

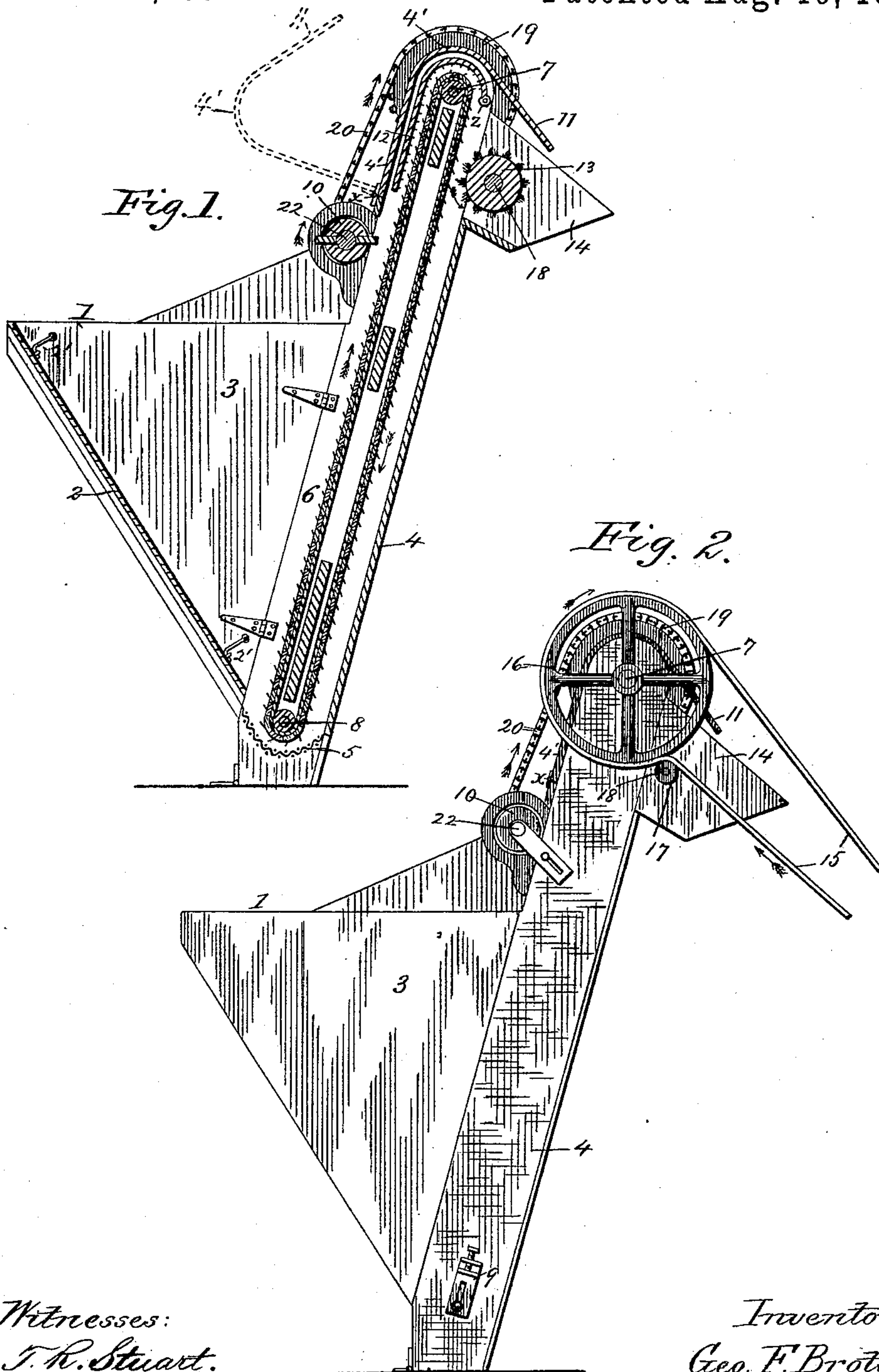
(No Model.)

2 Sheets—Sheet 1.

G. F. BROTT.
ATTACHMENT FOR COTTON GINS.

No. 434,759.

Patented Aug. 19, 1890.



Witnesses:
T. H. Stuart.
J. M. Fowler Jr.

Inventor:
Geo. F. Brott.

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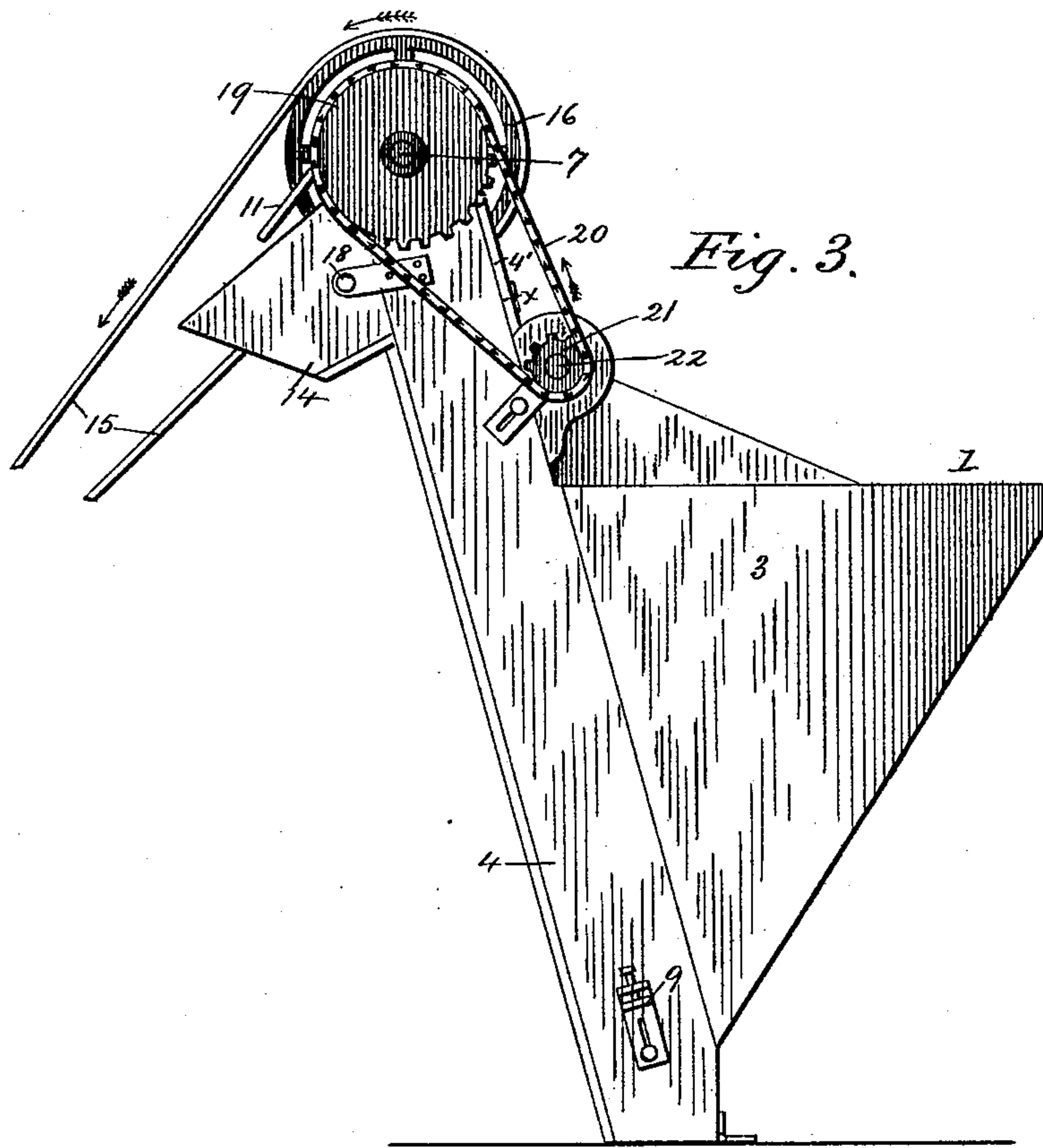
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UNITED STATES PATENT OFFICE.

GEORGE F. BROTT, OF WASHINGTON, DISTRICT OF COLUMBIA.

ATTACHMENT FOR COTTON-GINS.

SPECIFICATION forming part of Letters Patent No. 434,759, dated August 19, 1890.

Application filed June 6, 1890. Serial No. 354,518. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. BROTT, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Attachments for Cotton-Gins; and I do hereby 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.

My invention relates, generally, to attachments for cotton-gins, and particularly to improvements therein which render them peculiarly fitted or constructed for feeding seed-cotton and separating therefrom all hulls, twigs, dirt, and other foreign matters before the ginning thereof takes place, and at the same time for straightening and loosening the locks and fibers attached to the seed or for placing the latter in such condition that the fiber can be completely removed therefrom without cutting, breaking, or otherwise injuring the same; and it consists in the peculiarities of construction and arrangement or combination of parts hereinafter disclosed in the description, drawings, and claims.

The object of my invention is to provide improved feeding devices for regularly and uniformly delivering seed-cotton to cotton-gins, and also for simultaneously removing all hulls, dirt, and other foreign matters therefrom and for straightening and loosening the fiber upon the seed prior to subjecting the same to the action of said cotton-gins, whereby the removal of the fiber close to the seed and the prevention of the cutting or otherwise injuring of the same can be effected. This object is accomplished by the mechanism herein described, and illustrated in the accompanying drawings, forming part of this specification, in which the same reference-numerals indicate the same parts, and in which—

Figure 1 represents a vertical section of an attachment for cotton-gins constructed in accordance with my invention, and Figs. 2 and 3 represent side elevations of the opposite sides of the same, showing the driving-gearing therefor.

In the drawings illustrating my improved seed-cotton feeding and cleaning and fiber

straightening and loosening mechanisms, the numeral 1 indicates the hopper, which is provided with the removable downwardly and rearwardly inclined front wall 2, which forms its bottom, this wall or bottom being secured in place by the hooks and eyes 2', and with the inwardly-movable triangular end or side walls 3, which are hinged at their rear edges, so as to permit of being folded inwardly into a small compass, when desired. Communicating with and arranged in rear of this hopper is the upwardly and rearwardly inclined chute 4, which is hinged or pivoted at the front side of its lower end to the floor for holding it in upright position, and it is provided with a suitably perforated and curved bottom 5. Within this chute is arranged the toothed and endless feeding-apron 6, which is suspended from and driven by the shaft 7, which is suitably journaled in the upper end of said chute and guided by the tension-shaft 8, which is arranged just above said perforated bottom and journaled at its ends in adjustable bearings 9 of any ordinary construction. At the angle formed by the lower ends of said hopper and chute and for some distance upward therefrom the seed-cotton is seized by the teeth of said endless feeding apron and carried upward, any surplus amount thereof being detached from said teeth and forced backward or downward by the strip of leather or other flexible material on the retarding-roll 10, which rotates downwardly and rearwardly and nearly in contact with said apron, whereby a regular and uniform upward passage of the seed-cotton for delivery into the hopper of a cotton-gin is effected; also, this retarding-roll forces back into the hopper 1 all stones, nails, twigs, and such other large foreign matters as may be attached to or mixed with the fiber.

The upper front portion of the chute 4 is provided with the cover 4', which is hinged or pivoted to the sides thereof at the point x , and which is rearwardly curved along its middle portion and formed or provided with the rearwardly and downwardly projecting deflector 11. Beneath and close to this cover is arranged and secured the normally-stationary toothed plate 12, which is straight for a portion of its length, and then curved rear-

wardly over the toothed feeding-apron 6, which in connection with said toothed plate operates to straighten and loosen the fiber upon the seed by a drawing, pulling, or combing action thereon, and to thus properly prepare the same for submission to the action of any suitable cotton-gin. This toothed plate is also hinged or pivoted to the sides of the chute 4 at the point z , so that when the cover 4' and its deflector 11 are turned to the left, or forwardly, as shown in dotted lines in Fig. 1, and the toothed plate 12 is turned to the right, or rearwardly, the teeth of said plate and those of the feeding-apron 6 will be exposed for cleaning, repairs, &c. The deflector 11 overhangs the brush-roll 13 and arrests and delivers back upon said roll any seed-cotton which may be thrown upwardly thereby. This brush-roll is journaled in the sides of the inclined chute 14, which leads to a gin-hopper beneath. This brush-roll possesses the three-fold function of a stripper, a feeder, and a fan, as it strips the seed-cotton from the teeth of said feeding-apron, feeds it into the gin-hopper, and creates an air-blast which forces all sand, dust, and other small foreign matters released from the fiber at that point back into the chute 4, whence they descend over its rear wall and pass out through its perforated bottom 5.

Under the construction and arrangement or combination of the parts thus described perfect feeding and cleaning of the seed-cotton and straightening and loosening of its fiber are effected, and also all possibility of fire occurring from the friction of stones, nails, and the like is avoided, as they are thoroughly removed before coming into contact with the ginning mechanism.

For the operation of my improved attachment for cotton-gins power is received from the latter or from any other suitable source and applied through the endless belt 15 to the pulley 16 on one end of the shaft 7, through which motion is imparted to the toothed and endless feeding-apron 6. In passing to the under side of the pulley 16 the belt 15 passes over the small pulley 17 on the end of the shaft 18 of the brush-roll 13 and revolves the same in a forward and downward direction, for the purposes above explained. On the other end of the shaft 7, opposite the pulley 16, is secured the sprocket-wheel 19, over which passes the sprocket-chain 20, which leads down to and passes around the sprocket-wheel 21 on the end of the shaft 22 of the flexibly-winged retarding-roll 10, and imparts downwardly and rearwardly rotary motion thereto for the purposes above mentioned.

The directions of movement of the revolving parts of my improved attachment for cotton-gins are indicated by arrows in the drawings.

To recapitulate and add to the above-described operation and advantages of my improved attachment, the following may be also stated: The seed-cotton placed in the hopper 1 is carried upward in mass by the teeth of

the endless feed-apron 6 until it reaches the downwardly-revolving flexibly-winged retarding-roll 10, which detaches and throws back into said hopper all surplus seed-cotton, and at the same time dislodges all stones, nails, twigs, and such other large foreign matters as may be attached to the fiber; also, this roll knocks out of the fiber a large quantity of the sand and other small particles of dirt which are usually present therein, and which are finally discharged through the perforated or wire-netting bottom 5. In this condition a regular and uniform quantity of the seed-cotton is carried on upward by said feed-apron until it reaches the stationary, partly straight and partly curved, toothed plate 12, which, in connection with the teeth upon said apron, opens out the locks of cotton, straightens and partially loosens the fiber upon the seed, and perfectly prepares the same for submission to the ginning mechanism. In order to make fully apparent this straightening and loosening action, it may be explained that a cotton-boll opens in four quarters or sections, that the fiber in each section is entirely separate from that in the others and is called a "lock" of cotton, that the fiber in each lock connects the seed therein as it extends from one seed to another, and that it is so intimately interlaced that it is difficult to separate the seed from each other. By the preliminary straightening and loosening action of the devices named the interlocked fiber between the seed is drawn around the teeth of the apron, and the progress of the seed is gradually retarded by the stationary toothed plate, the result being that said fiber is straightened, partially loosened upon the seed, and the seed wholly detached from each other.

Under the conditions stated my improved attachment for cotton-gins accomplishes its work with great rapidity and with surprisingly small expenditure of power, and during its operation requires but little attention beyond occasionally supplying the same with seed-cotton.

Having thus fully described my improved attachment for cotton-gins, the construction and arrangement or combination of its parts, its operation, and advantages, what I claim as new is—

1. In an attachment for cotton-gins, the combination, with a feed-hopper and an endless toothed feeding-apron communicating therewith, of a stationary toothed plate for straightening and loosening the fiber upon the cotton-seed in connection with said feeding-apron, substantially as described.

2. In an attachment for cotton-gins, the combination, with a feed-hopper and an endless toothed feeding-apron communicating therewith, of a stationary toothed plate for straightening and loosening the fiber upon the cotton-seed in connection with said feeding-apron, said toothed plate being straight for a portion of its length, and then curved

rearwardly over the upper portion of said apron, substantially as described.

3. In an attachment for cotton-gins, the combination, with a feed-hopper and an endless toothed feeding-apron communicating therewith, of a stationary toothed plate for straightening and loosening the fiber upon the cotton-seed in connection with said feeding-apron, said toothed plate being straight for a portion of its length, and then curved rearwardly over the upper portion of said apron and hinged or pivoted at its rear end, substantially as and for the purpose described.

4. In an attachment for cotton-gins, the combination, with a feed-hopper, an upwardly and rearwardly inclined chute provided with a hinged cover at its upper end and an endless toothed feeding-apron arranged and moved within said chute and communicating with said hopper, of a partly straight and partly curved toothed plate arranged just beneath said hinged cover and pivoted at its rear end to the sides of the upper part of said chute, substantially as and for the purpose described.

5. In an attachment for cotton-gins, the combination, with a feed-hopper and an endless toothed feeding-apron communicating therewith, of a downwardly and rearwardly rotating and winged retarding-roll and means for straightening and loosening the fiber upon the seed in connection with said feeding-apron, substantially as described.

6. In an attachment for cotton-gins, the combination, with a feed-hopper and an endless toothed feeding-apron in communication therewith, of a downwardly and rearwardly rotating and flexibly-winged retarding-roll and means for straightening and loosening the fiber upon the seed in connection with said feeding-apron, said means consisting of a stationary toothed plate, substantially as described.

7. In an attachment for cotton-gins, the combination, with a feed-hopper and an endless toothed feeding-apron communicating therewith, of a downwardly and rearwardly rotating and flexibly-winged retarding-roll and means for straightening and loosening the fiber upon the seed in connection with said feeding-apron, said means consisting of a stationary, partly straight and partly curved tooth-plate, substantially as described.

8. In an attachment for cotton-gins, the combination, with a feed-hopper, an upwardly and rearwardly inclined chute provided with a perforated bottom and an endless toothed

feeding-apron arranged and moved within said chute and communicating with said hopper, of a downwardly and rearwardly rotating and winged retarding-roll and means for straightening and loosening the fiber upon the seed in connection with said feeding-apron, substantially as described.

9. In an attachment for cotton-gins, the combination, with a feed-hopper, an upwardly and rearwardly inclined chute provided with a perforated bottom and an endless toothed feeding-apron arranged and moved within said chute and communicating with said hopper, of a downwardly and rearwardly rotating and winged retarding-roll and means for straightening and loosening the fiber upon the seed in connection with said feeding-apron, said means consisting of a stationary toothed plate, substantially as described.

10. In an attachment for cotton-gins, the combination, with a feed-hopper, an upwardly and rearwardly inclined chute provided with a perforated bottom, and an endless toothed feeding-apron arranged and moved within said chute and communicating with said hopper, of a downwardly and rearwardly rotating and winged retarding-roll and means for straightening and loosening the fiber upon the seed in connection with said feeding-apron, said means consisting of a stationary partly-straight and partly-curved toothed plate, substantially as described.

11. In an attachment for cotton-gins, a feed-hopper having a removable rearwardly and downwardly inclined front wall and triangular hinged inwardly-movable sides or end walls, substantially as described.

12. In an attachment for cotton-gins, a feed-hopper having a removable rearwardly and downwardly inclined front wall and triangular hinged and inwardly-movable sides or end walls, in combination with the endless toothed apron and the inclined chute, which is pivoted or hinged at the front side of its lower end, substantially as described.

13. In an attachment for cotton-gins, the combination, with the feeding, retarding, and cleaning devices and the straightening and loosening devices, of the deflector 11 and the brush-roll 13, substantially as and for the purpose described.

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

GEORGE F. BROTT.

Witnesses:

E. L. WHITE,
TOM R. STUART.