

Patented June 4, 1912.

4 SHEETS—SHEET 1.

1,028,772.

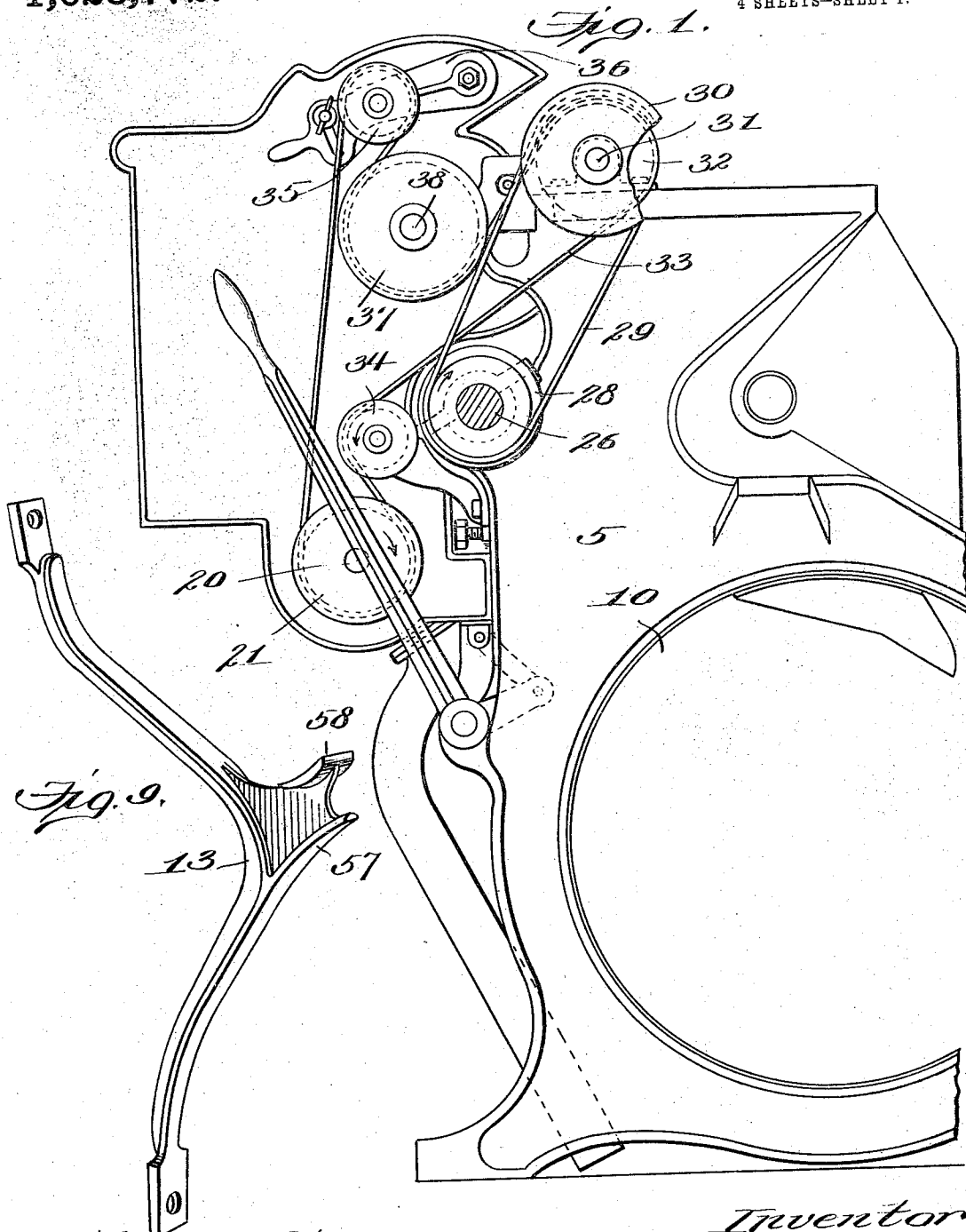


Fig. 9.

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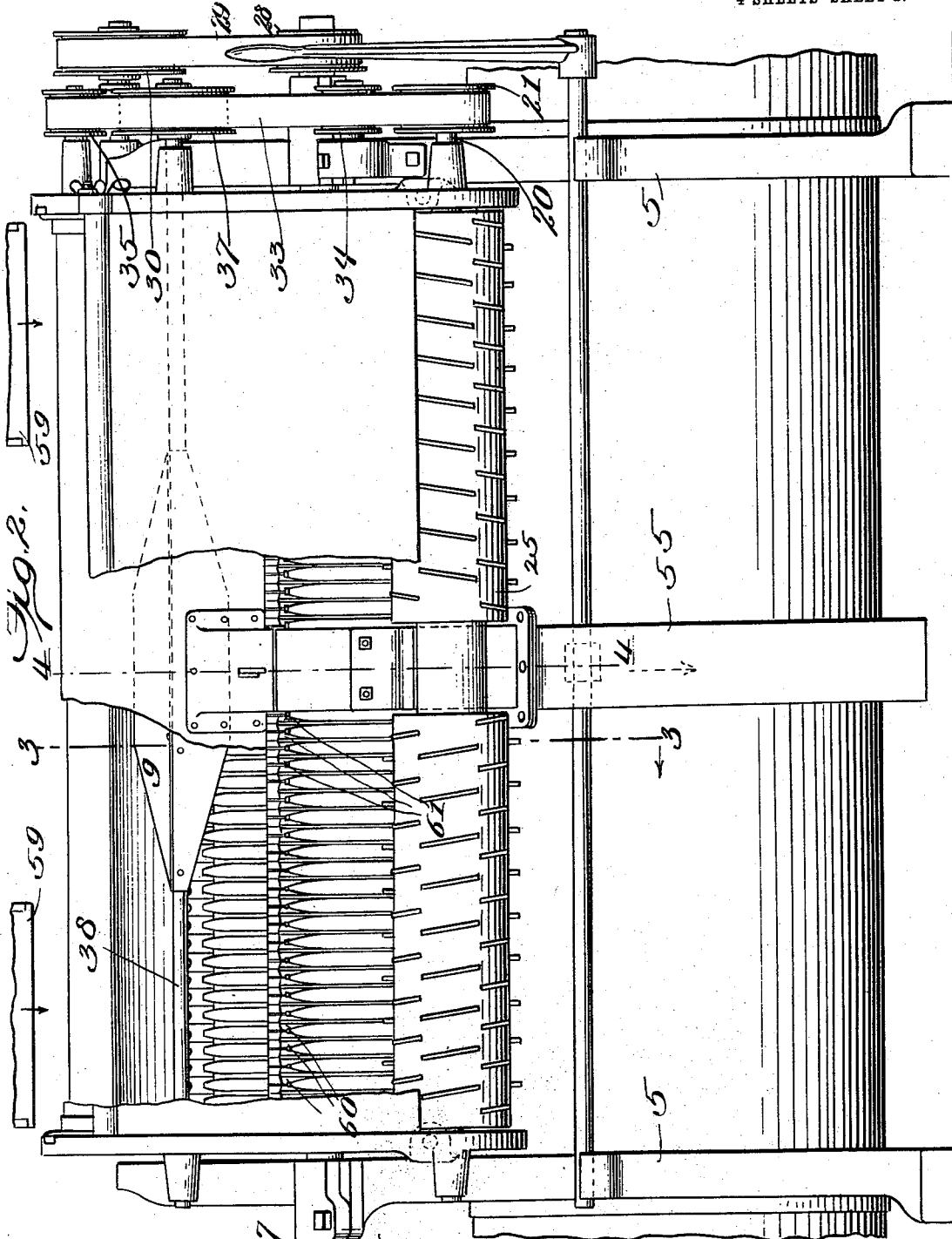
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HULLER GIN.
APPLICATION FILED JAN. 7, 1911.

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4 SHEETS-SHEET 2.

1,028,772.

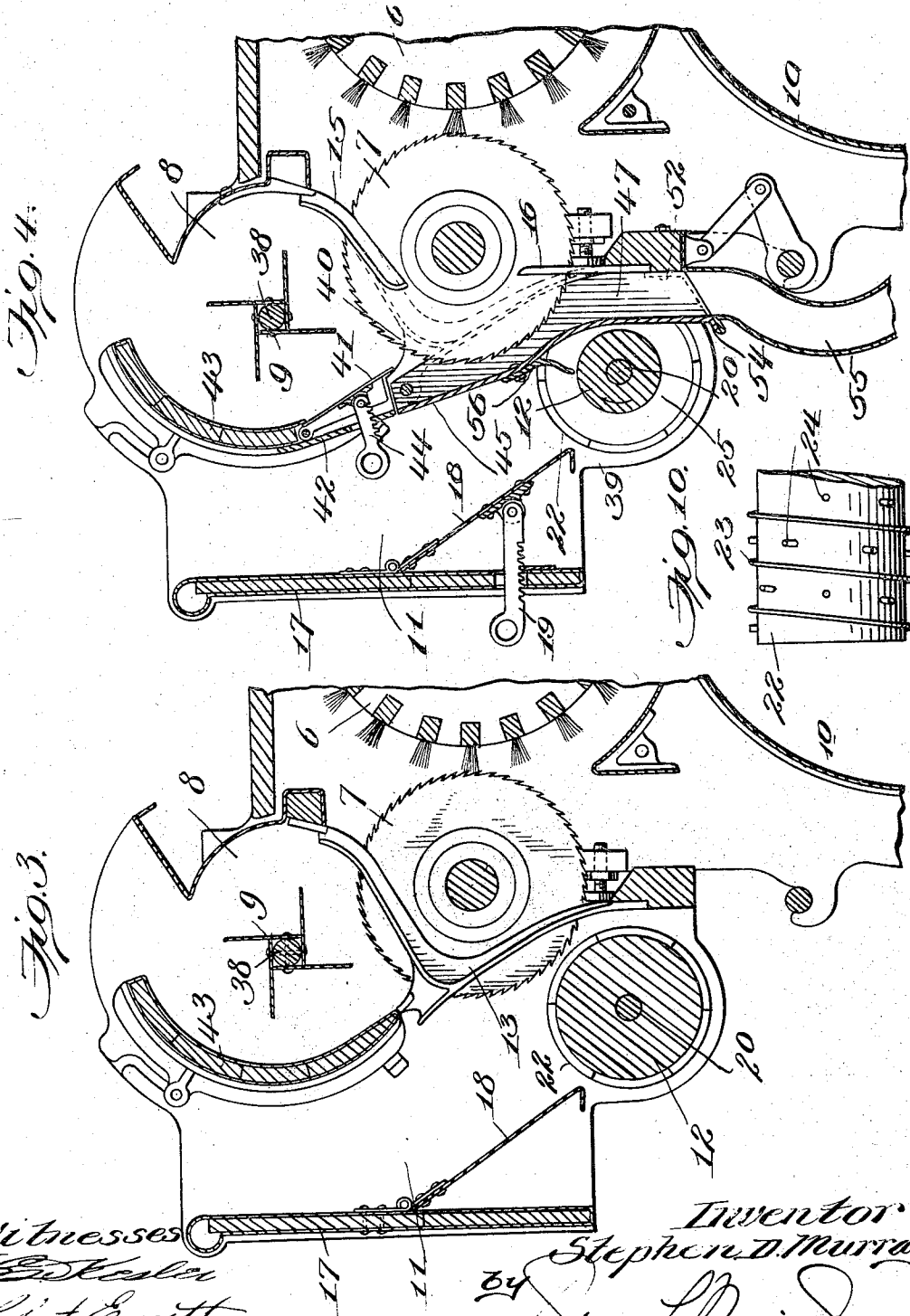


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4 SHEETS-SHEET 4.

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Fig. 6.

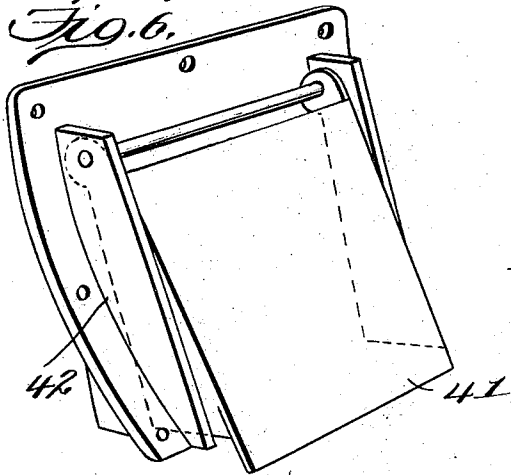


Fig. 5.

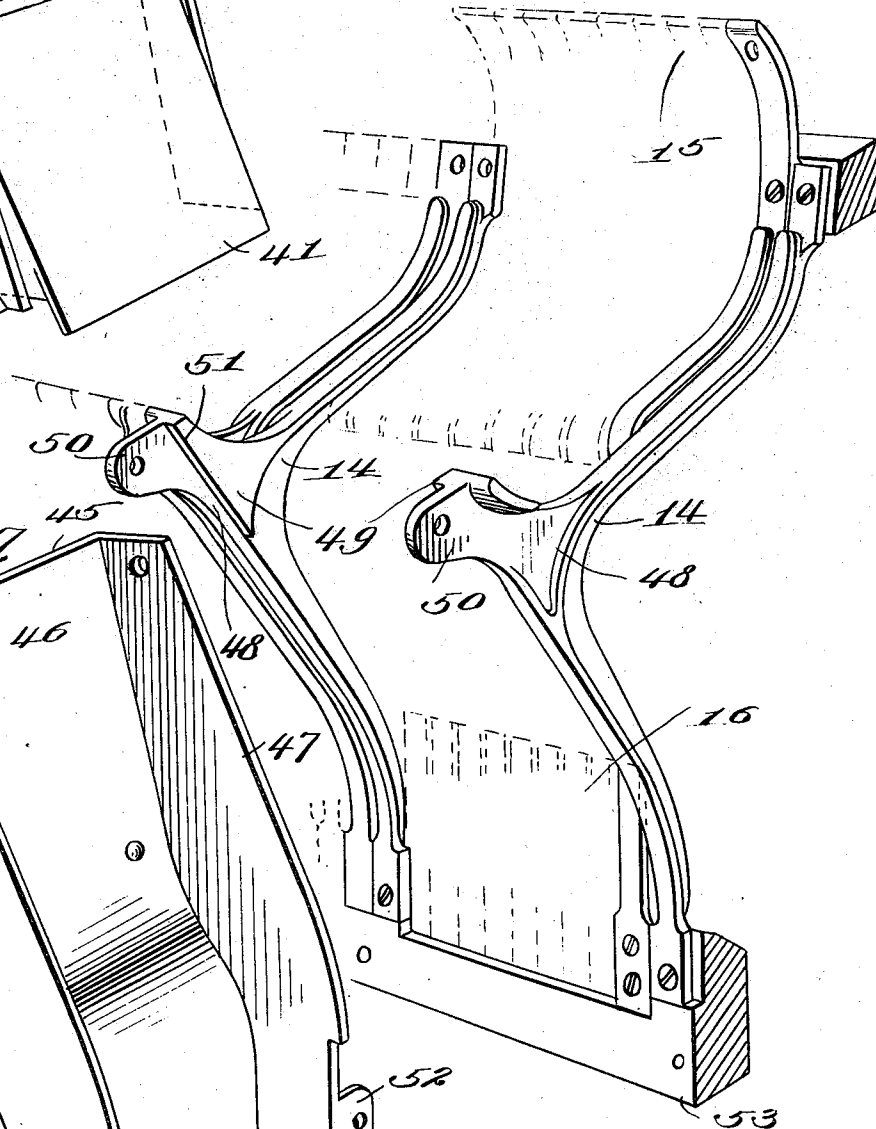


Fig. 7.

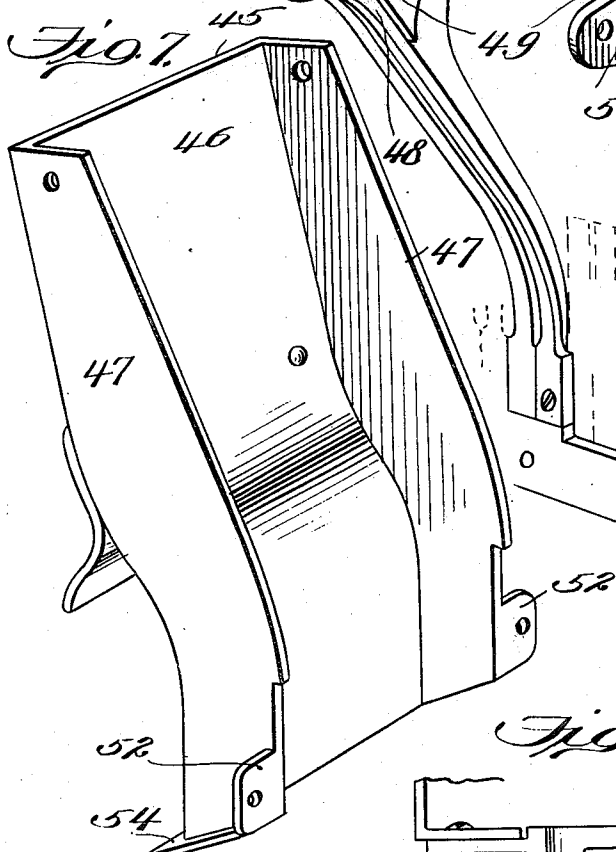
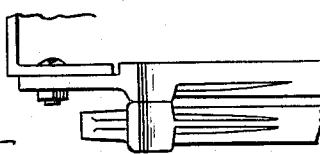


Fig. 8.



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UNITED STATES PATENT OFFICE.

STEPHEN D. MURRAY, OF DALLAS, TEXAS.

HULLER-GIN.

1,028,772.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed January 7, 1911. Serial No. 601,318.

To all whom it may concern:

Be it known that I, STEPHEN D. MURRAY, a citizen of the United States, residing at Dallas, in the county of Dallas and State of Texas, have invented new and useful Improvements in Huller-Gins, of which the following is a specification.

This invention relates to improvements in huller gins, and one object of the same is to provide a machine of this class wherein the material is more effectively and expeditiously ginned with less waste.

A further object of the invention is to provide a huller gin having a continuous operation and wherein the necessity of dumping is avoided.

The essential feature of this improved gin is the provision of means for moving the material to be ginned longitudinally of the hulling chamber toward an enlarged exit or outlet, which in the present instance is located at the center of the machine, and whereby the residuum or hulls eliminated from the cotton which would otherwise accumulate and clog in the hulling chamber are fully relieved from the said chamber without requiring manual attention.

The invention further contemplates the construction, arrangement and combination of mechanical elements and devices contributing to the performance of the ginning operation and which will be more fully hereinafter described and claimed in preferred form.

In the drawings: Figure 1 is an end elevation of a huller gin embodying the features of the invention and particularly illustrating the means for operating a portion of the ginning devices. Fig. 2 is a side elevation of the machine partially broken away to illustrate the interior structure and showing the feeding means for the gin also broken away. Fig. 3 is a transverse vertical section on the line 3—3, Fig. 2. Fig. 4 is a transverse vertical section on the line 4—4, Fig. 2. Fig. 5 is a sectional perspective of central portions of the gin. Fig. 6 is a detail perspective view of the seed outlet regulator or valve and its supporting frame. Fig. 7 is a detailed perspective view of the seed chute. Fig. 8 is a detail plan view, partially broken away, of a portion of the ribs and the seed chute and particularly

illustrating the end wall assemblage of the chute with one of the ribs and the relative position of the next adjacent rib. Fig. 9 is a detail perspective view of one of the ribs used at a point away from the central portion of the gin. Fig. 10 is a detail view of a portion of the huller roller showing a modification.

The numeral 5 designates the end legs which are of a contour adapted to receive and support the working parts or ginning devices as well as the hulling chamber and roll box and connected by any suitable means to render the gin organization stable as well as strong and durable. The improved gin also includes a brush cylinder 6, a saw cylinder 7, and a roll box 8 having a roll impeller 9 therein, the brush cylinder cooperating with the saw cylinder in the usual manner and operating to direct the lint cotton into a tube or flue 10. In front or advance of the saw cylinder 7 and roll box 8 is a hulling chamber 11 provided with a huller roller 12 in its lower portion in operative adjacency to the saw cylinder 7. Between the roll box 8 and the rear lower portion of the hulling chamber 11 and in operative relation to the saws of the saw cylinder 7 is a plurality of ribs 13, 14 and 15, the ribs 13 extending from the opposite extremities of the gin inwardly toward the center to the ribs 14 and the ribs 15 disposed between the said ribs 14 in a manner and for a purpose which will be more fully hereinafter explained. The ribs 13 and 14 are essentially similar in construction, but the ribs 15 differ materially from the ribs 13 and 14. Below the ribs 15 and also located between the lower extremities of the ribs 14 are guards 16 which have an upright disposition and cooperate with the seed exit or outlet, as will also be more fully hereinafter specified. The front wall 17 of the hulling chamber 11 is suitably pivoted at its upper extremity to permit it to be swung out of the way or opened in the ordinary way, and to the inner portion of the said wall a lambrequin 18 is adjustably attached and operative in the usual manner through the said wall 17, as for instance by a latch 19.

The huller roller 12 is mounted upon or fixed to a shaft 20 having suitable bearing

in the opposite ends or heads of the hulling chamber and provided on one end with a band wheel or pulley 21. This huller roller 12 may be provided with either broken spiral flights 22 or, as shown by Fig. 10, with a continuous spiral flight 23 having spikes or pins 24 standing outwardly therefrom at intervals around the circumference of the roller. It should be understood that when the spiral flight or flange of the huller roller is arranged in a continuous unbroken spiral, it will not be thoroughly effective as a means for causing a rotary movement of the material. So arranged, the spiral would be somewhat disposed to cut through the material and while being thoroughly effective in moving the material lengthwise along the hulling chamber it would lack thoroughness and effectiveness in moving the material toward the saws and imparting thereto a rotary movement under maximum feed conditions, and, therefore, when the spiral device 23 is fixed to the huller roller in a continuous unbroken form, as shown by Fig. 10, the spikes or pins 24 are necessary to secure effective rotary movement of the material for moving it against the saw teeth. If the spiral flights or flanges are fixed to the huller roller in separated sections as at 22, as shown by Figs. 2 and 3, then the spikes or pins will not be necessary as the cut, broken or separated spiral sections will be thoroughly efficient in imparting a rotary as well as a longitudinal movement to the material in the hulling chamber. The roller 12 extends full length of the hulling chamber and at its central portion is circumferentially reduced as at 25, see Figs. 2 and 4. The huller roller 12 has a portion thereof always running in close relation to the lower forward portion of the saws of the saw cylinder 7, the said saws projecting forwardly between the lower portions of the ribs 13 and 14 and the guards 16 partially over the roller 12, and said saws also extend upwardly between the upper portions of the ribs 13, 14 and 15 into the roll box 8. The saw cylinder shaft 26 is provided at one end with a band wheel 27 to which power is transmitted from any suitable source for driving said shaft, and on the opposite extremity of the shaft is a transmitting pulley 28 having a belt 29 trained thereover and also over a receiving pulley 30 held on a shaft 31 at the upper part of the machine for controlling the direction of movement of the remaining parts and also provided with a transmitting pulley 32 over which is trained a belt 33 extending downwardly and passed over a portion of a fixed idler 34 and thence around the pulley 21 on the huller roller shaft 20 and from the latter extending upwardly over an idler 35 forming part of a belt tightener 36, and then down and around a pulley

37 on the one end of the impelling shaft 38, and from said pulley 37 the belt 33 returns to the pulley 32. By means of the mechanism just described it will be readily seen that the several moving parts of the gin are effectively operated and given a proper direction of rotation.

The outlet opening 39 of the hulling chamber is provided between the centrally reduced portion 25 of the huller roller 12 and the adjacent lower edge of the lambrequin 18, said opening being large enough to permit free escape of the residuum or hulls at the center of the said hulling chamber. The seed outlet 40 of the ginning roll box is in the bottom at the center of the latter and is formed between the short ribs 15 and adjustable lambrequin or valve 41 mounted in a frame 42 secured to the lower part of the breast 43 and having an adjusting latch 44 accessible through the open top portion of the hulling chamber 11. The lower ends of the ribs 15 are curved so as to facilitate the outlet of the seed. Directly under the frame 42 and below the lambrequin or valve 41 a chute 45, shown in detail by Fig. 7, is applied between the ribs 14, which may be termed sustaining ribs. The chute 45 has a closed front portion 46 and sides 47, the said chute being provided with a longitudinal contour to render it efficient as a downwardly directing means for the seed through the reduced central portion 25 of the huller roller 12. The inner opposing sides of the ribs 14 at the points of location of the hulling extensions 48 are provided with bracket portions 49 having outwardly projecting attaching ears 50 and elongated bearing edges 51. Between the extensions 48 and engaging the brackets 49 the upper extremity of the chute 45 is inserted and secured to the said ears 50, the lower end of the chute having laterally projecting ears 52 which are secured to the lower rib rail 53. The lower end of the chute 45 also has a downwardly inclined flange 54 to which and the lower edge of the rail 53 a suitable tube or outlet conduit 55 is secured.

At an intermediate point the wall 46 has a casting 56 secured thereto and serving as an apron which projects downwardly into the intermediate reduced portion 25 of the huller roller 12 and prevents the hulls or escaping material from accumulating between the lower portion of the wall 46 of the chute and the adjacent portion of the inner circumferential wall of the reduced portion of the roller 12. The upper terminals of the guards 16 stand approximately in vertical alinement with the lower terminals of the ribs 15 and prevent the seed falling through the opening 40 and striking the portion of the wall 46 opposite the said guards from being thrown rearwardly out of the confines of the chute and thereby

obviate loss of the seed between the saws. It will be understood, therefore, that the difference between the ribs 13, 14 and 15 is that the ribs 14 are particularly constructed to support and hold the chute 45 and the ribs 15 are shortened to form the bottom outlet or seed escape opening 40 for the ginning roll box. Each of the ribs 13 and 14, however, has an upwardly and forwardly projecting hull deflecting edge 57 which extends beyond the maximum projection of the saws of the saw cylinder, and above the said edges the intermediate portions of the ribs are laterally extended or formed with small integral plates or tables 58 which lie in close relation when the several ribs are assembled to obviate lateral movement of the intermediate extended portions of the ribs.

As shown by Fig. 2, the hulling chamber 11 is provided with suitable feeding means 59 adjacent to opposite extremities and the machine, as will be more fully hereinafter described, moves the material as acted upon toward the center of the gin so as to freely and quickly liberate the larger hulls or residuum through the opening 39, and at the same time permit the saws to effectively remove all of the cotton which may be mixed or in transit with the hulls before the latter reach the central outlet opening or discharge. Smaller portions of hulls may also freely escape between the saws in the well known way, or along the huller roller in front and rear thereof.

The ribs at the opposite extremities of the hulling chamber have openings 60 there-through in the regions of the hulling extensions 48 of greater width than the corresponding openings 61 between the ribs adjacent to the center of the chamber to permit the cotton to rapidly pass from the hulling chamber to the roll box to obtain a maximum intake capacity immediately under the feed means 59. Near the center of the hulling chamber adjacent to the outlet there is but little cotton left among the hulls and consequently the openings 61 are not as wide as the openings 60.

In operation the hully cotton is fed into the hulling chamber 11 and falls or gravitates upon the huller roller 12 and is thrown up by the latter against the saws of the cylinder 7, the said saws picking up the cotton as it is thrown thereagainst and pulling the same through the ribs into the ginning roll box 8, the hulls when thrown up being intercepted by the adjacent edges of the ribs and deflected and thrown over by the upper edge portions 57 and then again brought back or thrown up into contact with the saws, and at the same time, by the action of the spiral flights 22, they are moved longitudinally through the hulling chamber toward the central outlet or discharge 39. The mass of hully cotton or of

the shells entering and remaining in the hulling chamber until discharged is not only fed lengthwise through the said chamber toward the central discharge opening, but also at the same time given a rotary movement, thereby permitting the saws to effectively remove the cotton from the hulls during the transit or feed of the latter toward the said outlet or discharge opening. The rotary movement is given to the material within the hulling chamber by the cooperative action of the huller roller 12 and the saws of the saw cylinder, and longitudinal movement is imparted to said material by the spiral device or devices on the huller roller. During this operation the smaller portions of hulls will escape from the hulling chamber in the usual manner, whereas the hulls and foreign bodies too large to escape by the usual outlet means are moved toward and liberated through the central outlet or discharge opening 39. The seed cotton carried up into the ginning roll box 8 is subjected to the usual ginning operation to separate the seed and thoroughly clean the latter or free the same of lint, and the lint cotton is thence taken by the brush cylinder 6 from the saws of the saw cylinder in the ordinary way.

It will be understood that the movement of the material longitudinally of the hulling chamber as well as the rotary movement imparted thereto and a continual throwing upward of the material against the saws result in a practical removal of the seed cotton from the said material prior to the discharge of the latter through the outlet opening 39. It will also be understood that the movement of the material lengthwise of the hulling chamber ensues similarly from opposite ends thereof toward the intermediate or central discharge opening or outlet 39. The gin is also effectively operative, as hereinbefore indicated, without requiring manual attention to avoid choking or to rectify undue accumulation of hulls. When the seed reaches the center of the ginning roll box 8 it is prevented from becoming inert by the impeller 9 which is disposed above the outlet or discharge opening 40 on the center of the impeller shaft 38, and that portion of the cotton which also moves toward the center of the ginning roll box is thrown out toward the saws and its rotary movement maintained together with the seed at a point where it might otherwise fail to have the necessary rotation imparted thereto. By this means the ginning operation is effective throughout the whole length of the roll box and the seed will be discharged in a clean condition.

What is claimed as new is:

1. In a huller gin, a hulling chamber having an enlarged outlet provided in the body of the same intermediate of its ends in ad-

dition to the ordinary outlet means along the bottom thereof, means in the said chamber for moving material therein in opposite directions toward said outlet, and cotton ginning devices including a roll box cooperating with the said chamber.

2. In a huller gin, a hulling chamber having a centrally disposed enlarged outlet therein in addition to the ordinary outlet means along the bottom thereof, means for moving material in the chamber from opposite extremities of the chamber toward said enlarged outlet, and ginning devices cooperating with the chamber.

3. In a huller gin, a hulling chamber provided with an enlarged outlet therein in addition to the ordinary outlet means along the bottom thereof, means for moving material in the hulling chamber in opposite directions toward said enlarged outlet, and means for removing the seed cotton from the hulling chamber.

4. In a huller gin, a hulling chamber having an enlarged outlet located between the ends of the same and in addition to the ordinary outlet means along the bottom thereof, means for feeding material into opposite extremities of said chamber, means in the chamber for moving the material therein toward the said enlarged outlet, and ginning devices cooperating with the chamber.

5. In a huller gin, a hulling chamber provided with an enlarged outlet between the ends thereof and in addition to the ordinary outlet means at the bottom thereof, ginning saws cooperating with said chamber, and means in the hulling chamber cooperating with the saws for throwing the material in the chamber against the saws and also moving the material lengthwise of the chamber along the saws toward the said enlarged outlet.

6. In a huller gin, a hulling chamber having an enlarged outlet between the ends thereof and in addition to the ordinary outlet means along the bottom thereof, means for moving the material in the chamber toward the said enlarged outlet, a ginning roll box also having an intermediate enlarged outlet for seed and foreign matter, and a set of ginning devices cooperating with both the chamber and roll box.

7. In a huller gin, a hulling chamber having an enlarged outlet between the ends thereof and in addition to the ordinary outlet means along the bottom thereof, a roller in the chamber provided with means for moving material in the chamber toward the said enlarged outlet and also having the central portion thereof reduced to form said enlarged outlet, and ginning devices cooperating with the chamber.

8. In a huller gin, a hulling chamber having an enlarged outlet between the ends of the same and in addition to the ordinary

outlet means along the bottom thereof, and a roller in the chamber provided with means for moving the material in the chamber toward the said enlarged outlet and having an intermediate diametrically reduced portion forming in the main said enlarged outlet.

9. In a huller gin, a hulling chamber having a roller of a uniform diameter throughout its length except at a certain point where a portion thereof is removed to provide an enlarged outlet for the chamber.

10. In a huller gin, the combination with a hulling chamber, of a huller roller therein having a portion thereof diametrically reduced and cooperating with an adjacent part of the chamber to form an enlarged outlet for the chamber, the remaining portion of the roller being of uniform diameter.

11. In a huller gin, the combination with a hulling chamber, of a huller roller disposed in the chamber and provided with a diametrically reduced portion to form an enlarged outlet for the chamber and also provided with means for moving material in the chamber longitudinally of the latter, the remaining portion of the roller being of uniform diameter.

12. In a huller gin, the combination with a hulling chamber, of a huller roller disposed in the chamber and provided with a diametrically reduced portion to form an enlarged outlet for the chamber and also provided with means for moving material in the chamber longitudinally of the latter and also with means for assisting in the rotation of the said material, the remaining portion of the roller at opposite points relatively to the reduced portion being of uniform diameter, and ginning devices cooperating with the chamber and roller.

13. In a gin, a roll box having an enlarged discharge opening between its opposite ends, and a chute or conduit for conducting the discharged material away from the said enlarged opening.

14. In a huller gin, a hulling chamber, a ginning roll box provided with an enlarged seed discharge opening between its ends and in addition to the ordinary seed outlet means, ginning devices cooperating with the chamber and roll box, and a conduit for conducting the seed from the said opening, the conduit extending through the chamber.

15. In a gin, a roll box having an enlarged discharge opening for seed therein between its ends and in addition to the ordinary seed outlet means, the material ginned being moved in opposite directions toward said opening, and a roll impeller disposed in the roll box in operative relation to said opening.

16. In a huller gin, a hulling chamber provided with an enlarged outlet therein at a point between the ends thereof in addition

to the ordinary outlet means along the bottom of the chamber, means for moving material in the hulling chamber in opposite directions toward said enlarged outlet, and E saws coöperating with said means for moving the material in the hulling chamber for removing the seed cotton from the latter.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

STEPHEN D. MURRAY.

Witnesses:

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