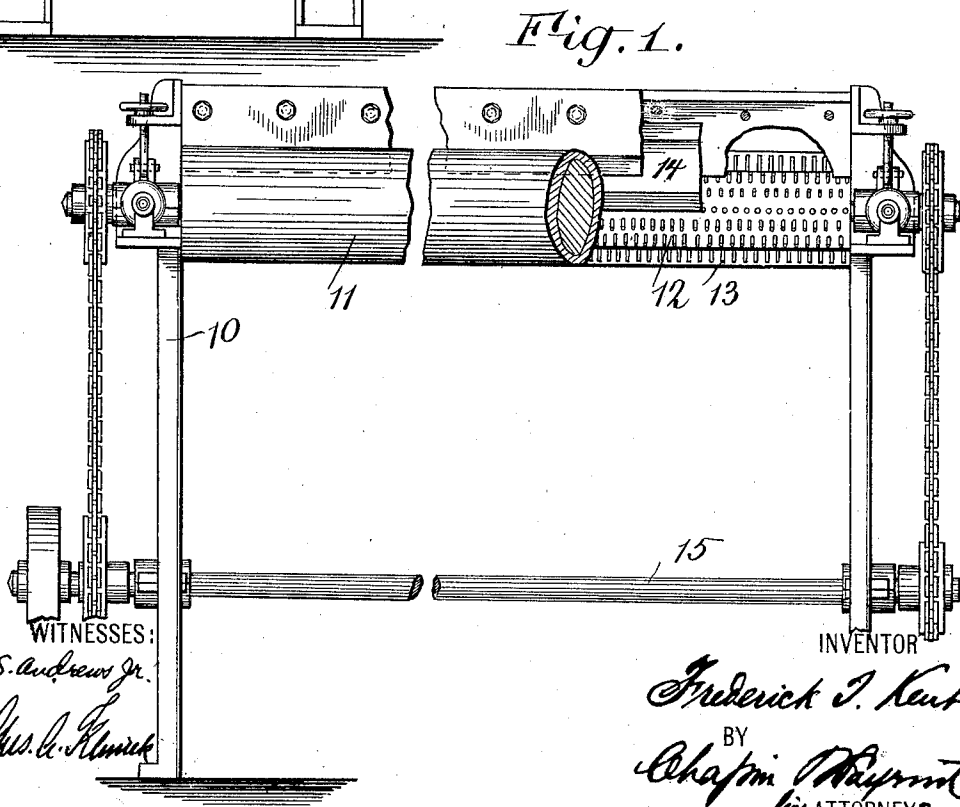
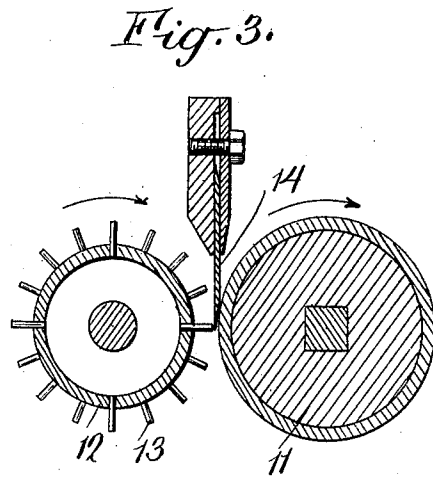
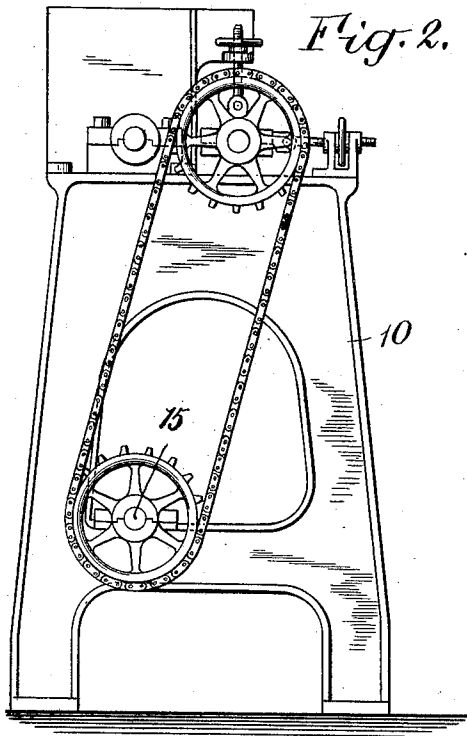


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 PROCESS AND APPARATUS FOR GINNING COTTON.
 APPLICATION FILED MAY 23, 1908.

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2 SHEETS—SHEET 1.



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Fig. 4.

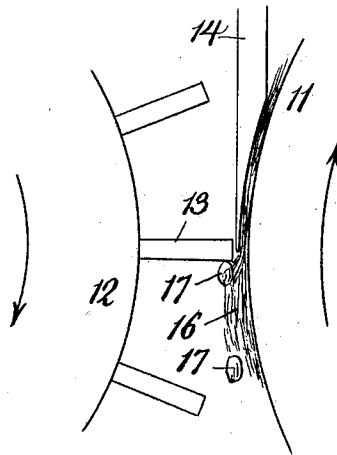
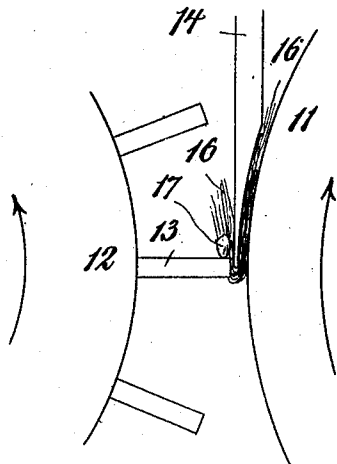


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FREDERICK T. KENT, OF BROOKLYN, NEW YORK, ASSIGNOR TO EMPIRE DUPLEX GIN COMPANY, OF NEW YORK, N. Y., A CORPORATION OF ARIZONA TERRITORY.

PROCESS AND APPARATUS FOR GINNING COTTON.

983,499.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed May 23, 1908. Serial No. 434,463.

To all whom it may concern:

Be it known that I, FREDERICK T. KENT, a citizen of the United States of America, and a resident of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in a Process and Apparatus for Ginning Cotton, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The class of gins to which this invention appertains and in which my improved process is adapted to be carried out is roller cotton gins employing a rotatable roller, a rotatable stripping member mounted adjacent thereto, comprising a plurality of narrow radially disposed stripping elements whose faces are oblique to the axis of rotation thereof and a stationary bed knife arranged substantially tangential with respect to both the said ginning roller and the rotatable stripping member. This class of gin is illustrated in a Patent No. 828,668 of August 14, 1906, issued upon application of W. H. Kent. In such form of gin, it is the universal custom to rotate the ginning roller and stripping member in opposite directions, the surfaces of both of the said members traveling in a direction toward the edge of the bed knife. The result of this is that cotton fibers are laid across the edge of the bed knife,—being drawn in one direction by the ginning roller, the surface of which is so formed as to cause a tendency for the fibers to adhere thereto, and hence to be carried along thereby, while the operation of the stripping member tends to draw the fibers in the opposite direction upon the other side of the stationary bed knife. In actual practice the superior grasp which the ginning roller has upon the fibers overcomes the tendency of the stripping roller to move the fibers in the other direction, and the fibers are actually carried along over the edge of the knife by the ginning roller. The stripping roller, however, removes the seeds during this operation, so that the fibers only are carried along by the ginning roller. It will be readily understood from the foregoing that every particle of the fiber is bent over the edge of the bed knife during an operation of this kind, whereby there is a constant tendency to break or rupture the fibers and actually a large number of the

fibers are so broken and ruptured in the course of ginning by this method.

My present process consists in drawing the fibers beneath the edge of a bed knife by suitable means, as, for instance, by the employment of the ordinary ginning roller, and in removing the seeds by glancing blows administered thereto by a member the periphery of which moves in a direction away from the edge of the bed knife instead of toward it, as above described. As a result of this the fibers instead of being dragged across the edge of the bed knife are merely carried beneath it. The bed knife will act to prevent too great a bulk of material being carried along by the ginning roller at a time, while the series of glancing blows delivered upon the seeds by the rotating member will strip the seeds from the fiber without acting to bend the fibers across the bed knife or in any way tending to break or rupture them.

By actual tests I have found that by ginning cotton in accordance with my present invention I obtain a product which contains fibers of greater length, and fewer fibers of short lengths than has ever before been produced in cotton gins in which the ginning roller and stripping member rotate in opposite directions, and, furthermore, that such a product contains practically no fibers which are partially ruptured or kinked, while the opposite is true of cotton ginned by the form of method above described.

I am aware that gins employing a rotary stripping element, a rotary ginning member, and a stationary bed knife have been operated with the adjacent peripheries of the stripping member and ginning roller rotating in opposite directions, the ginning roller moving toward the edge of the bed knife and the stripping member away from it, but in every such case the stripping member has comprised a plurality of elements so constructed and arranged as to give a direct or positive blow to the seed, in contradistinction to the glancing blow given by the narrow elements whose faces are oblique to the axis of rotation thereof. In such a case while the blows administered to the seeds are in a direction opposite to the direction in which the fibers are traveling, the blows are liable to be so severe as to rupture the fibers, or in some cases where the seeds

adhere pertinaciously to the fibers, to drag the fibers away from the ginning roll, and in no case has cotton been ginned by glancing blows imparted to the seeds in a direction opposite to the direction in which the fibers are traveling.

In order that my invention may be thoroughly understood, I will now describe a cotton gin in which my improved process may be carried out, having reference to the accompanying drawings which illustrate the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a front view of the gin with certain parts broken away. Fig. 2 is an end view thereof. Fig. 3 is a view in central transverse section through the ginning roller, rotating stripper, and stationary bed knife. Figs. 4 and 5 are diagrammatic views showing the action of the ginning roller and rotatable stripper upon the fibers under different conditions.

The gin comprises a stationary frame 10 in which the rotatable ginning member 11 and the rotary stripper 12 are suitably journaled. The roller 11 may be any ordinary form of roller such as is usually employed in a roller cotton gin, such, for instance, as a wooden roller covered with walrus hide, the surface of which forms a suitable friction surface for engagement with the fibers. The rotatable stripper 12 may likewise be of any suitable character, and is here shown as comprising cylinder and a plurality of pegs or pins 13 projecting radially therefrom. These pins are preferably disposed in a series of spirals around the cylinder, the extreme lateral portions of each pin being substantially in line with the opposite lateral portions of the pins in the same spiral which precede and succeed it in the rotation of the stripper. The pins or pegs are shown as cylindrical in form and for the purpose of manufacture this is the most convenient form therefor, but the essential characteristic thereof is that their operative faces shall be oblique to the axis of rotation of the stripping member whereby they will strike glancing blows only, upon the seeds. The ginning roller and stripping member are arranged side by side with their perimeters in close proximity, but just out of contact with each other.

It may be here noted that the specific form of stripping member shown in the present application is described more fully and claimed in a co-pending application filed upon even date herewith.

A stationary bed knife 14 constituting a seed arresting member is mounted between the roller 11 and the stripping member 12, being substantially tangent to both of them. The relative relation of the parts will be readily understood by reference to Fig. 3 of the drawings. The said roller 11 and strip-

ping member 12 are both driven by sprocket wheels and chains from the same drive shaft 15 and are driven in the same direction, as is indicated by the arrows in Fig. 3. The roller 11 is driven in a direction whereby its surface moves constantly toward the edge of the bed knife 14, while the surface of the stripping roller moves in a direction away from the edge of the bed knife. It will, of course, be understood that if the two rotatable members rotate in the same direction, their contiguous surfaces, being upon opposite sides of their axes of rotation, will move in opposite directions. The result of this is illustrated in the diagram 80 in Fig. 4. In this diagram 16 illustrates the fibers which are being carried along by the roller 11 in a direction toward the edge of the bed knife 14, while the pegs 13 of the stripping member 12 are striking the seeds 85 17 in a direction away from the edge of the bed knife, the pegs 13 tending at the same time to comb the fibers 16 which have not yet reached the edge of the bed knife 14, against the surface of the roller 11 and in a direction to prevent them from being bent over or across the edge of the bed knife. In Fig. 5 I have shown a comparative diagram in which the stripping member is arranged to move in the opposite direction, the result 95 of which being to bend the fibers across the edge of the bed knife, as above stated.

It will be well understood that the present process is by no means the mere function of the machine herein illustrated, for such a process may be carried out in any desired manner, the process consisting broadly of stripping the seeds from fibers carried forward by a moving surface, by blows administered thereto in a direction 105 opposite to the direction of such moving surface; at the same time it will be noted that such a process is necessarily carried out in every form of cotton gin in which a co-engaging ginning roller and rotatable 110 stripper are rotating generally in the same direction, *i. e.*, with their co-engaging surfaces rotating in opposite directions.

In the use of the expressions "toward the edge of the bed knife" and "away from the edge of the bed knife" to describe the direction of rotation of the ginning and stripping members with respect to the bed knife, it will be understood that the former expression is intended to describe the direction of rotation of the roller 11, with respect to the bed knife 14, indicated by the arrow in Fig. 4, while the latter expression is intended to describe the opposite relative rotation of the member 12 as is indicated by the arrow in proximity thereto.

What I claim is:

1. The herein described process of ginning cotton which consists in drawing the said fibers longitudinally beneath the surface of 130

a stationary bed knife in a direction toward the edge of the said knife, and in stripping the seeds therefrom by glancing blows imparted thereto in a direction opposite to the direction of travel of the said fibers and away from the edge of the said bed knife.

2. In a roller cotton gin the combination with a rotatable ginning member, and a rotatable stripping member mounted adjacent thereto for co-engagement therewith, the said stripping member comprising a plurality of narrow stripping elements whose faces are disposed oblique to the axis of rotation thereof, of means for driving the said roller and stripping member in the same direction and with their co-engaging surfaces in opposite directions, and a seed arresting member for coöperation with the said ginning member.

3. In a roller cotton gin the combination with a rotatable ginning roller and a rotatable stripping member mounted adjacent thereto and for co-engagement therewith, the said stripping member comprising a plurality of narrow stripping elements whose faces are disposed oblique to the axis of rotation

thereof, of a bed knife arranged substantially tangential with respect to the said roller and stripping member, and means for rotating the ginning roller in a direction toward the edge of the bed knife, and the said stripping member in a direction away from the edge of the said bed knife.

4. In a roller cotton gin the combination with a rotatable ginning roller and a rotatable stripping member mounted adjacent thereto and for co-engagement therewith, the said stripping member comprising a plurality of narrow stripping elements whose faces are disposed oblique to the axis of rotation thereof, of a stationary bed knife arranged substantially tangential with respect to the said roller and stripping member, and means for rotating the ginning roller in a direction toward the edge of the bed knife, and the said stripping member in a direction away from the edge of the said bed knife.

FREDERICK T. KENT.

Witnesses:

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LYMAN S. ANDREWS, Jr.