I. MEURLING.

COTTON GIN.

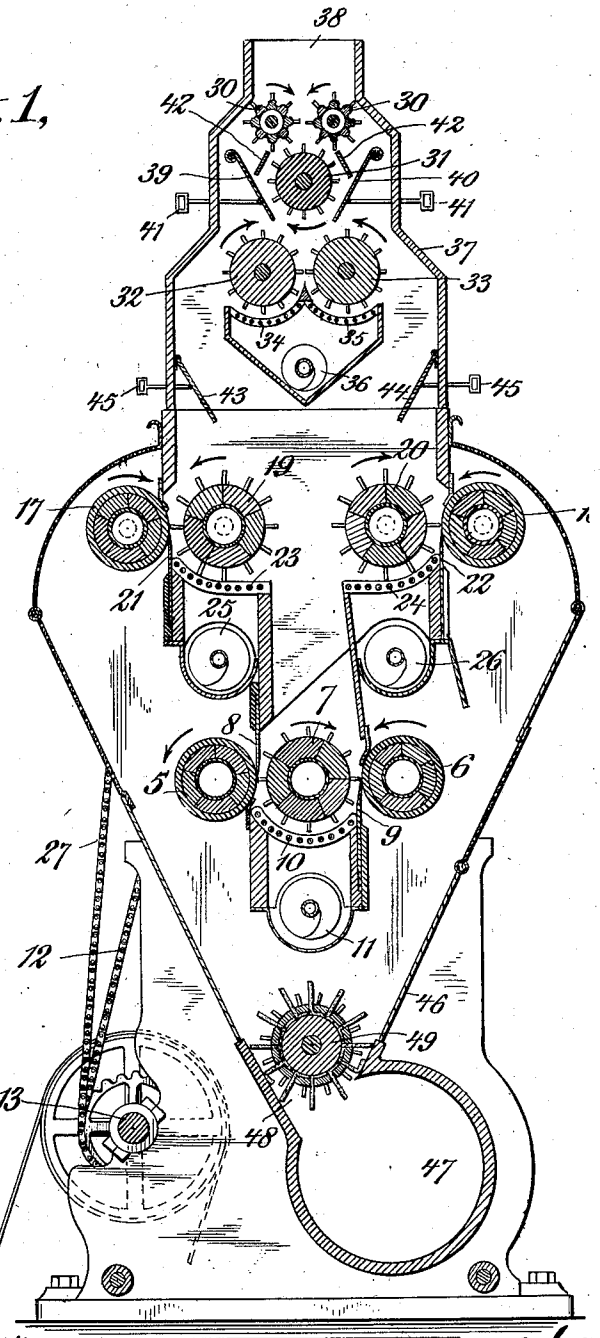
APPLICATION FILED DEC. 20, 1910.

1,011,636.

Patented Dec. 12, 1911.

3 SHEETS—SHEET 1.

Fig. 1,



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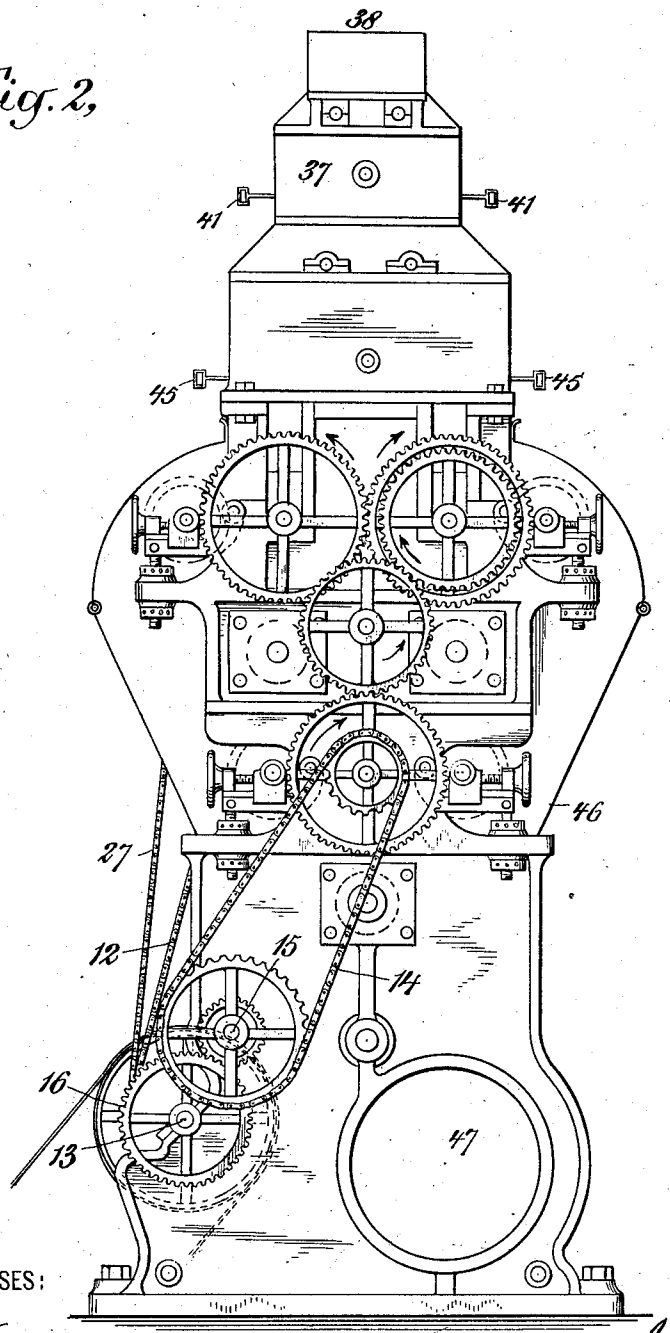
3 SHEETS—SHEET 2.

Fig. 2,



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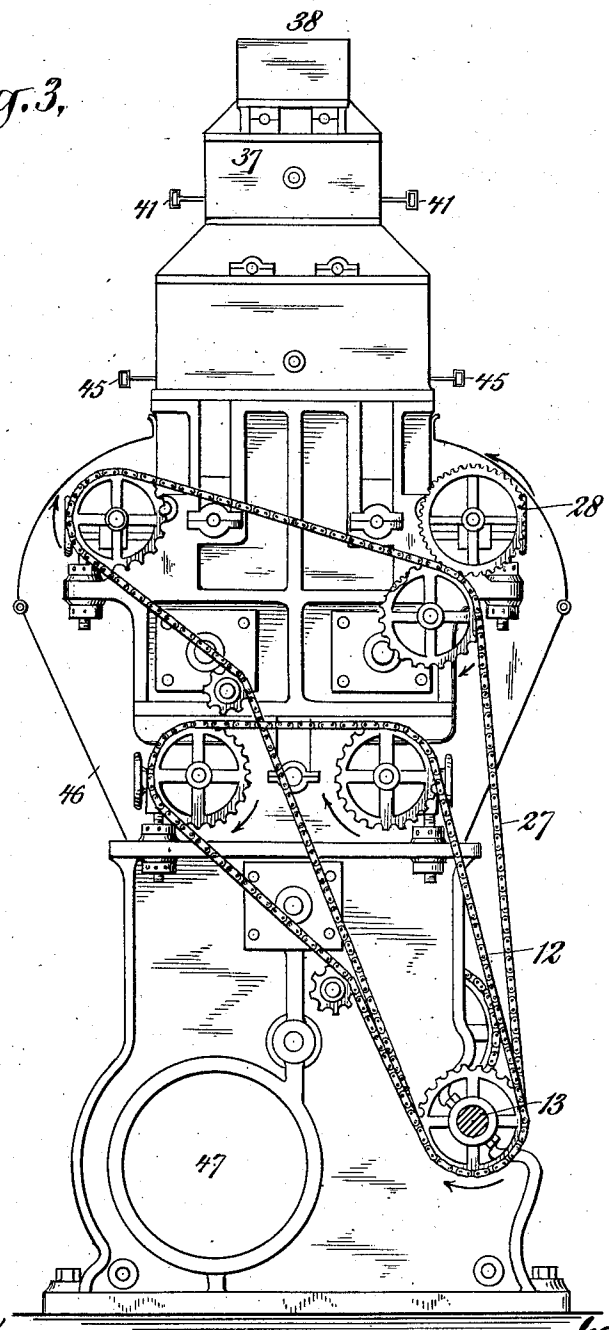
3 SHEETS—SHEET 3.

Fig. 3.



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COTTON-GIN.

1,011,636. Specification of Letters Patent. Patented Dec. 12, 1911.

Application filed December 20, 1910. Serial No. 598,443.

To all whom it may concern:

Be it known that I, IVAR MEURLING, a subject of the Crown of Sweden, having announced my intention of becoming a citizen of the United States of America, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Cotton-Gins, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to cotton gins, and particularly to cotton gins employing a plurality of sets of ginning elements disposed at different points throughout the machine; and my invention consists in the combination with such plurality of ginning means, of adjustable means for proportioning the relative quantity of material fed thereto whereby the material may be fed to the different ginning means in varying proportions, or if desired to the exclusion of one or more of the said sets of ginning members.

My invention also consists in certain novel features of construction and relative position of the several sets of ginning members, all as will be fully pointed out hereinafter; and in order that my invention may be fully understood, I will now proceed to describe a cotton gin constituting an embodiment thereof, having reference to the accompanying drawings illustrating the same, and will then point out the novel features in claims.

In the drawings: Figure 1 is a view in central transverse section through a cotton gin constructed in accordance with my invention. Fig. 2 is a view in elevation thereof looking toward one end of the gin. Fig. 3 is a view in elevation thereof looking toward the other end of the gin.

At about midway of its height the gin illustrated is provided with two ginning rollers 5 and 6, and with a rotary stripper 7 between them for co-action with them both, the axes of the ginning rollers and the rotary stripping member being arranged substantially in the same horizontal plane and parallel with each other. A stationary bed knife 8 is arranged tangent to the roller 5, engaging the same at substantially the point of co-action of the stripping member 7 therewith, and a similar bed knife 9 is provided for co-action with the ginning roller 6, the edge thereof engaging the said roller at about the point of co-action of the stripping member 7 with the said roller 6. A seed grid 10 is disposed beneath the rotary stripping member, and a seed conveyer 11 is disposed beneath the seed grid, all of which will be well understood by reference to Fig. 1 of the drawings. The ginning rollers 5 and 6 are driven by means of a sprocket connection 12 from a main shaft 13 (see Fig. 3), while the stripping member is driven through a sprocket connection 14 with a countershaft 15 in geared connection 16 with the said main shaft 13 (see Fig. 2). By reason of their driving connections the ginning rollers 5 and 6 rotate in the same direction, such direction being an anti-clockwise direction as viewed in Fig. 1 while the stripping member 7 rotates in the opposite direction. Disposed in another horizontal plane at some distance above the ginning rollers 5 and 6 and the stripping member 7 are two other ginning rollers 17 and 18, and rotary stripping members 19—20 for respective engagement therewith. These two sets of ginning members 17—19 and 18—20 are spaced apart so that a passageway is left between the two stripping members 19—20 which is in direct line with, and leads to, the stripping member 7 of the first said sets of ginning members. A stationary bed knife 21 is arranged for co-action with the ginning roller 17 and the stripping member 19, and a similar bed knife 22 is arranged for co-action with the ginning roller 18 and the stripping member 20. Beneath the stripping members 19 and 20 respectively are seed grids 23 and 24, and beneath the seed grids respectively are seed conveyers 25 and 26. The ginning roller 18 is driven by a direct sprocket chain connection 27 from the main drive shaft 13, while the ginning roller 17 is driven therefrom through gearing 28 by which the direction of rotation thereof is reversed with respect to the direction of rotation of the ginning roller 18. In other words, the ginning rollers 17 and 18 rotate in opposite directions, the ginning roller 17 rotating in a clockwise direction as viewed in Fig. 1, and the ginning roller 18 in an anti-clockwise direction. The stripping members 19 and 20 are connected through the gearing 29 with the stripping members 7 (see Fig. 2), the direction of each stripping member being opposite to that of the ginning roller with which it is arranged

for co-engagement, as will be well understood by reference to the drawings. By this arrangement such material as is rejected by the upper sets of ginning members will be delivered by the rotary strippers thereof, through the said passageway to the ginning members arranged beneath them as aforesaid.

From the foregoing it will be apparent that there are four points at which cotton may be ginned in the machine,—one between the ginning roller 17 and the stripping member 19; another between the ginning roller 18 and the stripping member 20; another between the ginning roller 5 and the stripping member 7; and another between the ginning roller 6 and the stripping member 7.

Located in the upper end of the machine above the ginning rollers 17—18 and the stripping members 19—20, is a feeding means comprising two fluted rollers 30—30, a fan roller 31 beneath them, the axis whereof is in a vertical plane midway between the axes of the rollers 30—30, and two cleaning rollers 32—33 arranged beneath the fan roller 31. The rollers 32 and 33 are also in the nature of fan rollers as the term is applied in this art, and the projections or blades thereof are arranged for co-action respectively with cleaning screens 34—35. Beneath the cleaning screens is a screw conveyer 36. The several rollers 30—30—31—32—33 are all arranged with their axes in parallel relation and are all inclosed in a casing 37, the upper end of which is provided with a receiving mouth 38 for receiving cotton to be ginned. Pivoted upon either side of the fan roller 31 are deflecting blades 39—40, the said blades being provided with operating handles 41 by which they may be manipulated from the exterior of the casing 37 to adjust their angular positions. Oppositely inclined stationary blades 42 are also provided immediately beneath the feed rolls 30 for the purpose of confining the material being fed and properly directing it toward the adjustable deflecting blades. Other pivoted deflecting blades 43—44 are located within the casing 37 beneath the rollers 32—33, the said blades being provided with operating handles 45 by which they may be operated from the exterior of the casing in a manner similar to that described in connection with the deflecting blades 39.

The operation of the gin is as follows. Cotton to be ginned is supplied to the mouth 38 of the casing 37 whence it passes between the fluted feed rollers 30—30 to the fan roller 31. Thence it passes to the two rollers 32 and 33, the quantity passing to one or other of the said rollers being governed by the position of the adjustable deflecting blades 39—40, for it will be apparent that if the deflecting blade 39 be adjusted to a position more nearly horizontal while the blade 41 be adjusted to a position more nearly vertical, a greater quantity, or if desired substantially the entire quantity of the cotton, may be fed to the roller 33, while by a contrary adjustment of the blades a greater quantity or the entire bulk of the cotton may be fed to the roller 32. The cotton is carried around by the cleaning rollers 32—33 in the proper predetermined proportion, being drawn across the cleaning screens 34—34 whereby leafy trash, dust, etc., is removed, and the cleaned cotton is then delivered to a point in line with the deflecting blades 43—44. The proportion of cotton delivered to the various points of ginning as heretofore described may be varied by the position of the deflecting blades 43—44 as will be well understood. For instance, the blades may be raised to a point wherein all of the material will be delivered directly to the lower set of ginning members 5, 6, and 7, the ginning members 17—19—18 and 20 merely rotating at such time idly; or by other adjustments, a part of the cotton may be delivered to either or both of the pairs of ginning members 17—19, 18—20, or by drawing the blades down to a vertical position all of the cotton may be delivered first to the upper ginning members. The cotton ginned by the upper ginning members will fall down from the ginning rollers 18—20 to the bottom of the gin casing 46, while the cotton not ginned but rejected thereby, *i. e.*, the excess cotton thrown back by the stripping members 19—20, together with any cotton which may be deflected directly to the center of the gin by the blades 43—44, or either of them, will fall down to the ginning members 6, 7, and 8 wherein the cotton will be presented first for ginning between the members 6 and 7 and then between the members 7 and 8. The ginned cotton falling from the ginning rollers 6 and 8 will likewise fall to the bottom of the casing to be mingled with the cotton falling from the upper ginning rollers 17 and 18.

From the foregoing it will be readily seen that by a proper manipulation of the several deflecting blades 39—40—43—44 the cotton may be distributed in many different ways and in many different proportions, for instance,—it may all if desired be delivered to the ginning members 17—19, or all to the ginning members 18—20, or it may be delivered proportionately between them; or it may be delivered in part to one of the said upper sets and in part to the lower sets, or proportionately between the two upper sets and the lower sets. The gin casing 46 communicates with a lint flue 47, the connecting mouth 48 being closed by means of a rotary element 49 which acts first to close

the lint flue so that air currents may be drawn or forced therethrough, and second, as a positive feeding device, to feed the lint into the said flue.

The seeds removed from the cotton in the ginning operation will be carried away by the several conveyers 11—25—26, and the leafy trash, dust, etc., by the conveyer 36. It will of course be understood that proper driving connections will be provided for the rollers 30—30—31—32—33 for the conveyers 36—25—26 and 11 and for the rotary element 49, but as these driving connections may be of ordinary well-known form and will be readily understood by those skilled in the art, being such as can be ordinarily supplied by any mechanic, they have been omitted from the drawings herein in order that those parts of the gin necessary for illustrating the invention may be more clearly shown.

What I claim is:

1. In a cotton gin, the combination with a plurality of sets of ginning members, of feeding rollers, adjustable deflecting blades beneath them, cleaning rollers beneath the said deflecting blades and to which the material is delivered from the deflecting blades, and other adjustable deflecting blades located beneath the said cleaning rollers for receiving material therefrom, the material being delivered from the said deflecting blades to the said sets of ginning members, the positions to which the said deflecting blades are adjusted determining the proportionate amount of material fed to the said sets of ginning members.

2. In a cotton gin, the combination with a plurality of sets of ginning members, of feeding rollers, a fan roller beneath them, pivoted adjustable deflecting blades upon either side of the said fan roller and beneath the said feed rollers, a pair of cleaning rollers beneath the said fan roller, and other pivoted adjustable deflecting blades arranged beneath the said cleaning rollers, the positions to which the said deflecting blades are adjusted determining the proportionate amount of material fed to the said sets of ginning members.

3. In a cotton gin, the combination with two sets of ginning members arranged side by side and spaced apart so that there is a passage between them the said passage extending downwardly beneath them, and other ginning members arranged in the downwardly extending portion of the said passage, of feeding means therefor, and means for varying the proportionate quantity of the material fed to the said sets of ginning members.

4. In a cotton gin, the combination with two sets of ginning members arranged side by side and spaced apart so that there is a passage between them, the said passage extending downwardly beneath them, and other ginning members arranged in the downwardly extending portion of the said passage, of feeding means therefor, and adjustable deflecting blades for controlling the delivery of the material fed, to vary the proportionate quantity of the material fed to the said sets of ginning members.

5. In a cotton gin, the combination with two sets of ginning members arranged side by side and spaced apart so that there is a passage between them, the said passage extending downwardly beneath them, and other ginning members arranged in the downwardly extending portion of the said passage, of feeding rollers, adjustable deflecting blades beneath them, cleaning rollers beneath the said deflecting blades and to which the material is delivered from the deflecting blades, and other adjustable deflecting blades located beneath the said cleaning rollers for receiving material therefrom, the material being delivered from the said deflecting blades to the said sets of ginning members, the positions to which the said deflecting blades are adjusted determining the proportionate amount of material fed to the said set of ginning members.

6. In a cotton gin, the combination with two sets of ginning members arranged side by side and spaced apart so that there is a passage between them, the said passage extending downwardly beneath them, and other ginning members arranged in the downwardly extending portion of the said passage, of feeding rollers, a fan roller beneath them, pivoted adjustable deflecting blades upon either side of the said fan roller and beneath the said feed rollers, a pair of cleaning rollers beneath the said fan roller, and other pivoted adjustable deflecting blades arranged beneath the said cleaning rollers, the positions to which the said deflecting blades are adjusted determining the proportionate amount of material fed to the said sets of ginning members.

7. In a cotton gin, the combination with two sets of ginning members arranged side by side and spaced apart so that there is a passage between them, the said passage extending downwardly beneath them, each set comprising a ginning roller and a stripping element, and other ginning members arranged in the downwardly extending portion of the said passage, the said other ginning members comprising two ginning rollers and a common stripping element arranged between them, of feeding means therefor, and means for varying the proportionate quantity of the material fed to the said sets of ginning members.

8. In a cotton gin, the combination with two sets of ginning members arranged side by side and spaced apart so that there is a

passage between them, the said passage extending downwardly beneath them, each set comprising a ginning roller and a stripping element, and other ginning members arranged in the downwardly extending portion of the said passage, the said other ginning members comprising two ginning rollers and a common stripping element arranged between them, of feeding means therefor, and adjustable deflecting blades for controlling the delivery of the material fed, to vary the proportionate quantity of the material fed to the said sets of ginning members.

9. In a cotton gin, the combination with two sets of ginning members arranged side by side and spaced apart so that there is a passage between them, the said passage extending downwardly beneath them, each set comprising a ginning roller and a stripping element, and other ginning members arranged in the downwardly extending portion of the said passage, the said other ginning members comprising two ginning rollers and a common stripping element arranged between them, of feeding rollers adjustable deflecting blades beneath them, cleaning rollers beneath the said deflecting blades and to which the material is delivered from the deflecting blades, and other adjustable deflecting blades located beneath the said cleaning rollers, for receiving material therefrom, the material being delivered from the said deflecting blades to the said sets of ginning members, the positions to which the said deflecting blades are adjusted determining the proportionate amount of material fed to the said sets of ginning members.

10. In a cotton gin, the combination with two sets of ginning members arranged side by side and spaced apart so that there is a passage between them, the said passage extending downwardly beneath them, each set comprising a ginning roller and a stripping element, and other ginning members arranged in the downwardly extending portion of the said passage, the said other ginning members comprising two ginning rollers and a common stripping element arranged between them, of feeding rollers, a fan roller beneath them, pivoted adjustable deflecting blades upon either side of the said fan roller and beneath the said feed rollers, a pair of cleaning rollers beneath the said fan roller, and other pivoted adjustable deflecting blades arranged beneath the said cleaning rollers, the positions to which the said deflecting blades are adjusted determining the proportionate amount of material fed to the said sets of ginning members.

11. In a cotton gin, the combination with two sets of ginning members each comprising a ginning roller and a rotary stripper, the said rotary strippers being arranged side by side but with a space between them to form an open passageway, the said passageway having a downwardly extending portion, of other ginning members comprising another rotary stripper arranged in the downwardly extending portion of the said open passageway, and a pair of ginning rollers arranged upon opposite sides of the last said stripper, whereby material rejected by either of the first said sets of ginning members will be delivered by their strippers through the said passageway to the ginning members beneath them.

12. In a cotton gin, the combination with two sets of ginning members each comprising a ginning roller and a rotary stripper, the said rotary strippers being arranged side by side but with a space between them to form an open passageway, the said passageway having a downwardly extending portion, of other each ginning members comprising another rotary stripper arranged in the downwardly extending portion of the said open passageway, a pair of ginning rollers arranged upon opposite sides of the last said stripper, whereby material rejected by either of the first said sets of ginning members will be delivered by their strippers through the said passageway to the ginning members beneath them, feeding means arranged above the upper said sets of ginning members, and means for varying the proportionate quantity of the material fed thereby to the several said sets of ginning members.

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