(No Model.) 2 Sheets—Sheet 1.

C. YOUNG.

COTTON GIN.

No. 457,690. Patented Aug. 11, 1891.

Fig. 1.

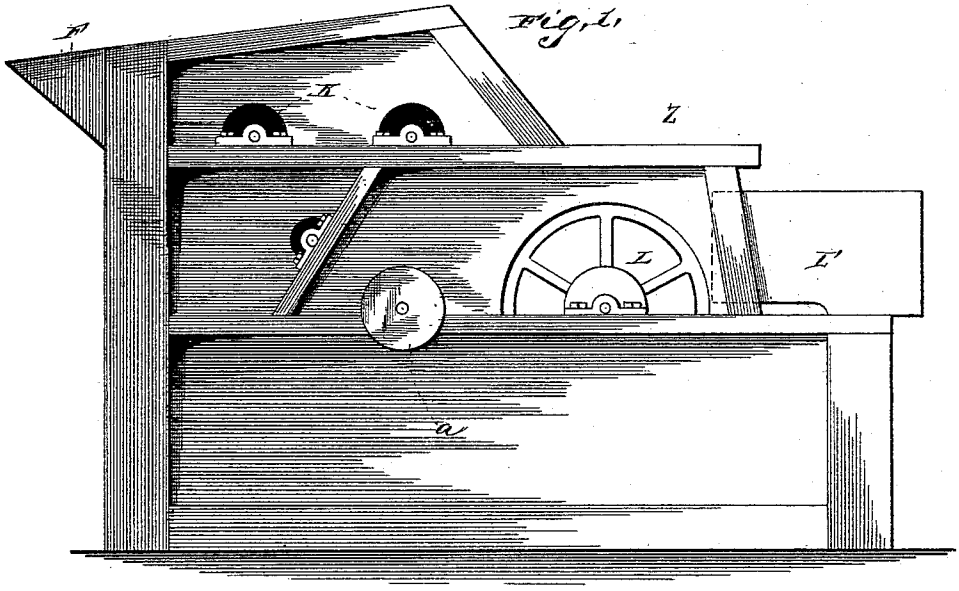
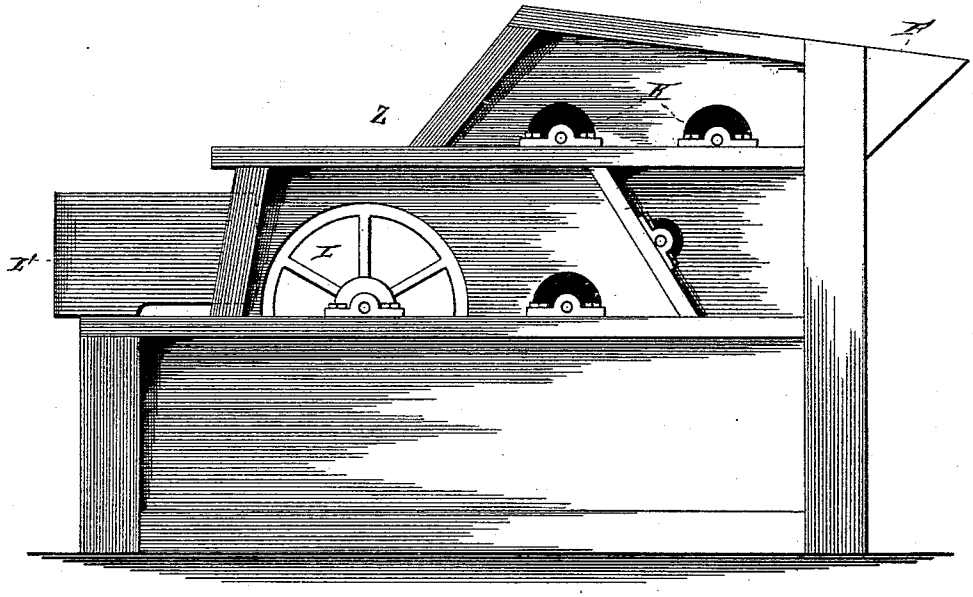


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

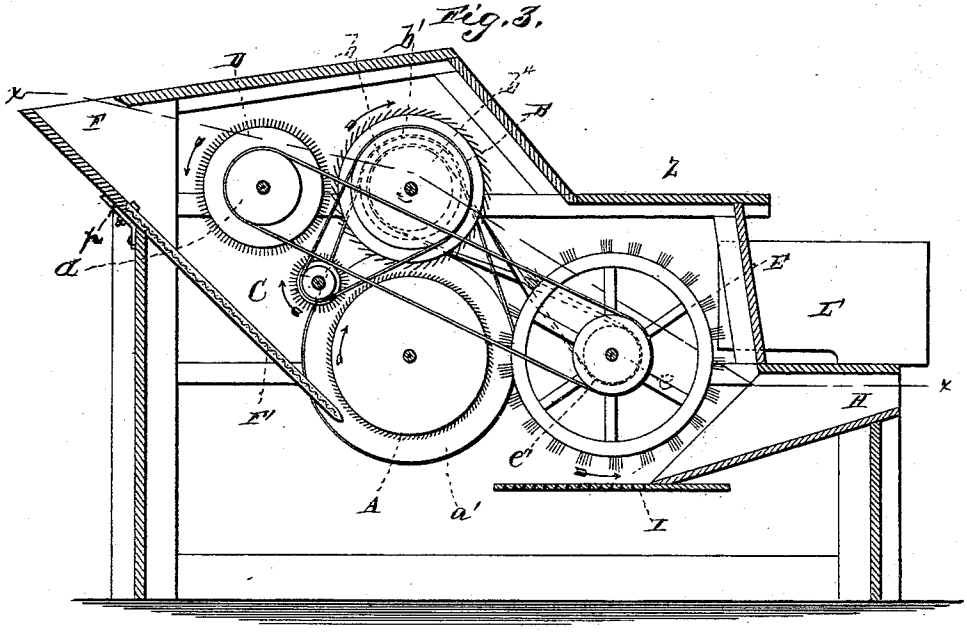
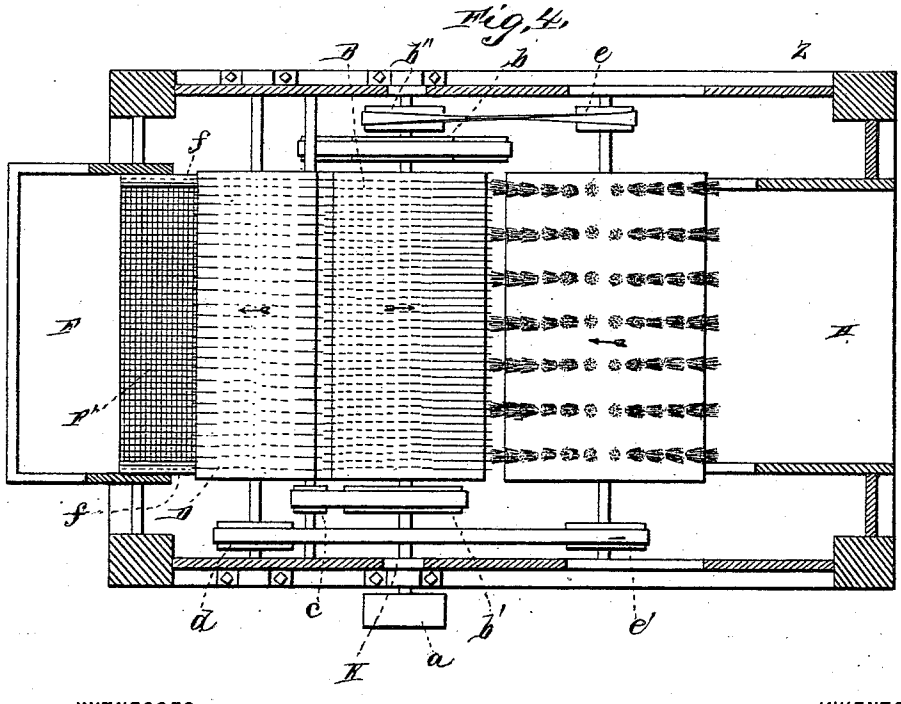


Fig. 4.



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UNITED STATES PATENT OFFICE.

CORNELIUS YOUNG, OF SELMA, ALABAMA.

COTTON-GIN.

SPECIFICATION forming part of Letters Patent No. 457,690, dated August 11, 1891.

Application filed December 29, 1890. Serial No. 376,096. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS YOUNG, a citizen of the United States, and a resident of Selma, in the county of Dallas and State of Alabama, have invented certain new and useful Improvements in Cotton-Gins; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figures 1 and 2 of the drawings are opposite side elevations. Fig. 3 is a vertical longitudinal section thereof, and Fig. 4 is a plan view thereof with the cover removed.

This invention relates to gins for separating seed, dirt, and foreign matter from cotton in the condition in which it comes from the field.

The object is to provide a device of this character which will card and straighten the fiber without cutting or napping, which will more thoroughly remove all lint from the seed than heretofore, and which will do the entire work more rapidly and effectually than the devices now in use for this purpose.

With these objects in view the invention consists in the novel construction and combination of the various parts, as hereinafter fully described.

In carrying out my invention I employ a suitable frame or closure (designated by the letter Z in the accompanying drawings illustrating the invention.) A represents a drum horizontally journaled in said frame and provided with a covering of card-clothing, having short strong steel teeth, sharpened and set at an angle, so that they will pick up and hold the fibers of seed-cotton. These teeth are so closely set that when the drum is in operation a seed cannot be forced between them. Instead of the card-clothing I may employ any well-known equivalent. This drum or brush is driven by the main driving-pulley *a* on its shaft, which is connected with suitable power for the purpose. B represents a similar drum journaled in the same vertical plane and separated by but a short space from brush A. This drum is also provided with a covering of card-clothing or its equivalent similar to that on A, but with the exception that the teeth are inclined in the opposite direction and are preferably somewhat longer and disposed in rows sufficiently spaced from each other to allow a cotton-seed to pass between them. The shaft of this drum carries a pulley *b*, which is driven by a belt from a pulley *a'* on the shaft of brush A.

C represents a drum of smaller size than drums A and B and journaled slightly to the rear of and intermediate of the centers of said drums, coming more nearly in contact with A than with B, as shown. This drum C is covered with very fine steel-wire card-clothing or bristles, and is driven by a pulley *c* on its shaft by a belt from a pulley *b'* on the shaft of drum B.

D is a fourth drum journaled in the same horizontal plane with and at the rear of the drum B and preferably somewhat smaller. This drum is provided with a card-covering similar to that of drum or brush C, and is driven by means of a pulley *d* on its shaft, driven by a belt from a pulley *e'* on the shaft of a drum E, next to be described.

E represents a drum of large size journaled in the same horizontal plane as the drum or brush A, but forward thereof. This drum E is covered with steel-wire card-clothing or bristles of suitable length and set in rows spaced apart, as shown. The shaft of this drum has a pulley *e*, driven by a cross-belt from a pulley *b''* on the shaft of brush B.

F represents the feed-hopper, having at its lower portion the inclined screen F', held in grooves or ways in the side pieces *f* and adjustable therein by means of the plates *p*—one on each side—toward or away from the lower portion of brush A, to the rear of which said hopper and screen are located. This screen is preferably of coarse wire-cloth, the meshes of which, however, are not sufficiently large to admit of the passage therethrough of a seed in the position in which said screen is held.

The seed-cotton is fed into the hopper either by hand or by means of a feeder. It is there taken up by the brush A and carried to C. The fibers of the cotton will to a great extent be driven into the card-teeth of A and a por-

tion of the seed broken off and thrown back into the hopper, to be again taken up by the said brush and beaten back until freed from its fiber, when it will drop out through openings between brush A and the forward edge of the screen. The seed not broken off by brush C will remain on top of brush A, where they will be taken by B, the teeth of which stand in the reverse direction, as before stated. This brush will remove more of the fiber, such seed and fiber being carried upward and backward to brush D, thence down onto screen F′, where it will be again taken by brush A and the operation repeated. The seed, however, will rarely pass brush C more than once before being thoroughly freed from fiber; but as long as any fiber adheres to the seed they will continue to be taken up by A. The lint-cotton which has been thus freed from its seed and a large portion of its dirt will be carried by brush A over to brush E, where it will be swept off by the bristles or steel card-clothing, and after being treated by said brush will be blown through the flue H into the condenser or lint-room.

I represents a mote board or screen located under the brush E, through which the heavier dirt remaining in the lint will fall. It is provided that brush C shall receive draft from below through an opening in the case or closure between brush A and mote-board I, as shown.

K K represent openings in the casing or closure to allow the escape of small accumulations of lint-cotton which may form between the heads of the drums or brushes B and D and the inside of the frame or casing.

L represents a circular opening in the casing for the purpose of giving additional draft to the machine, and this opening is provided with a sliding door L′, by means of which the size of the opening and the consequent draft may be regulated.

Instead of the drive-belts herein shown and described I may, if desired, use sprocket-gear, pinions, or any suitable gearing.

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

1. The combination, with the casing or closure, of the card-brushes A and B, one above the other, the brush C, intermediate of and to the rear of said brushes, the brush D at the rear of brush B, and the lint-brush in front of brush A, said brushes being of different sizes and having their card teeth or bristles of different sizes and differently disposed and having their shafts journaled in said casing and intergeared, substantially as specified.

2. In a cotton-gin, the combination, with the frame or casing having the hopper, the discharge-chute, the draft-openings, and the screens, of the card-brushes A and B, one above the other, the brush C, intermediate of and to the rear of brushes A and B, the brush D at the rear of brush B, and the lint-brush in front of brush A, said brushes being of different sizes and having their card teeth or bristles of different sizes and differently disposed and having their shafts journaled and intergeared in said frame, substantially as specified.

3. In a cotton-gin, the combination, with the frame or casing, of the card-brushes or drums A and B, one above the other, the brush C, intermediate of and to the rear of brushes A and B, the brush D at the rear of brush B, and the lint-brush in front of brush A, said brushes or drums being of different sizes and having their card teeth or bristles of different sizes and differently disposed, substantially as specified.

4. The cotton-gin comprising, in combination with the frame or closure having the draft and discharge opening and hopper, the brush A having its bristles or teeth set closely together, brush B above brush A and having its bristles or teeth farther apart and arranged in rows, brushes C and D, one above the other and of different sizes, journaled at the rear of the two first-named brushes and suitably disposed with relation thereto, and the lint brush or card E, arranged as described, said brushes being intergeared and driven by drive-gear on the shaft of brush A, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CORNELIUS YOUNG.

Witnesses:

ROBT. W. YOUNG,

A. S. WILLIAMS.