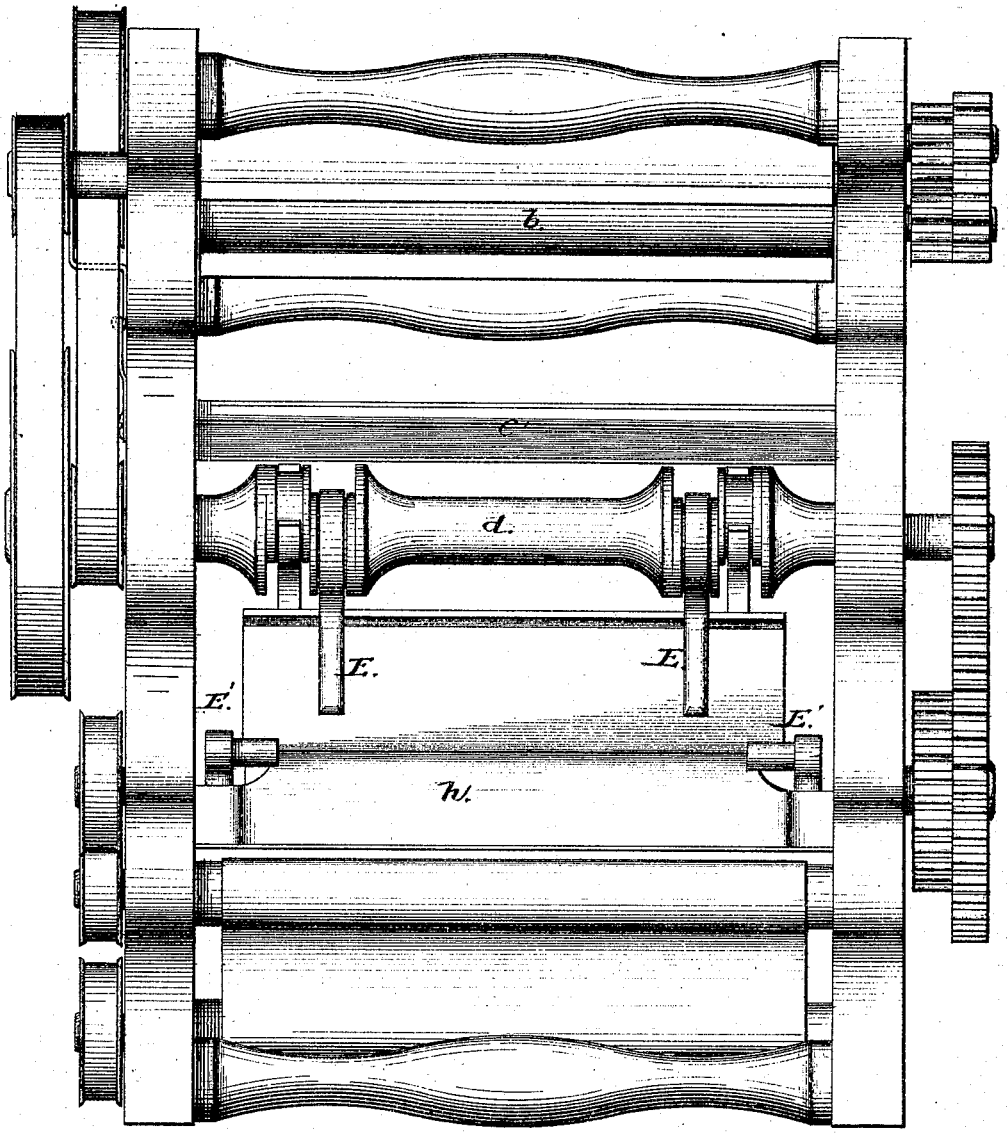
4 Sheets—Sheet 1.

H. A. STEARNS.

COTTON-GIN.

No. 182,239. Patented Sept. 12, 1876.

Fig. 1.



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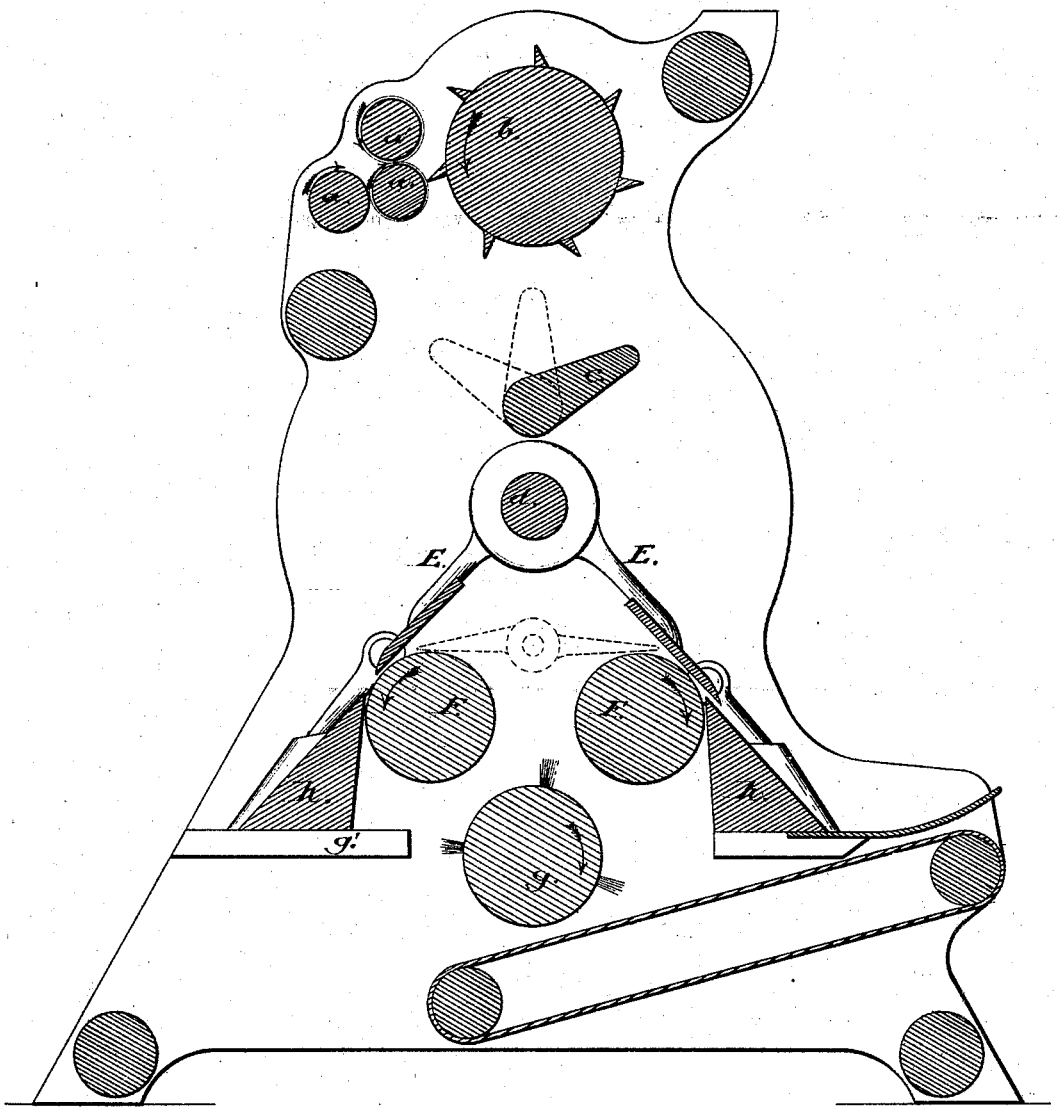
COTTON-GIN.

No. 182,239. Patented Sept. 12, 1876.

Fig. 2.



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COTTON-GIN.

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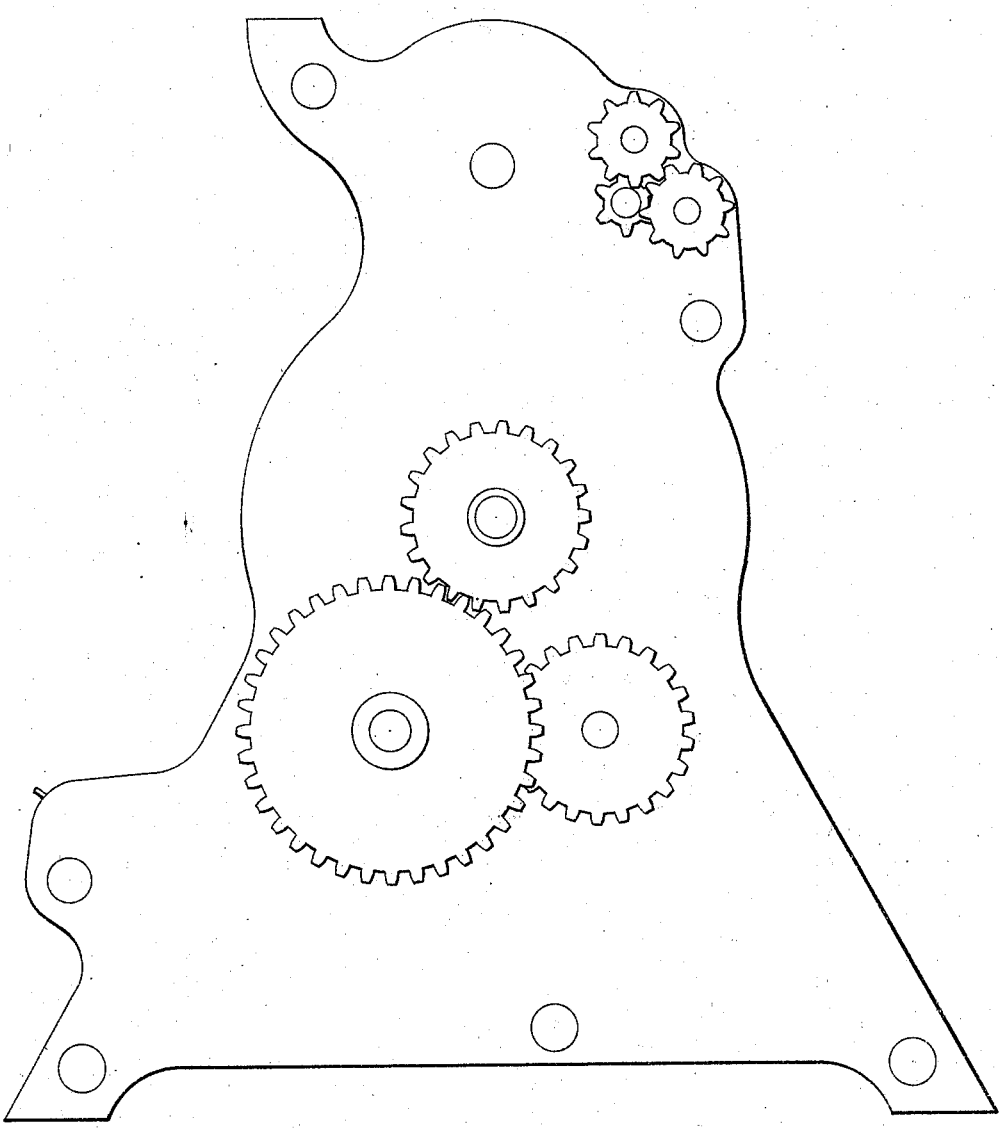
Fig. 3.



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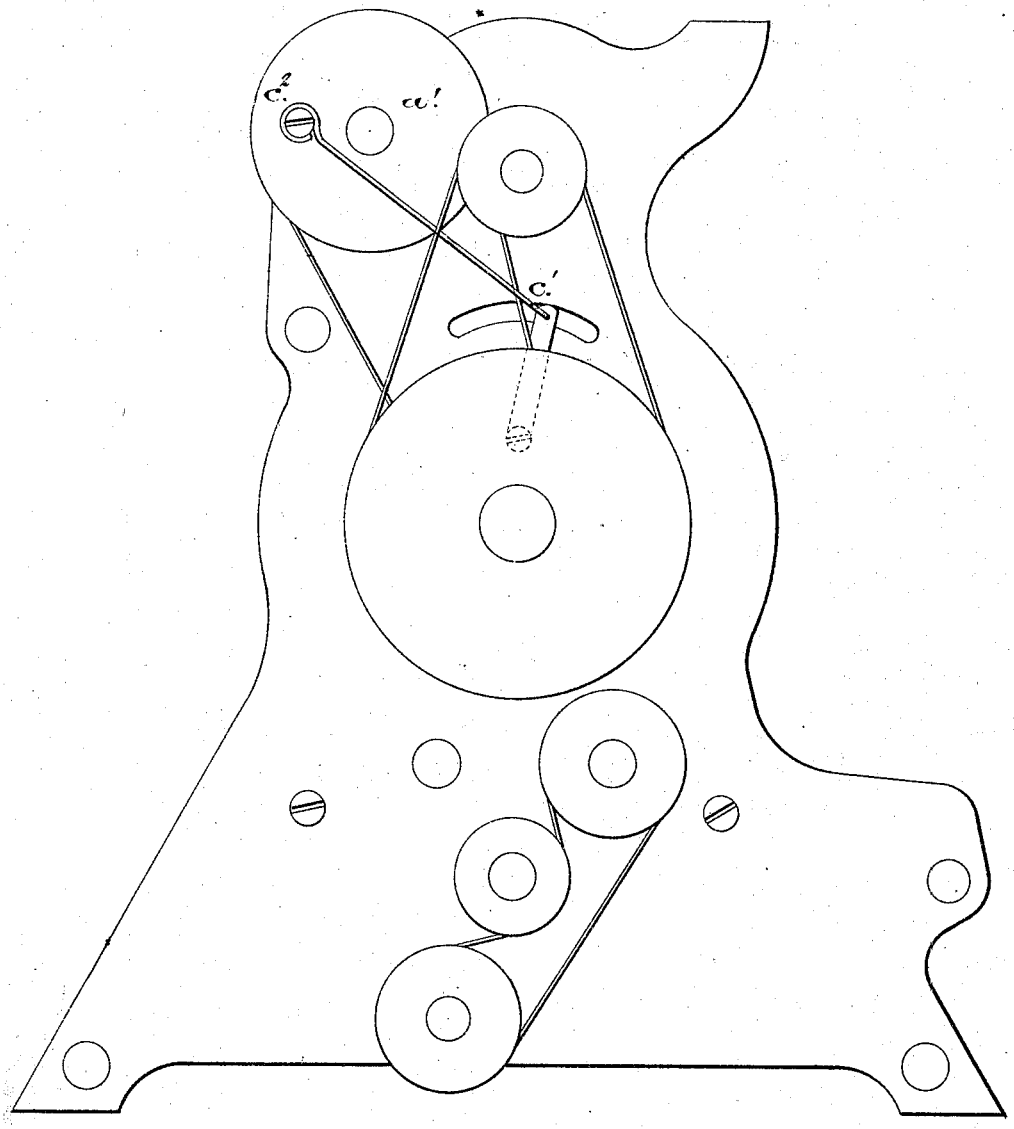
4 Sheets—Sheet 4.

H. A. STEARNS.

COTTON-GIN.

No. 182,239. Patented Sept. 12, 1876.

Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY A. STEARNS, OF LINCOLN, RHODE ISLAND.

IMPROVEMENT IN COTTON-GINS.

Specification forming part of Letters Patent No. **182,239**, dated September 12, 1876; application filed January 18, 1876.

To all whom it may concern:

Be it known that I, HENRY A. STEARNS, of the town of Lincoln, county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Cotton-Gins; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, forming part of this specification.

Figure 1 is an end view of my improved cotton-gin. Fig. 2 is a cross-section of the same. Fig. 3 is an end view, showing the gearing connecting the moving parts. Fig. 4 is a view of the opposite end, showing the driving-belts.

This invention relates to that class of cotton-gins known as "roller-gins," in which the cotton-fiber is separated from the seed by being drawn in between an elastic revolving roller and a stationary knife, while the seed is loosened by reciprocating beater-knives, having a peculiar nipping motion; and consists in the novel arrangement of mechanism for opening the cotton-bolls previous to supplying them to the rolls, and in the arrangement by which the beater-knives are reciprocated from and connected with a central shaft, so that the same operate on two rolls, the whole forming a double roll-gin of novel construction.

In the drawings, *a a a* are the feed-rolls, two of which are covered with rubber or other elastic material. The cotton-bolls are held by these rolls, and as the fiber adheres to the elastic rolls, the opener *b* revolving rapidly, separates the bolls and loosens the fiber. C is an oscillating partition, to which vibratory motion is imparted by connecting the arm C^1 with the face of the pulley *a'* at C^2, as shown in Fig. 4. *d* is the crank-shaft, to which the two sets of beater-knives are secured, and by which reciprocating motion is imparted to the same. This shaft *d* is placed between the two elastic rolls at any desired point above the same, so that the beater-knives or comb-plates can operate on both the rolls.

The cranks or eccentrics on this shaft may be so arranged that one comb-plate or beater-knife is forced outwardly when the other is drawn in.

When the shaft *d* is placed so low that the two beater-knives or comb-plates operate on, or nearly on, a level with the top of the elastic rolls, as shown in Fig. 2 in broken lines, I prefer to so arrange the cranks or eccentrics as that the knives will be reciprocated alternately to counteract the jars of each other. E E are the beater-knives or comb-plates, secured to cranks or eccentrics on the shaft *d*, with their other end sliding in guides E' E'. F F represent the elastic rolls; *h h*, the stationary knives, between which and the rolls the cotton is drawn. *g* represents a clearing-roll, constructed in any of the usual methods, to clear both the rolls F F and deliver the cotton. The board *g'* is placed nearer this roll to prevent the loose cotton from following the roll or clearer *g*.

A suitable apron revolving continuously may be arranged in any manner to collect and convey the cotton to any point, or the same may be forced to a receptacle by the blast generated by the clearer *g*.

The operation of the gin is as follows: The cotton is delivered to the rolls *a a a*. The two between which the cotton must pass are covered with rubber or other elastic material, to prevent the crushing of the seed, and to secure a firm hold on the fiber while the rapidly-revolving opener *b* scrapes the seed, and separates the bolls into loose open flocks, and thus supplies the same to the comb-plates.

The oscillating partition C, by its vibratory motion, regulates the distribution of the cotton, and allows an even quantity to be delivered to both rollers and uniformly over the same.

The cotton is drawn in by the elastic rolls between the rolls F F, and the knives *h* loosen the fiber from the seed, and thus facilitate the work, the comb-plates or beater-knives E E reciprocate rapidly, and thus push the seed down until it is loosened and the cotton-fiber separated.

The rapid reciprocation of the comb-plates exerts a severe strain upon the shaft *d*. The cranks or eccentrics are, therefore, arranged to distribute the strain, and the lower the shaft is placed the more will the strain and concussions counteract one another, as, if the shaft *d* is placed nearly on a line with

the top of the rolls F F, and both comb-plates are arranged so as to be drawn out and in at the same time, the vibration is greatly reduced. The rolls are kept free from the cotton-lint by the revolving cleaner-roll *g*, which is placed between the two elastic rolls F F, so as to operate on both.

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

1. The combination, in a double roller-gin, of the rolls *a a*, opener *b*, and vibrating partition C, substantially as and for the purpose described.

2. The combination of the shaft *d*, constructed and arranged as described, the two elastic rolls F F, with the comb-plates E E, arranged to operate on two rolls from one central shaft, as and for the purpose set forth.

3. The combination, with the knives *h h*, rolls F F, and the projecting board *g'*, of the revolving clearer-roll *g*, arranged to operate on both of said rolls, substantially as described.

HENRY A. STEARNS.

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