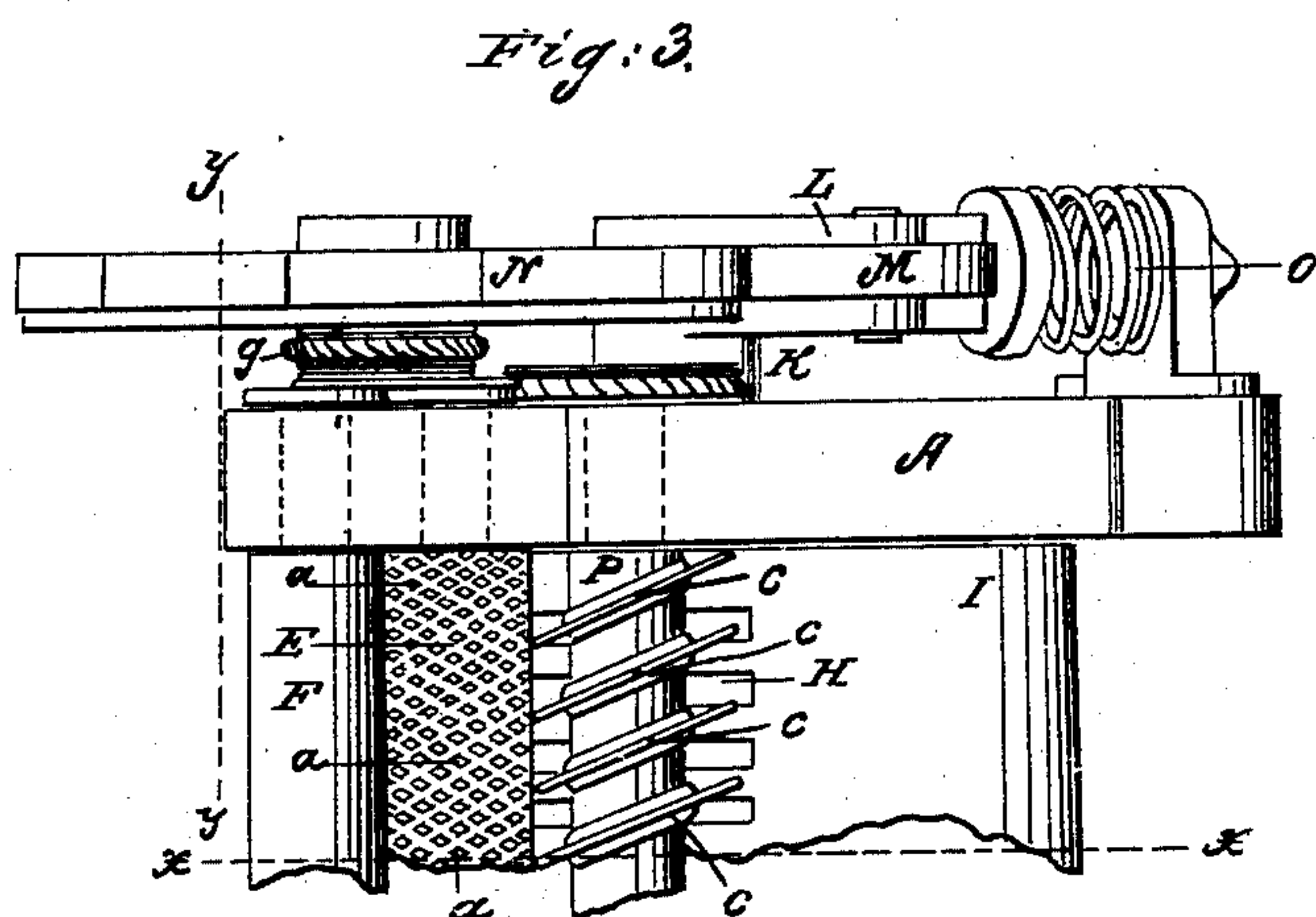
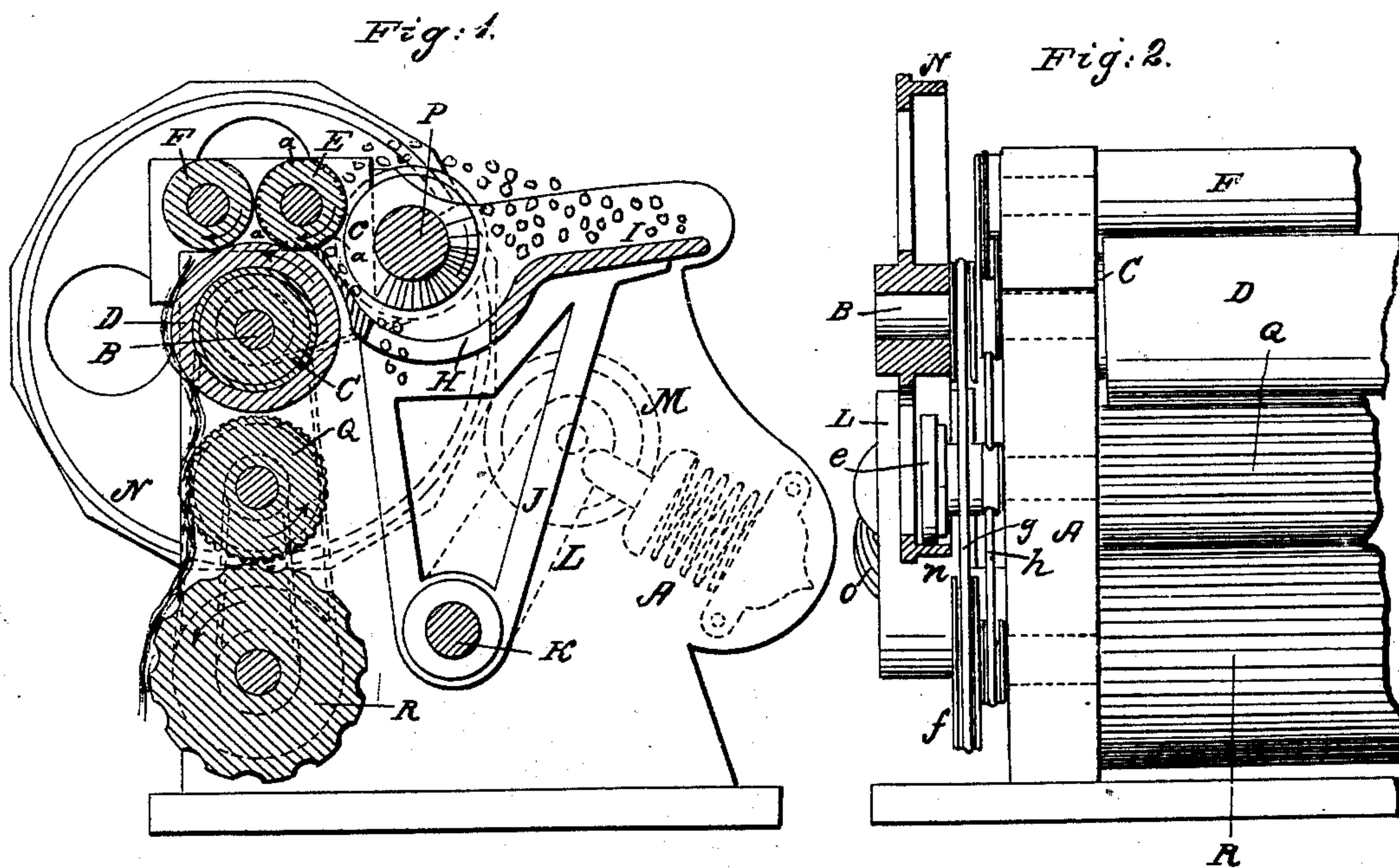


L. S. CHICHESTER.

Cotton Gin.

No. 26,815.

Patented Jan'y 10, 1860.



Witnesses:

Mich Hughes
Chas Hughes

Inventor:

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UNITED STATES PATENT OFFICE.

LEWIS S. CHICHESTER, OF NEW YORK, N. Y., ASSIGNOR TO H. G. EVANS,
OF SAME PLACE.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. 26,815, dated January 10, 1860.

To all whom it may concern:

Be it known that I, LEWIS S. CHICHESTER, of the city, county, and State of New York, have invented a new and Improved Roller Cotton-Gin; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a sectional view of my invention, taken in the line *x x*, Fig. 3. Fig. 2 is a back sectional view of the same, taken in the line *y y*, Fig. 3. Fig. 3 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates, first, to an improved feeding device by which the cotton is presented to the rollers in such a way as to permit of the free escape or discharge of the seed as they are detached and rippled from the staple without permitting any valuable portion of the staple to escape with the seed, and also presented in a layer or bat equal in width to the length of the rollers, whereby the latter are enabled to operate in the most efficient manner.

The invention consists, second, in combining a guard-plate with a feed-board, substantially as hereinafter shown, whereby the feeding device is simplified and rendered more efficacious than hitherto.

The invention consists, third, in the employment or use of a corrugated roller in connection with an auxiliary smooth roller in addition to a roller provided with a smooth yielding surface, against which the two first-mentioned rollers bear, whereby the process of ginning by rollers is greatly expedited without deteriorating the staple in the least.

The invention consists, fourth, in the employment or use of a discharging device composed of rollers arranged substantially as hereinafter shown, whereby the ginned cotton is discharged in a loose, light, and untangled state.

To enable those skilled in the art to fully understand and construe my invention, I will proceed to describe it.

A represents one side of a framing which

supports the working parts of the machine. B is the driving-shaft, which is rotated by any convenient power. On the driving-shaft B, and within the framing A, a roller, C, is placed, and this roller is covered with india-rubber D or other elastic material, as shown clearly in Fig. 1.

Directly above the roller C, and within the framing A, there are two rollers, E F, the peripheries of which bear on the elastic surface D of the roller C and receive their motion by contact with said roller C. The rollers E F are in contact with the surface D at points a short distance from either side of a vertical plane that passes through the axis of roller C, and at the same time the rollers E F are nearly in contact. (See Fig. 1.) The comparative size of the rollers C E F are made with a view to this arrangement or disposition of them, the object of which will be hereinafter explained. The roller E has a corrugated periphery, which may be formed by two series of oblique grooves, which have diamond-shaped projections *a*, as shown clearly in Fig. 3. This roller, however, may be corrugated in a different manner; but the above mode will probably be as good as any. The roller F has a smooth periphery. The rollers E F are of metal; steel would be the preferable material of which to construct them.

G is a guard-plate, which extends upward into the angle formed by the roller E and the elastic surface D of roller C. This guard-plate extends the whole length of the rollers, and it has a longitudinal flange or bead, *b*, on its upper end, as shown clearly in Fig. 1. The lower part of the plate G is connected with a screw, H, the latter being connected with and forming a continuation of a feed-board, I. The guard-plate G, screw H, and feed-board I may be of cast-iron and all cast in one piece, and they are attached to a sector-support, J, which is secured to a rock-shaft, K, in the framing A.

To one end of the shaft K an arm, L, is attached, in the outer end of which a friction-roller, M, is placed. This friction-roller M is pressed against a polygonal cam, N, on the shaft B by means of a spiral spring, O, which bears against the outer part of the arm L, as

shown clearly in Fig. 3, and by dotted lines in Fig. 1.

P is a shaft, which is placed in the framing A, just in front of the corrugated roller E and over the screw H, at the lower part of the guard-plate G. (See Figs. 1 and 3.) This shaft P may be of metal, (cast-iron,) and it has oblique flanges *c* cast on it, said flanges extending entirely around the shaft in oblique parallel planes. (See Fig. 3.)

Below the roller C there is a wooden roller, Q, which is fluted longitudinally, and may be somewhat smaller in diameter than the roller C with its covering D. This roller Q may be rotated by means of a friction-wheel, *e*, from the cam N, as shown clearly in Fig. 2. Below the roller Q there is another wooden roller, R, which is of a larger diameter than Q. The roller R is also fluted longitudinally, and it has a pulley, *f*, at one end of its axis, around which a belt, *g*, passes, said belt also passing around a pulley on the driving-shaft B. The roller Q has its surface moving more rapidly than the surface D, and the periphery of roller R moves slower than Q.

The shaft P may be rotated by a belt, *h*, from the shaft of roller R.

The operation of the machine is as follows: As the roller C rotates, motion is communicated to the rollers E F by contact, as formerly stated, the several rollers rotating in the direction indicated by the arrows in Fig. 1. A vibratory motion is at the same time given the guard-plate G, screen H, and feed-board I through the medium of the cam N, arm L, rock-shaft K, and spring O. The rollers Q R and shaft P rotate in the direction indicated by the arrows on them. The cotton to be ginned is placed by the attendant on the feed-board I, and the flanged shaft P conveys the same in a layer or bat over the flanged shaft P and down between the guard-plate G and roller E, the cotton passing into the "bite" formed by the roller E and elastic surface D of roller C. The flanges *c* distribute or spread out the cotton and insure the feeding of the same to the rollers in an even bat or layer equal in width to the length of the rollers. As the staple is drawn between the roller E and the elastic surface D of roller C, the guard-plate G, by its vibratory motion, detaches and ripples the seed from the staple, the seed falling through the screen H into the usual pit prepared to receive it.

In case any staple should chance to escape down between the flanged shaft P and guard-plate G, it is prevented from falling with the seed into the pit by the screen H, and the flanges *c* will again convey the cotton, as before, around over the shaft P. This manner of presenting or feeding the cotton to the rollers, it will be seen, effectually secures the free discharge of the seed, as the cotton, while being fed to the rollers, cannot in any way serve as an obstruction to the falling seed. The cotton also, by being fed to the rollers in a

layer or bat of a width corresponding with the rollers, insures an even distribution of the cotton and greatly facilitates the manual part of the operation of feeding, as formerly the attendant was required to distribute the cotton carefully by hand over the surface of the feed-board in order to insure a regular feed. By having the guard-plate G and feed-board I in one piece a vibratory motion is given both by the same means, and the whole feeding device is not only rendered more efficient than usual, but also considerably simplified.

The roller E, in consequence of being corrugated, catches the fiber or staple very readily, and greatly expedites the operation of the machine. The corrugated roller alone, however, would not answer, as the cotton would have a tendency to adhere to and rotate with it. This difficulty is avoided by the auxiliary smooth roller F, which will strip the roller E of all cotton that may chance to adhere to it, said roller F also aiding the roller E in its drawing action on the staple, as the points of contact of the rollers E F with the elastic surface D of roller C are sufficiently close as to insure the action of both rollers on the same fiber. Were the points of contact of the rollers E F on D a considerable distance apart, the roller F would serve in the capacity of a stripper only, and although important in that respect, still the aiding of the roller E in the drawing of the staple is an important feature, and greatly augments the value of roller F. The elastic surface D of roller C has a tendency to carry the cotton around with it. This contingency is prevented by the roller Q, which strips the cotton from D and discharges it upon R, which conveys it gently to the floor or earth in a light loose state with parallel fibers. The roller Q, in consequence of its surface moving quicker than that of D, draws and straightens the fiber while effectually stripping D.

I do not claim a roller provided with an elastic covering and used in connection with a rigid roller for the purpose of ginning cotton; nor do I claim a roller having a corrugated periphery; neither do I claim separately a guard-plate for rippling the seed from the cotton as the latter is drawn between the rollers, for the above parts have been previously used, and most of them may be seen in gins previously patented by me; but,

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

1. The employment or use of the flanged shaft P, arranged relatively with the roller E, guard-plate G, screen H, and feed-board I, to operate substantially as and for the purpose set forth.

2. The combining in one piece of the guard-plate G, screen H, and feed-board I, substantially as shown, for the purpose specified.

3. The corrugated roller E, in combination with the auxiliary smooth roller F, and roller

C, with or without the elastic surface D, arranged or disposed so that the roller F may serve in the capacity of a stripper to the roller E, or both as a stripper and draw-roller, as described.

4. The employment or use of the discharging-rollers Q R, applied to a roller cotton-gin, and arranged to operate substantially as and for the purpose set forth.

5. The employment or use of the guard-plate G, either vibratory or stationary, in combination with the rollers E, F, and B, substantially as set forth.

LEWIS S. CHICHESTER.

Witnesses:

CHS. M. HUGHES,
MICH. HUGHES.