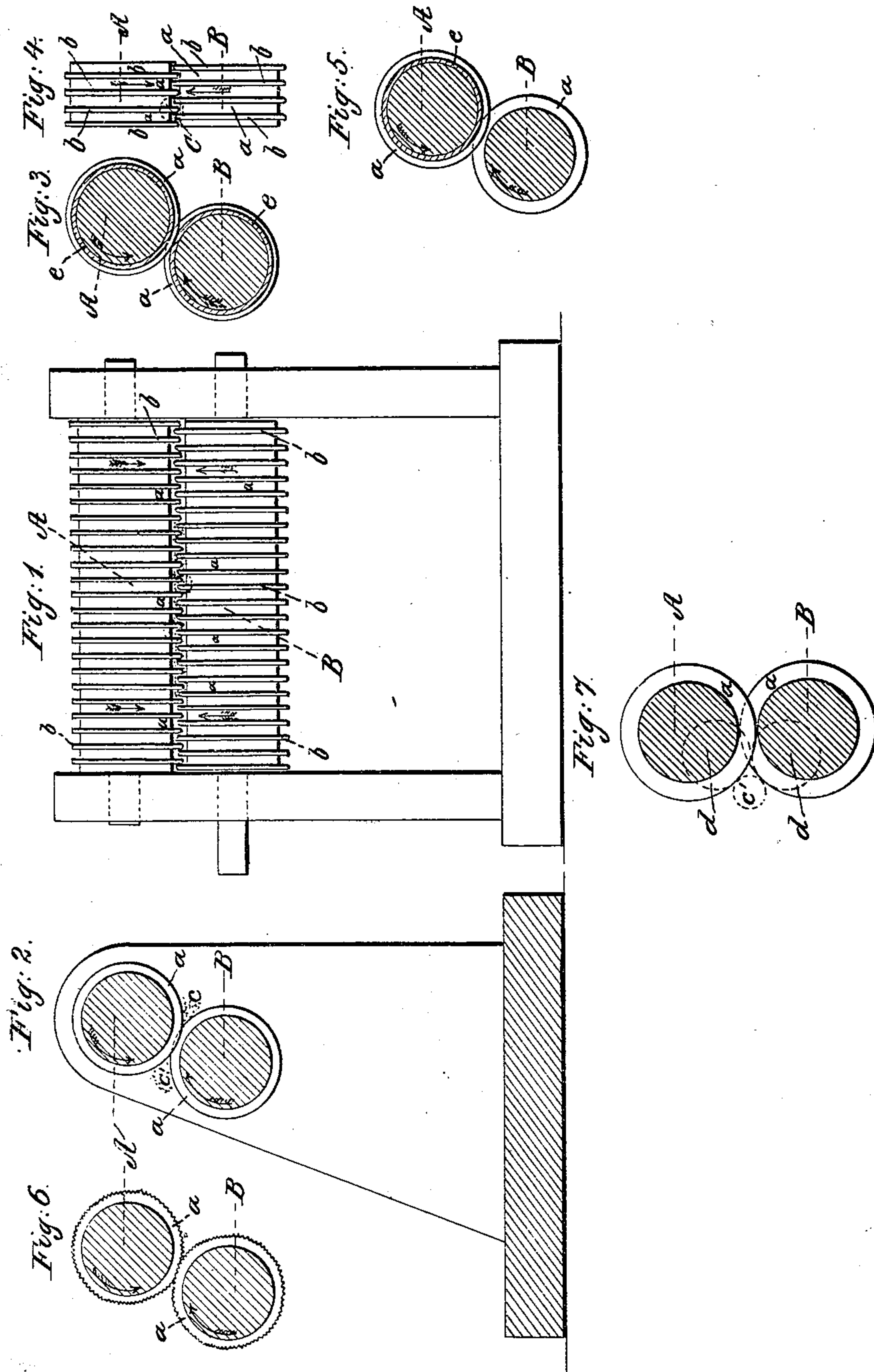


L. S. CHICHESTER.
Cotton Gin.

No. 19,324.

Patented Feb. 9, 1858.



UNITED STATES PATENT OFFICE.

LEWIS S. CHICHESTER, OF NEW YORK, N. Y., ASSIGNOR TO HENRY G. EVANS, SAML. BARSTOW, AND DAVID L. WINTRINGHAM, OF SAME PLACE.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. 19,324, dated February 9, 1858.

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 useful Improvement in the 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 front view of my improvement. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a transverse section of the rollers when used with elastic filling or rings. Fig. 4 is a front view of the same. Fig. 5 is a transverse section of the same, showing only one of the rollers provided with the elastic filling or rings. Fig. 6 is a transverse section of the same, showing the peripheries of the flanges serrated or notched. Fig. 7 is a transverse section of the same, showing their operation.

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

This invention consists in the employment or use of two rollers grooved circumferentially and fitted together in the same plane, so that the projecting flanges of each roller will work in the grooves of its fellow or adjoining roller, as hereinafter shown, whereby many advantages are obtained over the ordinary and all other roller-gins with which I am acquainted.

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

A B represent two rollers constructed of steel and grooved circumferentially, as shown at *a*, so as to form flanges *b*. The grooves *a* are rather wider than the flanges *b*, so that the flanges of one roller may be fitted in the grooves of the other, a trifling space being allowed between the sides of the flanges of the two rollers, so as to prevent them coming in contact. The edges of the flanges *b* are slightly rounded, as shown clearly in Figs. 1 and 4. The peripheries of the flanges *b* do not touch the bottoms of the grooves *a*, as shown clearly in Fig. 1, and the rollers as shown in Fig. 1, while they embrace the gist of the invention, constitute its simplest form.

Power may be applied to the lower roller, A, and motion may be communicated therefrom to the upper roller by friction only; or, if de-

sired, a positive movement may be given the upper roller from the lower one by gearing.

The operation is as follows: The two rollers A B rotate in opposite directions, as indicated by the arrows, and the staple shown in red, and indicated by *c*, (see Fig. 1,) is drawn between the two rollers in crimped form, (see Fig. 1,) the crimping of the staple being of course caused by the flanges *b* fitting in the grooves *a*. This crimping of the staple forms the "bite," and enables the rollers to draw or strip the staple from the seed *c'*, which, in consequence of their size compared with the angle formed by the bite of the rollers, are repelled from the rollers, instead of being drawn between them. (See Fig. 2.) By having the flanges *b* fitted in the grooves *a*, I am enabled to use rollers of large diameter, for the angle formed by the bite is made thereby very obtuse, and will consequently repel the seed. The original gins, which are the ones now in most general use, have rollers of quite small diameter, so that the seed may be repelled. By referring to Fig. 7 the operation will be clearly seen. The smaller rollers *d*, shown in red, represent those of the original gin, while those tinted blue represent my improved rollers, and it will be seen that the repelling-angle of both is precisely the same, while the diameters of my improved rollers are about twice as large as the ordinary ones in use. The rollers of the ordinary gins, in consequence of being small in diameter, are necessarily short, in order to prevent springing. By my improvement I can employ comparatively long rollers, in consequence of their increased diameter, and thereby proportionably increase the working capacity of the machine.

The grooves *a* of the rollers A B are made sufficiently narrow, so that the seed *c'* cannot possibly pass therein, the seed being repelled by the peripheries of the flanges *b* of both rollers, as shown clearly in Figs. 2 and 7. The staple *c* as it is crimped cannot be cut or injured, as the edges of the flanges *b*, as before stated, are rounded, and the sides of the flanges of the two rollers are not in contact with each other, the grooves *a* being wider than the flanges.

In certain cases it may be preferable to have the peripheries of the flanges *b* notched or ser-

rated, as shown clearly in Fig. 6, the serrated peripheries serving to catch and draw the staple into the bite. In certain cases also, as in the ginning of very fine or superior staple, it may be preferable to form a bite partially by the contact of the two rollers, instead of depending solely on the crimping of the staple or fiber, as previously explained. This may be effected by having the grooves of one or both rollers provided with india-rubber rings *e*, or rings formed of other suitable elastic or pliable substance, so that the peripheries of the flanges of one roller will bear on the rings *e* in the grooves *a* of the other roller, and vice versa, provided both rollers be provided with the elastic rings, the bite being thereby formed by the crimping of the fiber and the pressure combined.

I do not claim, broadly, the employment or

use of grooved rollers in themselves considered without reference to their application to cotton-gins, for grooved rollers are used in sheet-metal-working devices, crushing-machines, and various other machines for different purposes; but,

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

The rollers A B, grooved circumferentially as shown, and having the peripheries of their flanges *b* smooth or serrated, the rollers being fitted together with or without the elastic rings *e*, substantially as and for the purpose set forth.

LEWIS S. CHICHESTER.

Witnesses:

W. TUSCH,

WM. HAUFF.