

No. 677,303.

Patented June 25, 1901.

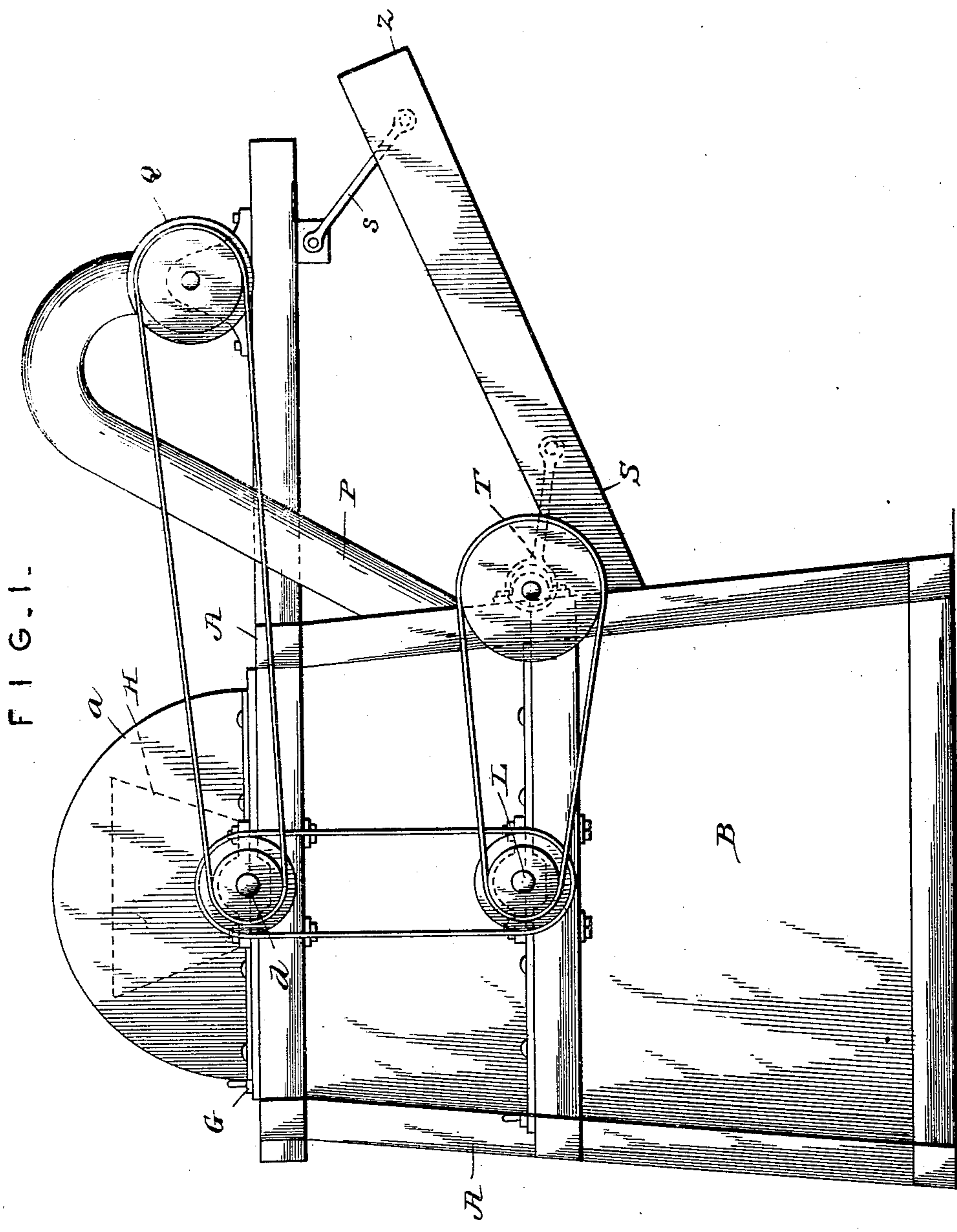
C. YOUNG.

COTTON SEED HULLING, REDUCING, AND SEPARATING MACHINE.

(Application filed July 19, 1900.)

(No Model.)

3 Sheets—Sheet 1.



ATTEST-

*Harry L. Amer,*  
*George W. Anderson*

INVENTOR-

*Cornelius Young.*

By *E. W. Anderson,*  
*his Atty.*

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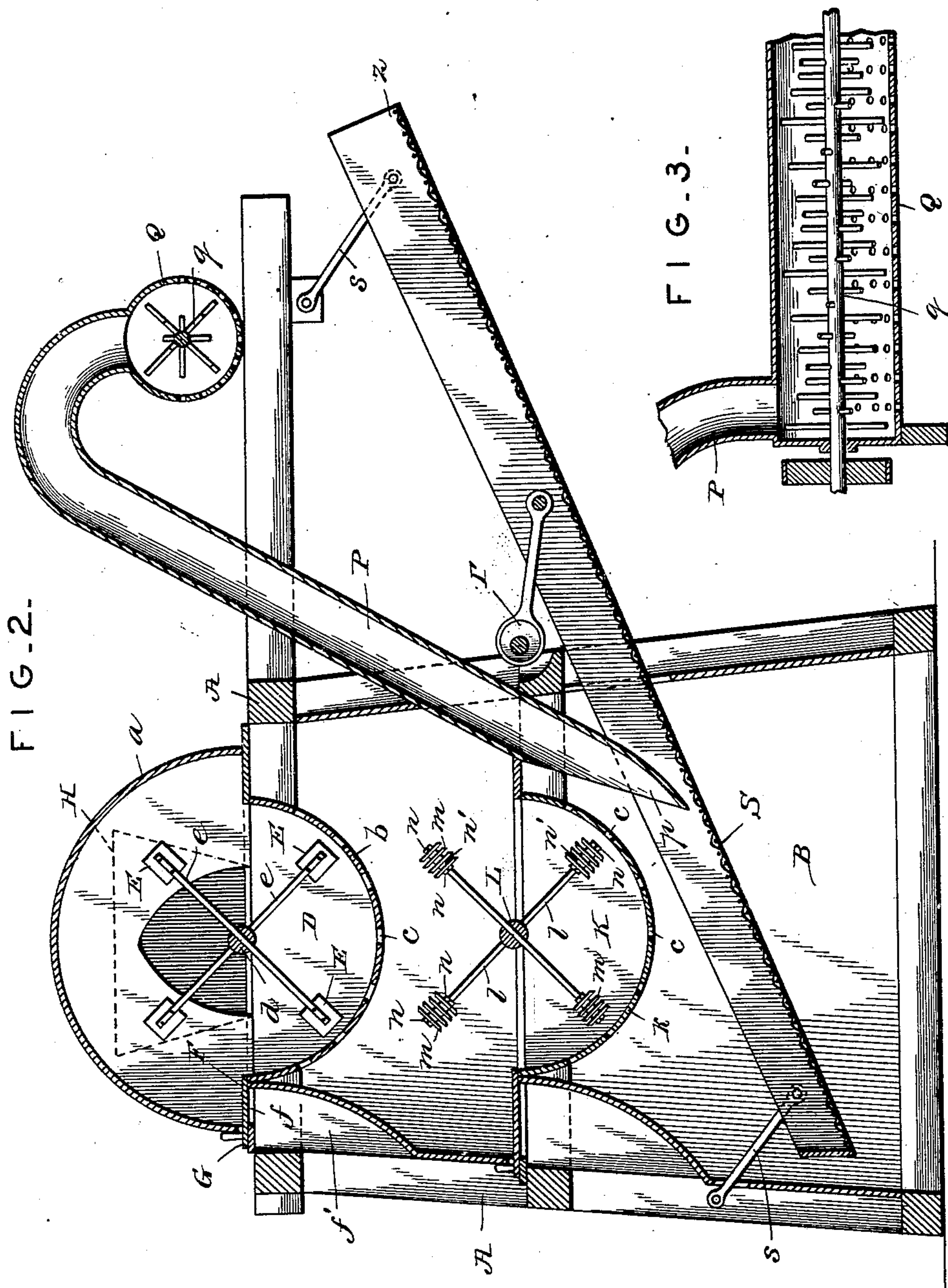
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**3 Sheets—Sheet 2.**

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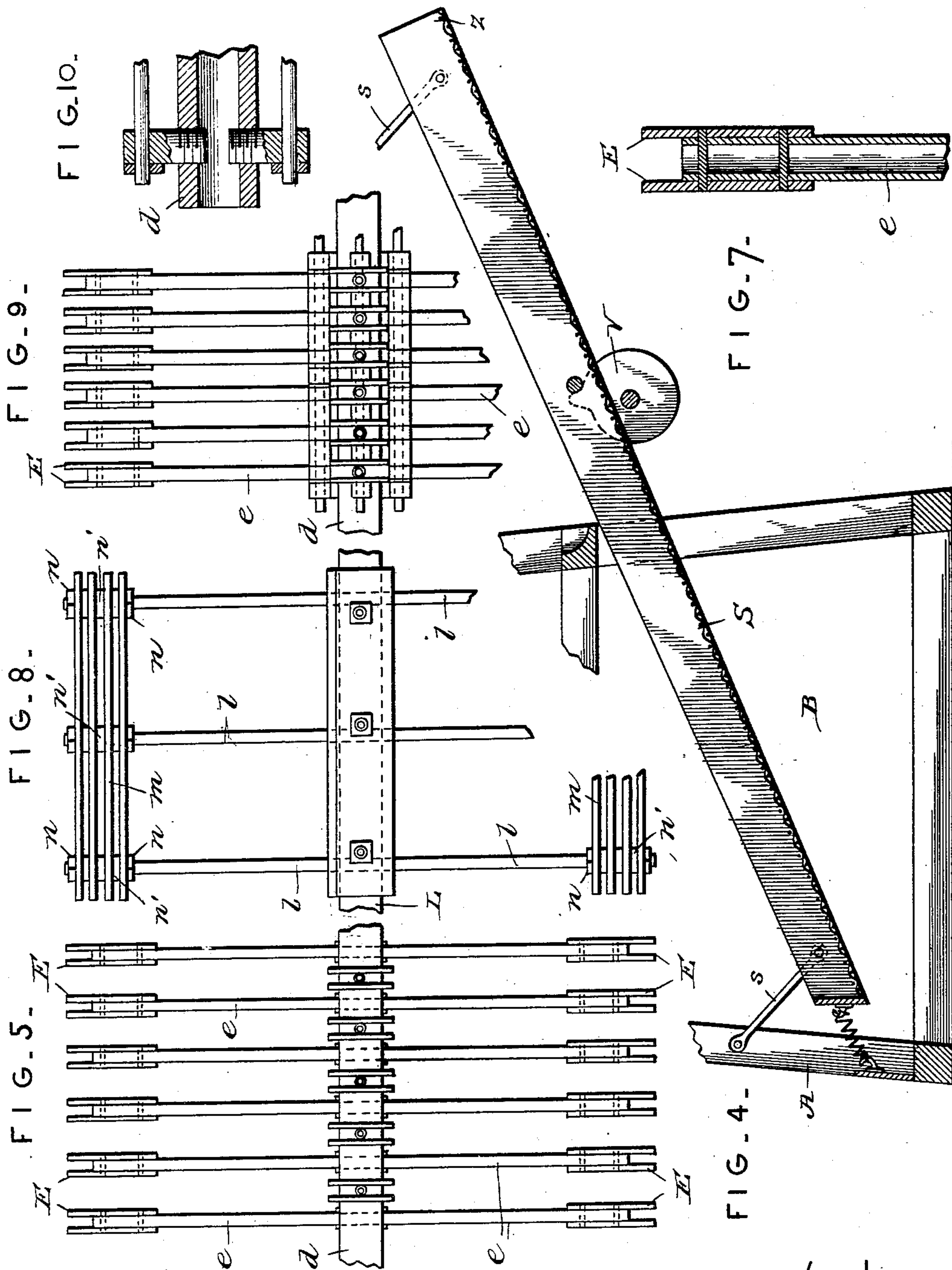
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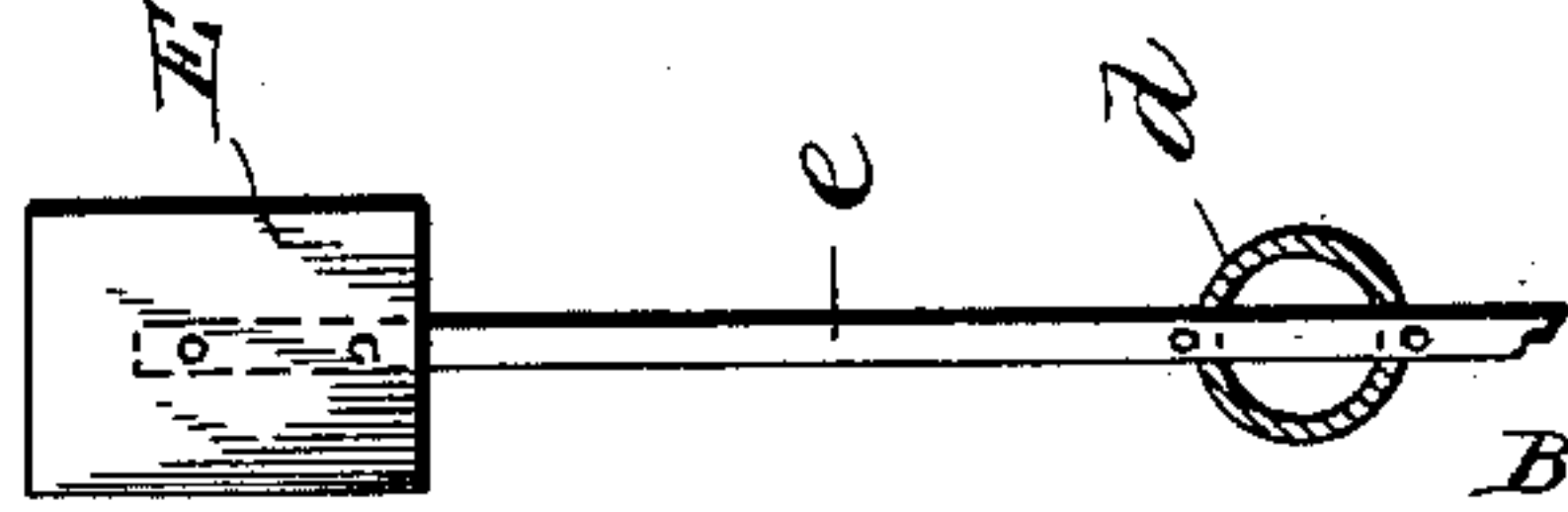
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3 Sheets—Sheet 3.



ATTEST.  
Harry L. Amer.  
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FIG. 6.



By

INVENTOR.  
Cornelius Young.  
E. W. Anderson.  
His Att'y.



# UNITED STATES PATENT OFFICE.

CORNELIUS YOUNG, OF SELMA, ALABAMA.

COTTON-SEED HULLING, REDUCING, AND SEPARATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 677,303, dated June 25, 1901.

Application filed July 19, 1900. Serial No. 24,194. (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 made a certain new and useful invention in Cotton-Seed Hulling, Reducing, and Separating Machines; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In the accompanying drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a detail fragmentary view of conveyor-chamber Q. Fig. 4 is a sectional view illustrating a modified form of means for giving the screen S a reciprocating motion. Fig. 5 is a side view of a portion of the beater-shaft and beaters as used in the upper reducing-chamber. Fig. 6 is a detail view of one of the beaters. Fig. 7 is a detail sectional view of one end of a beater-arm and its beater-plates. Fig. 8 is a side view of a portion of the beater-shaft and its beaters as used in the lower reducing-chamber. Fig. 9 is a side view of a portion of the beater-shaft, the beater-arms being shown as pivoted or journaled thereto upon a journal-bar secured to screws engaging said shaft. Fig. 10 illustrates the manner of securing such journal-bar to the beater-shaft in detail.

The invention relates to hulling, reducing, and separating mechanism for cotton-seed and other purposes; and it consists in the novel construction and combinations of parts, as hereinafter set forth.

In the accompanying drawings, illustrating this invention, the letter A designates framework, and B side sheathing of the machine.

D represents the upper reducing-chamber, having the top *a* and cylindric bottom screen or perforated plate *b*, the perforations *c* of which are made for cotton-seed, usually from about one-quarter to nine thirty-seconds of an inch in diameter. *d* is the shaft of this chamber, to which are connected the

series of beater-arms *e*, which may be rigidly attached to the shaft or pivoted to serve as flails. These arms may be made of pipe passed through the shaft, and to the ends of the arms are secured the separated beaters *E*, which are preferably of plate form, having parallel lateral faces and square corners and arranged one on each side of each arm, at its end in the plane of rotation. These beaters or reducers are not designed to have sharp edges, but to have edges which may be of the thickness of the plate of which they are composed. A ledge *F* is provided at the upper edge of the perforated plate just inside the cover or top *a*, in which is an opening *f*, leading to a chute *f'*, said opening having a slide-cover *G* resting on the ledge and capable of being drawn outward to uncover the opening *f* and allow pieces of grit, nails, pieces of buckles, and other extraneous articles thrown on the ledge to fall through the chute for removal.

H is the hopper, which is preferably arranged at the end of the shaft in the incase-ment in order to facilitate the feed through air-suction set up by the rotating beaters.

Below the reducing-chamber D is a second reducing-chamber K, having a perforated cylindric bottom *k*, provided with perforations *c*, usually similar to those of the bottom plate of the upper reducing-chamber. L represents the rotary shaft of this lower reducing-chamber, said shaft having connected thereto the radial arms *l*, which may also be of piping. On these arms are secured by means of nuts and washers the plate-cutters *m*, there being a superposed series of these plate-cutters placed on the ends of each set of aligned arms in the following manner: The ends of the arms in line with each other being threaded, the plates *m* are perforated to pass over the ends of the arms, being secured in position by means of the nuts *n n* and separated by means of washers *n' n'*, as shown, so that there will be intervals between the plate-cutters, the parallel lateral faces of which are at right angles to the axes of the radial arms. These plates have each parallel planular upper and lower faces and are provided with cutting edges on each side, so that they will act with equal efficiency whether



the rotation of the shaft is to the right or to the left. This lower reducing-chamber is also provided with a ledge, ledge-opening, and chute, with a slide-cover, in a similar manner to the upper chamber for the removal of extraneous matter.

Below the lower reducing-chamber is arranged the upwardly-inclined screen S, which is connected to hangers s, having an inclined position or supports so arranged that on the backward movement of the screen there will be a slight drop, sufficient to clear for an instant the material on the screen. This screen is given a short reciprocating motion in the direction of its length by means of an eccentric or crank and pitman, as indicated at T, or by means of a cam and retractive spring, as indicated at V, it being designed to provide a quick backward motion to the screen in order to catch the particles of material at a lower level on the screen and carry them upward.

P represents a lint-chute, the mouth of which (indicated at p) is arranged just above the screen in front of the perforated bottom of the lower reducing-chamber. This chute leads to a conveyer-chamber Q, in which is arranged a conveyer q, which serves to remove the lint from the chamber. The blast from the beaters in the lower reducing-chamber is usually sufficient to cause the lint to move through the chute to the conveyer-chamber. The wall of the conveyer-chamber is perforated.

The various parts of the machine are operated by suitable pulleys and belting or in such other ordinary manner as may be desirable.

The cotton-seed having been fed into the machine is broken up by the beaters in the upper chamber into coarse parts and much of the extraneous matter thrown on the ledge for removal. Passing through the perforations in the bottom plate of this chamber the material is subjected to the cutting action of the plates in the lower reducing-chamber and is thoroughly reduced to meal, pieces of hull, and particles of lint, all of which are carried out through the perforations in the bottom plate of this chamber, and while the meal and pieces of hull fall on the screen the particles of lint are carried up through the chute to the conveyer-chamber for removal. The reciprocating screen acts to cause the meal to fall through its meshes to the floor or other receiver, while the pieces of hull are moved upward and pass off over the end of the screen at z. This upward action of the screen is such as to effect a slow and thorough separation, which is nevertheless sufficiently rapid for satisfactory use. The lint carried upward through the chute is usually accompanied by some light meal or meal-dust, which is separated and thrown out through the perforated wall of the conveyer-chamber by the action of the conveyer.

It will be noted that the lint-chute has a tapered lower end portion, the side of which opposite the adjacent reducing-chamber is open to form the mouth or lint-entrance which is intermediate of the ends of the reciprocating screen.

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

1. The combination of the rotary reducing mechanism, the perforated bottom, the reciprocatory sieve below said bottom, and the upwardly-directed lint-tube having its lower portion adapted to intercept the blast passing from the reducer through the perforations of said bottom, substantially as specified.

2. In a reducing and separating machine, the combination with the chamber having the rotary reducing mechanism, and the screen-bottom, of the reciprocatory separating-screen, the upwardly-directed lint-tube having its lower end portion adjacent to said chamber, and adapted to intercept the blast therefrom, and the lint-conveyer chamber into which said tube leads, located over said screen, and having a screen-bottom, substantially as specified.

3. In a reducing and separating machine, the combination with the chamber having rotary reducing mechanism, and a screen-bottom, of the upwardly-inclined reciprocatory screen below said chamber, the upwardly-inclined lint-tube adapted to intercept the blast from said chamber, and the conveyer-chamber into which said tube leads, said chamber being located over said screen, and having a screen-bottom, and a rotary conveyer, substantially as specified.

4. In a reducing and separating machine, the upper chamber, its rotary shaft and screen-bottom, radial pipe-arms passing through said shaft, reversible, separated, parallel beater-blades arranged one at each side of each of said arms, each said blade having parallel lateral faces, and square corners, the lower chamber arranged to receive the screenings from the upper said chamber, and having a rotary shaft and a screen-bottom, radial pipe-arms passing through said last-named shaft, and the cutter-blades arranged in superposed series, connecting aligned arms, each said series consisting of parallel, separated, reversible blades having knife-edges and parallel lateral faces arranged at right angles to the axes of said arms, substantially as specified.

5. In a reducing and separating machine, the upper chamber, having the rotary beaters, and screen-bottom, and the lower chamber arranged to receive the screenings from said upper chamber, and having the rotary cutters and the screen-bottom, substantially as specified.

6. In a reducing and separating machine, the reducing-chamber, having the rotary shaft and the screen-bottom, the radial arms



carried by said shaft, and the reversible cut-  
ter-blades connecting alined arms, arranged  
in superposed series each series consisting  
of parallel separated blades having parallel  
5 lateral faces arranged at right angles to the  
axes of said arms and knife-edges, substan-  
tially as specified.

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

CORNELIUS YOUNG.

Witnesses:

HERBERT C. EMERY,  
G. M. ANDERSON.