(No Model.)

H. W. LIBBEY.

COTTON GIN AND WOOL BURRING MACHINE.

No. 572,263. Patented Dec. 1, 1896.

Fig. 1.

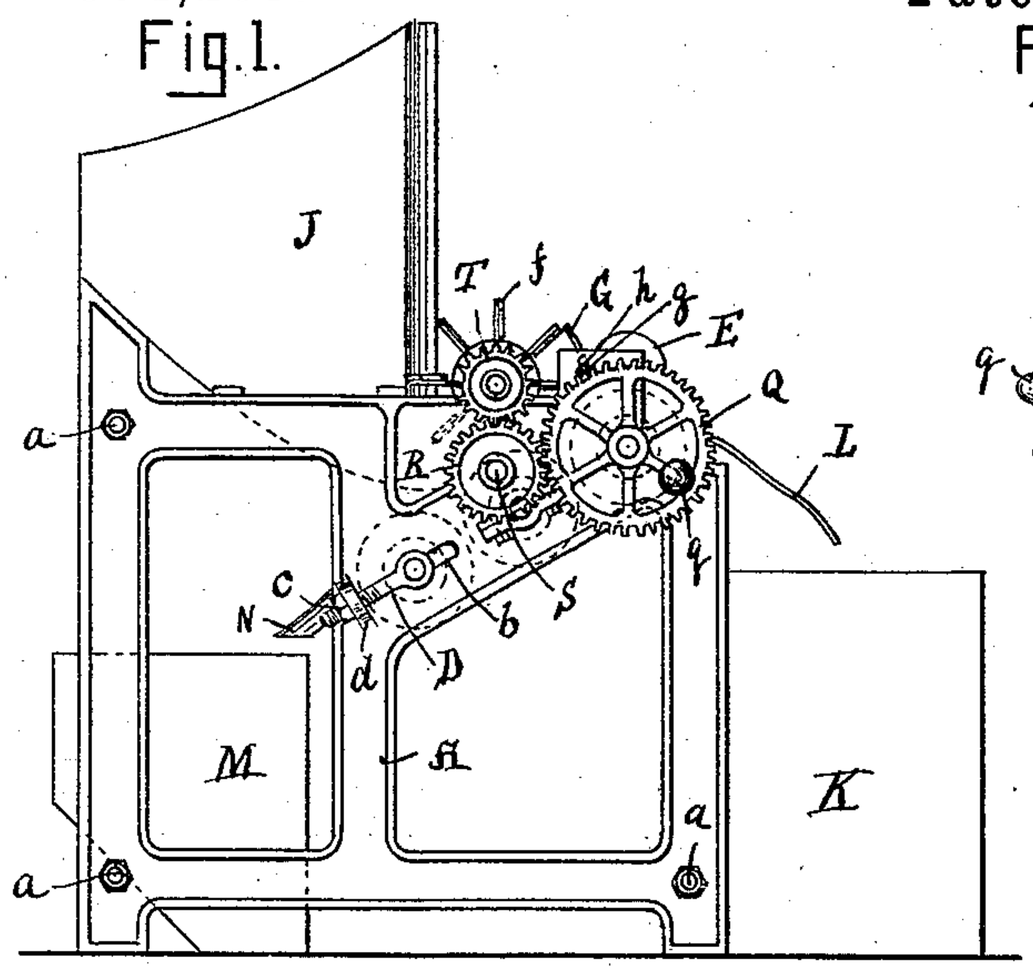


Fig. 2.

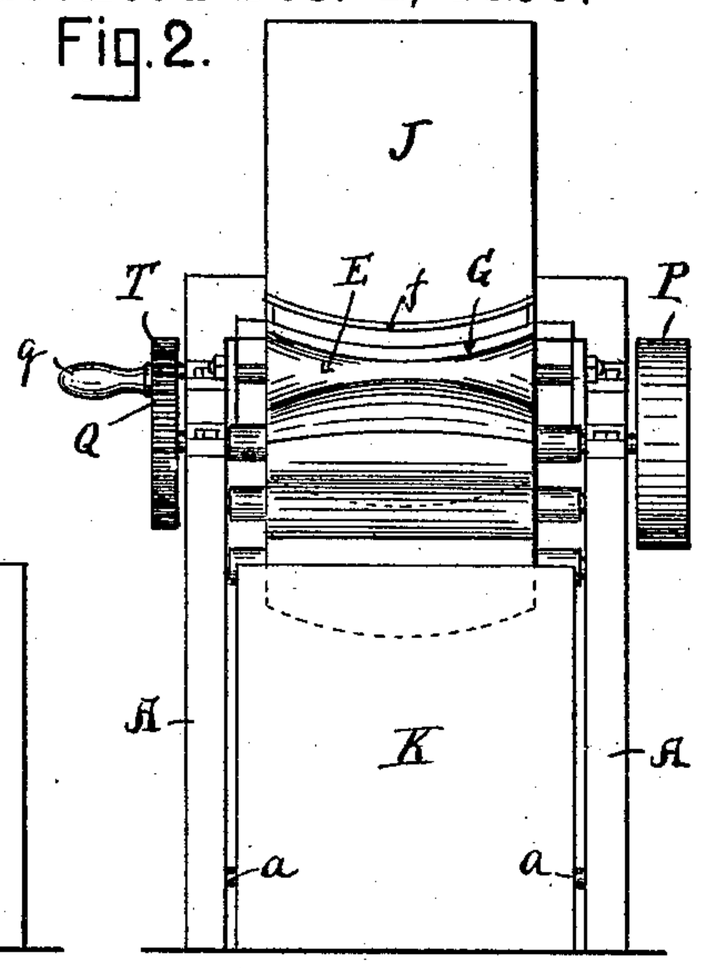


Fig. 3.

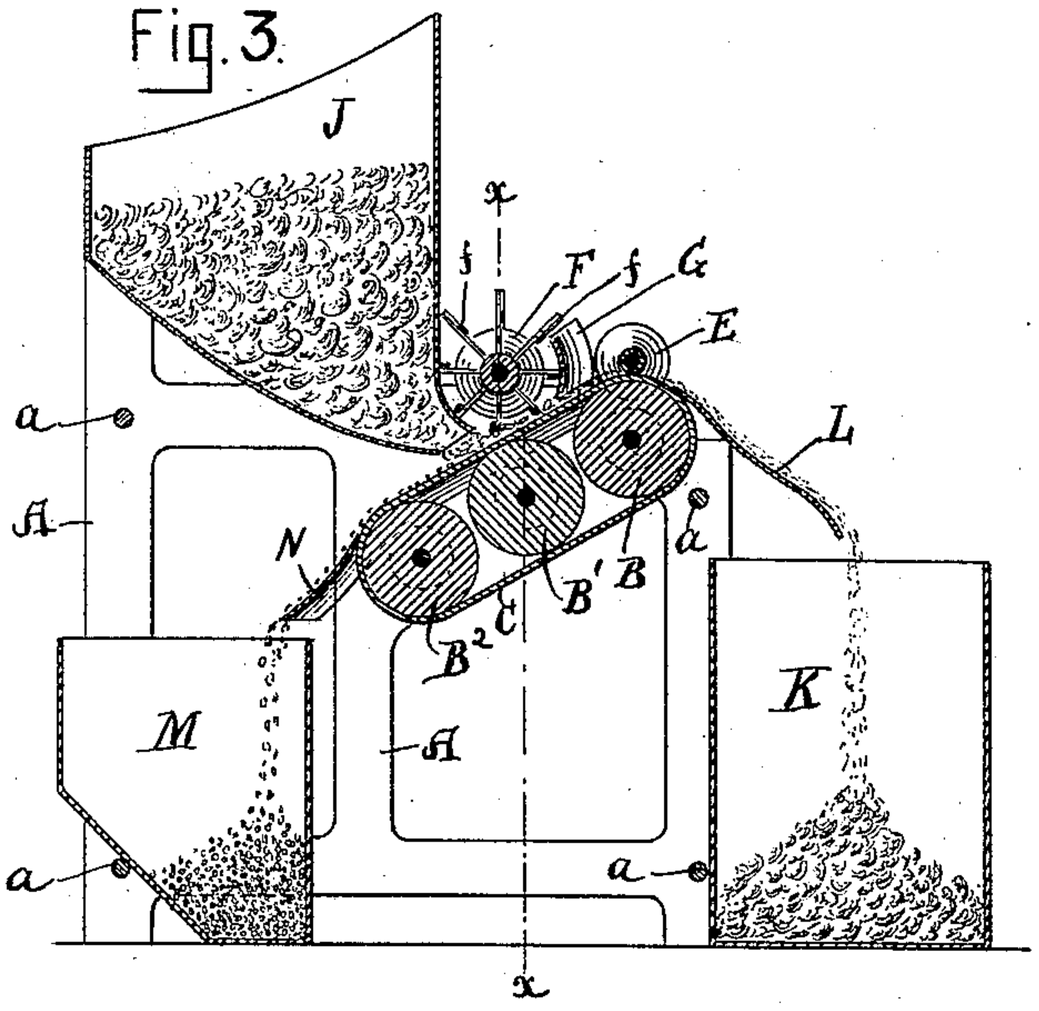


Fig. 4.

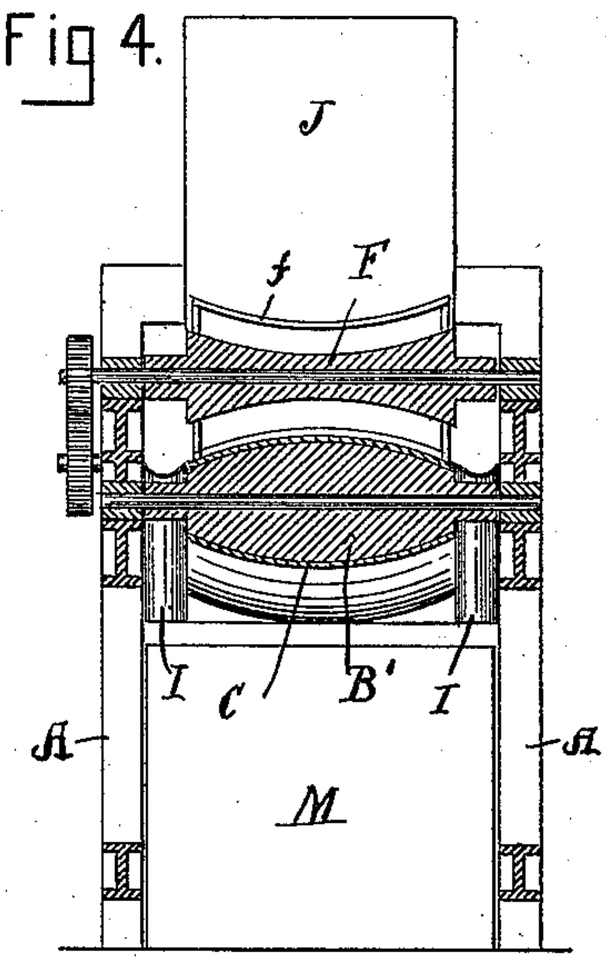


Fig. 5.

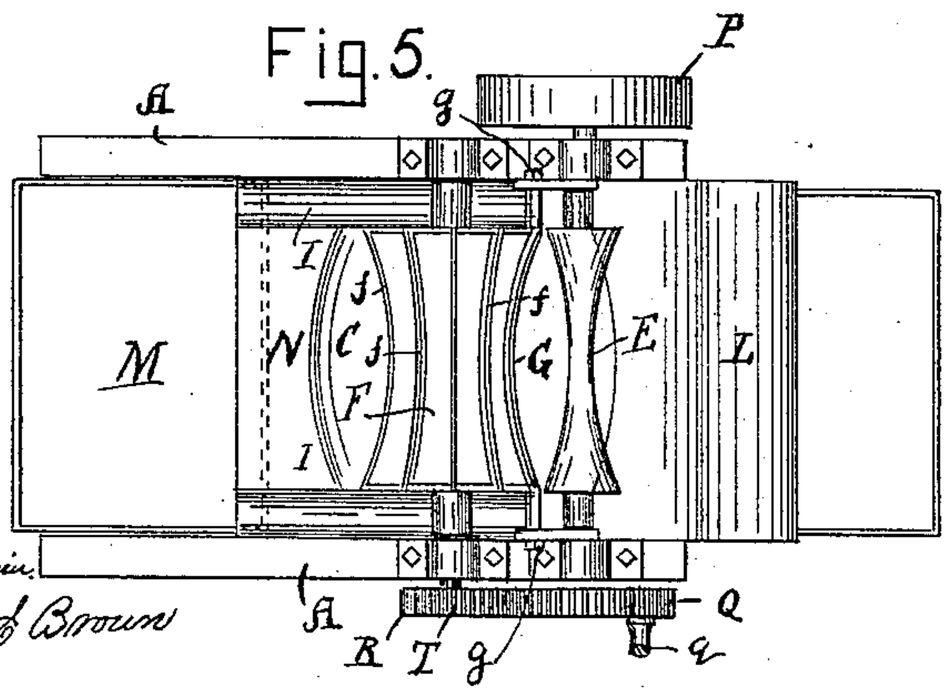


Fig. 6.

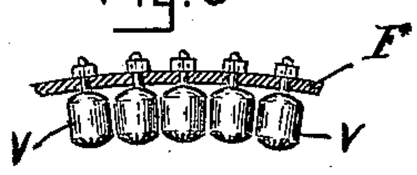
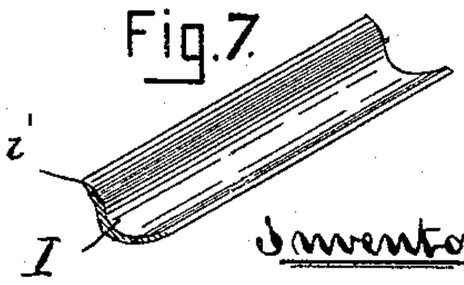


Fig. 7.



Witnesses
Crawford L. Perkins.
Edward L. Brown

Inventor.
Hosea W. Libbey
by Edwin Blanke
attorney.

UNITED STATES PATENT OFFICE.

HOSEA W. LIBBEY, OF BOSTON, MASSACHUSETTS.

COTTON-GIN AND WOOL-BURRING MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,263, dated December 1, 1896.

Application filed July 15, 1893. Serial No. 480,607. (No model.)

To all whom it may concern:

Be it known that I, HOSEA W. LIBBEY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Cotton-Gins and Wool-Burring Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to produce a machine for removing seeds, hulls, and other deleterious substances from cotton or burs and other substances from wool without breaking or damaging the fiber.

The invention consists of an endless belt carried by rollers having a curved periphery, said belt conforming to the shape of the rollers, a plate forming a mouth or throat, the lower edge of which is curved to conform to the shape of the belt, a feeding-roller arranged in front of the plate, and a beater-bar roller at the rear of said plate, both of which are also curved on their periphery to conform to the shape of the belt, curved plates being arranged on each side of the belt to carry off the seeds and other substances removed from the cotton or wool, as hereinafter fully described, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a side elevation of a cotton-gin and wool-burring machine embodying my invention. Fig. 2 is a front view of same. Fig. 3 is a longitudinal vertical section. Fig. 4 is a transverse vertical section taken on line *x x* of Fig. 3. Fig. 5 is a plan or top view of the machine, the feed-hopper being removed. Figs. 6 and 7 are detail views.

A A represent side frames secured together at a suitable distance apart by bolts *a*. In suitable bearings in these frames are secured a series of rollers B B′ B², convex on their periphery, over which passes an endless belt C, having a roughened surface and preferably of rubber, to which the fiber adheres and is thus carried forward, the said belt C adapting itself and conforming to the shape of the rollers B. The bearing of the lower roller B² is mounted in a groove or slot *b*, and on each of the outer ends of its shaft is secured a screw-eyebolt D, the end of which passes through a lug *d* on the side of the frames A, and is there held by a nut *c*, so that by the adjustment of said nuts *c* the roller B² can be drawn backward and thereby secure the desired tension on the belt C.

Over the belt C and nearly over the center of the upper roller B is mounted a feed-roller E, concaved on its periphery to conform to the shape of the belt with which it is nearly in contact, said roller being covered with rubber or other suitable material to assist the belt in carrying off the fibers of the cotton or wool after they have been carried past the edge of the plate G by said belt. At the rear of said plate G and close to said roller E is mounted a beater-roller F, concaved on its periphery to conform to the shape of the belt C, said roller having a number of beater-bars *f* and rotating in a direction opposite to that of the belt C, so that the seeds, hulls, or other deleterious substances are loosened and prevented from passing up the belt C to the plate G. The plate G is curved to conform to the shape of the belt C. Instead of rigid beater-bars said bars may be small rollers curved to correspond to the shape of the plate G and belt C and fulcrumed in the arms of the beater-roller, so that when they strike a slight reverse motion will be imparted to them, thus assisting to carry the cotton forward. This plate G is adjustable toward or from the belt C to regulate the amount of feed, as may be required. This curved plate G is provided with a bolt on each side that passes through a curved slot *h* on each side of the frames A, and when in the desired position is clamped in place by nuts *g*.

To the inner sides of the frames A on each side of the belt C is secured a curved piece of metal or gutter I, (a section of which is shown in Fig. 7,) the inner edge *i* of which just overlaps the edge of the belt C, so that the seeds and other substances separated from the cotton (which by the form of the belt C will work to the edges thereof) will then pass into the trough or gutter I and be carried to the receptacle M.

At the rear of the beater-roller F is secured a feed-hopper J, which at its delivery end is somewhat contracted, so as to conduct the cotton toward the center of the machine.

K is a receptacle to receive the cleansed cotton that is guided thereto by a plate L, the up-

per end of which just comes into contact with the belt as it passes over the upper roller B.

M is a receptacle to receive the cotton-seeds and other deleterious substances that have been separated from the cotton by the beater-bars *f*, said substances passing down the troughs or gutters I or the endless belt C and by a plate N conducted to said receiver M.

Upon one end of the shaft of the upper roller B is secured a pulley P, by which the machine may be operated from any suitable source. On the other end of said shaft is mounted a cog-wheel Q, that is in gear with a pinion R, mounted loosely upon a fixed stud S on the frame A, which pinion is also in gear with a pinion T, secured to the shaft of the beater-roller F, so that when motion is imparted to the machine the beater-roller will rotate at a somewhat greater speed than the driving-roller B.

If desired, a handle *q* may be secured to the cog-wheel Q, so that the machine may be driven by hand.

In the drawings I have shown the convex and concave of the rollers, beaters, and endless belt exaggerated in order to more clearly show that the seeds and other substances removed from the cotton will work their way to the side gutters. In practice the said curvatures would only be slight, just sufficient to cause the loosened substances to work to said gutters, so that the feed-roller will be sufficiently close to the beater to grip the fibers. The distance between said roller E and stripper F is preferably less than the length of the fibers, so that the seed with its attached cotton will not be knocked back by the stripper.

The operation is as follows: The hopper J is filled with cotton and the fibers led up the belt C to and under the feed-roller E. The machine is then started and the cotton is continuously carried from the hopper J up the endless belt C under the beater-bars *f*, where all deleterious substances are loosened and separated, which substances then work their way to one side of the belt on account of its curved form and fall into the trough or gutter I or pass down the belt itself to the plate N and fall into the receptacle M, the cotton fibers passing up through the mouth or throat formed by the belt C and the curved plate G and under the feed-roller E, the latter constantly drawing up fresh cotton, said cotton then passing to the receptacle K ready for further preparation for use.

When the machine is employed for burring wool, the beater-bars are taken out and other bars with balls attached substituted. I prefer to employ sectional portions of balls secured to the beater-bars, as shown in Fig. 6, said sectional balls being free to rotate and preferably having their lower ends corrugated, but any other suitable device may be employed.

What I claim is—

1. In a cotton-gin or wool-burring machine a series of rollers convex on their periphery, an endless belt passing over the same and made to conform to the shape of the rollers, a beater-bar roller concave on its periphery and provided with beater-bars, an adjustable curved plate, a convex feed-roller, a feed-hopper and suitable receptacles to receive the cleansed cotton and the seeds substantially as set forth.

2. In a cotton-gin or wool-burring machine concave beater-bars and a concave feed-roller in combination with a convex endless belt for conveying the cotton under the beater-bars to the concave feed-roller, the lower or rear roller carrying said belt being adjustable so as to keep the belt tight upon the convex rollers as set forth.

3. In a cotton-gin or wool-burring machine an adjustable curved plate in combination with a convex endless belt, concave beater and concave feed-roller substantially as and for the purposes set forth.

4. In a cotton-gin or wool-burring machine the combination of the convex endless belt, convex rollers for carrying same, a concave feed-roller, a curved adjustable plate, a concave beater-roller, troughs or gutters on each side of said endless belt, a feed-hopper and means for operating the machine as set forth.

5. In a cotton-gin or wool-burring machine the combination of frames A, feed-hopper J, mounted above same, convex rollers B, B′, B^2 arranged between said frames, endless belt C, running upon said convex rollers, a concave feed-roller E, arranged over the center of the upper belt-roller, concave beater-roller F, at the rear of the feed-roller, and having bars *f*, a curved adjustable plate G, arranged between the feed-roller and beater and gears Q, R, T, all arranged and operated as set forth.

6. In a cotton-gin or wool-burring machine the combination of a beater, a feed-roller and a convex endless belt, troughs or gutters arranged on each side thereof for carrying off the seed and other deleterious substances separated from the cotton or wool by the beaters substantially as set forth.

7. In combination with a cotton-gin or wool-burring machine a roller, a series of beater-bars secured thereto, and a series of sectional balls corrugated on their under side and pivoted to said beater-bars substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 27th day of April, A. D. 1893.

HOSEA W. LIBBEY.

Witnesses:
CHAS. STEERE,
EDWIN PLANTA.